of experts upon the question of mechanical equivalency to enable a court to decide whether they present a case of res judicata.

Prima facie, a decision founded upon one patent not in suit here, and another decision founded upon three patents collectively, one only of which is in suit here, the two decisions declaring that an invention used by a defendant who is not the defendant here, against a machine of that defendant differing widely in its structure from the one complained of here, cannot be treated as binding in the decision which this court may feel bound to render in the suit at bar. Here it is contended that the mere use of the extreme traverse of the triple-valve piston to effect the same functional result which was effected by Westinghouse in 360,070 constitutes an infringement, irrespectively of the additional means employed. There it was ruled that the use of the extreme traverse and of an additional machine attached to the original 220,556, which was structurally and mechanically equivalent to 360,070, was an infringement of the latter patent. The cases are different, and not on all fours with each other, and do not control or affect our own ruling.

Decrees will be entered, in accordance with the views expressed in this opinion, affirming the ruling of the court below in respect to claims 1 and 4 of the complainant's patent No. 360,070, and reversing the ruling of the court below in respect to claim 2 of the said patent.

WHEATON v. NORTON et al.

(Circuit Court of Appeals, Ninth Circuit. October 31, 1895.)

No. 141.

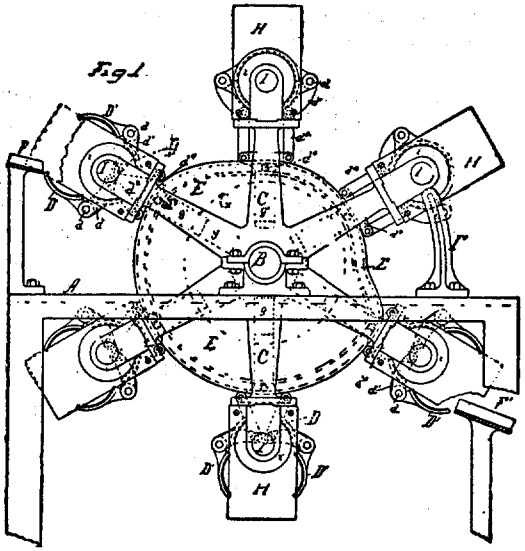
1. PATENTS—LIMITATIONS OF CLAIMS—AMENDMENTS IN PATENT OFFICE.
   Where an applicant narrows his claims in consequence of objections raised by the patent office, he cannot, after the patent is allowed, broaden them by construction, so as to drop out any element which he was compelled to include in his combination in order to obtain the patent.

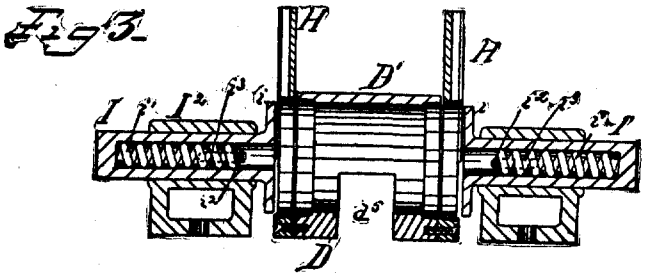
2. SAME—CAN-HEADING MACHINES.
   Where a patent for a can-heading machine, as finally allowed after amendments introduced to meet objections of the patent office, made an annular space in the clamping mold and a piston for forcing the can head thereon essential elements of the combination, *held*, that no device which omitted these elements or their mechanical equivalents would be an infringement.

3. SAME.
   The Norton patent, No. 267,014, for a can-heading machine, analyzed and construed, and *held* not infringed, as to any of its claims, by the Wheaton patent, No. 477,584, which omits some of the essential elements of the combination covered by the claims of the Norton patent. 57 Fed. 927, reversed. (The construction placed upon the Norton patent by this court in Norton v. Jensen, 1 C. C. A. 452, 49 Fed. 859, modified upon new evidence, consisting of the file wrapper showing the proceedings in the patent office.)

Appeal from the Circuit Court of the United States for the Northern District of California.

This was a suit by Edwin Norton and Oliver W. Norton against Milton A. Wheaton for infringement of letters patent No. 267,014, issued November 7, 1882, to Edwin Norton for alleged improvements in machines for putting on the ends of tin cans. The machine used by the defendant was made under letters patent No. 477,584, which were granted to him June 21, 1892. In the circuit court a decree was entered sustaining the patent sued on, finding infringement, and granting an injunction. 57 Fed. 927. Defendant appealed to this court, and on February 28, 1895, a decision was rendered affirming the judgment below. Afterwards, however, a rehearing was granted, and the cause has now been heard a second time in this court.





Complainants' Device.

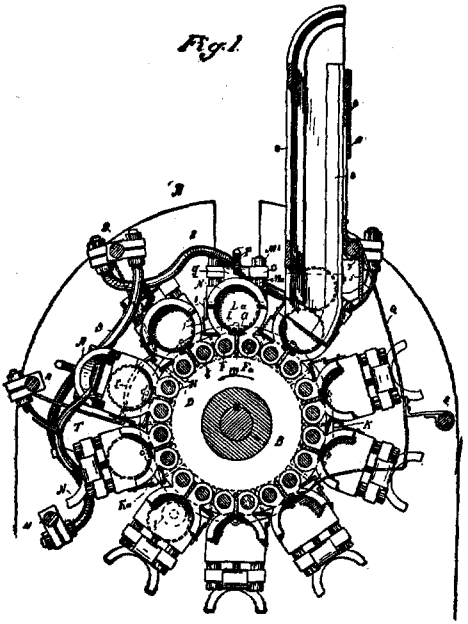


Fig. 1.

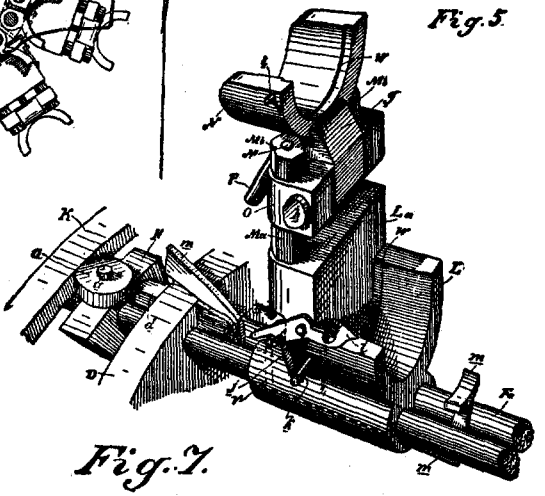
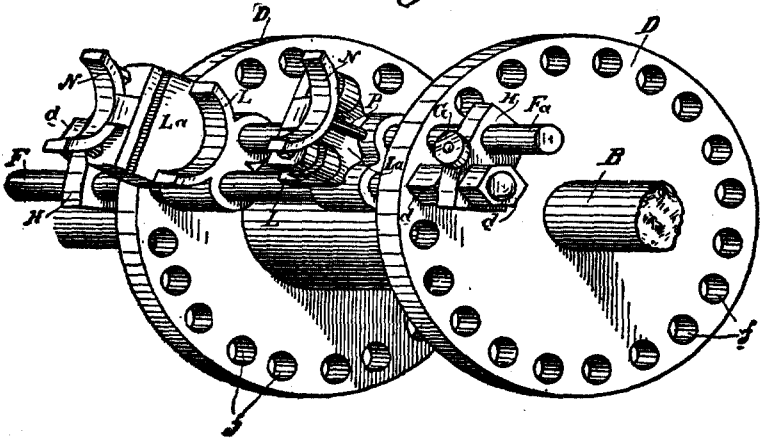


Fig. 5.

Fig. 7.



Defendant's Device.

Wheaton, Kalloch & Kierce (John L. Boone, amicus curiæ), for appellant.

John W. Munday and Edmund Adcock, for appellees.

Before ROSS, Circuit Judge, and HAWLEY and MORROW, District Judges.

ROSS, Circuit Judge. In sheet-metal can manufacture, where the heads are applied to the outside of the body, the heads are struck from circular sheets of metal by means of dies, one of which is a plunger of the shape and size of the inner diameter of the can-head flange, and the other of which is a matrix or raised die of the depth of the flange and of the diameter of the exterior of the flange. The circular disk of sheet metal being laid on this matrix, and the plunger depressed to force the sheet into it, the result is that the flange is upturned around the margin of the sheet-metal disk, and is of definite dimensions, both as to its thickness and as to its exterior and interior diameter. Can heads made by the same dies are, therefore, always of the same size. Can bodies are, however, not always of the same size, whether they be made by hand or by machinery. They are formed over a horn or mandrel, which at best can only give them uniform interior diameter, even if it were possible to press the blank sheets around the mandrel with uniform force, or to make the joint forming the side seam with uniform accuracy. Besides this, the can bodies thus made are liable to vary in both internal and external diameter. They are also subject to variation in external diameter, even if of uniform size inside, because of the varying thickness of the sheet metal of which they are made; such variation sometimes occurring in the same sheet and in different parts of the form of the can body. As it is necessary that the can heads, which are of uniform diameter, shall in all cases closely fit against the exterior surface of the end of the can body, it is therefore requisite that an external compressing means shall be employed to compress or reduce can bodies which are slightly too large for the proper size to enter the can head. This externally applied compressive force must be in action at the time the can head is applied to the can body, because the relaxation of such force would allow the can body to expand to its original size, and to assume any irregularity of shape which it previously possessed, and thus unfit it to receive the head. Therefore, the compressive force applied to the can body must continue to hold the can to its form and size while the head is being put thereon. As the head is to closely fit the exterior of the can body, and the two are to be applied simultaneously to each other at all points in their circumference, it is essential that both the head and the body be held in exact alignment with each other while the two parts are being brought together. It is therefore essential that whatever device be constructed to carry into effect this purpose must be so constructed as—First, to bring the ends of the can body to the necessary size and diameter to receive the can head; secondly, the head and body must be accurately held in proper alignment, so that, in the act of bringing them together, the flange of the head may

closely fit the outside of the body; thirdly, there must be a direct and uniform movement of either the can head or can body simultaneously at all points in the circumference upon the can body, and to carry forward the operation of heading to its completion; and, fourthly, the means for sizing the can and for shaping it to a perfect circle and size must be external to the can, and so adapted as to open to release the can after the heads shall have been applied.

When one claims to be the owner of such a patented device, which has been infringed by another, the first important thing to do is to see what is the invention covered by the patent that is claimed to have been infringed. Accordingly, we turn to the record to see for what the complainants' patent was awarded. It is there seen that the inventor, Norton, asked for more than the patent office granted. The contents of the file wrapper, which was not in evidence in the case of Norton v. Jensen, 1 C. C. A. 452, 49 Fed. 859, show that Norton, in his application for the patent, claimed to have invented, not an automatic or any other kind of machine for putting ends on fruit or other cans, but to have invented "certain new and useful improvements in machines for putting on" such ends. And, in his original application, he thus specified his invention:

"This invention relates to a machine for putting on the ends of fruit and other cans wherein the joint by which the ends are secured to the body is of the variety commonly called the 'slip joint,' in contradistinction from a seamed or turned joint. The objects sought are the performance of this operation automatically, and with speed and efficiency. The invention consists in a clamping mold, the interior dimensions and form whereof correspond with the exterior dimensions and form of the can body, and the end whereof is chamfered away. In this invention, the can body is first placed within a clamping mold, conforming accurately in shape and dimension to the exterior of the can body, and, while confined in this mold, the end of the can is forced upon the body by a piston entering the mouth of the mold, room being provided for the entrance between the mold and can body of the flange borne upon the end of the can by chamfering away the interior of the mold slightly as far as said flange extends. The mold is also preferably made tapering at the mouth where the can end is received, so as to guide the end accurately to the body and insure the registering of one with the other. In the furtherance of speed, I place a series of these molds, accompanied by pistons, upon arms radiating from and revolving around a common center, or upon a wheel, and at proper times actuate the molds to clamp and release the cans and the pistons to put on the ends by means of suitable devices with which they are connected or come in contact during the rotation of the arms or wheels."

All these, and other features of the invention, Norton proceeded to describe in his application, with the aid of the accompanying drawings, and his claims were therein thus stated:

"1. In a can-ending machine, the combination of a clamping mold conforming to the exterior of the can body, a piston for forcing the cap or end piece upon the body, and devices for operating said mold and piston, substantially as specified.

"2. In a can-ending machine, the combination of a clamping mold conforming to the exterior of the can body, and chamfered away at the end so as to give room for flange of the cap or end piece, a piston for forcing the end piece upon the body, and devices for operating both mold and piston, substantially as specified.

"3. In a can-ending machine, the combination of a clamping mold, conforming to the exterior of the can body, a chute for admitting the can ends, a piston for applying the ends to the body, and devices for operating both mold and piston, substantially as specified.

"4. In a can-ending machine, the combination of a series of clamping molds, mounted and rotating about a common center, devices for opening and closing said molds, a piston or pistons for each mold, and a device or devices for operating said pistons, substantially as specified.

"5. The combination, with a movable can clamping and discharging mold, of a device for forcing the can end upon the can body while clamped in said mold, substantially as specified.

"6. The combination, with a clamping mold for the can body, of a chute or device for delivering the can bodies to said mold, a device for presenting and retaining the can end in position at the mouth of the mold, and means for forcing the can end upon the can body, substantially as specified."

All of these claims were rejected by the patent office,—claims 1, 2, and 5 because of patents theretofore issued, namely, patent No. 235,700, to Pierce, on December 21, 1880; patent No. 233,079, to Dillon and Cleary, on October 12, 1880; patent No. 225,685, to Brooks, on March 23, 1880; and an English patent, numbered 4,237, issued in 1873. The examiner of the patent office thus stated the objections to claims 3, 4, and 6, made by Norton:

"Claims 3 and 6 are rejected on Pierce; and, since the chute which he shows may be applied to any one of the other references, the claims are rejected on all the other references, taken in connection with Pierce. Claim 4 is rejected on Pierce and on the English patent, each showing a series of clamps and a stationary piston for inserting the head into each mold and its contained can as it comes opposite the piston. In view of the broad description, including various modifications of applicant's machine, these patents meet the fourth claim."

To meet and avoid these references and objections made by the patent office, Norton amended his application by inserting, after the word "efficiency," in his original specification, the following:

"Heretofore machines have been constructed for applying the heads to that class of cans where the flange of the head is inserted inside the can body, or where the head is crimped on the can body. In such machines, the interior of the can body is ordinarily sized so as to fit and receive within it the can head by means of an interior mandrel or former, which is forced inside the can body while it is secured within a mold or holder, and then the can head is dropped or pressed into place inside the can body, as illustrated in letters patent No. 235,700, granted to George H. Pierce December 21, 1880. As the can bodies are originally formed around an inside mandrel, the interior diameter of the can varies, if at all, very slightly, and the side seam also ordinarily forms no projection on the inside of the can, as it does on the outside, so that the operation of applying the heads to this class of cans would be comparatively simple and easy, even if the heads were required to fit the can bodies tightly, which, however, is not the case. But heretofore no successful method has yet been devised for automatically applying the heads or covers to that class of cans wherein the flange of the cover slips or fits over the body of the can, forming the ordinary slip joint. In that class of cans, it is essential that the heads or covers, when snapped on the can body, should fit the same very tightly and accurately, and, as the exterior diameters of the can bodies always vary somewhat, owing to the varying thickness of the different parts of the stock from which they are made, the operation of snapping or fitting the heads on the can bodies is one of considerable difficulty, and, when done by hand, as it heretofore always has been done, it requires skilled labor, and is a slow and tedious operation. The heads or covers for the cans are formed by a stamp, so that their interior diameters are always precisely the same; and, in my machine, the can bodies are placed within a can-sizing and clamping mold, and compressed thereby until the exterior diameter of the can body is made to conform accurately to the interior diameter of the head, and so held while the head is forced upon the can body, the mold or holder being cut away or enlarged at each end to conform to the

exterior diameter of the head, thus leaving an annular space between the can body and mold conforming to the thickness and width of the flange on the can head or end, into which annular space the head is forced, and then the mold is opened and the headed can discharged."

And he further amended his original application by striking out all of the claims therein contained, and substituting in lieu of them the following:

"1. In a machine for applying to can bodies heads fitting outside the same, the combination of a device for sizing the exterior diameter of the can body to conform to the interior diameter of the can head, and holding the same so sized while the head is applied, said sizing and holding device having its end enlarged to fit the exterior diameter of the can head, so as to leave an annular space between it and the can body for the reception of the flange of the can head, with a device for forcing the can head into said annular space, and thereby applying the head outside the can body, substantially as specified.

"2. In a machine for applying to can bodies heads fitting outside the same, the combination, with a chute or device for delivering the can bodies to the machine with a movable device for clamping the can body and sizing its exterior diameter to conform to the interior diameter of the can head, said clamping and sizing device having its end or mouth enlarged to leave an annular space between the same and the can body clamped therein for the reception of the flange of the head, a chute or device for delivering the can heads to the machine, and a device for forcing the can head into said annular space at the end of said clamping and sizing device, substantially as specified.

"3. In a machine for simultaneously applying the heads to both ends of a can, the combination of a series of movable devices for clamping the can body and sizing its exterior diameter to conform to the interior diameter of the can heads, said clamping and sizing devices having enlargements at each end or mouth for the reception of the can heads outside the can body, with devices for simultaneously forcing the can heads on each end of the can body into the annular spaces at each end thereof between the can body and said clamping and sizing device, substantially as specified.

"4. The process herein described of applying heads to can bodies consisting in first sizing the exterior diameter of the can body to conform to the interior diameter of the can head, and clamping it in a suitable mold or holding device, and then forcing the heads on the can body into an annular space at the end of the mold or holding device, between it and the can body, substantially as specified."

In a note to the amendments thus made by Norton to his original application, he said:

"The principle and mode of operation of the present invention is entirely different from that of the machine shown in the references, and is designed to effect a very different result or purpose. The references all show devices for putting the heads inside of the cans. Instead of the inside mandrel shown in the Pierce patents for sizing and flaring the interior of the can, in applicant's invention no such method of operation is or could be adopted. In applicant's invention, the can is sized from the outside. None of the references show a mold or clamp for the can body having an annular space between the can body and mold into which the head is forced, nor do any of the references show sizing the exterior of the can from the outside, both of which are essential features of applicant's invention. By the amended claims, as well as by the amendment to the specification, it will be seen, we think, that applicant's invention is properly limited and distinguished from the prior art, as disclosed by the references."

Claim 4 of the amended claims was rejected by the patent office; and upon objection there made that the statement made in the applicant's specification that his invention consists in "a clamping mold, the interior dimensions and form whereof correspond with the

exterior dimensions and form of the can body, and the end whereof is chamfered away," is not in accord with the three claims allowed, the applicant further amended his application by striking from his specifications the clause last quoted, and, as thus altered, the application was allowed, and the patent, numbered 267,014, was issued to Norton.

In defense of the suit, the defendant, among other things, set up in his answer, and also introduced in evidence, the patents to which Norton was referred by the patent office, when rejecting his claims as originally made, and also letters patent No. 152,757, issued July 7, 1874, to George A. Marsh, for "improvement in devices for heading cans," and letters patent No. 238,351, issued March 1, 1881, to William J. Clark, for a "can-heading machine."

As already said, none of the proceedings in the patent office disclosed by the contents of the file wrapper were in evidence in the case of Norton v. Jensen, 1 C. C. A. 452, 49 Fed. 859, nor were any of the prior patents here set up as anticipations of the complainants' patent there shown, except that of Pierce, in respect to which the court said the testimony showed that Norton's invention was prior in point of time, for which reason the court concluded that the Pierce patent had "no particular bearing upon any of the inventions or machines in controversy." 1 C. C. A. 452, 49 Fed. 862. As there presented, Norton's invention undoubtedly appeared to be of a primary character, standing at the head of the art, and its owners were, therefore, properly held to be entitled to a broad and liberal construction of its claims. Whether the same broad and liberal construction should be applied in the present case remains to be considered.

That the complainants' patent is, by the record in this case, placed in a different position from that occupied by it in the case of Norton v. Jensen, is very clear. Although the application for the Clark patent was filed January 7, 1881, and that patent issued March 1, 1881, and although the application for the Pierce patent was filed August 13, 1880, and that patent issued December 21, 1880, whereas Norton did not file his application for his patent until June 24, 1882, yet he testified that he made his invention and made a small experimental machine to demonstrate its practicability as early as July 15, 1880,—nearly one month before the application for the Pierce patent was filed. Nevertheless, the fact is beyond dispute, for it is a part of the record evidence, that all of the claims asked for in Norton's original application were rejected by the patent office, based largely upon the suggestion that they were covered by the patent theretofore issued to Pierce, whereupon Norton, so far from then claiming that his invention was prior in point of time to Pierce's, amended his specifications by stating that he knew that machines had theretofore been constructed for applying heads to the same class of cans, where the flange of the head is inserted inside the can body, or where the head is crimped on the can body, and, for the purpose of showing that such machines were unlike his invention, he proceeded to say, in his amendment to his specifications:

"In such machines, the interior of the can body is ordinarily sized so as to fit and receive within it the can head, by means of an interior mandrel or form, which is forced inside the can body while it is secured with a mold or holder, and then the can head is dropped or pressed into place inside the can body, as illustrated in letters patent granted to George H. Pierce, December 21, 1880."

Following this, he amended his application by substituting for his original six claims, which the patent office rejected, four other claims, the first three of which were allowed, and are embodied in the patent. In addition to the Pierce and Clark patents, the record shows that on June 26, 1880, Dillon and Cleary applied for, and, on October 12, 1880, were granted, a patent for "an improvement in mechanism for placing heads in cans," and, in 1874, Marsh was granted a patent for "certain new and useful improvements in devices for heading cans." The Dillon and Cleary patent was, like that to Pierce, for a device for putting heads in cans, and the Marsh patent, while for a device for putting tight-fitting can heads on the outside of can bodies, was designed to be used by hand. It consists of a solid die with a cavity to receive the can head, secured rigidly to which, at one side, is a semicircular bevel-faced guide, slightly overlapping, at its middle portion, the cavity, but the two extremities of which do not overlap it. Those extremities are, however, tilted slightly upward, to enable the headed can to be tipped out of the die. To use this device, the operator first fits a head into the die by slipping one side under the guide. He then takes the can body in his hands and places one side under the guide into the uncovered half of the can-head flange. He then, by tilting the can body, forces it into the head, the overhanging portion of the guide serving to crowd the last portion of the circumference of the can body into the can-head flange. The headed can is then tilted out of the die. This device for putting tight-fitting heads on the outside of can bodies, as well as the device of Pierce for putting such heads in cans, was in existence at the time Norton made the amendments to the specifications descriptive of his invention, and at the time he made the amended claims under the objections raised in the patent office.

It is perfectly clear that the claims first made by Norton were much broader than those finally made in his application for the patent, and that were allowed and embodied in the patent issued to him, and it is equally as clear that this narrowing of his claims was compelled by the objections raised by the examiner of the patent office. Under such circumstances, the rule is well settled that the patentee cannot, after the issuance of the patent, broaden his claims by dropping any element which he was compelled to include in order to secure the patent. In Fay v. Cordesman, 109 U. S. 408, 3 Sup. Ct. 236, the court said:

"The claims of the patents sued on in this case are claims for combinations. In such a claim, if the patentee specifies any element as entering into the combination, either directly by the language of the claim, or by such a reference to the descriptive part of the specification as carries such element into the claim, he makes such element material to the combination, and the court cannot declare it to be immaterial. It is his province to make his own claim, and his privilege to restrict it. If it be a claim to a combination, and be restricted to specified elements, all must be regarded as material, leaving open only the

question whether an omitted part is supplied by an equivalent device or instrumentality."

In Sargent v. Lock Co., 114 U. S. 63, 5 Sup. Ct. 1021, it was said:

"In patents for combinations of mechanism, limitations and provisos imposed by the inventor, especially such as were introduced into an application after it had been persistently rejected, must be strictly construed against the inventor, and in favor of the public, and looked upon as in the nature of disclaimers."

To the same effect are the cases of Shepard v. Carrigan, 116 U. S. 593, 6 Sup. Ct. 493; Leggett v. Avery, 101 U. S. 256; Vulcanite Co. v. Davis, 102 U. S. 222–228; Mahn v. Harwood, 112 U. S. 354–364, 5 Sup. Ct. 174, and 6 Sup. Ct. 451.

And, concerning the general rule by which claims are to be construed, the court said, in Howe Machine Co. v. National Needle Co., 134 U. S. 394, 10 Sup. Ct. 570:

"Doubtless a claim is to be construed in connection with the explanation contained in the specification, and it may be so drawn as in effect to make the specification an essential part of it; but since the inventor must particularly specify and point out the part, improvement, or combination which he claims as his own invention or discovery, the specification and drawings are usually looked at only for the purpose of better understanding the meaning of the claim, and certainly not for the purpose of changing it and making it different from what it is. As remarked by Mr. Justice Bradley, in White v. Dunbar, 119 U. S. 47, 52, 7 Sup. Ct. 72: 'The claim is a statutory requirement, prescribed for the very purpose of making the patentee define precisely what his invention is; and it is unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.' "

Now, comparing the original with the amended claims of Norton, it is not difficult to see the difference between what he sought to have allowed him, and what he was compelled to accept in order to get his patent. Take claim 1. As originally made, it read:

"In a can-ending machine, the combination of a clamping mold conforming to the exterior of the can body, a piston for forcing the cap or end piece upon the body, and devices for operating said mold and piston, substantially as specified."

Here, as will be observed, nothing whatever is said about any annular space in the end of the mold, but the claim is simply for the combination of a clamping mold conforming to the exterior of the can body, and a piston for forcing the cap or end piece upon the body, with the operating devices. As here made, claim 1 was clearly anticipated, as held by the patent office, by the patent of Pierce, the device of which consisted, in part, of an opening and closing mold or clamp, the upper end of which is chamfered away to enable the end of the can body to be expanded after the reception of the can head, which is forced to its place in the can by means of a piston while the can body is tightly held by the mold. Claim 1, as thus originally made, was, therefore, rejected by the patent office, and the applicant substituted in lieu of it this claim, which was allowed:

"In a machine for applying to can bodies heads fitting outside the same, the combination of a device for sizing the exterior diameter of the can body to conform to the interior diameter of the can head, and holding the same so sized while the head is applied, said sizing and holding device having its end enlarged to fit the exterior diameter of the can head, so as to leave an annular

space between it and the can body for the reception of the flange of the can head, with a device for forcing the can head into said annular space, and thereby applying the head outside the can body, substantially as specified."

Now, here was an element inserted in claim 1 by the applicant which the original claim did not contain, namely, a mold so constructed as to leave at its ends an annular space between the mold and can body for the reception of the flange of the can head, with a device for forcing the can head into the annular space, and thereby applying the head outside the can body. That the annular space so introduced is an important and essential element of Norton's invention was expressly declared by himself in the note to his amended specifications and claims, where he said:

"None of the references [that is to say, none of the patents to which his attention had been called by the patent office] show a mold or clamp for the can body having an annular space between the can body and the mold, into which the head is forced, nor do any of the references show sizing the exterior of the can from the outside, both of which are essential features of applicant's invention."

And, in his specifications, the applicant also expressly asserted the essential nature of the annular space of the mold, for he there says:

"As shown in Figs. 2 and 3, the end of the mold is chamfered away interiorly to give room to the flange of the cap or can end to pass outside the can body. This is a very essential feature. * * *"

Thus, the inventor himself, when seeking the patent, declared that one of the essential elements of his invention is the annular space between the can body and mold into which the can head is forced, thereby, as in terms declared in claim 1, applying the head to the outside of the can, in which respect, the inventor further declared, his invention differs from any of the patents to which he was referred by the patent office.

Another essential element common to all of the complainants' claims as finally made, allowed, and embodied in their patent, is the piston, or device for forcing the can head into the annular space. Both the annular space and the piston or device for forcing the can head into that space were also made essential elements of each of the other claims as finally made, and allowed and embodied in the patent, and, as each of the claims of the complainants' patent is for a combination, unless the defendant's device contains that annular space and piston or device for forcing the can head therein, or their mechanical equivalents, it is clear that the charge of infringement is not made out. McCormick v. Talcott, 20 How. 402; Vance v. Campbell, 1 Black, 427; Schumacher v. Cornell, 96 U. S. 554.

Claim 2 of the complainants' patent, in addition to the elements in claim 1 thereof, embraces a chute or device for delivering the can bodies and a chute or device for delivering the can heads to the machine, and claim 3 is "for simultaneously applying the heads to both ends of a can, the combination of a series of movable devices," such as is claimed in claim 1, to wit, the mold for clamping the can body and sizing its exterior diameter to conform to the interior diameter of the can heads, with an annular space at its ends for the

reception of the flange of the can heads, with devices for simultaneously forcing the can heads into the annular space, and on each end of the can body. An annular space is a space existing between the circumferences of two concentric circles having different diameters. It exists in the mold of complainants' device with its two diameters, the smaller of which is equal to the diameter of the exterior of the can body and to that of the interior of the flange of the can head, and the larger of which is equal to the diameter of the exterior of the can-head flange. The function of the smaller diameter of the complainants' mold is to size and round the can body by external pressure, and that of its larger diameter, constituting the annular space, is the reception and guiding, in line with and upon the can body, of the flange of the can head when forced therein by the piston,—thus tightly applying, with precision and at the same time, all of the parts of the interior of the flange of the can head to the outside of the can body, while the latter is, during all of the time of the heading process, firmly held by the mold in an immovable position.

In the complainants' device, two wheels are employed to rotate on a common stationary axis, and to carry at their peripheries molds in a circumferential series. Each of these molds consists of a fixed inner semi-circular jaw and two quarter-circular jaws, the latter being hinged to the former, and adapted to open and close the mold like the two halves of a double-lidded vessel, wherein the half lids open outwardly. Means are provided for opening and closing these hinged parts of the mold, consisting of crank arms or levers, a slide connected by links with the lever, and a fixed cam provided with a groove or grooves which receive a pin that projects laterally from the slide, and causes the slide to move radially inwardly and outwardly as the wheels revolve. At one point in the revolution of the wheels, and at a point where the hinged parts of a mold will open, a chute for can bodies is arranged to deliver a can body into the mold. The mold for receiving the can body is closed in its further revolution by the fixed cam. To each mold are also applied two end chutes down which can heads may descend into proper position opposite the ends of the can body inclosed in the mold. Two piston heads on pistons or shanks are arranged to move inwardly towards the mold, one from each side, and to simultaneously push the can heads into the annular spaces and thus upon the ends of the can body. The desired movements of these pistons are obtained by springs and cams, springs being arranged to throw and hold the pistons in their retracted positions, and cams being employed to thrust the pistons inward in forcing the can heads into the annular spaces and thereby upon the can bodies. The mold is made in two parts, to open and receive the can body, and to discharge it after it is headed. In his specifications, the inventor said:

"A model constructed after my invention, that is, so as to conform to the exterior of the can body, fits the body accurately, and presses with equal clamping force upon every part thereof."

When closed upon the can body, the mold holds it in an immovable position, the can head being carried from the can-head chute by

means of the piston or forcing device into the annular space of the mold, and thereby applied to the outside of the can body. After the pistons have passed the cam they are retracted by the springs, and the mold is opened by the fixed cam so as to discharge the headed can from the mold.

The defendant's device consists of a main central shaft, B, upon which is mounted a driving wheel, E, to which power is applied in any convenient manner. Fixed upon the central shaft is a spool, upon the ends of which are two disks, D, D, perforated by a row of 20 holes, which pass through them near their peripheries in a circular line, which is concentric with the main shaft. Metal rods, F, Fa, pass through these holes, each rod passing through both disks and operating in pairs, one of which moves in one direction, while the other moves in the opposite direction, and each pair of which carry and operate two sets of jaws,—a "set of jaws" being designated by the defendant, in his specifications, as "both of the two halves that form the entire circular ring that incloses a can head and one end of the can body." The half of this entire ring which is nearest to the rods, F, Fa, he designates as the inside jaw, L, and the other half, which pulls back from the inside jaw when the jaws open, is called the outside jaw, N. Two screw bolts, M, M, are made with a flange, Ma, near their middle part, and with screw threads cut both above and below the flange. These bolts are screwed down into the back, La, nearly to the flanges. Metal blocks, O, O, are perforated so as to slide down over the upper ends of the bolts, and rest upon the flanges, Ma. Nuts, Mb, on the upper ends of the bolts, screw down tightly upon the blocks, O, O, and fasten them rigidly in place. The blocks, O, O, may be raised or lowered to perfectly adjust the distance between the outside jaw, N, which is carried by the blocks, O, O, and hinge bolt, h, and the inside jaw, L, by loosening the nuts, Mb, and turning the bolts, M, M, so as to screw them further into or out of the back, La, and then again tightening the nuts, Mb, upon the blocks, O, O. The outside jaw, N, is made with a shank, g. This shank, g, fits in the space between the blocks, O, O, and a hinge bolt, h, passes through the blocks, O, O, and the shank, g, of the outside jaw, and hinges the outside jaw in its place, so that it may stand open or be turned and closed. A latch, i, is pivoted to the edge of the back, La, and is fixed normally in the position shown in the drawings by a spring, j, which is fixed at one of its ends to a small stud in the latch, and at its other end is fixed to a stud, k, that projects below the edge of the back, La. A small stud, l, projects from the side of the outside jaw, and when the outside jaw is turned down and closed with the inside jaw, the stud, l, in descending will strike the upper edge of the latch, i, and, pressing it downward, will pass into the notch shown in the latch, when the spring, j, will retract the latch and lock the two jaws together. A long metal pin, P, is fixed in the outside jaw or in its shank, and is used as a lever for the purpose of revolving the outside jaw on its hinge bolt so as to open and close the jaws as required. The pin, P, at the proper time strikes against bent cam rods which are fixed in their several positions as hereinafter explained, and when the pin, P, comes in contact

with either one of such cam rods, it revolves the outside jaw to which it belongs around the hinge bolt, h, in the direction which may then be required. A pin, V, passes through the inward extension of each inside jaw and one of the rods, F, or Fa, and thereby secures the set of jaws with their fastenings and connections to the rod, and compels them to move with it. Each pair of rods, F, and Fa, carries two sets of these jaws, with their fastenings and connections. The other set of jaws that is placed upon the rods, F and Fa, is fastened by a similar pin to the other rod, Fa, so that one set of each companion set of jaws is fastened to the rod, F, of each pair of rods, while the other set of jaws is fastened in the same manner to the other rod, Fa. As these rods move in opposite directions, their movements cause the two sets of companion jaws which they carry to alternately approach towards and recede from each other when the machine is in operation.

There are twenty sets of these jaws in the machine shown in the drawings, and they are all made precisely alike and all operate precisely alike. They all have the same kind of fastenings and connections, except that, as 10 sets of jaws stand facing the other 10 sets, one-half of the latches, i, with their fastenings are fixed upon the right-hand edges of the backs, La, while the other half are fixed upon the left-hand edges of such backs. This is done in order that the latches, i, may all be upon the back sides or edges of the jaws as they revolve forward around the central shaft. H is a collar that is perforated, and both rods, F, Fa, pass through it. On the end of rod, Fa, a screw thread is cut long enough to permit a nut to be used on both sides of the collar, with something to spare for adjustments. The rod, Fa, first has the inside nut screwed upon it, then the collar, H, is placed upon it and the second or outside nut is screwed upon it. Upon the other end of its companion rod, F, another collar, H, is fastened in the same manner. The rods, either before or after the collars are fastened to them, are put in their places in the disks, the two sets of companion jaws being placed upon the rods as the rods are being placed in the disks. The sets of jaws are fastened to their respective rods by the pins, V, V. The smooth end of each rod passes loosely through the collar that is fastened to the adjacent end of its companion rod. This is done only for the purpose of holding the collar better in its place, and is not necessary. In this manner, one of the collars is attached rigidly to one end of one of the rods, and the other collar is attached rigidly to the other end of its companion rod; and one of the sets of jaws is attached to one of the rods, while the other set is attached to the other rod. One rod slides loosely through the inner extension of the inside jaw and through one end of the collar, and the other rod slides loosely through the corresponding extension of the other inside jaw and through one end of the other collar. Upon each one of the collars, H, is fixed a suitable stud, a, and a friction roller, G. These friction rollers are moved in a direction that is lengthwise with the rods, F and Fa, by coming in contact with the inclines at the ends of sectional cam rings, K, Ka. These cam rings, K and Ka, are placed concentric with the central shaft, B. Only a limited

movement of the friction rollers, G, and rods, F and Fa, is required, as each of the sets of jaws which they carry will not require to be moved more than one inch in either direction in ordinary machines. The sectional cam rings, K and Ka, are inclined near their ends, and are stationary, being fixed rigidly to the frame. As the friction rollers, G, are carried around by the revolving shaft, they come in contact with the inclined edges of the sectional cam rings, and are thereby forced to move crosswise with the machine until the inclines that are near the ends of the sectional cam rings are passed and the straight edges of the cam rings are reached by the rollers. The friction rollers draw with them the rods, F and Fa, and the two sets of jaws which they carry. In their movements crosswise with the machine, each friction roller belonging to the same companion pair of rods, with the collar and rod and set of jaws which it draws with it, moves in one direction, while the other friction roller belonging to the same pair of companion rods, and the collar and rod and set of jaws which it draws with it, move in the opposite direction. Each set of jaws is fixed nearest to the free-sliding end of the rod that carries it, and furthest from the end to which the collar, H, is attached. By means of this arrangement the two sets of jaws that face each other on the same pair of rods approach towards each other when the friction rollers that are attached to those rods are drawn in opposite directions from each other, and when the same friction rollers move towards each other the two sets of jaws will move further apart from each other. By means of the screw thread on each one of the rods, F and Fa, and the nuts, d, on each side of the collar, H, the rods, F and Fa, can be moved and adjusted lengthwise, and the two sets of jaws which are fixed to them as described can be moved permanently nearer to each other or further apart. The friction rollers, G, bearing against the sectional cam rods, K and Ka, fix and control the relative positions of the opposing sets of jaws, which stand facing each other in the machine, and, by means of screw threads on the bolts, C, and the nuts, c, by means of which the sectional cam rings, K and Ka, are attached to the frame of the machine, the sectional cam rings, which are opposite to each other across the machine, may be moved closer together or further apart, and in this way the opposing sets of jaws may be moved permanently either nearer together or further apart, as may be desired.

At the inside edge of the jaws, next to the back, La, is cut an annular channel, W, to receive the can head. The front edge of the channel, W, forms an annular shoulder that covers the front edge of the rim of the can head and forms an abutment against which it may bear. This annular shoulder reduces the open diameter within the jaws so that it is just small enough to surround the end of the can body, and guide it into the rim of the can head when the can head is forced forward. From this annular shoulder to the outward edge of the jaw the jaw flares outwardly, thus increasing the diameter of the ring formed by the closed jaws as it extends forward from the can-head channel, W. By this arrangement the end of the can body is received in the inside jaw, L, at a point where the diameter of the jaw is greater than the diameter

of the can body, and, if the can body is irregular or out of shape, it will be inclosed by the jaws, and headed the same as though it was exactly round when the jaw received it. In Fig. 5 of the drawings is shown a bent lever, m, which is pivoted at n. This lever is bent downward, so as to pass underneath the inside jaw, L. After passing underneath the jaw the inner end of the lever rises up between the jaws. At the inner end of the lever, m, is fixed an attachment that is shaped so as to fit the side of the can body when one is in the jaws. A friction roller, t, mounted on the end of a stationary stud arm u, is permanently located at the proper point, so that the shorter end of the lever, m, will come in contact with it and force the attachment at the inner perpendicular end of the lever against the can, and thereby force it out from its place in the jaws. This should occur after the heads have been forced upon the can body, and just when the jaws have opened and the two sets have slightly drawn apart so as to loosen their pressure on the can, and at the point at which it is desired to eject the headed can from the machine. Each of the outside jaws has fixed to it a long pin, P. By means of these pins, and the two pairs of bent rods, R, R, and S, T, these outside jaws are opened and closed as explained. Another pair of short cam rods, r, r, are used for unlocking the outside jaws from the inside jaws, so as to permit the outside jaws to open at the proper time. The cam rods, R, R, are bent in a partially spiral form, and located so that the pins, P, P, of two opposite sets of jaws will come in contact with them and be turned by them in the directions desired. The pins, P, P, always come in contact with the cam rods, R, R, when the outside jaws to which the pins belong are open and the pins are pointing downward. The pins follow along the cam rods, and are turned by them, and make the jaws to which they are attached revolve around their hinge pins, h, and close with the inside jaws. A short cam rod, r, is supported by metal straps attached to the stationary cross rods, 9 and 10, of the machine frame, and is so located that, as the machine revolves around the main shaft, the under side of the short end of the locking levers, i, will come in contact with the cam rod, r, and be lifted up and made to unlock the jaws from each other, so that they may be separated and opened after the heads have been forced upon the can that is held by them. A similar short cam rod, r, operates in the same way to unlock the opposite set of jaws, and allow them to be opened also. S and T are two stationary cam rods that are bent in a partially spiral form, and placed in the position shown in the drawings, so that, as the machine revolves, the pins, P, P, will come in contact with them when the jaws are closed, and will follow along them lengthwise, and thereby the pins and the jaws to which they belong will be revolved around their hinge pins, h, h, and the jaws opened. In forcing the can heads upon the can body, the two sets of jaws will advance so nearly together that there will not remain a sufficient amount of room between them to allow the outside jaws to swing open at the same time without coming in contact with each other. For this reason, it is necessary that one of the outside jaws should be partly opened in advance of the opening of the other.

To accomplish this result, the cam rod, S, extends further up in the machine than does the cam rod, T. One of the pins, P, therefore, comes in contact with the cam rod, S, before the other pin, P, comes in contact with the cam rod, T, and the pin, P, that comes in contact with the cam rod, S, and the jaw belonging to it will be revolved and partly opened before the other pin, P, and the jaw belonging to it will have commenced to open. The cam rod, S, is fastened to the cross rod, 9, of the machine above the point at which the pin, P, comes in contact with it. Q, Q, are used as guide rods to guard against accidents. After the can has been headed and ejected from the machine, the two sets of jaws in which the can was headed should remain open until they are carried around under the chute and receive another can body with the heads that are to be placed upon it. While passing along this distance, the outside jaws of the two sets, if left unguarded, are liable to swing partly shut and not be in proper position to pass under the chute when they reach it. For this reason, the guide rods, Q, Q, are so placed that the outside jaws will be prevented from closing as they ascend at the back of the machine, and will be guided so that they will pass under the chute in the proper open position to receive the can heads and can body. The upper parts of the rods, Q, Q, above the points at which they cease to act as guide rods are spread apart and carried upward for the purpose of conveniently fastening them to the cross rod, 7, of the machine frame. They are also secured lower down to the cross rod, 8, of the frame. The lower ends of these guide rods, Q, Q, are bent so their extreme lower ends will reach under and throw out from the machine any can or can body that may accidentally remain in the jaws instead of being ejected from them at the proper place.

As shown in the drawings, the chute for the can bodies is made of four pieces of angle iron, 2, 2, and 3, 3, fastened together with metal sheets or cross pieces. The lower end of the chute is made so as to confine the can body as closely as possible, and not interfere with its freely passing through the chute. This is in order to prevent its getting wedged by bounding out of its proper position when it strikes the jaws in its downward passage. The chutes for the can heads are placed at the sides of the chute for the can bodies. Vertical rods, 12, 12, serve as the outsides of the head chutes. These vertical rods are held in their positions by suitable brackets, 13, extending across the chutes and secured to their vertical side pieces, 15. At the inside of their lower ends the rods, 12, have fastened to them a thin metal sheet that extends nearly across the chute, to better guide the can heads into the jaws. The rods, 12, are cut short, so that no part of the jaws can come in contact with them. The thin metal sheets at the inside of the lower ends of the rods extend below the rods. They are hung so as to allow the backs, La, of the jaws to pass under them, and their inside faces should be in line, both vertically and crosswise, with the inside faces of the backs, La, so that the latter will form a continuation of the front side of the chute, while the can head is passing from the chute into the jaw.

In order to more certainly guide each can head into its channel, W, in the inner jaw, the chute is divided into two parts. The upper part, 14, is a straight sheet of metal fixed rigidly in its position. The lower part, 16, of the back extends downward in front of the back, La, of each passing jaw as far as practicable, and allows the jaw, L, to pass under it. The can head passes between this downward extension and the face of the back, La. The lower part, 16, is so arranged that its lower end may swing towards the back, La, of each passing jaw, but not far enough in the opposite direction to allow the edges of the can heads in the chute to pass each other, and thus get wedged therein. At each of the opposite corners of the swinging back, 16, is fixed a lug, 17, by means of which this swinging back is pivoted to the two vertical side pieces, 15, of the chute. These pivots are placed at one side of the vertical line of the back so that the weight of the part will cause its lower end, when unobstructed, to swing towards the back, La, of the passing jaw. A frame, 6, 6, is rigidly attached to the cross rod, as shown in the drawing. Two strong metal sheets, 4 and 5, are fastened across the chutes, as shown. Below their fastenings these metal sheets are each, respectively, bent far enough away from the chutes to allow the top of the frame, 6, 6, and the cross rod, 7, to respectively pass in between the sheets, 4 and 5, and the chutes. The sheets, 4 and 5, are respectively hooked over the top of the frame, 6, 6, and the cross rod, 7, and hold the chutes in their proper positions. On the sides, towards the back of the machine, the lower ends of the chutes are curved a little forward for the purpose of delivering the heads and bodies of the cans from the chutes into the jaws on a line that is radial with the circle in which the jaws revolve around the central shaft.

The operation of the machine is as follows: The chutes are kept filled with can heads and can bodies. These stand in columns, resting one upon the other, except the lower ones, which rest upon such part of the jaws as happens to be under them. The machine is set in motion, and, as it revolves, the jaws will pass under the chutes, and each set of jaws will receive the lowest can body and also the lowest can head that is in each one of the can-head chutes. The can heads will be at each end of the can body in the jaws. The jaws will pass forward from under the chutes carrying can heads and can bodies with them, and will be followed with the next set of jaws, which will in like manner receive the next can body and next can heads, then in the bottom of the chutes. Each can body and the can heads belonging to it will be carried forward by the jaws as fast as they receive them, and the columns of can bodies and can heads will constantly descend and fill the places of those thus carried away in the jaws. As the jaws pass forward, the pins, P, P, in the outside jaws, will strike against the cam rods, R, R, and those jaws will be turned over and closed with the lower jaws under them. The levers, i, will operate as before described, and lock the jaws together with the can body and can heads fast inclosed within them. The friction rollers, G, G, belonging to the rods, F and Fa, which carry that set of jaws, will then come in contact with the inclines at the ends

of the sectional cam rings, Ka, at each side of the machine, and will be drawn further apart, thereby drawing the two sets of jaws towards each other, and forcing the can heads upon the can bodies. The under side of the short ends of the levers, i, will next strike the upper sides of the cam rods, r, r, and unlock the outside jaws from the inside jaws. Before the short ends of the levers, i, i, have passed the entire length of the cam rods, r, r, the pins, P, P, will have struck the cam rods, S and T, and opened the jaws far enough so that they cannot close together and be again locked before they shall have been fully opened. As the machine continues to rotate, the jaws will be fully opened, and the friction rollers, G, G, will pass beyond the sectional cam rings, Ka, Ka, and will strike the inclines reaching back from the ends of the sectional cam rings, K, K. Just as the rollers strike the sectional cam rings, K, K, and before the sets of jaws are drawn far enough apart to make it possible for either of the can heads to be pulled off from the headed can that is in them, the short end of the bent lever, m, will come in contact with the stationary friction roller, t, and the headed can will be thrown from the jaws. As the friction rollers, G, G, pass along the inclines at the ends of the sectional cam rings, K, K, they will be pressed towards each other, and the two sets of jaws to which they belong will be moved to their furtherest limit from each other. They will continue in this position until they have again passed under the chutes, ready to repeat their operation by heading another can. All the sets of jaws in the machine operate exactly alike, and each one of the sets repeats the operations above described.

Undoubtedly, this mechanism of Wheaton, like that of complainants, puts tight-fitting can heads on the outside of can bodies automatically, to do which there must, of necessity, be mechanism for centering and bringing into exact line with each other the can body and can head, and also mechanism for shaping and sizing the can body, and also for forcing the head and body together. Any device, in order to accomplish the desired result, must do these things. But the question is whether the device of Wheaton, in centering and aligning the can body and can heads, and in shaping and sizing the ends of the can body, and in forcing the heads and body together, uses the elements of the claims patented to Norton, or their mechanical equivalents.

It is apparent that the mechanical construction of Wheaton's device is quite different from that of the Norton device, and, as a consequence, that the mode of operation of the two machines is, to some extent at least, different. Some of these differences, stated by the appellant, we find to be true. In the Wheaton machine the central shaft revolves, while that of the Norton machine is stationary. The devices that Wheaton connects with his central shaft are two disks, which are made rigid, and, therefore, revolve with the shaft. The device which Norton attaches to his stationary central shaft is an annular cam made in two like parts, which cam is made stationary, and, therefore, does not revolve. Norton's machine does not have either the revolving central shaft of the Wheaton machine nor the revolving disks which are attached to it in the Wheaton machine.

Neither does the Wheaton machine have the stationary shaft nor the annular stationary cams of the Norton machine. The Norton machine has mounted upon its central shaft several sets of arms which revolve around the shaft. The Wheaton machine has no such arms, but has cross rods which pass through holes in his disks, and which are parallel with the central shaft. Norton's machine has no such rods. The cross rods in the Wheaton machine support and carry his sets of jaws crosswise of the machine, and the rods themselves move back and forth, crosswise of the machine. Norton's machine has no rods or devices which carry any jaws or molds crosswise of his machine. Except his pistons, he has no devices that move crosswise of his machine, and the sole function of his pistons is to force the can heads out of the can-head chute into the annular spaces of the molds, and thereby on the ends of the can bodies. The cross rods of the Wheaton machine are not in the Norton machine, nor is the function which they perform—that of supporting the jaws and moving them forward and backward across the Wheaton machine—performed in the Norton machine at all. That machine does not do that kind of work. In the Norton machine, between the parts of his stationary annular cam there is a ring loosely encircling the main shaft. This ring is provided with radial recesses into which cross pieces are fitted and slide, serving as guides to the parts operating the moving sides of the mold, and insuring a true movement thereof by the cam. The Wheaton machine does not contain this encircling cam ring with its recesses, nor the cross pieces. None of the work which they perform in the Norton machine is done in that of Wheaton. The molds of the Norton machine open in the direction of its periphery. They seize and hold in one immovable position the can body directly in line with the heads that are in the body of the can-head chutes. The jaws of the Wheaton machine do not open in the direction of its periphery, but open and close crosswise with the machine. The devices for opening and closing the molds of the Norton machine are different from those for opening and closing the jaws of the Wheaton machine. In the Wheaton machine there are two sets of jaws facing each other, which move back and forth crosswise of the machine, and, while moving towards each other, they carry the can heads towards each other, shape and size the ends (but only the ends of the can body that is between them), and then force the heads upon the body. In that machine, the ends of the can body are received upon the lower part of the flaring jaws. The flaring makes those parts of the jaws which receive the ends of the can body considerably lower than is the bottom of the edge of the can head that is in its place in the jaws. When the can body is thus received in the jaws, it is loose, and rests by force of its own gravity upon its extreme ends, and below the level of the can heads. In this position it lies loosely. The jaws of the Wheaton machine, with the can body in this position, move towards each other, and, in so doing, the smaller diameter of the cone-shaped hollow in the jaws travels to the ends of the can body. This causes the ends of the body to be raised by the flaring of the jaws until the body registers with the can heads. In the Norton machine, the interior of the

mold, except at its ends, where exist the annular spaces, conforms accurately in shape and dimension to the exterior of the can body, and the mold, when closed upon the can body, holds it firmly in an immovable position, while the heads are forced by the pistons from their place in the can-head chute into the annular spaces of the mold, and thereby applies them to the outside of the can body; the movement of the heads towards the can body being a horizontal one.

It is true that at each end of the jaws of the Wheaton machine is cut an annular channel for the reception of the can heads; but it is not true that that machine contains any piston, or any equivalent therefor, for forcing the can heads into those annular spaces, and thereby applying them to the outside of the can body. On the contrary, in the Wheaton machine, the can heads reach their seat in the annular spaces of the jaws by force of their own gravity, and they are carried in that position in the jaws as they approach each other crosswise of the machine, without any change in the position of the can heads until they are forced on the can body by the coming together of the jaws. The device which, in the Wheaton machine, forces the heads on the can body is not the equivalent of the piston of the Norton machine, for it accomplishes that result, not by forcing the can heads into the annular spaces, and thereby applying them to the outside of the can body, but by bringing the jaws together in the essentially different operation already described. The absence of the piston of the Norton device, or any equivalent therefor, from the Wheaton device is of itself enough to make it necessary to adjudge that the device of Wheaton is no infringement upon the Norton device; the piston being an essential element of each of the combinations covered by the patent of the complainants.

Judgment reversed, and cause remanded, with directions to the court below to dismiss the bill at complainants' cost.

MAYOR, ETC., OF CITY OF NEW YORK et al. v. AMERICAN CABLE RY. CO.

(Circuit Court of Appeals, Second Circuit. December 2, 1895.)

1. PATENTS—INVENTION—CABLE RAILWAYS.
   Merely connecting, by a rod, two pulleys, previously in use for carrying the cable of a cable railway, so that they can be raised simultaneously, by a looped wire in the hands of the conductor, for the purpose of lifting the cable to the grip, involves no patentable invention. 56 Fed. 149, and 68 Fed. 227, reversed.

2. SAME.
   The Miller patent, No. 271,727, for an improvement in cable railways, consisting in a device for raising the cable to the grip, *held* void, as to claim 6, for want of invention. 56 Fed. 149, and 68 Fed. 227, reversed.

Appeal from the Circuit Court of the United States for the Southern District of New York.

This was a bill by the American Cable Railway Company against the mayor, aldermen, and commonalty of the city of New York, and the city of Brooklyn, for alleged infringement of a patent relating to cable railways. The circuit court rendered a decree for complainant, and defendants appeal.