U.S. Supreme Court

O'Reilly v. Morse, 56 U.S. 15 How. 62 62 (1853)

O'Reilly v. Morse

56 U.S. (15 How.) 62

APPEAL FROM THE CIRCUIT COURT OF THE

UNITED STATES FOR THE DISTRICT OF KENTUCKY

Syllabus

Morse was the first and original inventor of the electro-magnetic telegraph, for which a patent was issued to him in 1840 and reissued in 1848.

His invention was prior to that of Steinhiel of Munich or Wheatstone or Davy of England.

Their respective dates compared.

But even if one of these European inventors had preceded him for a short time, this circumstance would not have invalidated his patent. A previous discovery in a foreign country does not render a patent void, unless such discovery or some substantial part of it had been before patented or described in a printed publication. And these inventions are not shown to have been so.

Besides, there is a substantial and essential difference between Morse's and theirs, that of Morse being decidedly superior.

An inventor does not lose his right to a patent because he has made inquiries or sought information from other persons. If a combination of different elements be used, the inventors may confer with men as well as consult books to obtain this various knowledge.

There is nothing in the additional specifications in the reissued patent of 1848, inconsistent with those of the patent of 1840.

The first seven inventions, set forth in the specifications of his claims, are not subject to exception. The eighth is too broad and covers too much ground. It is this.

"I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims; the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electromagnetism, however developed, for making or printing intelligible characters,

signs or letters at any distances, being a new application of that power, of which I claim to be the first inventor or discoverer."

The case of *Neilson v. Harford* in the English Exchequer Reports

examined, and also the American decisions. The acts of Congress do not justify a claim so extensive.

But although the patent is illegal and void so far as respects the eighth claim, yet the patentee is within the act of Congress, which gives him a right to disclaim, and thus save the portion to which he is entitled. No disclaimer having been entered before the institution of this suit, the patentee is not entitled to costs.

In 1846, Morse obtained a second patent for the local circuits, which was reissued in 1848. It is no objection to this patent that it was embraced in the eighth claim of the former one, because that eighth claim was void. Nor is it an objection to it that it was an improvement upon the former patent, because a patentee has a right to improve his own invention.

This new patent, and its reissue were properly issued. The improvement was new and not embraced in the former specification.

These two patents of 1848, being good with the exception of the eighth claim, are substantially infringed upon by O'Reilly's telegraph, which uses the same means both upon the main line, and upon the local circuits.

MR. JUSTICE CURTIS, having been of counsel, did not sit in this cause.

It is difficult to make a fair report of this case without writing a book. The arguments of counsel would fill a volume by themselves.

The history of the case was drawn up by the learned judge, who presides over the District Court of the United States in Kentucky, and whose decree was under review. Permission has been given by Judge Monroe that the reporter may use his statement as preliminary to this report, and he avails himself with pleasure of this kindness; because, although the narrative is occasionally interspersed with the opinions which induced the judge to decree an injunction in favor of Morse yet the history is given with great precision and clearness.

The following statement is extracted from the opinion of Judge Monroe:

The complainants, in their bill, allege that Samuel F. B. Morse, one of them, was the true and original inventor of the Electro-Magnetic Telegraph, worked by the motive power of electro-magnetism, and of the several improvements thereon, by which

intelligence which is in one place is transmitted to other distant places, and that by the letters patent of the United States, duly issued to him, Samuel F. B. Morse, and by his partial assignments to F. O. J. Smith and Alfred Vail, the other complainants, they together are lawfully invested with the exclusive right of constructing and employing such telegraph for such purpose, throughout the United States, for the terms in the letters patent mentioned, and which have not yet expired, and they exhibit the letters patent.

They show that the practicability and great utility of the invention

was fully established by the telegraph constructed under the superintendence of Morse, by means of an appropriation made by the Congress of the United States for the purpose, and put in operation between the Cities of Washington and Baltimore in the year 1844.

That afterwards there had been constructed, by the agency and means of joint stock companies, promoted by the complainant, and operating under contracts and license of the patentee, Morse and his assignees, telegraphs along lines, amounting, in the aggregate, to upwards of four thousand five hundred miles, whereby telegraphic communication was established between the principal cites of the United States, from New Orleans to Boston; and that there were now in progress of construction, numerous additional and other lines, under contracts with them, for more widely extending the benefits of the invention, and they believe that if they are protected in the lawful use of their rights, every section of the United States will, in a short time, have the benefits of their improvements in telegraphic correspondence.

They represent that, in all the lines of telegraphic communication now in successful operation in the United States in transmitting intelligence by means of electro-magnetism, the improvement of S. F. B. Morse, or the chief and essential principles and parts thereof, are employed.

They show that they had caused to be established, a line of telegraphic communication from Louisville, by way of Frankfort and Lexington, to Maysville, Kentucky, which was in successful operation.

They represent that they had caused to be constructed, lines of posts and wires from Louisville in the District of Kentucky, by way of Bardstown, Glasgow, and Scottsville, in Kentucky, and thence by way of Gallatin to Nashville, in the district of Tennessee, for the transmission of intelligence, by means of their improved telegraph, and that they had expended great sums of money therein; and that this line is in the extension to New Orleans, State of Louisiana; and is connected by another line, with Memphis, Tennessee; and that large sums of money will be expended in this work; and all the lines in a short time completed, and the assignments.

They represent that their rights have been repeatedly and explicitly acknowledged and admitted in divers ways and by individuals and large bodies of associated citizens in various sections of the United States; that these had treated with them for the purchase of their rights, or parts thereof, and of licenses to use their patented improvements; and that they had made extensive sales, or licenses, to use them to companies and individuals,

upon various lines, and amongst others, to the New York, Albany, and Buffalo line; the Washington and New York line; the New York and Boston line; the Washington and Petersburg line; the line from Petersburg to New Orleans, besides numerous shorter and side lines.

They state that they had been thus in the successful and uninterrupted exercise of the rights granted to them by the letters patent of the United States, and had been in nowise disturbed therein, until, by the operations of the defendant, O'Reilly, and the committing of the wrongs presently mentioned, by him and his co-defendants.

This defendant, O'Reilly, they state, had, as early as 1845, entered into a contract with the complainants, and another, then having an interest in the patent, whereby he, O'Reilly, acknowledged their right, and that he had afterwards, in various ways and for a long period of time, manifested his acquiescence in and admissions of the rights and privileges of them, the complainants, and even insisted on his right to the use of them himself, under his contract with them; that he had, under this contract and his claims under it, in fact, used and employed the improved telegraph of the complainants, and persisted in such, his claim, to employ it on all the lines embraced by his contract, without questioning the validity of their patents. But,

They allege that this defendant, Henry O'Reilly, had, by himself, his agents and servants, constructed a line of posts and suspended metallic wires thereon, from the City of Louisville, in the District of Kentucky, by way of Bardstown, to Nashville, in the State of Tennessee, and well knowing all the facts by the complainants' set forth, he and his co-defendants had worked and employed upon said line, a telegraph substantially the same with the Electro-Magnetic Telegraph, invented by the complainant, Morse, and in his patents mentioned, against the will and without any authority from them, the complainants. They show that the terms of the contract, under which O'Reilly claimed their right to the use of the telegraph, on certain other lines where he employed it, did not extend to any country north of the Ohio River, and that there was no color for any claim by the defendants to the use thereof, within the District of Kentucky, or on any part of the lines by them lately constructed.

They represent especially that the defendants, in the operation and working of their line of telegraph, so by them constructed, used and employed instruments, apparatus, and means which are, in the material, substantial, and essential parts thereof, so upon the principle and plan of the said several improvements patented by the complainant,

Morse, or the plan and principle of some of said improvements, and not other or different. And

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They state, that by such means the defendants, their servants and agents, had been for the space of more than four months past, and were still, transmitting intelligence over said line for any person who desired the same, and for such service and been and are yet receiving compensation from the persons for whom the same is performed, all which they allege is in violation of the rights granted by the letters patent, or of some of the parts thereof.

They further represent that the defendant, O'Reilly, was extending the line from Nashville to New Orleans, and had extended it to Memphis, and was operating upon the last mentioned line to Memphis, in violation of the rights of them, the complainants, by the use of their patented improvements, or the principle and essential parts thereof, and that he had declared his intention of completing the other line from Louisville to New Orleans, and of then employing the same instruments as he was then using on the line from Louisville to Nashville.

They state that they are informed that the defendants sometimes give out in speeches, that the patents of the complainant, Morse, are void, and at other times, give out and pretend that the machinery and apparatus which they use for the transmission and the reception of the intelligence upon the said line, is a distinct and separate invention, which they, the complainants, are informed the defendants call the Columbian Telegraph:

Whereas the complainants charge that the patents are good and valid in law, and that the defendant, O'Reilly, by his contract with the patentee, and by his having exercised, and his persisting in his claim to exercise, under it, the exclusive privileges by the patents granted, is estopped from denying their validity. And,

That the said pretended new invention is, in its essential principles, identical with, and upon, the plan of the patented improvements of Morse, and that the use of the same is a violation and infringement of the patent issued to the complainant, Morse.

They allege that the defendants had received, and were then receiving, considerable sums of money for transmitting intelligence on the line from Louisville, within the District of Kentucky, in violation of the rights of the complainants, and they complain that the defendants had, by their unlawful operations, greatly disturbed them in the lawful exercise of their rights, so granted and held by them, and had caused a great diminution of the business of them, the complainants, on their line of telegraph, which they had caused to be constructed, and had now in operation within the District of Kentucky, and that the defendants refuse to desist from such violation of the complainants' rights. Wherefore,

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The complainants pray that the defendants, by an order, and the process of the court, may be enjoined from hereafter using or employing such telegraphs in the violation and infringement of the rights of them, the complainants, within the District of Kentucky; that they may be compelled to account for the money received by them in consideration of their unlawful operations and wrongful exercise of the rights, privileges, and property of the complainants; and that on due proceeding and final hearing, such order of injunction may be made final and effectual; and that the complainants may have such other relief as their case may require. And,

They propound numerous interrogatories, framed on all the material allegations of the bill, and pray that each defendant may be compelled to answer, on his oath, such as are for him designated, and, to this end, and that they may have the relief which shall be adjudged them, they pray the writ of subpoena.

Answer and Grounds of Defense

The defendants appeared by their counsel, and admitted that they had sufficient notice. O'Reilly read his answer to the complainants' bill.

The respondent admits the contract with the complainants, of 1845, stated in the bill, and seems to admit that he had used, under it, portions of the "machine or combinations" described in the patent to Mr. Morse, of 1840, but denies he had used others under this contract.

He says he was not scientific, and had not seen the patent until after the complainants had alleged he had forfeited his contract, and instituted a suit to have it vacated, and insists that he is not estopped to deny the validity of the patents.

He sets up no defense under this contract, and disclaiming any license from the complainants in respect to the line of telegraph in question, answers, that he believes, on grounds which he sets forth, that Mr. Morse is not the original and first inventor of the telegraph described in his patents, and insists that his patents are, on that ground, and upon their face, and for other causes he states, null and void.

He admits the construction and operation of the lines of telegraph in Kentucky and elsewhere by himself and others, but denying that the instruments employed on them are within the description of the complainants' patents, even on the supposition of their validity, denies the infringement.

But other grounds of defense, not presented by the answer, were assumed in the argument, and the matter of the answer will be more fully stated under the several heads of the whole defense. The defendants all united in opposition to the motion.

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The parties respectively read, without objection, a great mass of documentary proof, in support of their positions, and a model of the telegraph described in the letters patent, to Mr. Morse, and of the telegraph employed, and proposed, to be employed by the defendants, was exhibited and subjected to the application of the proofs, the explanation of the parties, and the inspection of the tribunal.

The grounds of defense presented by the answer of O'Reilly, and assumed on the proofs, will be comprehended under these heads of primary division:

I. The complainant, Morse, was not the true and original inventor of this telegraph.

II. The letters patent to him are null and void upon their face, and for other causes *dehors.*

III. The telegraph constructed and employed by them, the defendants, is substantially and in law, different from the telegraph described in the letters patent, to Morse, and of which he can lawfully claim the exclusive employment, and therefore, on the supposition of the validity of the patents to any extent, there has been no infringement.

IV. The case on the pleadings and proofs, is not one, whatever might be considered of it on a final hearing of the bill, which will justify an order for injunction presently.

These subjects in their order.

Is Mr. Morse the original inventor of this telegraph, and of the several improvements thereon described in his letters patent?

It is necessary that we now ascertain and settle, what is the thing which was invented; and to this end it will be most convenient to begin at its conception, and accompany it in its progress down to its present state of apparent maturity and completeness.

History of the Invention

Its conception is fixed by Mr. Morse himself in October, 1832, on board the packet ship *Sully* on her passage from Havre, France, to New York.

He says that he was by profession a historical painter, and had, in 1829, gone to Europe for perfecting himself in that art; that on his return home in October, 1832, there were among the passengers in the ship, the Hon. William C. Rives, Minister of the United States to the court of France, Dr. C. T. Jackson, James Fisher, Esq., of Philadelphia, William Constable, Esq., and other gentlemen of extensive reading and intelligence, and that soon after the voyage commenced, the then experiments and discoveries in relation to electro-magnetism, and the

affinity of electricity to magnetism, or their probable identity, became a subject of conversation.

In the course of this discussion, it occurred to him that by means of electricity, signs representing figures, letters, or words, might be legibly written down at any distance, and that the same effect might be produced by bringing the current in contact with paper saturated with some saline solution. These ideas took full possession of his mind, and during the residue of the voyage he occupied himself, in a great measure, in devising means of giving them practical effect.

Before he landed in the United States, he had conceived and drawn out in his sketch book, the form of an instrument for an electro-magnetic telegraph, and had arranged and noted down a system of signs composed of a combination of dots and spaces, which were to represent figures, and these were to indicate words to be found in a telegraphic dictionary, where each word was to have its number. He had also conceived and drawn out the mode of applying the electric or galvanic current, so as to mark signs by its chemical effects.

This is the account of the inventor himself; but it is supported by the testimony of disinterested witnesses.

Mr. Rives, under date of September 27, 1837, addressing himself to Mr. Morse, says:

"I remember perfectly, that you explained to me the idea of your ingenious instrument, during the voyage which we made together in the autumn of 1832. I also remember that during our many conversations on this subject, I suggested several difficulties to you, and that you obviated them with promptness and confidence."

Captain Pell, the commander of the ship, says, on the same day, addressing himself to Mr. Morse.

"When I examined your instrument a few days since, I recognized in it the same mechanical principles and arrangements which I had heard you explain on board of my vessel in 1832."

And,

It appears by the depositions of two brothers of Mr. Morse, that on their meeting him on board the ship, immediately she had moored at New York, the greeting had hardly passed between the three brothers, and before they had reached the house of one of them, which they immediately proceeded to from the ship, he announced to them his discovery, and told them that he had, during his voyage, made an important invention, which had occupied almost all his time on shipboard, one that would astonish the world, and of the success of which he was perfectly sanguine, and that he said this invention was a means of communicating intelligence by electricity, so that a

message could be written down in characters, in a permanent manner, at any distance, and he took from his pocket and showed them, in his sketch book, a representation of his invention.

And this was the invention in October, 1832.

Mr. Morse further says:

"Immediately after his landing in the United States, he communicated his invention to a number of his friends, and employed himself in preparations to prove its practicability and value, by actual experiment. To that end, he made a mould, and cast, at the house of his brother, in New York, before the commencement of the year 1833, a set of type, representing dots and spaces, intended to be used for the purpose of closing and breaking the circuit in his contemplated experiments."

And this statement is also supported by other testimony.

But he was unable to proceed, for the want of money, to purchase the materials for a galvanic battery and wire, and was compelled, for subsistence, to return to his pencil; and having been led, in pursuit of employment, from place to place, from 1832 to the latter part of 1835, he had no opportunity of making experiments of his invention. But, he affirms, he never lost faith in its practicability, or abandoned his intention of testing as soon as he could command the means.

"In 1835, he was appointed Professor in the New York City University, and about the month of November, in that year, occupied rooms in the University buildings. Here he immediately commenced, with very limited means, to experiment upon his invention."

"His first instrument was made up of an old picture or canvass frame fastened to a table; the wheels of an old wooden clock moved by a weight to carry the paper forward; three wooden drums, upon one of which the paper was wound and passed thence over the other two; a wooden pendulum suspended to the top piece of the picture or stretching frame, and vibrating across the paper as it passed over the center wooden drum; a pencil at the lower end of the pendulum in contact with the paper; an electro-magnet fastened to a shelf across the picture or stretching frame, opposite to an armature made fast to the pendulum; a type rule and type for closing and breaking the circuit, resting on an endless band, composed of carpet binding, which passed over two wooden rollers moved by a wooden crank, and carried forward by points projecting downwards into the carpet binding; a lever with a small weight on the upper side, and a tooth projecting downwards at one end, operated on by the type and a metallic fork, also projecting downwards, over two mercury cups; at the other end a galvanic battery of one

cup, and a short circuit of wire embracing the helices of the electro-magnet, connected with the positive and negative poles of the battery, and terminating in the mercury cups."

"When the instrument was at rest, the circuit was broken at the mercury cups. As soon as the first type in the type rule, put in motion by turning the wooden crank, came in contact with the tooth on the lever, it raised that end of the lever and depressed the other, bringing the prongs of the fork down into the mercury, thus closing the circuit. The current passing through the helices of the electro-magnet, caused the pendulum to move and the pencil to make an oblique mark upon the paper, which, in the meantime, had been put in motion over the wooden drum. The tooth in the lever falling into the space between the two first types, the circuit was broken, when the pendulum returned to its former position, the pencil making another mark as it returned across the paper. Thus as the lever was alternately raised and depressed by the points of the type, the pencil passed to and fro across the strip of paper, passing under it, making a mark resembling a succession of V's, the points only, of which however, were considered as telegraphic signs. The spaces between the types caused the pen to mark horizontal lines, long or short, in proportion to their own length."

"With this apparatus, made as it was, and completed before the first of the year 1836, he was enabled to mark down, intelligibly, telegraphic signs; and having arrived to that point, he exhibited it to some of his friends early in that year, and first of all, to Professor Leonard D. Gayle, who was a colleague Professor in the University."

"Here was an actual operation of the instrument, and a demonstration of its capacity to accomplish the end of the invention."

And,

This statement is fully supported by the affidavit of Dr. Gayle. He says:

"That in the month of January, in the year one thousand eight hundred and thirty-six, I was a colleague Professor in the University of the City of New York, with Professor Samuel F. B. Morse, who had rooms in the University buildings, on Washington Square, in said city. That during the said month of January, of the year aforesaid, the said Professor Morse invited me into his private room, in the said University, where I saw for the first time, certain apparatus, constituting his Electro-Magnetic Telegraph. The invention at that time consisted of the following pieces of apparatus."

Here the witness gives a full description of the apparatus and of its operation and of the result, and this result was the making of the permanent and legible record. And

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This was the state of the invention in January, 1836.

Thus far it had not been ascertained what was the limit of the magnetic power, and therefore it was not known on what length of wire it would be found of sufficient force to make the record, and there had been no means devised of extending the operation, further than the magnetic current of one battery would be effectual. But this matter had not escaped the attention of Mr. Morse, and he had been devising means for the supply of whatever defect might be found in this respect.

He says:

"Early in 1836, he procured forty feet of wire, and putting it in circuit, found that his battery of one cup was not sufficient to work his instrument. This result suggested to him the probability that the magnetism to be obtained from the electric current would diminish in proportion as the circuit was lengthened, so as to be insufficient for any practical purpose at great distances, and to remove that probable obstacle to his success, he conceived the idea of combining two or more circuits together, each with an independent battery, making use of the magnetism of the first to close and break the second; that of the second to close and break the third, and so on."

"His chief concern, therefore, in his subsequent experiments was to ascertain at what distance from the battery, sufficient magnetism could be obtained to vibrate a piece of metal to be used for that purpose, knowing that if he could obtain the least motion at the distance of eight or ten miles, the ultimate object was within his grasp."

A mode of communicating the impulse of one circuit to another analogous to the receiving magnet now in use, was matured early in the spring of 1837, and then exhibited to Professor Gayle, his confidential friend. And,

This statement is also fully confirmed by the statement of Dr. Gayle. He says:

"It was early a question between Professor Morse and myself, where was the limit of the magnetic power to move a lever? I expressed a doubt whether a lever could be moved by this power at the distance of 20 miles, and my settled conviction was that it could not be done with sufficient force to mark characters on paper at 100 miles distance. To this Professor Morse was accustomed to reply, 'If I can succeed in working a magnet ten miles, I can go around the globe.' The chief anxiety, at this stage of the invention, was to ascertain the utmost limits at which he, Morse, could work or move a lever by magnetic power. He often said to me, 'It matters not how delicate the movement may be, if I can obtain it at all, it is all I want.' Professor Morse often referred to the number of stations which might be required, and which he observed would

add to the complication and expense. The said Morse always expressed his confidence of success in propagating magnetic power through any distance of electric conductors which circumstances might render desirable. His plan was thus often explained to me: 'Suppose,' said Professor Morse,"

"that in experimenting on twenty miles of wire, we should find that the power of magnetism is so feeble that it will but move a lever with certainty a hair's breadth, that would be insufficient, it may be, to write or to print, yet it would be sufficient to close and break another, or a second circuit 20 miles further, and this second circuit could be made in the same manner, to close and break a third circuit, and so on around the globe."

"This general statement of the means to be resorted to, now embraced in what is called the Receiving Magnet, to render practical, writing or printing by telegraph, through long distances, was shown to me more in detail, early in the spring of the year 1837, one thousand eight hundred and thirty-seven, and I am enabled to approximate the date very nearly, from an accident that occurred to me, in falling on the ice formed of late snow in the spring of that year."

"The accident happened on the occasion of removing to Professor Morse's rooms in the New York University, some pieces of apparatus to prepare a temporary receiving magnet."

"The apparatus was arranged on a plan substantially as indicated in the drawings on sheet 2, accompanying this affidavit. 1 is a battery at one terminus of a line of conductors representing 20 miles in length, from one pole of which the conductor proceeds to the helix of an electro-magnet at the other terminus, the helix forming part of the conductor; from thence it returns to the battery, and terminating in a mercury cup o, from the contiguous mercury cup p, a wire proceeds to the other pole of the battery. When the fork of the lever c, unites the two cups of mercury, the circuit is complete, and the magnet b, is charged and attracts the armature of the lever d, which connects the circuit of battery 2 in the same manner, which again operates in turn lever c, twenty miles further, and so on."

"This I depose and say, was the plan then and there revealed and shown to me by the said Professor Morse, and which, so far as I know, has constituted an essential part of his Electro-Magnetic Telegraph from that date till the present time."

The diagram referred to by the witness, is attached to the deposition, and exhibits the combination of the circuits of electricity claimed by Mr. Morse, as a part of his invention. Their construction is fully described, and their operation having been witnessed by the deponent, is described in his deposition. And,

This was the state of the invention early in the spring of 1837.

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It fully appears that the completing of the invention had been retarded by the want of means by Mr. Morse. But in the spring of this year he appears to have been excited by the publication of an account of the invention of a telegraph by two French gentlemen, M. Gonon and Servel, which it was at first apprehended, from the terms of its

announcement, was no other than the Electro-Magnetic Telegraph; but which afterwards turned out to be only a form of the common telegraph formerly in use, and he consented to a notice being taken in one of the newspapers of New York, of his invention, and renewed and increased his exertions to perfect and demonstrate its great superiority and value.

He was assisted by his fellow Professor, Dr. Gayle, in trying experiments, and in consideration thereof, and of his further assistance in such work, he presented him an interest in the invention, and by the united work of the two, from April to September, they were enabled to exhibit it in an improved form.

In the latter part of August, Dr. Gayle states the operations of the instrument were shown to numerous visitors, in the University. And he continues:

"It was on Saturday, the second day of September, 1837, that Professor Dauberry, of the English Oxford University, being on a visit to this country, was invited, with a few friends, to see the operations of the Telegraph in its then rude form, in the Cabinet of the New York City University, where it then had been put up, with a circuit of 1,700 feet of copper wire, stretched back and forth in that long room. I well remember that Professor Dauberry, Professor Torrey, and Mr. Alfred Vail, were present among others. This exhibition of the Telegraph, although of very rude and imperfectly constructed machinery, demonstrated to all present, the practicability of the invention; and it resulted in enlisting the means, the skill, and the zeal of Mr. Alfred Vail, who early the next week called at the rooms and had a more perfect explanation from Professor Morse, of the character of the invention."

"The doubt to be dispelled in Mr. Vail's mind, as he then stated, and has since frequently stated, was, whether the power by magnetism could be propelled to such a distance as to be practically effective. This doubt was dissipated in a few minutes' conversation with Professor Morse; and I have ever been under the full conviction that it was the means then disclosed by Professor Morse to Mr. Vail, to-wit, the plan of repeating the power of magnetism at any distance required, which I have stated, that induced Mr. Alfred Vail and his brother, George Vail, at once to interest themselves in the invention, and to furnish Professor Morse with the means, material, and labor for an experiment on a larger scale."

And

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This was the state of the invention in September, 1837.

Mr. Morse accordingly proceeded to have constructed a new, larger, and more perfect instrument for exhibition on an application for a patent to Washington.

Caveat

In the meantime, on the ___ day of October, 1837, in order to protect his right to his invention, he filed his caveat in the Patent Office.

It is in these words:

"*To the Commissioner of Patents"*

"The petition of Samuel F. B. Morse, . . . represents:"

"That your petitioner has invented a new method of transmitting and recording intelligence by means of electro-magnetism, which he denominates The American Electro-Magnetic Telegraph, and which he verily believes has not been known or used prior to the invention thereof by your petitioner. Your petitioner further states that the machinery for a full, practical display of his new invention is not yet completed, and he therefore prays protection of his right till he shall have matured the machinery, and desires that a caveat for that purpose may be filed in the confidential archives of the Patent Office and preserved in secrecy according to the terms and conditions expressed in the act of Congress in that case made and provided, he having paid twenty dollars into the Treasury and complied with other provisions of the said act."

"New York, Sept. 28th, 1837"

These are the specifications annexed to the caveat:

"The nature of my invention consists in laying an electric or galvanic circuit or conductors of any length to any distance. These conductors may be made of any metal, such as copper or iron wire, or strips of copper or iron, or of cords or twine, or other substances, gilt, silvered, or covered with any metal leaf, properly insulated in the ground, or through or beneath the water, or through the air, and by causing the electric or galvanic current to pass through the circuit, by means of any generator of electricity, to make use of the visible signs of the presence of electricity in any part of the said circuit, to communicate any intelligence from one place to another."

"To make the said visible signs of electricity available for the purpose aforesaid, I have invented the following apparatus, namely: "

"First. A system of signs by which numbers, and consequently words and sentences, are signified. "

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"Second. A set of type adapted to regulate and communicate the signs, with cases for convenient keeping of the type, and rules in which to set up the type."

"Third. An apparatus called a Port Rule, for regulating the movement of the type rules, which rules, by means of the type, in their turn regulate the times and intervals of the passage of electricity."

"Fourth. A register, which records the signs permanently."

"Fifth. A dictionary or vocabulary of words, numbered and adapted to this system of telegraph."

"Sixth. Modes of laying the conductors to preserve them from injury."

Here is a description of each of the articles of the invention, after which he concludes in these words:

"What I claim as my invention and desire to secure by letters patent and to protect for one year is a method of recording permanently electrical signs, which, by means of metallic wires or other good conductors of electricity, convey intelligence between two or more places."

The new instrument, which Mr. Morse was enabled to have constructed by his arrangement with Mr. Vail, was completed in the latter end of this year, and in the succeeding February, 1838, it was exhibited in the Franklin Institute at Philadelphia, where it operated with success through a circuit of ten miles of wire, and a committee of the Institute made a report of its success.

It was thence removed to the City of Washington, where it was publicly exhibited in the hall of the House of Representatives, and a committee having been appointed to examine it, made a favorable report, and recommended an appropriation of thirty thousand dollars, to have effectually tested the utility of the invention. And,

This was the state of the invention early in the spring of 1838.

Petition for Patent and its Specifications

The caveat was followed, on the 7th of April, 1838, by the petition of Mr. Morse for the patent. It is to this effect:

"Be it known that I Samuel F. B. Morse, of the City, County, and State of New York, have invented a new and useful machine and system of signs for transmitting intelligence between distant points, by the means of a new application and effect of electro-magnetism, in producing sounds and signs, or either, and also for recording permanently, by the same means and application and effect of electro-magnetism, any signs thus produced

and representing intelligence, transmitted as before named, between distant points, and I denominate said invention the American Electro-Magnetic Telegraph, of which the following is a full and exact description, to-wit: "

"It consists of the following parts: first, of a circuit of electric or galvanic conductors from any generator of electricity or galvanism, and of electro-magnets at any one or more points in said circuits."

Here he gives the several parts of which his invention consisted, and adds a long description of each of them, and then sums up what he had affirmed he had himself invented in these words:

"What I claim as my invention and desire to secure by letters patent is as follows: "

"1st. The formation and arrangement of the several parts of mechanism constituting the type rule, the straight port rule, the circular port rule, the two signal levers, and the register lever, and alarm lever with its hammer, as combining, respectively with each of said levers, one or more armatures of an electromagnet, and as said parts are severally described in the foregoing specification."

"2ndly. The combination of the mechanism constituting the recording cylinder, and the accompanying rollers and train wheels, with the formation and arrangement of the several parts of mechanism, the formation and arrangement of which are claimed as above, and as described in the foregoing specification."

"3dly. The use, system, formation, and arrangement of type and of signs, for transmitting intelligence between distant points, by the application of electro-magnetism, and metallic conductors combined with mechanism, described in the foregoing specification."

"4thly. The mode and process of breaking, by mechanism, currents of electricity or galvanism in any circuit of metallic conductors, as described in the foregoing specification."

"5thly. The mode and process of propelling and connecting currents of electricity or galvanism in and through any desired number of circuits of metallic conductors, from any known generator of electricity or galvanism, as described in the foregoing specification."

"6th. The application of electro-magnets by means of one or more circuits of metallic conductors, from any known generator of electricity or galvanism, to the several levers in the machinery described in the foregoing specification, for the purpose of imparting motion to said levers and operating said machinery

and for transmitting, by signs and sounds, intelligence between distant points, and simultaneously to different points."

"7thly. The mode and process of recording or marking permanently signs of intelligence transmitted between distant points and simultaneously to different points, by the application and use of electro-magnetism or galvanism, as described in the foregoing specification."

"8th. The combination and arrangement of electro-magnets, in one or more circuits of metallic conductors, with armatures of magnets, for transmitting intelligence by signs and sounds, or either, between distant points, and to different points simultaneously."

"9th. The combination and mutual adaptation of the several parts of the mechanism and system of type and of signs, with and to the dictionary or vocabulary of words, as described in the foregoing specification."

It appears that no objection was found to the issuing of the patent immediately, except that there had not been filed with the specifications a duplicate set of the drawings, and that the Commissioner wrote in answer to an application for it, to this effect, on the 1st of May.

In England and France

But Mr. Morse had conceived a hope that he might secure a consideration for the use of his invention in foreign countries as well as in the United States, and on the 15th of May he returned this answer to the Commissioner, and departed the next day for Liverpool:

"New York City University, May 15, 1838"

"HON. HENRY L. ELLSWORTH."

"DEAR SIR -- Excuse the delay in answering your letter of the 1st instant, relative to a duplicate set of drawings for my letters patent. May I ask the favor of you to delay issuing the letters patent until you hear from me in Europe, as I fear issuing them here will at present interfere with my plans abroad."

"I sail tomorrow in the ship Europe for Liverpool. Farewell."

In England, a patent was refused to the American inventor on the ground that some description of his invention -- the substance of which will appear hereafter -- had been published in the London Magazine.

But he was otherwise received in France.

In the French Academy of Science

He communicated a description of his invention, and exhibited

the instrument in operation before the French Academy of Sciences on the 10th of September, 1838. And,

This is the account of the invention published in the "Comptes Bendus," the weekly journal of the Academy:

"*Applied Physics.* -- Electro-Magnetic Telegraph of Mr. Morse, Professor in the University of New York."

"The instrument has been put in operation under the eyes of the Academy. The following is a literal translation of a large portion of the notice delivered by Mr. Morse to the Perpetual Secretaries: "

"Mr. Morse conceives that his instrument is the first practicable application which has been made of electricity to the construction of a telegraph."

"This instrument was invented in October, 1832, whilst the author was on his way from Europe to America, in the packet ship *Sully.* The fact is attested by the captain of the ship and several of the passengers. Among the number of the latter was Mr. Rives, the Minister of the United States near the French government."

(Here is given the account of Mr. Rives and Captain Pell, already set out. After which the account proceeds:)

"The idea of applying galvanism to the construction of telegraphs is not new. Dr. Coxe, a distinguished citizen of Philadelphia, makes mention of it in a note inserted by him in February, 1816, in the Annals of Dr. Thompson, page 162, First Series, but he did not give any means of effecting it."

"Since the period to which the invention of Mr. Morse's telegraph goes back, other arrangements founded on the same principles have been announced, of which the most celebrated are those of Mr. Steinheil of Munich, and of Mr. Wheatstone of London. They differ very much in mechanism."

"The American Telegraph employs but one circuit; * the following is an abridged description of it: "

"At the extremity of the circuit where the news is to be received is an apparatus called the Register. It consists of an electro-magnet, the wire covering of which forms the prolongation of the wire of the circuit."

"The armature of this magnet is attached to the end of a small lever, which at its opposite extremity holds a pen; under this pen is a ribband of paper which moves forward as required,

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by means of a certain number of wheels. At the other extremity of the circuit -- that is to say at the station from which the news is to be sent out -- is another apparatus called the Port Rule; it consists of a battery or generator of galvanism, at the two poles of which, the circuit ends; near the battery a portion of this circuit is broken; the two extremities disjoined, are plunged into two cups of mercury near each other."

"By the aid of a bent wire attached to the extremity of a little lever, the two cups may be at will placed in connection with each other or left separated; thus the circuit is completed and interrupted at pleasure. The movement of the mechanism is as follows: "

"When the circuit is complete the magnet is charged, it attracts the armature, the movement of which brings the pen into contact with the paper. When the circuit is interrupted, the magnetism of the horseshoe ceases, the armature returns to its first position, and the pen is withdrawn from the paper. When the circuit is completed and broken rapidly in succession, mere dots are produced upon the moving paper; if, on the contrary, the circuit remain complete for a certain length of time, the pen marks a line, the length of which is in proportion to the time during which the circuit remains complete. This paper presents a long interval of blank if the circuit remain interrupted during some considerable time. These points, lines, and blanks, lead to a great variety of combinations. By means of these elements, Professor Morse has constructed an alphabet and the signs of the ciphers. The letters may be written with great rapidity, by means of certain types which the machine causes to move with exactness and which give the proper movements to the lever bearing the pen. Forty-five of these characters may be traced in one minute."

"The register is under the control of the person who sends the news. In fact, from the extremity called the Port Rule, the mechanism of the register may be set in motion and stopped at will. The presence of a person to receive the news is therefore not necessary, though the sound of a bell which is rung by the machine announces that the writing is about to be begun."

"The distance at which the American Telegraph has been tried is ten miles English, or four post leagues of France. The experiments have been witnessed by a committee of the Franklin Institute of Philadelphia and by a committee appointed by the Congress of the United States. The reports of these committees, which we have not copied, are extremely favorable. The committee of Congress recommended the appropriation of thirty thousand dollars. "

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French Patent, 1838

A patent was accordingly granted to Mr. Morse by the French government, but it yielded him no pecuniary profit.

It is dated on the 20th August, 1838, and was delivered to him on the 30th October afterwards. But,

The law of France required the invention to be put into use in two years, and on failure, the exclusive privilege of the patentee was forfeited. Mr. Morse had not the means of complying with the condition, and he returned home in 1838 with the hope of inspiring in his own countrymen sufficient confidence in his great invention. But the embarrassed condition of the country caused him to despair of success at that time, and being compelled to betake himself again to his pencil, he made no farther movement until the succeeding year.

American Patent, 1840

On recurring to his former application for his patent, which had remained on the files of the office, the duplicate set of his drawings were still wanting; but having supplied this and complied with some other directions of the Commissioner, the patent was issued.

It was sealed, and bears date June 20, 1840.

The specifications filed in 1838 on the application for the patent are annexed to it as part thereof. These specifications, or so much of them as may be necessary, will be set out hereafter, before or when they become the subject of discussion. But,

The confidence of the capitalists in an invention so extraordinary, and one promising such incredible results, could not be inspired, and the patentee was not able himself to construct a line of telegraphs and introduce it into actual use, and he again applied to the Congress of the United States. This resulted in the appropriation of thirty thousand dollars, according to the recommendation of the committee in 1838, for the purpose of testing the practicability and utility of the system under the superintendence of Mr. Morse. And,

This resulted in the construction of the line of telegraph from Baltimore to Washington, and a complete demonstration of the practicability and great public utility of his invention. And,

This was the state of the invention in June, 1844, twelve years after its conception.

Efforts were then made for the extension and multiplication of its advantages, but difficulties were encountered in the introduction and establishment of an affair of such novelty and

requiring such a large amount of capital, and some time was necessary to overcome them.

The exertions were, however, continued, and with the success which the progress in the establishment of the telegraphs stated in the bill exhibits. And,

In the meantime, as will be presently seen, Mr. Morse continued his exertions to improve and perfect this great invention.

1840 Patent Reissued, 1846

In January, 1846, the specifications of the invention and description of the mode of its operation having been supposed to be in some respects defective, the patent was surrendered and a new patent taken out in its stead.

The specifications annexed to this patent will be adverted to hereafter. It will be sufficient for the present to state that in the summing up of what the patentee affirmed he had invented there is found one article corresponding to the fifth and some of the other clauses in the specifications of the patent of 1840. He says,

"I also claim the combination of two or more circuits of galvanism or electricity generated by independent batteries, by means of electro-magnetism, as above described."

It appears that originally the design was that this part of the invention was to be resorted to only in case the galvanic current of one battery should be found insufficient on a long line, to afford the motive power necessary to work the register and record the intelligence, and it does not appear that it had been, before this date, ascertained that the one battery and circuit would not be sufficient for any distance.

Patent of 1846 for New Improvement

But on the 16th April, 1846, Mr. Morse applied for and obtained another patent for an improvement on his own original invention. And,

It appears from his representations, contained in the specifications annexed to this patent, that it had then been ascertained that the galvanic current generated by one battery would be sufficient to continue the electric current on any length of line, and afford sufficient motive power to open and close the battery, but that it would not be sufficient, at any considerable distance, to work the register and make the record unless this battery was made of great magnitude, and that by such battery the expense of the operation would be greatly increased.

He had therefore contrived what the called a receiver or receiving magnet, worked by a local battery or battery situated

at the place to which the intelligence is transmitted, by which a second, but short, local circuit, connected with the main circuit, was opened and closed and sufficient force given to the register to make the record.

The second patent is for this and for other improvements which he sums up in these words:

"What I claim as my invention and desire to secure by letters patent is the receiving magnet, or a magnet having a similar character, that sustains such a relation to the register magnet or other magnetic contrivances for registering and the length of the current or telegraphic line as will enable me to accomplish, with the aid of a main galvanic battery, and the introduction of a local battery, such motion or power for registering as could not be obtained otherwise without the use of a much larger galvanic battery."

"I claim as my invention the use of a local battery and magnet, in combination with a battery and magnet connected with the main line or lines of conductors for the purpose above specified."

"I also claim the combination of the apparatus connected with the clockwork, for setting off the paper and stopping it with the pen lever [M]."

"I also claim the combination of the points affixed in the pen lever, with the grooved roller [N] for marking on paper as above described."

But on the 13th June, 1848, on the supposition there were some defects in the specifications of each of these two patents then extant, they were both surrendered and cancelled and new patents obtained in the stead of each respectively. And,

These are the patents upon which the exclusive right to the employment of the telegraph now before us is claimed by the complainant. But,

It is necessary to a fair and intelligible statement and discussion of the case that large portions of the schedules be set out in their own words.

1840 Patent Reissued 1848

The patent itself, which is a reissue of the patents of 1846, which was a reissue of the original patent of 20 June, 1840, will be given at length, because the terms of it will be the subject of discussion hereafter in connection with the statute. It is in the following words:

"*THE UNITED STATES OF AMERICA*"

"*To all to whom these letters patent shall come:*"

"Whereas, Samuel F. B. Morse, Poughkeepsie, New York,

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has alleged that he has invented a new and useful improvement in the mode of communicating information by signals by the application of electro-magnetism, for which letters patent were granted on the 20th June, 1840, which letters patent were surrendered and rescinded on the 15th day of January, 1846, which last letters patent are hereby cancelled on account of a defective specification, which he states has not been known or used before his application, has made oath that he is a citizen of the United States, that he does verily believe that he is the original and first inventor or discoverer of the said improvement, and that the same has not, to the best of his knowledge and belief, been previously known or used, has paid into the Treasury of the United States the sum of fifteen dollars, and presented a petition to the Commissioner of Patents, signifying a desire of obtaining an exclusive property in the said improvement and praying that a patent may be granted for that purpose."

"These are therefore to grant, according to law, to the said Samuel F. B. Morse, his heirs, administrators, or assigns, for the term of fourteen years from the twentieth day of June, one thousand eight hundred and forty, the full and exclusive right and liberty of making, constructing, using, and vending to others to be used, the said improvements description whereof is given in the words of the said Samuel F. B. Morse, in the schedule hereunto annexed, and is made part of these presents."

The schedule annexed is in these words:

To all to whom these presents shall come:

"Be it known that I, Samuel F. B. Morse, now of _____, the State of New York, have invented a new and useful apparatus for, and a system of, transmitting intelligence between distant points by means of electro-magnetism, which puts in motion machinery for producing sounds or signs, and recording said signs upon paper or other suitable material, which invention I denominate the American Electro-Magnetic Telegraph, and that the following is a full, clear, and exact description of the principle or character thereof, which distinguishes it from all other telegraphs previously known; and of the manner of making and constructing said apparatus, and of applying said system, reference being had to the accompanying drawings making part of this specification. . . ."

Here follows a description of the instruments, and of the mode of their operation, which will be omitted here and adverted to hereafter.

These particular specifications and descriptions completed, the patentee sums up what he intends it should be understood

he had and had not invented, and after disclaiming all pretensions to the invention of what he says was before known,

He specifies what he affirms he had himself discovered or invented, and thus designates his improvement or improvements, a description whereof he had just before given in this his schedule, and which is made part of the patent.

"First. Having thus fully described my invention, I wish it to be understood that I do not claim the use of the galvanic current, or current of electricity, for the purpose of telegraphic communications, generally, but what I specially claim as my invention and improvement is making use of the motive power of magnetism, when developed by the action of such current or currents, substantially as set forth in the foregoing description of the first principal part of my invention, as means of operating or giving motion to machinery, which may be used to imprint signals upon paper or other suitable material or to produce sounds in any desired manner for the purpose of telegraphic communication at any distances."

"The only ways in which the galvanic currents had been proposed to be used, prior to my invention and improvement were by bubbles resulting from decomposition, and the action or exercise of electrical power upon a magnetized bar or needle, and the bubbles and deflections of the needles, thus produced, were the subjects of inspection, and had no power, or were not applied to record the communication. I therefore characterize my invention as the first recording or printing telegraph by means of electro-magnetism."

"There are various known modes of producing motion by electro-magnetism, but none of these had been applied, prior to my invention and improvement, to actuate or give motion to printing or recording machinery, which is the chief point of my invention and improvement."

"Second. I also claim as my invention and improvement the employment of the machinery called the register or recording instrument, composed of the train of clock-wheels, cylinders, and other apparatus, or their equivalent, for removing the material upon which the characters are to be imprinted, and for imprinting said characters, substantially as set forth in the foregoing description of the second principal part of my invention."

"Third. I also claim as my invention and improvement the combination of machinery herein described, consisting of the generation of electricity, the circuit of conductors, the contrivance for closing and breaking the circuit, the electro-magnet, the pen or contrivance for marking, and the machinery for sustaining and moving the paper, altogether constituting one apparatus

of telegraphic machinery, which I denominate the American Electro-Magnetic Telegraph."

"Fourth. I also claim as my invention the combination of two or more galvanic or electric circuits, with independent batteries, substantially by the means herein described, for the purpose of obviating the diminished force of electro-magnetism in long circuits, and enabling me to command sufficient power to put in motion registering or recording machinery at any distance."

"Fifth. I claim as my invention the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, for numerals, letters, words, or sentences, substantially as herein set forth and illustrated, for telegraphic purposes."

"Sixth. I also claim as my invention the system of signs, consisting of dots and spaces, and of dots, spaces, and horizontal lines, substantially as herein set forth and illustrated, in combination with machinery for recording them, as signals for telegraphic purposes."

"Seventh. I also claim as my invention the types, or their equivalent, and the type rule and post rule, in combination with the signal lever or its equivalent, as herein described, for the purpose of breaking and closing the circuit of galvanic or electric conductors."

"Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specifications and claims, the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed, for making or printing intelligible characters, letters, or signs, at any distances, being a new application of that power, of which I claim to be the first inventor or discovered."

1846 Patent Reissued 1848

This patent is the reissue of the patent of April, 1846, and is for a new and useful improvement in "electro-magnetic telegraphs." It grants the exclusive use to the patentee for the term of fourteen years, from the eleventh day of April, 1846, and refers in the common form to the schedule annexed for the specifications of the improvement. This schedule is in these words:

"Be it known that I, Samuel F. B. Morse, . . . have invented a new and useful improvement in the Electro-Magnetic Telegraph, and I do hereby declare that the following is a full, clear, and exact description of the object, construction, and operation thereof, reference being had to the accompanying drawings, and making part of the same. "

"Object of the invention."

"The original and final object of all telegraphing is the communication of intelligence at a distance by signs or signals."

"Various modes of telegraphing, or making signs or signals at a distance, have for ages been in use. The signs employed heretofore have had one quality in common. They are evanescent -- shown or heard a moment, and leaving no trace of their having existed. The various modes of these evanescent signs have been by beacon fires of different characters, by flags, by balls, by reports of firearms, by bells heard from a distant position, by movables, arms from posts &c."

"I do not, therefore, claim to be the inventor of telegraphs generally. The electric telegraph is a more recent kind of telegraph, proposed within the last century, but no practical plan was devised until about sixteen years ago. Its distinguishing feature is the employment of electricity to effect the same general result of communicating intelligence at a distance by signs or signals."

"The various modes of accomplishing this end by electricity have been,"

"The employment of common or machine electricity, as early as 1787, to show an evanescent sign by the divergence of pith balls."

"The employment of common or machine electricity, in 1794, to show an evanescent sign by the electric spark."

"The employment of voltaic electricity, in 1809, to show an evanescent sign by the evolution of gas bubbles, decomposed from solution in a vessel of transparent glass."

"The employment of voltaic electricity in the production of temporary magnetism in 1820 to show an evanescent sign by deflecting a magnet or compass needle."

"The result contemplated from all these electric telegraphs was the production of evanescent signs or signals only."

"I do not, therefore, claim to have first applied electricity to telegraphing for the purpose of showing evanescent signs and signals."

"The original and final object of my telegraph is to imprint characters at any distance as signals for intelligence; its object is to mark or impress them in a permanent manner."

"To obtain this end, I have applied electricity in two distinct ways. 1st. I have applied, by a novel process, the motive power of electro-magnetism, or magnetism produced by electricity, to operate machinery for printing signals at any distance. 2dly. I have applied the chemical effects of electricity to print signals at any distance."

"The apparatus or machine with which I mark or imprint

signs or letters for telegraphic purposes at a distance I thus describe."

Here follows a description of the instruments, and of how they are employed. After which the patentee sums up and specifies what he affirms he had invented and desires to have secured to him by the grant in these words:

"First. What I claim as my invention and desire to secure by letters patent is the employment in a main telegraphic circuit of a device or contrivance called the receiving magnet, in combination with a short local independent circuit or circuits, each having a register and register magnet or other magnetic contrivances for registering and sustaining such a relation to the register magnet, or other magnetic contrivances for registering, and to the length of circuit of telegraphic line, as will enable me to obtain, with the aid of a galvanic battery and main circuit, and the intervention of a local battery and local circuit, such motion or power for registering as could not be obtained otherwise without the use of a much larger galvanic battery, if at all."

"Second. I also claim as my invention the combination of the apparatus called the self-stopping apparatus, connected with the clockwork by the register, for setting said register in action, and stopping it with the pen lever F, as herein described."

"Third. I also claim as my invention the combination of the point or points of the pen and pen lever, or its equivalent, with the grooved roller, or other equivalent device, over which the paper or other material suitable for marking upon may be made to pass for the purpose of receiving the impression of the characters, by which means I am enabled to mark or print signs or signals upon paper or other fabric by indentation, thus dispensing with the use of coloring matter for marking, as specified in my letters patent of January 15, 1846."

But the Telegraph itself, constructed according to the specifications of the patents and in actual use, having been exhibited and given in proof, it is necessary, in order to put on paper the case which has been heard, that the instruments themselves be described.

DESCRIPTION OF THE TELEGRAPH

It consists of --

1. The main circuit with its battery

2. The key with the signal lever.

3. The local circuit with its battery.

4. The receiver, or mutator, with its electro-magnet.

5. The register, with its electro-magnet, pen lever, and grooved roller.

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It will be observed that in this description the relay magnet, as it was called, by which the combination of the circuit was originally effected will not be found. It has been substituted by the subsequently invented receiver or mutator on the same principle by which the main circuit is combined with each local circuit, or circuit in the telegraph office, whereby sufficient motive power is obtained to work the register. And,

That the port rule is also absent. It has been supplied by the improved register and pen lever, with its pen point and grooved rollers in connection. And,

It will be observed that the telegraphic dictionary has been also abandoned, and that the characters indented by the pen constitute an alphabet, differing in little else beside the figure of the letters from the common alphabet, and which is therefore read not by a peculiar dictionary, but as common manuscript.

Nothing occurred in the case which makes it necessary to describe the self-stopping apparatus.

The main circuit of conductors, in connection with the principle battery, and key with its pen lever, which operates upon it, may be thus described.

It is begun in a plate of copper buried in the ground under the first telegraph office, and consists of these conductors:

A copper wire, having one end inserted in the copper plate, and the other in one pole of the galvanic battery, in a room of the office.

Another copper wire, with one end inserted in the other pole of the battery, and after passed through the rooms as may be convenient, with the other end of it extended up and inserted in and under one end of a short bar of brass, which is part of the instrument called the key.

We will here stop the description of the circuit of conductors, and describe this instrument.

Key with its Signal Lever

This key consists of a cross formed of two flat bars of brass, about two or three inches long, screwed down upon the table or upon a pedestal fixed upon the table; on each end of the arms of this cross there rise similar bars, after the manner of the sights of a surveyor's compass, about a couple of inches high. These support the fulcrum of the

signal lever. This fulcrum of the lever is a steel cylinder extended between the two upright bars on the arms of the cross, with its ends terminating in axles extending through the bars near the upper ends, so that it may be turned when the lever is worked.

The lever is a bar of brass fixed with its center upon this fulcrum.

It is horizontal when at rest, and is kept in its position by a spring fixed under its fulcrum and extended back. A sort of button of brass is fixed immediately under the front end of the lever, and in proximity to the foot of the cross, so that when the lever is pressed down it is brought into contact with it and the end of a wire which is extended up through its center. This button is so contrived that, by a short lever extended from it, it is turned from or brought into contact with the cross. We now return to the circuit of conductors.

It is in and under the head of this cross that the wire from the battery was inserted; and this bar constitutes the next conductor.

There are now here two conductors -- one the conductor when intelligence is not being transmitted from the office and the other when intelligence is being transmitted from the office. When intelligence is not being transmitted, then, after this bar of the key, the button having the brass wire through its center is the conductor. But when the position of the button is so changed that it is not in contact with this bar, then it is not the next conductor, and the right and left hand arms of the cross and the fulcrum are the next conductors, and the signal lever pressed down and brought into contact with the button, is the conductor to it and the wire projecting up through it.

When intelligence is to be transmitted from the office, the operator changes the position of the button, brings it out of contact with the foot of the cross, and the circuit at this point is broken, and the lever constituted the conductor next the button towards the key. The operator has then command of the circuit for his operation. By pressing the key down into contact with the button, the circuit is closed; and the pressure off, the circuit is broken. This produces the corresponding action of the pen lever, which registers the intelligence he sends off.

We now return to the circuit of conductors.

The wire extended from the button is the next conductor. It is copper, and is extended down under the table, and then up through it near the pedestal of the receiving magnet, situated on the table at a convenient distance from the key, and inserted in a brass standard near its upper end, which stands on one corner of the pedestal of this receiver, which will be presently described. And,

This standard is the next conductor.

The next is a small brass wire, extending from the foot of this standard up through the pedestal into proximity to the horseshoe magnet. This wire, prolonged and covered with silk, is wound around the shanks of the horseshoe, first around the one end and then around the other, and made to constitute

the helices of the magnet, after which it is returned down through the pedestal, and inserted in the foot of another standard on another corner of the pedestal of the magnet. And,

This standard is the next conductor.

The next is the brass wire with one end inserted into the standard near its upper end, and the other, after its extension out of the office, united to the iron wire on the posts.

This iron wire is the next conductor to the next office. On entering this office, it is united to the end of a copper wire, which has its other end inserted in and under the head of the cross of the key in the office. Thence the circuit is continued through the instruments of this office as in the first office, when it is again extended out upon the posts to another office, and thus through any number, and over any distance, to the last office, of the circuit. It is then, after being passed through the instruments of this office, as in the other offices, extended down and fastened in a plate of copper in the ground.

The earth, it is said, constitutes the conductor from this copper-plate to the other, from which we set out, and thereby the circuit is completed.

We will now return and describe the receiver, more properly called the mutator.

Receiving Magnet

This magnet rests on the pedestal, which has been already mentioned, eight or ten inches long, and four or five broad, with the axis of its helices horizontal, and parallel to the sides of its pedestal, and with what corresponds to the front part of the horseshoe presented to the left, in proximity to the two standards we passed on the circuit.

It is kept in its position by a brass bar extended across the helices, near the heels of the horseshoe, and pressed, and kept firmly upon them, by a screw extended down from either end, into the pedestal.

Its heels present themselves to a horizontal armature of a movable upright lever, within their attractive power, and which, it will be presently found, is one of the conductors of the local circuit.

This local circuit can now be described. It begins in a galvanic battery in the office, and consists of these things:

A copper wire, with one end inserted in one pole of the local battery in a room of the office, and the other end brought up through the table, and screwed into an upright brass bar or standard near its upper end, standing on the back right hand corner of the pedestal of the receiver.

The next conductor is this standard. And then,

A copper wire extended from its lower end under the pedestal

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and there connected with a steel cylinder, which constitutes the fulcrum, on which stands the movable lever already mentioned in describing the main circuit.

This cylinder is horizontal, parallel to the heels of the magnet, but below them, is fixed in a channel across the pedestal, and has its ends in sockets, in which it turns and allows the lever which stands upon it, to move forward and back. And,

This lever is the next conductor.

It stands perpendicular, and is held in this position by a spiral spring extended from behind it and holding it back against the end of a screw, projected in like manner against its back; but which, when the armature, fixed across it, is attracted by the heels of the magnet, readily consents to its motion forward, to meet near its upper end another conductor, which will be presently described, and when the attraction is not, as quickly withdraws it to its former position.

We will now return back to the local battery, and commence at its other pole.

The first conductor thence, in this direction, is another copper wire.

This has one end inserted in the battery, and after being extended around, according to the situation of the room, has its other end brought up under the table near the electro-magnet of the register, where it is united to a small wire, which is the next conductor.

It is prolonged and wound on the horseshoe bar, in like manner with the wire on the main circuit, and made to constitute the helices of this magnet, and then has its other end fastened to a large wire. And,

This wire is the next conductor.

It is extended under the table, and afterwards brought up, and has its other end screwed into a brass standard, upon the right-hand front or remaining corner of the pedestal of the receiver. And this standard is the next conductor.

It is succeeded by a brass wire, extended from its lower end under the pedestal, and brought up between the helices of the receiving magnet, to the under side of the horizontal bar, which we lately left extended across the helices near the heels of the magnet, and there inserted in this bar.

Immediately over this end of this wire, and fixed upon this horizontal bar, stands a perpendicular bar, which is the next conductor. And,

The last conductor, is a brass screw, which passed through this bar, near its upper end, and extended out horizontally from it, presents its platina point to the movable lever, which we lately left in describing the conductors from the other end of the

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battery, ready to close the circuit whenever attracted forward by the heels of the magnet presented to its armature below.

When, by the act of the operator on his signal key, the main circuit is complete or "closed," as it is called, the horseshoe is instantly an electro-magnet, and the armature of the lever, attracted towards, not to, its heels, the lever is brought into contact with the platina point of the brass screw, presented to its front, and the local circuit of conductors is "closed," and the horseshoe whereon we just said the wire of the local circuit had formed the helices, being converted into an electro-magnet, for the register, instantly acts upon the pen lever, in the register, in the mode we will presently describe, and records the intelligence which the operator proposed.

This done, and the main circuit broken, the spiral spring behind the lever, which had before readily assented to its attraction forward, as quickly withdraws it to its former position, and awaits another signal.

Register, Pen Lever, and Grooved Rollers

The register consists of a horseshoe magnet, the pen lever, a spiral spring, the grooved rollers, and the clockwork, all fixed in a proper frame upon a brass pedestal ten or twelve inches long, and about half that breadth, fixed down upon the table at a convenient distance from the other instruments.

The magnet is fixed on the right-hand end of the pedestal, the axis of the helices perpendicular, and the heels upwards, presenting themselves to an armature of the pen lever within their attraction above.

The pen lever is a brass bar. It rests in a horizontal position, with one end extended to the right, across the heels of the magnet, where its armature is fixed across it, and the other extended to the left towards the rollers.

It has for its fulcrum a steel cylinder, fixed across its center, with its ends in sockets in the frame work. It is held to the position by the spiral spring, extended from the lower end of a bar fixed in, and extended down from, the center of the fulcrum, and thence extended back towards the magnet, and made fast, which, by its facile extension, instantly assents to the action of the lever with its pen; and as quickly withdraws it.

The rollers are fixed each with its axis in the frame work, one with its axis on a level with the lever, the other with its axis over the line of the periphery next the lever of the lower roller.

The pen, fixed upon this end of its lever, and projected forward, presents its point upwards, in proximity to the center of this upper roller, in proper direction for action upon the paper in its transit over it, when cast up by the attraction, down, of the other end of the magnet.

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The paper is guided from above this upper roller, and passed around it, and between the two rollers, and by their revolution is drawn forward at a rate suited to the action of the pen.

There is around each roller, under the paper and exactly opposite the pen, a narrow groove of such depth that the pen point, in making its indentations on the paper, does not extend to the metal of the roller, whereby its point is preserved, and the line of characters on the paper is kept from contact with either roller, and protected from being dimmed by the compression of the paper, in its transit between them.

The revolution of the rollers is by the clockwork on the left.

The rollers having been put in motion, the electro-magnet charged, the armature with that end of the lever attracted down, and the other cast up, the pen with its point indents a character upon the paper, and the magnet discharged, the spiral spring has brought down the pen, and holds it in position for a repetition of the act.

But we will return to the signal key, or correspondent, stationed in the distant office whence the intelligence is to be transmitted, and follow it in its course and see it recorded.

The operator, having been put in possession of the intelligence, and broken the circuit in the lower conductors of his key, and thereby made his signal lever a conductor of the main circuit, applies his hand upon the signal lever and presses it down upon the conductor below, the main circuit is instantly closed, the horseshoe within the helices of this main circuit is a magnet, the armature has drawn its movable lever into contact with the platina point, the local circuit is closed, the horseshoe within the helices of this circuit is an electro-magnet, the armature of the pen lever is upon its heels, the other

end of the lever has cast up the pen, and indented an intelligible character upon the paper.

The operator's hand taken off, and the main circuit is broken, the receiver within it is not a magnet, the movable lever has been withdrawn, by its spring, from the platina point, the local circuit is broken, the register magnet is no longer a magnet, and the pen has been sprung down from the paper, and stands ready to repeat and add another character of the intelligence.

The operator's hand upon his lever, and another character is added. And,

These are the characters recorded, and how they are read: .- is A, -... is B, -.-. is C, -.. is D, . is E, ..-. is F, --. is G, ... is H, .. is I, .--- is J, -.- is K, .-.. is L, -- is M, -. is N, --- is O, .--. is P, --.- is Q, .-. is R, ... is S, - is T, ..- is U, ...- is V, .-- is W, -..- is X, -.-- is Y, --.. is Z, and such is the alphabet.

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Then .---- is 1, ..--- is 2, ...-- is 3, ...- is 4, ... is 5, -.... is 6, --... is 7, ---.. is 8, ----. is 9, ----- is 0; and these are the numerals.

The holding down the lever an instant indented one dot .; the holding it longer made a dash - of a length corresponding to the time. The dots were made at distances corresponding to the time the hand was held off the lever. And,

This is the telegraph and its operations before us.

(Judge Monroe then proceeded to examine the law and evidence upon all other points in the case, and then passed the following decree:)

"*Decree of the circuit court, 12 November, 1849"*

"It is found and adjudged by the court that the letters patent of the United States to the complainant, Samuel F. B. Morse, for his invention of a new and useful improvement in the mode of communicating information by signals, by the application of electro-magnetism, originally issued June 20, 1840, but reissued on the 15th day of January, 1846, and afterwards finally reissued on the 13th of June, 1848, in their bill exhibited and read on the hearing of this cause, are valid and effectual acts of the government, and that the complainants are thereby, and by the assignments by them in their bill alleged, vested with the exclusive rights thereby granted. And"

"It is found and adjudged by the court that the defendants have, in those rights, disturbed the complainants as in their bill alleged; that they, the defendants, after the grant thereof to the patentee, Samuel F. B. Morse, and his assignments to his co-complainants, and after the final reissue of the letters patent above mentioned, did, within the District of Kentucky and elsewhere, wrongfully construct, and unlawfully

employ, a telegraph, consisting of combined circuits of electricity, worked by the motive power of electro-magnetism, substantially the same plan of construction and principle of operation with the telegraph of the said Morse in his letters patent described and specified, and by which intelligence which was in one station was by the defendants transmitted to other distant stations by making thereat a permanent record thereof in the alphabetical characters described and specified in the letters patent to the said Morse, and did thereby violate and infringe the exclusive rights so granted by the United States to him, the said Samuel F. B. Morse, and invested in the complainants as above found, and it is considered that the injunction heretofore granted herein was rightfully awarded and enforced."

"It appears, however, by the document itself read by the complainants

among their proof, that the patentee, Samuel F. B. Morse, had, on the 30th day of October, 1838, prior to the issuing of his original patent, awarded by the United States for his original invention, obtained of the government of France a patent for the invention of his Electro-Magnetic Telegraph, in principle and plan of construction the same with that described in his said letters patent so afterwards obtained of the United States. And"

"It seems to the court that the exclusive right of the complainant, in respect to his original invention, is limited by this foreign patent to the term of fourteen years from its date."

"It is therefore ordered, adjudged, and decreed that the defendants, their servants, and agents, be, and they are hereby, enjoined and commanded that they, and each of them, do still desist, and shall for and during the term of fourteen years from the 30th day of October, 1838, altogether refrain, from all and every use of the Electro-Magnetic Telegraph, which the complainants in their bill charged was, by the defendants, employed in violation of their rights, which, in its several forms is described in the proofs of the cause, and denominated by the witness in the depositions, and by defendant, O'Reilly, in his answer, the Columbian Telegraph, in the transmission of intelligence which is in one place to another distant place, by making thereat a permanent record in the alphabetical characters in the patent of Samuel F. B. Morse for his original invention specified, or by making thereat, with the action of the instrument which would make such characters, alphabetical sounds, and out of them composing such characters or words in the ordinary alphabet, and from the using of such telegraph or any part thereof in any other mode in violation of the exclusive rights so granted by the United States and vested in the complainants, and that they shall for and during the said term of fourteen years refrain from making, constructing, or vending to be used within the District of Kentucky, any other telegraph consisting of combined circuits of electricity, worked by the motive power of electro-magnetism on the plan and principle of the Electro-Magnetic Telegraph of the complainant, Morse, described and specified in his letters patent, by which intelligence shall or may be transmitted by making in the mode

above stated a record thereof in the said alphabetical characters of the said Samuel F. B. Morse, or in an alphabet formed on the same plan and principle, or by making in such mode sounds whereof such characters shall or may be composed in the violation and infringement of the exclusive right of the complainants as they are above adjudged."

"It is also found and adjudged by the court, that the letters patent of the United States to Samuel F. B. Morse for his invention

of 'a new and useful improvement in electro-magnetic telegraph,' originally issued on the 11th day of April, 1846, but afterwards reissued on the 13th of June, 1848, with the amended specifications of the improvements invented, which is in the bill of the complainants exhibited and made part of the record of this cause is a valid and effectual act of the government, and that the complainants are thereby, and by the assignments in their bill alleged, vested with the exclusive rights thereby granted. And"

"It is found and adjudged that the defendants have disturbed the complainants in these their exclusive rights. It is found that the defendants, before and after the issuing of the said last mentioned letters patent of the 13th June, 1848, in renewal of the said former patent, did, within the District of Kentucky and elsewhere, wrongfully cause to be constructed, and did unlawfully use and employ as a part of the Elector-Magnetic Telegraph, denominated the Columbian Telegraph, an instrument denominated by them the mutator, in plan of construction, principle of operation, and in the purpose accomplished by it, substantially the same with the improvement described and specified in the said last mentioned letters patent to the complainant, Morse, which consists of the contrivance called, in his schedule to his patent, the receiving magnet, and which is by this denomination described and specified under the head of the first claim of the improvements in his schedule. And"

"That they did in like manner cause to be constructed, and unlawfully employ, as another part of the said Columbia Telegraph, certain other apparatus and instruments and combinations thereof, in plan of construction, principle of operation, and purpose substantially the same with the improvements of the register invented by him, the said Samuel F. B. Morse, and in the schedule described and specified as the third thing claimed by him as his invention, consisting of the combination of the point of the pen and pen lever, with the grooved roller over which the paper is passed, and receives the indentations of his alphabetical characters, and whereby is dispensed with the use of the coloring material, as specified in the patent for the original invention of the telegraph, first above mentioned, issued and bearing date January 15, 1846. And"

"It is found that the said telegraph, called the Columbia Telegraph, containing and consisting in part of the said two improvements of the said Morse, described and specified in his said last mentioned letters patent, was by the defendants employed, before and after the last issue of the said last mentioned letters patent, within the

District of Kentucky and elsewhere, in the transmission of intelligence in the mode above mentioned,

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in violation and infringement of the exclusive right so granted by the United States by these last mentioned letters patent, and held by the complainants as by them alleged and by the court adjudged."

"It is therefore ordered, and adjudged, and decreed that the defendants, their servants and agents, be and they are hereby enjoined and commanded that they and each of them do still desist, and shall forever, and during the term of fourteen years from the eleventh day of April, eighteen hundred and forty-six, altogether refrain from all and every use and employment of the above-mentioned telegraphic instruments, denominated the mutator, in the combination with the other above-described instruments of such telegraph, or in any other combination on the same plan and principle, in the transmission of intelligence in the District of Kentucky. And"

"That they do still desist, and for and during the said term of fourteen years, refrain from all and every such employment in the transmission of intelligence within the District of Kentucky, of the above-mentioned improvement of the complainant, Morse, in the register of his telegraph whereby is accomplished the making of his alphabetical characters before mentioned, described, and specified by indentation instead of by coloring matter, in violation of the exclusive rights of complainants, by them held under the aforesaid letters patent as above adjudged. And"

"That the defendants shall, for and during the said term of fourteen years from the said eleventh day of April, eighteen hundred and forty-six, refrain from constructing or vending to be employed in such transmission of intelligence within the District of Kentucky, and of the above-mentioned improvements, either the instrument denominated the mutator, the improved register of said Morse, or any other of the improvements in the Electro-Magnetic Telegraph, so described and specified in said letters patent as the invention of the said Samuel F. B. Morse, and whereof the exclusive right is granted him; and that they shall in no otherwise, for the term aforesaid, violate, or in anywise infringe, the aforesaid rights of the complainants within said District of Kentucky. And"

"It is ordered that the complainants may have the proper writs of execution on what is above decreed."

The decree then went on to provide for damages, which part is omitted

The defendants appealed from this decree.

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MR. CHIEF JUSTICE TANEY delivered the opinion of the Court.

In proceeding to pronounce judgment in this case, the Court is sensible not only of its importance, but of the difficulties in some of the questions which it presents for decision. The case was argued at the last term, and continued over by the Court for the purpose of giving it a more deliberate examination. And since the continuance, we have received from the counsel on both sides printed arguments in which all of the questions raised on the trial have been fully and elaborately discussed.

The appellants take three grounds of defense. In the first place, they deny that Professor Morse was the first and original inventor of the Electro-Magnetic Telegraphs described in his two reissued patents of 1848. Secondly, they insist that if he was the original inventor, the patents under which he claims have not been issued conformably to the acts of Congress, and do not confer on him the right to the exclusive use. And thirdly, if these two propositions are decided against them, they insist that the telegraph of O'Reilly is substantially different from that of Professor Morse, and the use of it, therefore, no infringement of his rights.

In determining these questions we shall, in the first instance, confine our attention to the patent which Professor Morse obtained in 1840, and which was reissued in 1848. The main dispute between the parties is upon the validity of this patent, and the decision upon it will dispose of the chief points in controversy in the other.

In relation to the first point, the originality of the invention, many witnesses have been examined on both sides.

It is obvious that, for some years before Professor Morse made his invention, scientific men in different parts of Europe were earnestly engaged in the same pursuit. Electro-magnetism itself was a recent discovery, and opened to them a new and unexplored field for their labors, and minds of a high order were engaged in developing its power and the purposes to which it might be applied.

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Professor Henry, of the Smithsonian Institute, states in his testimony that prior to the winter of 1819-20, an electro-magnetic telegraph -- that is to say, a telegraph operating by the combined influence of electricity and magnetism -- was not possible; that the scientific principles on which it is founded were until then unknown; and that the first fact of electro-magnetism was discovered by Oersted, of Copenhagen, in that winter, and was widely published, and the account everywhere received with interest.

He also gives an account of the various discoveries, subsequently made from time to time, by different persons in different places, developing its properties and powers, and among them his own. He commenced his researches in 1828, and pursued them with ardor and success, from that time until the telegraph of Professor Morse was established and in actual operation. And it is due to him to say that no one has

contributed more to enlarge the knowledge of electro-magnetism, and to lay the foundations of the great invention of which we are speaking, than the professor himself.

It is unnecessary, however, to give in detail the discoveries enumerated by him -- either his own or those of others. But it appears from his testimony that very soon after the discovery made by Oersted, it was believed by men of science that this newly discovered power might be used to communicate intelligence to distant places. And before the year 1823, Ampere of Paris, one of the most successful cultivators of physical science, proposed to the French Academy a plan for that purpose. But his project was never reduced to practice. And the discovery made by Barlow, of the Royal Military Academy of Woolwich, England, in 1825, that the galvanic current greatly diminished in power as the distance increased, put at rest for a time all attempts to construct an electro-magnetic telegraph. Subsequent discoveries, however, revived the hope, and in the year 1832, when Professor Morse appears to have devoted himself to the subject, the conviction was general among men of science everywhere that the object could, and sooner or later would be, accomplished.

The great difficulty in their way was the fact that the galvanic current, however strong in the beginning, became gradually weaker as it advanced on the wire, and was not strong enough to produce a mechanical effect after a certain distance had been traversed. But, encouraged by the discoveries which were made from time to time and strong in the belief that an electro-magnetic telegraph was practicable, many eminent and scientific men in Europe as well as in this country became deeply engaged in endeavoring to surmount what appeared to be the chief obstacle to its success. And in this state of

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things it ought not to be a matter of surprise that four different magnetic telegraphs purporting to have overcome the difficulty should be invented and made public so nearly at the same time that each has claimed a priority, and that a close and careful scrutiny of the facts in each case is necessary to decide between them. The inventions were so nearly simultaneous that neither inventor can be justly accused of having derived any aid from the discoveries of the other.

One of these inventors, Doctor Steinhiel, of Munich, in Germany, communicated his discovery to the Academy of Science in Paris on the 19th of July, 1838, and states in his communication that it had been in operation more than a year.

Another of the European inventors, Professor Wheatstone, of London, in the month of April, 1837, explained to Professors Henry and Bache, who were then in London, his plan of an electro-magnetic telegraph, and exhibited to them his method of bringing into action a second galvanic circuit, in order to provide a remedy for the diminution of force in a long circuit; but it appears by the testimony of Professor Gale that the patent to Wheatstone and Cooke was not sealed until January 21, 1840, and their specification was not filed until the 21st of July in the same year, and there is no evidence that any description of it was published before 1839.

The remaining European patent is that of Edward Davy. His patent, it appears, was sealed on the 4th of July, 1838, but his specification was not filed until January 4, 1839, and when these two English patents are brought into competition with that of Morse, they must take date from the time of filing their respective specifications. For it must be borne in mind that as the law then stood in England, the inventor was allowed six months to file the description of his invention after his patent was sealed, while in this country the filing of the specification is simultaneous with the application for patents.

The defendants contend that all or at least someone of these European telegraphs were invented and made public before the discovery claimed by Morse, and that the process and method by which he conveys intelligence to a distance is substantially the same, with the exception only of its capacity for impressing upon paper the marks or signs described in the alphabet he invented.

Waiving, for the present, any remarks upon the identity or similitude of these inventions, the Court is of opinion that the first branch of the objection cannot be maintained, and that Morse was the first and original inventor of the telegraph described in his specification, and preceded the three European inventions relied on by the defendants.

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The evidence if full and clear that when he was returning from a visit to Europe in 1832, he was deeply engaged upon this subject during the voyage, and that the process and means were so far developed and arranged in his own mind that he was confident of ultimate success. It is in proof that he pursued these investigations with unremitting ardor and industry, interrupted occasionally by pecuniary embarrassments, and we think that it is established by the testimony of Professor Gale and others that early in the spring of 1837, Morse had invented his plan for combining two or more electric or galvanic circuits, with independent batteries for the purpose of overcoming the diminished force of electro-magnetism in long circuits, although it was not disclosed to the witness until afterwards, and that there is reasonable ground for believing that he had so far completed his invention that the whole process, combination, powers, and machinery, were arranged in his mind, and that the delay in bringing it out arose from his want of means. For it required the highest order of mechanical skill to execute and adjust the nice and delicate work necessary to put the telegraph into operation, and the slightest error or defect would have been fatal to its success. He had not the means at that time to procure the services of workmen of that character, and without their aid, no model could be prepared which would do justice to his invention. And it moreover required a large sum of money to procure proper materials for the work. He, however, filed his caveat on the 6th of October, 1837, and, on the 7th of April, 1838, applied for his patent, accompanying his application with a specification of his invention and describing the process and means used to produce the effect. It is true that O'Reilly, in his answer, alleges that the plan by which he now combines two or more galvanic or electric currents, with independent batteries, was not contained in that specification, but discovered and interpolated afterwards, but there is no evidence whatever to support

this charge. And we are satisfied from the testimony that the plan, as it now appears in his specification, had then been invented and was actually intended to be described.

With this evidence before us, we think it is evident that the invention of Morse was prior to that of Steinheil, Wheatstone, or Davy. The discovery of Steinheil, taking the time which he himself gave to the French Academy of Science, cannot be understood as carrying it back beyond the months of May or June, 1837. And that of Wheatstone, as exhibited to Professors Henry and Bache, goes back only to April in that year. And there is nothing in the evidence to carry back the invention of Davy beyond the 4th of January, 1839, when his

specification was filed, except a publication said to have been made in the London Mechanics' Magazine, January 20, 1838, and the invention of Morse is justly entitled to take date from early in the spring of 1837. And in the description of Davy's invention as given in the publication of January 20, 1838, there is nothing specified which Morse could have borrowed, and we have no evidence to show that his invention ever was or could be carried into successful operation.

In relation to Wheatstone, there would seem to be some discrepancy in the testimony. According to Professor Gale's testimony, as before mentioned, the specification of Wheatstone and Cook was not filed until July 21, 1840, and his information is derived from the London Journal of Arts and Sciences. But it appears by the testimony of Edward F. Barnes that this telegraph was in actual operation in 1839. And in the case of *Electric Telegraph Company v. Brett & Little,* 10 Common Pleas Reports by Scott, his specification is said to have been filed December 12, 1837. But if the last-mentioned date is taken as the true one, it would not make his invention prior to that of Morse. And even if it would, yet this case must be decided by the testimony in the record, and we cannot go out of it and take into consideration a fact stated in a book of reports. Moreover, we have noticed this case merely because it has been pressed into the argument. The appellants do not mention it in their answer, nor put their defense on it. And if the evidence of its priority was conclusive, it would not avail them in this suit. For they cannot be allowed to surprise the patentee by evidence of a prior invention of which they gave him no notice.

But if the priority of Morse's invention was more doubtful, and it was conceded that in fact someone of the European inventors had preceded him a few months or a few weeks, it would not invalidate his patent. The act of Congress provides that when the patentee believes himself to be the first inventor, a previous discovery in a foreign country shall not render his patent void unless such discovery, or some substantial part of it, had been before patented or described in a printed publication.

Now we suppose no one will doubt that Morse believed himself to be the original inventor when he applied for his patent in April, 1838. Steinheil's discovery does not appear to have been ever patented, nor to have been described in any printed

publication until July of that year. And neither of the English inventions is shown by the testimony to have been patented until after Morse's application for a patent, nor to have been so described in any previous publication as to

embrace any substantial part of his invention. And if his application for a patent was made under such circumstances, the patent is good, even if in point of fact he was not the first inventor.

In this view of the subject, it is unnecessary to compare the telegraph of Morse with these European inventions to ascertain whether they are substantially the same or not. If they were the same in every particular, it would not impair his rights. But it is impossible to examine them and look at the process and the machinery and results of each so far as the facts are before us without perceiving at once the substantial and essential difference between them and the decided superiority of the one invented by Professor Morse.

Neither can the inquires he made, or the information or advice he received from men of science in the course of his researches impair his right to the character of an inventor. No invention can possibly be made consisting of a combination of different elements of power without a thorough knowledge of the properties of each of them and the mode in which they operate on each other. And it can make no difference in this respect whether he derives his information from books or from conversation with men skilled in the science If it were otherwise, no patent in which a combination of different elements is used could ever be obtained. For no man ever made such an invention without having first obtained this information unless it was discovered by some fortunate accident. And it is evident that such an invention as the Electro-Magnetic Telegraph could never have been brought into action without it. For a very high degree of scientific knowledge and the nicest skill in the mechanic arts are combined in it, and were both necessary to bring it into successful operation. And the fact that Morse sought and obtained the necessary information and counsel from the best sources and acted upon it neither impairs his rights as an inventor nor detracts from his merits.

Regarding Professor Morse as the first and original inventor of the Telegraph, we come to the objections which have been made to the validity of his patent.

We do not think it necessary to dwell upon the objections taken to the proceedings upon which the first patent was issued, or to the additional specifications of the reissued patent of 1848. In relation to the first, if there was any alteration at the suggestion of the Commissioner, it appears to have been a matter of form, rather than of substance; and as regards the second, there is nothing in the proof or on the face of the reissued patent to show that the invention therein described is not the same with the one intended to be secured by the original

patent. It was reissued by the proper lawful authority, and it was the duty of the Commissioner of patents to see that it did not cover more than the original invention. It must be presumed, therefore, that it does not until the contrary appears. Variations from the description given in the former specification do not necessarily imply that it is for a different discovery. The right to surrender the old patent and receive another in its place was given for the purpose of enabling the patentee to give a more perfect description of his invention when any mistake or oversight was committed in his first. It necessarily, therefore, varies from it. And we see nothing in the reissued patent that may not, without proof to the contrary, be regarded as a more careful description than the former one, explaining more fully the nice and delicate manner in which the different elements of power are arranged and combined together and act upon one another in order to produce the effect described in the specification. Nor is it void because it does not bear the same date with his French patent. It is not necessary to inquire whether the application of Professor Morse to the Patent Office, in 1838, before he went to France, does or does not exempt his patent from the operation of the act of Congress upon this subject. For, if it should be decided that it does not exempt it, the only effect of that decision would be to limit the monopoly to fourteen years from the date of the foreign patent. And in either case the patent was in full force at the time the injunction was granted by the circuit court and when the present appeal stood regularly for hearing in this Court.

And this brings us to the exceptions taken to the specification and claims of the patentee in the reissued patent of 1848.

We perceive no well founded objection to the description which is given of the whole invention and its separate parts, nor to his right to a patent for the first seven inventions set forth in the specification of his claims. The difficulty arises on the eighth.

It is in the following words:

"Eighth. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims, the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer."

It is impossible to misunderstand the extent of this claim. He claims the exclusive right to every improvement where the motive power is the electric or galvanic current, and the result is the marking or printing intelligible characters, signs, or letters at a distance.

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If this claim can be maintained, it matters not by what process or machinery the result is accomplished. For aught that we now know, some future inventor, in the onward march of science, may discover a mode of writing or printing at a distance by means of the

electric or galvanic current, without using any part of the process or combination set forth in the plaintiff's specification. His invention may be less complicated -- less liable to get out of order -- less expensive in construction, and in its operation. But yet if it is covered by this patent, the inventor could not use it, nor the public have the benefit of it, without the permission of this patentee.

Nor is this all; while he shuts the door against inventions of other persons, the patentee would be able to avail himself of new discoveries in the properties and powers of electro-magnetism which scientific men might bring to light. For he says he does not confine his claim to the machinery or parts of machinery which he specifies, but claims for himself a monopoly in its use, however developed, for the purpose of printing at a distance. New discoveries in physical science may enable him to combine it with new agents and new elements, and by that means attain the object in a manner superior to the present process and altogether different from it. And if he can secure the exclusive use by his present patent, he may vary it with every new discovery and development of the science, and need place no description of the new manner, process, or machinery upon the records of the patent office. And when his patent expires, the public must apply to him to learn what it is. In fine, he claims an exclusive right to use a manner and process which he has not described and indeed had not invented, and therefore could not describe when he obtained his patent. The court is of opinion that the claim is too broad, and not warranted by law.

No one, we suppose will maintain that Fulton could have taken out a patent for his invention of propelling vessels by steam, describing the process and machinery he used, and claimed under it the exclusive right to use the motive power of steam, however developed, for the purpose of propelling vessels. It can hardly be supposed that under such a patent he could have prevented the use of the improved machinery which science has since introduced, although the motive power is steam, and the result is the propulsion of vessels. Neither could the man who first discovered that steam might, by a proper arrangement of machinery, be used as a motive power to grind corn or spin cotton claim the right to the exclusive use of steam as a motive power for the purpose of producing such effects.

Again, the use of steam as a motive power in printing-presses is comparatively a modern discovery. Was the first inventor

of a machine or process of this kind entitled to a patent, giving him the exclusive right to use steam as a motive power, however developed, for the purpose of marking or printing intelligible characters? Could he have prevented the use of any other press subsequently invented where steam was used? Yet so far as patentable rights are concerned, both improvements must stand on the same principles. Both use a known motive power to print intelligible marks or letters, and it can make no difference in their legal rights under the patent laws whether the printing is done near at hand or at a distance. Both depend for success not merely upon the motive power, but upon the

machinery with which it is combined. And it has never, we believe, been supposed by anyone that the first inventor of a steam printing press was entitled to the exclusive use of steam as a motive power, however developed, for marking or printing intelligible characters.

Indeed, the acts of the patentee himself are inconsistent with the claim made in his behalf. For in 1846 he took out a patent for his new improvement of local circuits by means of which intelligence could be printed at intermediate places along the main line of the telegraph, and he obtained a reissued patent for this invention in 1848. Yet in this new invention the electric or galvanic current was the motive power, and writing at a distance the effect. The power was undoubtedly developed by new machinery and new combinations. But if his eighth claim could be sustained, this improvement would be embraced by his first patent. And if it was so embraced, his patent for the local circuits would be illegal and void. For he could not take out a subsequent patent for a portion of his first invention, and thereby extend his monopoly beyond the period limited by law.

Many cases have been referred to in the argument which have been decided upon this subject in the English and American courts. We shall speak of those only which seem to be considered as leading ones. And those most relied on, and pressed upon the court in behalf of the patentee, are the cases which arose in England upon Neilson's patent for the introduction of heated air between the blowing apparatus and the furnace in the manufacture of iron.

The leading case upon this patent is that of *Neilson v. Harford* in the English Court of Exchequer. It was elaborately argued, and appears to have been carefully considered by the court. The case was this:

Neilson, in his specification, described his invention as one for the improved application of air to produce heat in fires, forges, and furnaces where a blowing apparatus is required. And it was to be applied as follows: the blast or current of air

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produced by the blowing apparatus was to be passed from it into an air vessel or receptacle made sufficiently strong to endure the blast, and through or from that vessel or receptacle by means of a tube, pipe, or aperture into the fire, the receptacle be kept artificially heated to a considerable temperature by heat externally applied. He then described in rather general terms the manner in which the receptacle might be constructed and heated and the air conducted through it to the fire, stating that the form of the receptacle was not material nor the manner of applying heat to it. In the action above-mentioned for the infringement of this patent, the defendant, among other defenses, insisted that the machinery for heating the air and throwing it hot into the furnace was not sufficiently described in the specification, and the patent void on that account -- and also, that a patent for throwing hot air into the furnace instead of cold, and thereby increasing the intensity of the heat, was a patent for a principle, and that a principle was not patentable.

Upon the first of these defenses, the jury found that a man of ordinary skill and knowledge of the subject, looking at the specification alone, could construct such an apparatus as would be productive of a beneficial result, sufficient to make it worth while to adapt it to the machinery in all cases of forges, cupolas, and furnaces, where the blast is used.

And upon the second ground of defense, Baron Parke, who delivered the opinion of the court, said:

"It is very difficult to distinguish it from the specification of a patent for a principle, and this at first created in the minds of the court much difficulty, but after full consideration we think that the plaintiff does not merely claim a principle, but a machine embodying a principle, and a very valuable one. We think the case must be considered as if, the principle being well known, the plaintiff had first invented a mode of applying it by a mechanical apparatus to furnaces, and his invention then consists in this: by interposing a receptacle for heated air between the blowing apparatus and the furnace. In this receptacle he directs the air to be heated by the application of heat externally to the receptacle, and thus he accomplishes the object of applying the blast, which was before cold air, in a heated state to the furnace."

We see nothing in this opinion differing in any degree from the familiar principles of law applicable to patent cases. Neilson claimed no particular mode of constructing the receptacle or of heating it. He pointed out the manner in which it might be done, but admitted that it might also be done in a variety of ways and at a higher or lower temperature, and that all of them would produce the effect in a greater or less

degree provided the air was heated by passing through a heated receptacle. And hence it seems that the court at first doubted whether it was a patent for anything more than the discovery that hot air would promote the ignition of fuel better than cold. And if this had been the construction, the court, it appears, would have held his patent to be void because the discovery of a principle in natural philosophy or physical science is not patentable.

But after much consideration it was finally decided that this principle must be regarded as well known, and that the plaintiff had invented a mechanical mode of applying it to furnaces, and that his invention consisted in interposing a heated receptacle between the blower and the furnace, and by this means heating the air after it left the blower and before it was thrown into the fire. Whoever, therefore, used this method of throwing hot air into the furnace used the process he had invented, and thereby infringed his patent, although the form of the receptacle or the mechanical arrangements for heating it might be different from those described by the patentee. For whatever form was adopted for the receptacle or whatever mechanical arrangements were made for heating it, the effect would be produced in a greater or less degree if the heated receptacle was placed between the blower and the furnace and the current of air passed through it.

Undoubtedly the principle that hot air will promote the ignition of fuel better than cold was embodied in this machine. But the patent was not supported because this principle was embodied in it. He would have been equally entitled to a patent if he had invented an improvement in the mechanical arrangements of the blowing apparatus or in the furnace while a cold current of air was still used. But his patent was supported because he had invented a mechanical apparatus by which a current of hot air, instead of cold, could be thrown in. And this new method was protected by his patent. The interposition of a heated receptacle in any form was the novelty he invented.

We do not perceive how the claim in the case before us can derive any countenance from this decision. If the Court of Exchequer had said that Neilson's patent was for the discovery that hot air would promote ignition better than cold, and that he had an exclusive right to use it for that purpose, there might perhaps have been some reason to rely upon it. But the court emphatically denied this right to such a patent. And his claim, as the patent was construed and supported by the court, is altogether unlike that of the patentee before us.

For Neilson discovered that by interposing a heated

receptacle between the blower and the furnace and conducting the current of air through it, the heat in the furnace was increased. And this effect was always produced, whatever might be the form of the receptacle or the mechanical contrivances for heating it or for passing the current of air through it and into the furnace.

But Professor Morse has not discovered that the electric or galvanic current will always print at a distance, no matter what may be the form of the machinery or mechanical contrivances through which it passes. You may use electro-magnetism as a motive power and yet not produce the described effect -- that is, print at a distance intelligible marks or signs. To produce that effect, it must be combined with, and passed through, and operate upon, certain complicated and delicate machinery, adjusted and arranged upon philosophical principles and prepared by the highest mechanical skill. And it is the high praise of Professor Morse that he has been able, by a new combination of known powers, of which electro-magnetism is one, to discover a method by which intelligible marks or signs may be printed at a distance. And for the method or process thus discovered he is entitled to a patent. But he has not discovered that the electro-magnetic current, used as motive power in any other method, and with any other combination, will do as well.

We have commented on the case in the Court of Exchequer more fully because it has attracted much attention in the courts of this country as well as in the English courts, and has been differently understood. And perhaps a mistaken construction of that decision has led to the broad claim in the patent now under consideration.

We do not deem it necessary to remark upon the other decisions in relation to Nielson's patent, nor upon the other cases referred to which stand upon similar principles. The observations we have made on the case in the Court of Exchequer will equally apply to all of them.

We proceed to the American decisions. And the principles herein stated were fully recognized by this Court in the case of *Leroy v. Tatham,* decided at the last term, 14 How. 156.

It appeared that in that case the patentee had discovered that lead, recently set, would, under heat and pressure in a close vessel reunite perfectly after a separation of its parts so as to make wrought instead of cast pipe. And the court held that he was not entitled to a patent for this newly discovered principle or quality in lead, and that such a discovery was not patentable. But that he was entitled to a patent for the new process or method in the art of making lead pipe, which this

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discovery enabled him to invent and employ, and was bound to describe such process or method fully in his specification.

Many cases have also been referred to which were decided in the circuit courts. It will be found, we think, upon careful examination that all of them previous to the decision on Nielson's patent maintain the principles on which this decision is made. Since that case was reported, it is admitted, that decisions have been made which would seem to extend patentable rights beyond the limits here marked out. As we have already said, we see nothing in that opinion which would sanction the introduction of any new principle in the law of patents. But if it were otherwise, it would not justify this Court in departing from what we consider as established principles in the American courts. And to show what was heretofore the doctrine upon this subject, we refer to the annexed cases. We do not stop to comment on them, because such an examination would extend this opinion beyond all reasonable bounds. *Wyeth v. Stone,* 1 Story 270, 285; *Blanchard v. Sprague,* 3 Sumn. 540. The first mentioned case is directly in point.

Indeed, independently of judicial authority, we do not think that the language used in the act of Congress, U.S. can justly be expounded otherwise.

The 5th section of the act of 1836 declares that a patent shall convey to the inventor for a term not exceeding fourteen years the exclusive right of making, using, and vending to others to be used his invention or discovery, referring to the specification for the particulars thereof.

The 6th section directs who shall be entitled to a patent and the terms and conditions on which it may be obtained. It provides that any person shall be entitled to a patent who has discovered or invented a new and useful art, machine, manufacture, or composition of matter or a new and useful improvement on any previous discovery in either of them.

But before he receives a patent, he shall deliver a written description of his invention or discovery, "and of the manner and process of making, constructing, using, and compounding the same" in such exact terms at to enable any person skilled in the art or science to which it appertains or with which it is most nearly connected to make, construct, compound, and use the same.

This Court has decided that the specification required by this law is a part of the patent and that the patent issues for the invention described in the specification.

Now whether the telegraph is regarded as an art or machine, the manner and process of making or using it must be set forth in exact terms. The act of Congress makes no difference in this respect between an art and a machine. An improvement

in the art of making bar iron or spinning cotton must be so described, and so must the art of printing by the motive power of steam. And in all of these cases it has always been held that the patent embraces nothing more than the improvement described and claimed as new, and that anyone who afterwards discovered a method of accomplishing the same object substantially and essentially differing from the one described had a right to use it. Can there be any good reason why the art of printing at a distance by means of the motive power of the electric or galvanic current should stand on different principles? Is there any reason why the inventor's patent should cover broader ground? It would be difficult to discover anything in the act of Congress which would justify this distinction. The specification of this patentee describes his invention or discovery and the manner and process of constructing and using it, and his patent, like inventions in the other arts above mentioned, covers nothing more.

The provisions of the acts of Congress in relation to patents may be summed up in a few words.

Whoever discovers that a certain useful result will be produced in any art, machine, manufacture, or composition of matter by the use of certain means is entitled to a patent for it, provided he specifies the means he uses in a manner so full and exact that anyone skilled in the science to which it appertains can, by using the means he specifies, without any addition to or subtraction from them, produce precisely the result he describes. And if this cannot be done by the means he describes, the patent is void. And if it can be done, then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes, and nothing more. And it makes no difference in this respect whether the effect is produced by chemical agency or combination, or by the application of discoveries or principles in natural philosophy known or unknown before his invention, or by machinery acting altogether upon mechanical principles. In either case, he must describe the manner and process as above mentioned and the end it accomplishes. And anyone may lawfully accomplish the same end without infringing the patent if he uses means substantially different from those described.

Indeed, if the eighth claim of the patentee can be maintained, there was no necessity for any specification further than to say that he had discovered that by using the motive power of electro-magnetism, he could print intelligible characters at any distance. We presume it will be admitted on all hands that no patent could have issued on such a specification. Yet this claim can derive no aid from the specification filed. It is

outside of it, and the patentee claims beyond it. And if it stands, it must stand simply on the ground that the broad terms above-mentioned were a sufficient description, and entitled him to a patent in terms equally broad. In our judgment, the act of Congress cannot be so construed.

The patent, then, being illegal and void so far as respects the eighth claim, the question arises whether the whole patent is void unless this portion of it is disclaimed in a reasonable time after the patent issued.

It has been urged on the part of the complainants that there is no necessity for a disclaimer in a case of this kind. That it is required in those cases only in which the party commits an error in fact in claiming something which was known before and of which he was not the first discoverer; that in this case he was the first to discover that the motive power of electro-magnetism might be used to write at a distance, and that his error, if any, was a mistake in law in supposing his invention, as described in his specification, authorized this broad claim of exclusive privilege, and that the claim therefore may be regarded as a nullity and allowed to stand in the patent without a disclaimer and without affecting the validity of the patent.

This distinction can hardly be maintained. The act of Congress above recited requires that the invention shall be so described that a person skilled in the science to which it appertains, or with which it is most nearly connected, shall be able to construct the improvement from the description given by the inventor.

Now in this case there is no description but one of a process by which signs or letters may be printed at a distance. And yet he claims the exclusive right to any other mode and any other process, although not described by him, by which the end can be accomplished if electro-magnetism is used as the motive power. That is to say he claims a patent for an effect produced by the use of electro-magnetism distinct, from the process or machinery necessary to produce it. The words of the acts of Congress above quoted show that no patent can lawfully issue upon such a claim. For he claims what he has not described in the manner required by law. And a patent for such a claim is as strongly forbidden by the act of Congress as if some other person had invented it before him.

Why, therefore, should he be required and permitted to disclaim in the one case and not in the other? The evil is the same if he claims more than he has invented, although no other person has invented it before him. He prevents others from attempting to improve

upon the manner and process which he has described in his specification -- and may deter the public

from using it, even if discovered. He can lawfully claim only what he has invented and described, and if he claims more, his patent is void. And the judgment in this case must be against the patentee unless he is within the act of Congress which gives the right to disclaim.

The law which requires and permits him to disclaim is not penal, but remedial. It is intended for the protection of the patentee as well as the public, and ought not, therefore, to receive a construction that would restrict its operation within narrower limits than its words fairly import. It provides

"That when any patentee shall have in his specification claimed to be the first and original inventor or discoverer of any material or substantial part of the thing patented of which he was not the first and original inventor, and shall have no legal or just claim to the same,"

he must disclaim in order to protect so much of the claim as is legally patented.

Whether, therefore, the patent is illegal in part because he claims more than he has sufficiently described, or more than he invented, he must in either case disclaim in order to save the portion to which he is entitled, and he is allowed to do so when the error was committed by mistake.

A different construction would be unjust to the public as well as to the patentee, and defeat the manifest object of the law and produce the very evil against which it intended to guard.

It appears that no disclaimer has yet been entered at the patent office. But the delay in entering it is not unreasonable. For the objectionable claim was sanctioned by the head of the office; it has been held to be valid by a circuit court, and differences of opinion in relation to it are found to exist among the Justices of this Court. Under such circumstances, the patentee had a right to insist upon it and not disclaim it until the highest court to which it could be carried had pronounced its judgment. The omission to disclaim therefore does not render the patent altogether void, and he is entitled to proceed in this suit for an infringement of that part of his invention which is legally claimed and described. But as no disclaimer was entered in the patent office before this suit was instituted, he cannot, under the act of Congress, be allowed costs against the wrongdoer, although the infringement should be proved. And we think it is proved by the testimony. But as the question of infringement embraces both of the reissued patents, it is proper, before we proceed to that part of the case, to notice the objections made to the second patent for the local circuits, which was originally obtained in 1846 and reissued in 1848.

It is certainly no objection to this patent that the improvement is embraced by the eighth claim in the former one. We

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have already said that this claim is void and that the former patent covers nothing but the first seven inventions specifically mentioned.

Nor can its validity be impeached upon the ground that it is an improvement upon a former invention for which the patentee had himself already obtained a patent. It is true that under the act of 1836, s. 13, it was in the power of Professor Morse, if he desired it, to annex this improvement to his former specification so as to make it from that time a part of the original patent. But there is nothing in the act that forbids him to take out a new patent for the improvement if he prefers it. Any other inventor might do so, and there can be no reason in justice or in policy for refusing the like privilege to the original inventor. And when there is no positive law to the contrary, he must stand on the same footing with any other inventor of an improvement upon a previous discovery. Nor is he bound in his new patent to refer specially to his former one. All that the law requires of him is that he shall not claim as new what is covered by a former invention, whether made by himself or any other person.

It is said, however, that this alleged improvement is not new, and is embraced in his former specification, and that if some portion of it is new, it is not so described as to distinguish the new from the old.

It is difficult -- perhaps impossible -- to discuss this part of the case so as to be understood by anyone who has not a model before him or perfectly familiar with the machinery and operations of the Telegraph. We shall not, therefore, attempt to describe minutely the machinery or its mode of operation. So far as this can be done intelligibly without the aid of a model to point to, it has been fully and well done in the opinion delivered by the learned judge who decided this case in the circuit court. All that we think is useful or necessary to say is that after a careful examination of the patents, we think the objection on this ground is not tenable. The force of the objection is mainly directed upon the receiving magnet, which it is said is a part of the machinery of the first patent and performs the same office. But the receiving magnet is not of itself claimed as a new invention. It is claimed as a part of a new combination or arrangement to produce a new result. And this combination does produce a new and useful result. For by this new combination and the arrangement and position of the receiving magnet, the local and independent circuit is opened by the electric or galvanic current as it passes on the main line without interrupting it in its course, and the intelligence it conveys is recorded almost at the same moment at the

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end of the line of the telegraph, and at the different local offices on its way. And it hardly needs a model or a minute examination of the machinery to be satisfied that a telegraph

which prints the intelligence it conveys at different places by means of the current as it passes along on the main line must necessarily require a different combination and arrangement of powers from the one that prints only at the end. The elements which compose it may all have been used in the former invention, but it is evident that their arrangement and combination must be different to produce this new effect. The new patent for the local circuits was therefore properly granted, and we perceive no well founded objection to the specification or claim contained in the reissued patent of 1848.

The two reissued patents of 1848, being both valid, with the exception of the eighth claim in the first, the only remaining question is whether they or either of them have been infringed by the defendants.

The same difficulty arises in this part of the case which we have already stated in speaking of the specification and claims in the patent for the local circuits. It is difficult to convey a clear idea of the similitude or differences in the two telegraphs to anyone not familiarly acquainted with the machinery of both. The court must content itself, therefore, with general terms, referring to the patents themselves for a more special description of the matters in controversy.

It is a well settled principle of law that the mere change in the form of the machinery, unless a particular form is specified as the means by which the effect described is produced or an alteration in some of its unessential parts, or in the use of known equivalent powers, not varying essentially the machine or its mode of operation or organization, will not make the new machine a new invention. It may be an improvement upon the former, but that will not justify its use without the consent of the first patentee.

The Columbian (O'Reilly's) telegraph does not profess to accomplish a new purpose or produce a new result. Its object and effect is to communicate intelligence at a distance at the end of the main line and at the local circuits on its way. And this is done by means of signs or letters impressed on paper or other material. The object and purpose of the telegraph is the same with that of Professor Morse.

Does he use the same means? Substantially we think he does, both upon the main line and in the local circuits. He uses upon the main line the combination of two or more galvanic or electric circuits, with independent batteries for the purpose of obviating the diminished force of the galvanic current,

and in a manner varying very little in form from the invention of Professor Morse. And indeed the same may be said of the entire combination set forth in the patentee's third claim. For O'Reilly's can hardly be said to differ substantially and essentially from it. He uses the combination which composes the register with no material change in the arrangement or in the elements of which it consists, and with the aid of these means, he conveys intelligence by impressing marks or signs upon paper -- these marks or signs being capable of being read and understood by means of an alphabet or signs adapted

to the purpose. And as regards the second patent of Professor Morse for the local circuits, the mutator of the defendant does not vary from it in any essential particular. All of the efficient elements of the combination are retained or their places supplied by well known equivalents. Its organization is essentially the same.

Neither is the substitution of marks and signs differing from those invented by Professor Morse any defense to this action. His patent is not for the invention of a new alphabet, but for a combination of powers composed of tangible and intangible elements, described in his specification, by means of which marks or signs may be impressed upon paper at a distance which can there be read and understood. And if any marks or signs or letters are impressed in that manner by means of a process substantially the same with his invention, or with any particular part of it covered by his patent, and those marks or signs can be read and thus communicate intelligence, it is an infringement of his patent. The variation in the character of the marks would not protect it if the marks could be read and understood.

We deem it unnecessary to pursue further the comparison between the machinery of the patents. The invasion of the plaintiff's rights, already stated, authorized the injunction granted by the circuit court, and so much of its decree must be affirmed. But for the reasons hereinbefore assigned, the complainants are not entitled to costs, and that portion of the decree must be reversed and a decree passed by this Court directing each party to pay his own costs in this and in the circuit court.

MR. JUSTICE WAYNE, MR. JUSTICE NELSON, and MR. JUSTICE GRIER, dissent from the judgment of the court on the question of costs.

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"Suppose the places to be put in communication with each other occupy the three angles of a triangle, the four angles of a quadrilateral, or certain points of a line enclosing a space, a single wire passing through all those points would be sufficient, at least according to theory."

MR. JUSTICE GRIER.

I entirely concur with the majority of the Court that the appellee

and complainant below, Samuel F. B. Morse, is the true and first inventor of the recording telegraph and the first who has successfully applied the agent or element of nature called electro-magnetism to printing and recording intelligible characters at a distance, and that his patent of 1840, finally reissued in 1848, and his patent for his improvements as reissued in the same year, are good and valid, and that the appellants have infringed the rights secured to the patentee by both his patents. But as I do not

concur in the views of the majority of the Court in regard to two great points of the case, I shall proceed to express my own.

I. Does the complainant's first patent come within the proviso of the 6th section of the act of 1839?, and should the term of fourteen years granted by it commence from the date of his patent here or from the date of his French patent in 1838?

If the complainant's patent is within the provisions of this section, I cannot see how we can escape from declaring it void. The proviso declares that

"In all cases, every such patent issued under the provisions of that section shall be limited to the term of fourteen years from the date or publication of such foreign letters patent."

It is true it does not say that the patent shall be void if not limited to such term on its face, but it gives no power to the officer to issue a patent for a greater term. If the patent does not show the true commencement of the term granted by it, the patentee has it in his power to deceive the public by claiming a term of fourteen years while in reality it may be not more than one.

But I am of opinion that the patent in question does not come within this proviso.

The facts of the case as connected with this point are these:

On the 6th of October, 1837, Morse filed in the office of the Commissioner of Patents, a caveat accompanied by a specification setting forth his invention and praying that it may be protected till he could finish some experiments necessary to perfect its details. On the 9th of April, 1838, he filed a formal application for a patent, accompanied by a specification and drawings. On the first of May, 1838, the Commissioner informs him that his application has been granted. Morse answers on the 15th of May that he is just about to sail to Europe, and asks the Commissioner to delay the issue of his patent for the present, fearing its effect upon his plans abroad.

On the 30th of October, 1838, he obtained his useless French patent. On his return to this country in 1840, he requests his patent to be perfected and issued. In this application, filed on the 9th of April, 1838, there was an oversight in filling up the day and month. This clerical omission was wholly immaterial,

but *ex majori cautela* a second affidavit was filed, and the patent issued on the 20th of June, 1840, for the term of fourteen years from its date.

The application of 1838 had a set of drawings annexed to the specification. The second set of drawings, required by the 6th section of the act of 1837, being for the purpose of annexation to the patent, they were entirely unnecessary till the patent issued, and are

not required by law to accompany the application when first made, and the want of them cannot affect the validity of the application.

In many instances, owing to various causes, the patent is not issued till many months, and sometimes a year or more, after the application. The Commissioner requires time to examine the specification; he may suggest difficulties and amendments, and disputes often arise which delay the issuing of the patent. But the application does not require to be renewed, and is never considered abandoned in consequence of such delay. It still remains as of the date of its filing for every purpose beneficial to the applicant. The law does not require that the specification and its accompaniments should be in the precise form which they afterwards assume in the patent. It requires only that the application be "in writing" and that the applicant should "make oath that he is the original inventor," &c. The other requirements of the act must precede the issuing of the patent, but make no part of the application and are not conditions precedent to its validity.

In the present case we have, therefore, a regular application in due form, accompanied by a specification and drawings, filed on the 9th of April, 1838. It has not been withdrawn, discontinued, or abandoned. There is nothing in the act of Congress which requires that the patent should be issued within any given time after the application is filed or which forbids the postponement of it for a time at the suggestion either of the applicant or the officer. Nor is there anything in the general policy of the patent laws which forbids it. On the contrary, it has always been the practice, when a foreign patent is desired, to delay the issuing of the patent here, after application filed, for fear of injuring such foreign application. It forms no part of the policy of any of our patent acts to prevent our citizens from obtaining patents abroad.

By the Patent Act of 1793, the applicant must swear "that his invention was not known or used before the application." The filing of the application was the time fixed for determining the applicant's right to a patent. If a patent had issued abroad or the invention had been in use or described in some public work before that time, it was a good defense to it. The time

of filing the application was therefore made by law the criterion of his right to claim as first inventor. A foreign patent subsequent to the date of his application could not be set up as a defense against the domestic patentee. The American inventor who had filed his application and specification at home was thus enabled to obtain his patent abroad without endangering his patent at home. This was a valuable privilege to American citizens, and one of which he has never been deprived by subsequent legislation. And thus the law stood till the Act of 4 July, 1836.

Before this time, the right to obtain a patent was confined to American citizens or those who had filed their intentions to become such. The policy of this act was to encourage foreign inventors to introduce their inventions to this country, but in doing so it evinces

no intention of limiting our own citizens by taking away from them rights which they had hitherto enjoyed.

Accordingly it gave an inventor who had obtained a patent abroad and who was generally a foreigner a right to have one here, provided he made his application here within six months after the date of his foreign patent. Neither the letter nor the spirit of this act interferes with the right of an inventor who has filed his application here from obtaining a patent abroad or his right to a term of fourteen years from the date of his patent.

In 1838, therefore, when complainant filed his application, he was entitled to such a patent. But in March, 1839, an act was passed by the 6th section of which it is alleged the complainant's rights have been affected. That section is as follows:

"That no person shall be debarred from receiving a patent for any invention &c., as provided in the Act of 4 July, 1836, to which this is additional, by reason of the same's having been patented in a foreign country more than six months prior to his application. Provided that the same shall not have been introduced into public and common use in the United States prior to the application for such patent. And provided also that in all cases, every such patent shall be limited to the term of fourteen years from the date of publication of such foreign letters patent."

Now the act of 1836, as we have shown, had given a privilege to foreign patentees to have a patent within six months after date of such foreign patent. It had not affected in any manner the right previously enjoyed by American citizens to take out a foreign patent after filing their applications here. This section gives additional rights to those who had first taken out patents abroad, and holding out an additional encouragement to foreign inventors to introduce their inventions here, subject to certain

conditions contained in the proviso. Neither the letter, spirit, nor policy of this act has any reference to or bearing upon the case of persons who had just made their applications here. To construe a proviso as applicable to a class of cases not within its enacting clause would violate all settled rules of construction. The office of a proviso is either to except something from the enacting clause, or to exclude some possible ground of misinterpretation, or to state a condition to which the privilege granted by the section shall be subjected.

Here the proviso is inserted to restrain the general words of the section and impose a condition on those who accept the privileges granted by the section. It enlarged the privileges of foreign patentees, which had before been confined to six months, on two conditions: 1st, provided the invention patented abroad had not been introduced into public use here, and 2d on condition that every such patent should be limited in its terms. The general words, "in all cases," especially when restrained to every such patent, cannot extend the conditions of the proviso beyond such cases as are the

subject matter of legislation in the section. The policy and spirit of the act are to grant privileges to a certain class of persons which they did not enjoy before; to encourage the introduction of foreign inventions and discoveries, and not to deprive our own citizens of a right heretofore enjoyed or to affect an entirely different class of cases when the applications had been filed here before a patent obtained abroad.

It is supposed that certain evils might arise by allowing an applicant for a patent here to delay its issue till he can obtain a foreign patent. To which it is a sufficient answer to say that if such evil consequences should be found to exist, it is for Congress to remedy them by legislation.

It is no part of the duty of this Court, by a forced construction of existing statutes, to attempt the remedy of possible evils by anticipation.

I am therefore of opinion that the complainant's patent, as renewed, contained a valid grant of the full term of fourteen years from its original date.

II. The other point in which I cannot concur with the opinion of the majority arises in the construction of the eighth claim of complainant's first patent as finally amended. The first claim, as explanatory of all that follow, should be read in connection with the eighth. They are as follows:

"1st. Having thus fully described my invention, I wish it to be understood, that I do not claim the use of the galvanic current or currents of electricity for the purpose of telegraphic communications generally, but what I specially claim as my

invention and improvement is making use of the motive power of magnetism, when developed by the action of such current or currents substantially as set forth in the foregoing description of the first principal part of my invention, as means of operating or giving motion to machinery which may be used to imprint signals upon paper or other suitable material or to produce sounds in any desired manner for the purpose of telegraphic communication at any distances. The only ways in which the galvanic current had been proposed to be used prior to my invention and improvement were by bubbles resulting from decomposition and the action or exercise of electrical power upon a magnetized bar or needle, and the bubbles and the deflections of the needles thus produced were the subjects of inspection, and had no power or were not applied to record the communication. I therefore characterize my invention as the first recording or printing telegraph by means of electro-magnetism."

"There are various known modes of producing motions by electro-magnetism, but none of these had been applied prior to my invention and improvement to actuate or give motion to printing or recording machinery, which is the chief point of my invention and improvement."

"8th. I do not propose to limit myself to the specific machinery or parts of machinery described in the foregoing specification and claims, the essence of my invention being the use of the motive power of the electric or galvanic current, which I call electro-magnetism, however developed, for marking or printing intelligible characters, signs, or letters, at any distances, being a new application of that power of which I claim to be the first inventor or discoverer."

The objection to this claim is that it is too broad, because the inventor does not confine himself to specific machinery or parts of machinery, as described in his patent, but claims that the essence of his invention consists in the application of electro-magnetism as a motive power, however developed, for printing characters at a distance. This being a new application of that element or power, of which the patentee claims to be the first inventor or discoverer.

In order to test the value of this objection as applied to the present case and escape any confusion of ideas too often arising from the use of ill-defined terms and propositions, let us examine

1st, what may be patented or what forms a proper subject of protection under the Constitution and acts of Congress relative to this subject?

2d, what is the nature of the invention now under consideration? Is it a mere machine, and subject to the rules which affect a combination of mechanical devices to effect a particular purpose?

3d, is the claim true, in fact? And if true, how can it be too broad, in any legal sense of the term, as heretofore used, either in the acts of Congress, or in judicial decisions?

4th, assuming the hypothesis that it is too broad, how should that affect the judgment for costs in this case?

1st. The Constitution of the United States declares that

"Congress shall have the power to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries."

The act of Congress of 1836 confers this exclusive right for a limited time, on

"any person who has discovered or invented any new and useful art, machine, manufacture, or composition of matter or any new and useful improvements on any art, machine, manufacture, or composition of matter not known or used by others before his or their discovery or invention thereof, and not, at the time of his application for a patent, in public use,"

&c.

A new and useful art or a new and useful improvement on any known art is as much entitled to the protection of the law as a machine or manufacture. The English patent acts are confined to "manufactures" in terms, but the courts have construed them to cover and protect arts as well as machines, yet without using the term art. Here we are not required to make any latitudinous construction of our statute for the sake of equity or policy, and surely we have no right, even if we had the disposition, to curtail or narrow its liberal policy by astute or fanciful construction.

It is not easy to give a precise definition of what is meant by the term "art," as used in the acts of Congress -- some if not all the traits which distinguish an art from the other legitimate subjects of a patent are stated with clearness and accuracy by Mr. Curtis in his Treatise on Patents. "The term art, applies," says he,

"to all those cases where the application of a principle is the most important part of the invention, and where the machinery, apparatus, or other means by which the principle is applied are incidental only, and not of the essence of his invention. It applies also to all those cases where the result, effect, or manufactured article is old, but the invention consists in a new process or method of producing such result, effect, or manufacture."

Curt. on Pat. 80.

A machine, though it may be composed of many parts, instruments, or devices combined together, still conveys the idea of unity. It may be said to be invented, but the term "discovery" could not well be predicated of it. An art may employ many different machines, devices, processes, and manipulations to

produce some useful result. In a previously known art a man may discover some new process, or new application of a known principle, element, or power of nature, to the advancement of the art, and will be entitled to a patent for the same as "an improvement in the art," or he may invent a machine to perform a given function, and then he will be entitled to a patent only for his machine.

That improvements in the arts, which consist in the new application of some known element, power, or physical law and not in any particular machine or combination of machinery, have been frequently the subject of patents both in England and in this country the cases in our books most amply demonstrate. I have not time to examine them at length. but would refer to James Watt's patent for a method of saving fuel in steam engines by condensing the steam in separate vessels and applying nonconducting substances to his steam pipes; Clegg's patent for measuring gas in water; *Juhr v. Pratt,* Webster's Pat.Cas. 103; and the celebrated case of Neilson's patent for the application of hot blast, being an important improvement in the art of smelting iron.

In England, where their statute does not protect an art in direct terms, they have made no clear distinction between an art or an improvement in an art, and a process, machine, or manufacture. They were hampered and confined by the narrowness of the phraseology of their patent acts. In this country, the statute is as broad as language can make it. And yet if we look at the titles of patents as given at the patent office and the language of our courts, we might suppose that our statute was confined entirely to machines. Notwithstanding, in *Kneiss v. Bank,* 4 Wash.C.C. 19, Mr. Justice Washington supported a patent which consisted in nothing else but a new application of copperplates to both sides of a bank-bill as a security against counterfeiting. The new application was held to be an art, and, therefore, patentable. So the patent in *McClurg v. Kingsland,* 1 How. 204, was in fact for an improvement in the art of casting chilled rollers by conveying the metal to the mould in a direction approaching to the tangent of the cylinder, yet the patentee was protected in the principle of his discovery, which was but the application of a known law of nature to a new purpose, against all forms of machinery embodying the same principle.

The great art of printing, which has changed the face of human society and civilization, consisted in nothing but a new application of principles known to the world for thousands of years. No one could say it consisted in the type or the press, or in any other machine or device used in performing some

particular function more than in the hands which picked the types or worked the press. Yet if the inventor of printing had, under this narrow construction of our patent law, claimed his art as something distinct from his machinery, the doctrine now advanced would have declared it unpatentable to its full extent as an art, and that the inventor could be protected in nothing but his first rough types and ill-contrived press.

I do not intend to review the English cases which adopt the principle for which I now contend, notwithstanding their narrow statute, but would refer to the opinion of my brother NELSON in 55 U. S. 14 How. 177, and will add, that MR. JUSTICE McLEAN in delivering the opinion of the Court in that case, quotes with approbation the language of Lord Justice Clerke, in the *Neilson Case,* which is precisely applicable to the question before us. He says:

"The specification does not claim anything as to form, nature, shape, materials, numbers, or mathematical character of the vessel or vessels in which the air is to be heated, or as to the mode of heating such vessels."

Yet this patent was sustained as for a new application of a known element, or, to use correct language, as an improvement in the art of smelting iron, without any regard to the machinery or parts of machinery used in the application. Such I believe to be the established doctrine of the English courts.

He who first discovers that an element or law of nature can be made operative for the production of some valuable result, some new art, or the improvement of some known art; who has devised the machinery or process to make it operative and introduced it in a practical form to the knowledge of mankind, is a discoverer and inventor of the highest class. The discovery of a new application of a known element or agent may require more labor, expense, persevering industry, and ingenuity than the inventor of any machine. Sometimes, it is true, it may be the result of a happy thought or conception, without the labor of an experiment, as in the case of the improvement in the art of casting chilled rollers already alluded to. In many cases it is the result of numerous experiments -- not the consequence of any reasoning *a priori,* but wholly empirical -- as the discovery that a certain degree of heat, when applied to the usual processes for curing India rubber produced a substance with new and valuable qualities.

The mere discovery of a new element or law or principle of nature, without any valuable application of it to the arts, is not the subject of a patent. But he who takes this new element or power, as yet useless, from the laboratory of the philosopher and makes it the servant of man; who applies it to the perfecting of a new and useful art or to the improvement of one already

known, is the benefactor to whom the patent law tenders its protection. The devices and machines used in the exercise of it may or may not be new, yet, by the doctrine against which I contend, he cannot patent them, because they were known and used before. Or if he can, it is only in their new application and combination in perfecting the new art. In order words, he may patent the new application of the mechanical devices, but not the new application of the operative elements which is the essential agent in the invention. He may patent his combination of the machinery, but not his art.

When a new and hitherto unknown product or result, beneficial to mankind, is effected by a new application of any element of nature and by means of machines and devices, whether new or old, it cannot be denied that such invention or discovery is entitled to the denomination of a "new and useful art." The statute gives the inventor of an art a monopoly in the exercise of it as fully as it does to the inventor of a mere machine. And any person who exercise such new art without the license of the inventor is an infringer of his patent and of the franchise granted to him by the law as a reward for his labor and ingenuity in perfecting it. A construction of the law which protects such an inventor in nothing but the new invented machines or parts of machinery used in the exercise of his art and refuses it to the exercise of the art itself annuls the patent law. If the law gives a franchise or monopoly to the inventor of an art as fully as to the inventor of a machine, why shall its protection not be coextensive with the invention in one case as well as in the other? To look at an art as nothing but a combination of machinery, and give it protection only as such against the use of the same or similar devices or mechanical equivalents, is to refuse it protection as an art. It ignores the distinction between an art and a machine; it overlooks the clear letter and spirit of the statute, and leads to inextricable difficulties. It is viewing a statute or a monument through a microscope.

The reason given for thus confining the franchise of the inventor of an art to his machines and parts of machinery is that it would retard the progress of improvement if those who can devise better machines or devices, differing in mechanical principle from those of the first inventor of the art, or in other words who can devise an improvement in it, should not be allowed to pirate it.

To say that a patentee, who claims the art of writing at a distance by means of elector-magnetism necessarily claims all future improvements in the art is to misconstrue it, or draws a consequence from it not fairly to be inferred from its language. An improvement in a known art is as much the subject of a

patent as the art itself; so also is an improvement on a known machine. Yet if the original machine be patented, the patentee of an improvement will not have a right to use the original. This doctrine has not been found to retard the progress of invention in the case of machines, and I can see no reason why a contrary one should be applied to an art.

The claim of the patentee is that he may be protected in the exercise of his art as against persons who may improve or change some of the processes or machines necessary in its exercise. The court, by deciding that this claim is too broad, virtually decides that such an inventor of an improvement may pirate the art he improves, because it is contrary to public policy to restrain the progress of invention. Or in other words it may be said that it is the policy of the courts to refuse that protection to an art which it affords to a machine, which it is the policy of the Constitution and the laws to grant.

2d. Let us now consider what is the nature of the invention now under consideration.

It is not a composition of matter, or a manufacture, or a machine. It is the application of a known element or power of nature to a new and useful purpose by means of various processes, instruments and devices, and if patentable at all, it must come within the category of "a new and useful art." It is as much entitled to this denomination as the original art of printing itself. The name given to it in the patent is generally the act of the Commissioner, and in this, as in many other cases, a wrong one. The true nature of the invention must be sought in the specification.

The word "telegraph" is derived from the Greek, and signifies "to write afar off or at a distance." It has heretofore been applied to various contrivances or devices to communicate intelligence by means of signals or semaphores which speak to the eye for a moment. But in its primary and literal signification of writing, printing, or recording at a distance, it never was invented, perfected, or put into practical operation till it was done by Morse. He preceded Steinheil, Cook, Wheatstone, and Davy in the successful application of this mysterious power or element of electro-magnetism to this purpose, and his invention has entirely superseded their inefficient contrivances. It is not only "a

new and useful art," if that term means anything, but a most wonderful and astonishing invention, requiring tenfold more ingenuity and patient experiment to perfect it than the art of printing with types and press as originally invented.

3d. Is it not true, as set forth in this eighth claim of the specification, that the patentee was the first inventor or discoverer of the use or application of electro-magnetism to print and record

intelligible characters or letters? It is the very ground on which the Court agrees in confirming his patent. Now the patent law requires an inventor, as a condition precedent to obtaining a patent, to deliver a written description of his invention or discovery and to particularly specify what he claims to be his own invention or discovery. If he has truly stated the principle, nature, and extent of his art or invention, how can the Court say it is too broad, and impugn the validity of his patent for doing what the law requires as a condition for obtaining it? And if it is only in case of a machine that the law requires the inventor to specify what he claims as his own invention and discovery and to distinguish what is new from what is old, then this eighth claim is superfluous, and cannot affect the validity of his patent, provided his art is new and useful and the machines and devices claimed separately are of his own invention. If it be in the use of the words "however developed" that the claim is to be adjudged too broad, then it follows that a person using any other process for the purpose of developing the agent or element of elector-magnetism than the common one now in use and described in the patent may pirate the whole art patented.

But if it be adjudged that the claim is too broad because the inventor claims the application of this element to his new art, then his patent is to be invalidated for claiming his whole invention, and nothing more. If the result of this application be a new and useful art, and if the essence of his invention consists in compelling this hitherto useless element to record letters and words at any distance and in many places at the same moment, how can it be said that the claim is for a principle or an abstraction? What is meant by a claim being to broad? The patent law and judicial decisions may be searched in vain for a provision or decision that a patent may be impugned for claiming no more than the patentee invented or discovered. It is only when he claims something before known and used, something as new which is not new, either by mistake or intentionally, that his patent is affected.

The act of Congress requires the applicant for a patent to swear that "he is the original and first inventor of the art, machine &c." It requires the Commissioner to make an examination of the alleged invention,

"and if it shall appear that the same has not been invented prior to the alleged invention, he shall grant a patent &c., but if it shall appear that the applicant is not the original and first inventor or discoverer thereof or that any part of that which is claimed as new had before been invented,"

then the applicant to have leave to withdraw his application.

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The 13th section treats of defective specifications and their remedy where the applicant, through mistake or inadvertency, had claimed "more than he had a right to claim as new."

The 15th section, in enumerating the defenses which a defendant may be allowed to make to a patent, states that, *inter alia,* he may show,

"that the patentee was not the original and first inventor or discoverer of the thing patented, or of a substantial and material part thereof claimed as new."

And the proviso to the same section allows the court to refuse costs

"when the plaintiff shall fail to sustain his action on the ground that in his specification or claim is embraced more than that of which he was the first inventor."

The 7th section of the Act of March 3, 1837, specially defines the meaning of the phrase "too broad" to be "when the patent claims more than that of which the patentee was the original and first inventor." And the 9th section of the same act, again providing for cases where by accident or mistake the patentee claims more than he is justly entitled to, describes it to be

"where the patentee shall have in his specification claimed to be the original inventor or discoverer of any material or substantial part, of which he is not the first and original inventor, and shall have no legal and just right to the same."

Thus we see that it is only where, through inadvertence or mistake, the patentee has claimed something of which he was not the first inventor that the court are directed to refuse costs.

The books of reports may be searched in vain for a case where a patent has been declared void for being too broad in any other sense.

Assuming it to be true, then, for the purpose of the argument that the new application of the power of electro-magnetism to the art of telegraphing or printing characters at a distance is not the subject of a patent because it is patenting a principle, yet as it is also true that Morse was the first who made this application successfully, as set forth in this eighth claim, I am unable to comprehend how, in the words of the statute, we can adjudge "that he has failed to sustain his action on the ground that his specification or claim embraces more than that of which he was the first inventor." It is for this alone that the statute authorizes us to refuse costs.

4th. Assuming this eighth claim to be too broad, it may well be said that the patentee has not unreasonably delayed a disclaimer when we consider that it is not till this moment he had reason to believe it was too broad. But the bill claims, and it is sustained by proof, that the defendant had infringed the complainant's second patent for his improvement.

The Court sustains the validity of this patent. Why, then,

is the complainant not entitled to his costs? At law, a recovery on one good count is sufficient to entitle the plaintiff to recover costs, and I can see no particular equity which the defendants can claim who are adjudged to have pirated two inventions at once.

I am of opinion, therefore, that the decree of the circuit court should be affirmed, with costs.

Order

This cause same on to be heard on the transcript of the record from the Circuit Court of the United States for the District of Kentucky, and was argued by counsel. On consideration whereof, it is now here ordered, adjudged, and decreed by this Court that the decree of the said circuit court in this cause be and the same is hereby affirmed except so much thereof as decrees that the complainants shall recover their costs, in the prosecution of this suit of and from the defendants and that that part of the said decree giving costs to the complainants be and the same is hereby reversed, and annulled.

And it is further ordered and decreed by this Court that the parties respectively pay their own costs in this Court and in the said circuit court.