

Expanded Metal Company Vs. Bradford

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Appeal No. : 214 U.S. 366

Appellant : Expanded Metal Company

Respondent : Bradford

Judgement :

Expanded Metal Company v. Bradford - 214 U.S. 366 (1909)
U.S. Supreme Court Expanded Metal Company v. Bradford, 214 U.S. 366 (1909)

Expanded Metal Company v. Bradford

Nos. 66, 606

Argued March 18, 19, 1909

Decided June 1, 1909

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CERTIORARI TO THE CIRCUIT COURT OF

APPEALS FOR THE THIRD CIRCUIT

Syllabus

The writs of certiorari in these cases bring conflicting decisions of the Circuit Courts of Appeal to this Court for review.

The patent involved in this case shows a method for expanding metal consisting of two operations, which when combined produce a new and useful result covered by the claim allowed, and this result, when read in connection with the specifications, shows substantial improvement in the art of making expanded metal work.

A new combination of elements, though old in themselves, which produces a new and useful result, entitles the inventor to the protection of a patent. *Loom Co. v. Higgins*, [105 U. S. 580](http://www.legalcrystal.com/105).

While the mere function or effect of the operation of a machine cannot be the subject matter of a patent, a method of doing a thing so clearly indicated that those skilled in the art can avail themselves of mechanism to carry it into operation can be the

subject matter of a patent. *Cochrane v. Deene*, [94 U. S. 780](#).

A process and an apparatus by which it is performed are distinct things. They may be found in one patent; they may be the subject of different patents. *Leeds & Catlin v. Victor Talking Machine Co.*, [213 U. S. 301](#).

An invention or discovery of a process or method involving mechanical operation and producing a new and useful result, such as expanding metal, may, and in this case does, entitle the inventor to a patent, and such a process is not limited to those showing chemical action or elemental changes. *Risdon Locomotive Works v. Medart*, [158 U. S. 68](#), distinguished.

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In this case, *held* that the Golding patent No. 547,242 for the process of expanding metal was a substantial improvement of the art involving mechanical operations and producing a new and useful result independently of particular mechanisms for performing such process, and is valid.

157 F. 564 reversed; 164 F. 849 affirmed.

The facts, which involve the validity of certain letters patent of the United States, are stated in the opinion.

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MR. JUSTICE DAY delivered the opinion of the Court.

These cases involve opposing decisions as to the validity of letters patent of the United States No. 527,242, dated October

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9, 1894, granted to John E. Golding for an alleged improvement in the method of making expanded sheet metal. In case No. 66, here on writ of certiorari to the Circuit Court of Appeals for the Third Circuit, a decree of the Circuit Court of the United States for the Eastern District of Pennsylvania, sustaining the patent, was reversed, and the patent held invalid. The opinion of the circuit judge sustaining the patent is found in 136 F. 870. The case in the court of appeals is found in 146 F. 984. After the decree in the Circuit Court of Appeals for the Third Circuit, the Expanded Metal Company having filed a bill against the General Fireproofing Company in the Circuit Court of the United States for the Northern District of Ohio, the case was heard and the patent held invalid on the authority of the case in the Circuit Court of Appeals for the Third Circuit. 157 F. 564. The Circuit Court of Appeals for the Sixth Circuit reversed the United States Circuit Court for the Northern District of Ohio, and held Golding's patent valid and infringed. 164 F. 849. These writs of certiorari bring these conflicting decisions of the courts of appeal here for review.

The patent in controversy relates to what is known as expanded sheet metal. Expanded metal may be generally described as metal openwork, held together by uncut portions of the metal, and constructed by making cuts or slashes in metal and then opening them so as to form a series of meshes or latticework. In its simplest

form, sheet metal may be expanded by making a series of cuts or slits in the metal in such relation to each other as to break joints, so that the metal, when opened or stretched, will present an open mesh appearance. It may be likened to the familiar woven wire openwork construction, except that the metal is held together by uncut portions thereof, uniting the strands, and the whole forms a solid piece.

In the earlier patents, different methods are shown for cutting the metal, which cuts were afterwards opened by a separate operation of pulling or stretching. These crude methods

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are shown in the earlier American and English patents which appear in the record. While nothing more than such methods was accomplished in the art, there was little general or commercial use for expanded metal.

It was apparent that, if a method could be devised by which the metal could be simultaneously cut and expanded, such method would be a distinct advance in the art, and this record discloses that the desirable result of simultaneously performing these operations was accomplished in the Golding and Durkee patent No. 320,242. In that patent, the operation was performed by means of knives arranged in a step order, the sheet to be fed obliquely. The inventors described the Golding and Durkee method as follows:

"The process consists in the employment of a flat piece of metal of any desired size, and beginning at one side and corner and making an incision within the side of the metal, thus forming a strand which is simultaneously pressed away from the plane of the metal in a direction at or near a right angle, the position the strand assumes depending upon the distance it is moved from the plane of the metal. *a* in the drawing shows the first cut made. The next step in this process is to make additional incisions, as is shown at *c*, *b*, and *d*, further within the place of metal, and leaving uncut sections at the ends of the cuts, and simultaneously with the cutting the strands are pressed away from the plane of the metal at the angle and to the desired position, as above described. Thus, each row of meshes is simultaneously cut and formed from a blank piece of metal without buckling or crimping the blank. In the act of cutting and forming the meshes, the finished article is contracted in a line with the cuts or incisions, and consequently it is shorter in this direction than the piece from which it was cut, but it is greatly lengthened in a line at an angle to the plane of the original sheet, plate, or blank."

The result was to produce expanded metal, as shown in this figure:

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image:a

With this patent as the advanced state of the art, Golding set about making further improvements, and the result was the patent in suit. The specifications of the patent in suit state:

"In the manufacture of what is now generally known as expanded sheet metal, it has been customary to first cut the slits in the sheet metal at short distances apart, and to

open the metal at the cuts thus formed by bending the severed portions or strands in a direction at right angles substantially to the plane or the sheet. It has also been made by simultaneously cutting and opening the metal by means of cutters set off or stepped relatively so to make the slashes or cuts in different lines in the manner set forth in patents No. 381,230 or No. 381,231, of April 17, 1888. In both of these methods, the product is somewhat shorter and materially wider than the original sheet, but practically no stretching or elongation of the metal forming the strands is caused."

"In my present invention, I seek to avail myself of the ability of the metal to stretch or distend as well as of its ability to bend under strain or pressure, and the invention consists in the improved method of making expanded metal viz., by simultaneously cutting and opening or expanding the metal at the cuts by stretching the severed portions. "

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In the method further described in the specifications, the expanded metal is shown to be made by the use of knives making a series of slits in a straight line at equal distances apart across the sheet, and at the same time, carrying downward the severed portions of the metal. And this operation is performed by bending the severed portion at a time when its ends are securely attached to the main sheet, thereby expanding the sheet without materially shortening it. The sheet is then fed forward, and the slitting and stretching operation is repeated in such a manner that the slits are in every case made back of the portion unsevered by the preceding operation, or, in other words, as the specification states, the slits and unsevered portions alternate in position in each successive operation, the bends given to the severed portions or strands being in direction at right angles to the plane of the sheet, there is no contraction in the length of the metal, and the expansion is obtained by the stretching, distension, or elongation of the severed strand. This patent contains the single claim, which is as follows:

"The herein-described method of making open or reticulated metal work, which consists in simultaneously slitting and bending portions of a plate or sheet of metal in such manner as to stretch or elongate the bars connecting the slit portions and body of the sheet or plate, and then similarly slitting and bending in places alternate to the first-mentioned portions, thus producing the finished expanded sheet metal of the same length as that of the original sheet or plate, substantially as described."

It is thus apparent that the method covered by the claim of the patent is accomplished by the two operations indicated and performed in the manner pointed out in the specifications. The first operation of cutting, bending, and stretching the strands simultaneously produces a series of stretched loops or half diamonds. Thus:

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image:b

This series of half diamonds is then supplemented by the second operation, which consists in making a second series of cuts and expansions for stretching the strands back of and opposite the parts of the metal left uncut by the first operation. The result is that the series of one-half diamonds is converted into the series of full

diamonds, and because of the manner in which the stretching is done, while the ends of the strands are still firmly attached to the sheet, there is no material shortening of the length of the sheet. Thus:

image:c

What has Golding accomplished by this alleged improvement? These records leave no doubt that there are substantial advantages in the method of the patent in suit. As the sheet is not shortened, the completed product is regular

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in form and ready for many uses to which the shortened sheet of the old method could not be put. The metal worked upon can be much heavier than that which could be successfully manipulated by the old process. The meshes are formed in a uniform and regular way, so that a line drawn through their intersections in one direction is at right angles with a line drawn through their intersections in the other direction. There is no irregularity in the width of the strands. Put to the test of actual use, this record discloses that, while the method of the Golding and Durkee patent is still in use in some places in this country, the method disclosed in the patent in controversy is largely in use in the United States, Great Britain, and Continental Europe; that it has greatly increased the use of expanded metal in this country, and opened new fields for use where sheets of a regular shape can be used to a greater advantage than they could be when made under the old process.

The learned Circuit Court of Appeals for the Third Circuit seems to have regarded the invention as consisting merely of the improvement of the process in the manufacture of expanded metal by stretching certain portions of the metal when the slit is cut and the mesh is opened. A broad claim of that character was made in the Patent Office, and the file wrapper and contents show that it was disallowed by the examiner. The claim in its present form, framed by the examiner as sufficient to cover the real invention of the patent, was accepted by the applicant, and is now the claim of the patent.

If all that Golding did was to show a method of simultaneously cutting and stretching the metal, the examiner was doubtless right in holding it to have been anticipated by former inventions, notably the patent to Ohl, No. 475,700, and in a degree in the previous patents to Golding and to Golding and Durkee.

But the patent in suit, embraced in the claim allowed, shows more than a mere method of making open meshes by simultaneously cutting and stretching the metal. It shows a method by which the metal is first cut and stretched in the

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manner indicated to make the half diamond, and then a second operation, coordinating with the first, and completing the mesh by the manner in which it is performed in connection with the first. It is the result of the two operations combined which produces the new and useful result covered by the claim allowed in the Patent Office, and, which, when read in connection with the specifications, shows substantial improvement in the art of making expanded metal work.

But it is said that the patent in suit discloses no means of practically operating the method shown, and therefore, as said by the learned judge in the Third Circuit, "it is but the expression of a happy thought;" but the requirement of the patent law, in order to make a method or process patentable, is that the patent shall indicate to those skilled in the art the adaptation of means to put it into practice.

We think this record amply discloses, while no complete mechanism is pointed out in the specifications, enough to indicate to those skilled in such matters a mechanism whereby the method of the patent can be put into operation. As said by Judge Severens, delivering the opinion of the court in No. 606, in the Circuit Court of Appeals for the Sixth Circuit:

"But here the inventor has gone on to point out that the slitting and bending is to be done by a stationary cutter under the sheet, and upper cutters to cooperate in shearing the slit. These upper cutters are so constructed as to bend down the strand to the proper distance. It is not stated just what the form shall be, but only ordinary skill in mechanics would suggest that the outer side of the cutter might be beveled or a shoulder might be formed thereon to carry down the strand when severed."

"Mechanism for the shifting of the sheet and of the knives was already in use in machines for expanding metal, and, indeed, was common in the mechanical arts. Moreover, experts have here testified that these devices could be arranged by any skilful mechanic, and we have no reason to doubt it."

Golding testifies that he at first executed his process by

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hand. Other witnesses, skilled in the art, say that they could do likewise from the information found in the patent.

The important thing in this patent is a method of procedure, not the particular means by which the method shall be practiced. Golding's machine patent was not applied for for more than a year and a half after the issue of the patent in suit.

It is suggested that Golding's improvement, while a step forward, is nevertheless only such as a mechanic skilled in the art, with the previous inventions before him, would readily take, and that the invention is devoid of patentable novelty. It is often difficult to determine whether a given improvement is a mere mechanical advance or the result of the exercise of the creative faculty amounting to a meritorious invention. The fact that the invention seems simple after it is made does not determine the question; if this were the rule, many of the most beneficial patents would be stricken down. It may be safely said that if those skilled in the mechanical arts are working in a given field, and have failed, after repeated efforts, to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a mechanic skilled in the art, and is entitled to protection as an inventor. There is nothing in the prior art that suggests the combined operation of the Golding patent in suit. It is perfectly well settled that a new combination of elements, old in themselves, but which produce a new and useful result, entitles the inventor to the protection of a patent. *Webster Loom Co. v. Higgins*, [105 U. S. 580](#), [105 U. S. 591](#).

To our minds, Golding's method shows that degree of ingenuity and usefulness which raises it above an improvement obvious to a mechanic skilled in the art, and entitles it to the merit of invention. Others working in the same field had not developed it, and the prior art does not suggest the combination of operations which is the merit of Golding's invention.

It is lastly contended, and this is perhaps the most important question in the case, that, in view of the former declarations

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and opinions of this Court, what is termed a process patent relates only to such as are produced by chemical action, or by the operation or application of some similar elemental action, and that such processes do not include methods or means which are effected by mere mechanical combinations, and a part of the language used in [*Corning v. Burden*](#), 15 How. 252, and *Risdon Iron & Locomotive Works v. Medart*, [158 U. S. 68](#), is seized upon in support of this contention. We have no disposition to question the decision in those cases.

An examination of the extent of the right to process patents requires consideration of the object and purpose of the Congress in exercising the constitutional power to protect, for a limited period, meritorious inventions or discoveries. Section 4886 of the Revised Statutes provides:

"Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvement thereof . . . may . . . obtain a patent therefor."

This is the statute which secures to inventors the rights of protection, and it is not the province of the courts to so limit the statute as to deprive meritorious inventors of its benefits. The word "process" is not used in the statute. The inventor of a new and useful art is distinctly entitled to the benefit of the statute as well as he who invents a machine, manufacture, or composition of matter. The word "process" has been brought into the decisions because it is supposedly an equivalent form of expression, or included in the statutory designation of a new and useful art.

What, then, is the statutory right to a patent for a "process" when the term is properly considered? Curtis, in his work on the Law of Patents, says:

"A process may be altogether new, whether the machinery by which it is carried on be new or old. A new process may be invented or discovered, which may require the use of a newly invented machine. In such a case, if both the process and the machine were invented by the same person, he could take separate

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patents for them. A new process may be carried on by the use of an old machine in a mode in which it was never used before. . . . In such a case, the patentability of the process in no degree depends upon the characteristic principle of the machine, although machinery is essential to the process, and although a particular machine may be required."

Curtis, 4th ed. 14.

In Robinson on Patents, vol. 1, 167, it is said:

"While an art cannot be practiced except by means of physical agents, through which the force is brought in contact with or is directed toward its object, the existence of the art is not dependent on any of the special instruments employed. It is a legal, practical invention in itself. Its essence remains unchanged, whatever variation takes place in its instruments, as long as the acts of which it is composed are properly performed."

And Walker on Patents, 4th ed. 3, states that valid process patents may be granted for

"operations which consist entirely of mechanical transactions, but which may be performed by hand or by any of several different mechanisms or machines."

It is undoubtedly true, and all the cases agree, that the mere function or effect of the operation of a machine cannot be the subject matter of a lawful patent. But it does not follow that a method of doing a thing, so clearly indicated that those skilled in the art can avail themselves of mechanism to carry it into operation, is not the subject matter of a valid patent. The contrary has been declared in decisions of this Court. A leading case is *Cochrane v. Deener*, [94 U. S. 780](#), in which this Court sustained a process patent involving mechanical operations, and in which the subject was discussed by Mr. Justice Bradley, speaking for the Court. On page [94 U. S. 787](#) that learned Justice said:

"That a process may be patentable, irrespective of the particular form of the instrumentalities used, cannot be disputed. . . . Either may be pointed out, but if the patent is not confined to that particular tool or machine, the use of the others would be an infringement, the general process being the

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same. A process is a mode of treatment of certain materials to produce a given result. It is an act or a series of acts performed upon the subject matter to be transformed and reduced to a different state or thing. If new and useful, it is just as patentable as is a piece of machinery. In the language of the patent law, it is an art. The machinery pointed out as suitable to perform the process may or may not be new or patentable, whilst the process itself may be altogether new, and produce an entirely new result. The process requires that certain things should be done with certain substances, and in a certain order; but the tools to be used in doing this may be of secondary consequence."

This clear and succinct statement of the rule was recognized and applied (Mr. Justice Bradley again speaking for the Court) in the case of *Tilghman v. Proctor*, [102 U. S. 707](#). In the course of the opinion, the learned Justice tersely says:

"A machine is a thing. A process is an act, or a mode of acting. The one is visible to the eye -- an object of perpetual observation. The other is a conception of the mind -- seen only by its effects when being executed or performed. Either may be the means of producing a useful result."

That this Court did not intend to limit process patents to those showing chemical action or similar elemental changes is shown by subsequent cases in this Court.

In *Westinghouse v. Boyden Power Brake Co.*, [170 U. S. 537](#), the opinion was written by the same eminent justice who wrote the opinion in *Risdon Iron & Locomotive Works v. Medart*, 158 U.S., *supra*, and, delivering the opinion of the Court, he said (p. [170 U. S. 557](#)):

"These cases [[158 U. S. 158](#) U.S. 68, and *Wicke v. Ostrum*, [103 U. S. 461](#)] assume, although they do not expressly decide, that a process, to be patentable, must involve a chemical or other similar elemental action, and it may be still regarded as an open question whether the patentability of processes extends beyond this class of inventions."

And added these significant words:

"Where the process is simply the function or operative effect

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of a machine, the above cases are conclusive against its patentability; but where it is one which, though ordinarily and most successfully performed by machinery, may also be performed by simple manipulation, such, for instance, as the folding of paper in a peculiar way for the manufacture of paper bags, or a new method of weaving a hammock, there are cases to the effect that such a process is patentable, though none of the powers of nature be invoked to aid in producing the result. *Eastern Paper Bag Co. v. Standard Paper Bag Co.*, 30 F. 63; *Union Paper-Bag Machine Co. v. Waterbury*, 39 F. 389; *Travers v. American Cordage Co.*, 64 F. 771. This case, however, does not call for an expression of our opinion upon this point, nor even upon the question whether the function of admitting air directly from the train pipe to the brake cylinder be patentable or not, since there is no claim made for an independent process in this patent, and the whole theory of the specification and claims is based upon the novelty of the mechanism."

And the same learned Justice wrote the opinion of the Court in *Carnegie Steel Co. v. Cambria Iron Co.*, [185 U. S. 403](#), and sustained a process patent. If, by any construction, that process could be said to involve a "chemical or other similar elemental action," no stress was laid upon that fact. This Court, speaking through Mr. Chief Justice Waite, sustained a patent in the *Bell Telephone Cases*, [126 U. S. 1](#), for a method of transmitting electrical undulations similar in form to the vibrations of the air accompanying vocal sounds, and at the same time the patent for the apparatus by which the method was operated was sustained.

In *Leeds & Catlin Co. v. Victor Talking Machine Company*, decided at this term, [213 U. S. 301](#), [213 U. S. 318](#), this Court said:

"A process and an apparatus by which it is performed are distinct things. They may be found in one patent; they may be made the subject of different patents."

We therefore reach the conclusion that an invention or discovery of a process or method involving mechanical operations,

and producing a new and useful result, may be within the protection of the federal statute, and entitle the inventor to a patent for his discovery.

We are of opinion that Golding's method was a substantial improvement of this character, independently of particular mechanisms for performing it, and the patent in suit is valid as exhibiting a process of a new and useful kind.

As to the infringement, little or no question was made in case No. 606. In case No. 66 the circuit court held that there was some evidence of infringement -- enough at least, to warrant the decree sustaining the patent and awarding an accounting. With this conclusion we agree. It follows that the decree of the Circuit Court of Appeals for the Third Circuit (No. 66) should be reversed, and that of the Circuit Court of Appeals for the Sixth Circuit (No. 606) should be affirmed, and the cases remanded to the Circuit Courts of the United States for the Eastern District of Pennsylvania and the Northern District of Ohio, respectively, for further proceedings consistent with this opinion.

Decrees accordingly.