JENSEN CAN-FILLING MACH. CO. et al. v. NORTON et al.

(Circuit Court of Appeals, Ninth Circuit. January 28, 1895.)

No. 134.

1. PATENTS—INFRINGEMENT OF COMBINATION CLAIMS—EQUIVALENTS.
Infringement of combination claims can only be made out by showing that defendant's machine has substantially every one of the elements composing the combination, or mechanical equivalents for any that are omitted; and "mechanical equivalents," as used in this connection, means devices previously known, which, in the particular combination of the patent, can be adapted to perform the functions of those specified devices for which they are substituted without changing the inventor's idea of means.

2. SAME—INFRINGEMENT—CAN-MAKING MACHINES.
The Norton patent (No. 250,096) for a machine for soldering side seams of cans construed, as to claims 2 and 3, and the same *held* not infringed by a machine made according to the Jensen patent (No. 442,484).

3. SAME.
The Leavitt patent (No. 250,266) for a can-body forming machine construed, as to claims 2 and 12, and the same *held* not infringed by the said Jensen machine.

4. SAME—LIMITATION BY PRIOR ART.
The Norton patent (No. 395,795) for a can forming and soldering machine construed, as to claims 1, 2, 3, 4, 5, and 10, and the same *held* to be limited by the prior state of the art to the specific devices shown; and, being so limited, *held*, further, that they are not infringed by the Jensen can-body making machine (patent No. 442,484).

5. SAME.
The Hipperling patent (No. 366,482) for wiping surplus solder from the inside of can bodies analyzed, as to claim 1, and *held* not infringed by the solder-wiping device of the Jensen machine.

6. SAME.
The Leavitt patent (No. 444,000) for a can-body forming and side-seam soldering machine construed and limited, as to claims 20, 22, 23, 25, 26, 27, 28, 30, and 31, and the same *held* not infringed by the Jensen machine.

Appeal from the Circuit Court of the United States for the District of Oregon.

This was a bill in equity by Edwin Norton and Oliver W. Norton against the Jensen Can-Filling Machine Company, Mathias Jensen, and John Fox, for infringement of certain patents. The circuit court dismissed the bill, as to said Fox, and granted an injunction against the remaining defendants. The latter appeal.

Wheaton, Kalloch & Kierce, for appellants.

Estee & Miller and Mundy, Evarts & Adcock, for appellees.

Before ROSS, HANFORD, and MORROW, District Judges.

HANFORD, District Judge. This is a suit in equity commenced in the United States circuit court for the district of Oregon by the appellees against the appellants and one John Fox, for alleged infringements of the following United States patents, viz.: No. 250,096, to Edwin Norton, granted November 29, 1881, on machine for soldering side seams of cans. No. 250,266, to F. M. Leavitt, granted November 29, 1881, on machine for making the seams of sheet-metal cans. No. 366,482, granted to W. Hipperling, July 12,

1887, on apparatus for the manufacture of tin cans. No 395,788, to F. M. Leavitt and Edwin Norton, granted January 8, 1889, on can forming and soldering machine. No. 395,795, to Edwin Norton, granted January 8, 1889, on can forming and soldering machine. No. 444,000, to Frank M. Leavitt, granted January 6, 1891, on can-body forming and side-seam soldering machine. After a full hearing on the pleadings and proofs, the circuit court made a decree dismissing the bill, as to the defendant John Fox, and granting an injunction against the other defendants, forbidding the manufacture, vending, or use of certain machinery described in letters patent No. 442,484, granted to the defendant Jensen, December 9, 1890, for a "Can-Body Making Machine," which by said decree was adjudged to be an infringement of the rights of the complainants under claims 2 and 3 of the Norton patent (No. 250,096); claims 2 and 12 of the Leavitt patent (No. 250,266); claim 1 of the Hipperling patent (No. 366,482); claims 20, 22, 23, 25, 26, 27, 28, 30, and 31 of the Leavitt patent (No. 444,000); claims 1, 2, 3, 4, 5, and 10 of the Norton patent (No. 395,795); and claims 1, 3, 6, and 19 of the Leavitt & Norton patent (No. 395,788). From said decree the defendants Jensen and the Jensen Can-Filling Machine Company, a corporation, have appealed to this court.

The proofs in the case consist of the several patents above mentioned, including specifications and drawings, incomplete models, and depositions of the complainant Edwin Norton, and of a patent expert named Melville E. Dayton. There is no evidence tending to prove, nor admission by the defendants of, the making, vending, or using of any machine, since the date of said patent No. 395,788, having the particular devices which are supposed to infringe claims 1, 3, 6, and 19 of said patent, nor does it in any way appear that the appellants threaten or have threatened or intend to hereafter, in any way, infringe said patent. Therefore, as to said patent, the decree is certainly erroneous.

As to the other claims, the pleadings and assignments of error relieve the case of all questions save and except the one general question, does the Jensen machine infringe the claims of the patents sued on? Upon this general issue the cause has been tried and submitted, except as to patent No. 395,788, and it is to be determined accordingly. The patents sued on, and remaining to be considered, all relate to devices for doing some part of the work of forming the bodies of tin cans, with interlocked side seams, and soldering the seams inside the can body as well as on the outer surface, and removing from the can body, and saving, all surplus solder; and the several combinations of devices described in the patents are capable of being so connected as to work harmoniously together, and, by a continuous series of movements, automatically and rapidly act upon flat pieces of tin, converting them into cylinders with side seams perfectly interlocked, pressed, soldered, and wiped, and the cylinders or can bodies then passed on, to be acted upon by other machinery for putting on, crimping, and soldering the tops and bottoms, so as to work harmoniously, and produce finished cans, as stated.

Of the patents to be considered, the first in order, because the oldest, is patent No. 250,096. This patent covers the machinery in the section of a can-making plant, which takes the can bodies after the side seams have been pressed, carries them forward so as to bring the seams in contact with acid, then with molten solder, and then with a wiper for removing the surplus solder from the outside of the seams, and delivers them, completed, to the mechanism which performs the function of applying the heads. The elements of the invention are two parallel bars or rails, forming a track for the cans to move upon; an endless-chain carrier, to convey them forward upon the track; a track for the carrier; tanks for the acid and molten solder placed under the track for the cans, so as to apply first acid and then solder to the side seam of each can body as it passes upon the track with its seam downward; two parallel bars or guides placed above the track, and coterminous with the solder tank, for the cans to pass under, and to hold them down upon the track at that stage of their journey, so as to receive the full benefit of the solder bath; a wiping device to come in contact with the outside of the seams immediately after the cans have passed the solder bath, so as to remove the surplus solder while yet in a molten state; and a hood or guide made in shape to fit the part of a can body above the track, and press it downward against the wiper, while passing over it, without mashing or bruising the can body. The track is partly level and partly inclined, so that the can bodies are in a horizontal position while passing the acid bath; then taken up a slight incline, to facilitate the dripping off of surplus acid; then carried on a level, so as to be in a horizontal position over the solder bath; and then up a second incline, to facilitate the wiping off of the surplus solder. In operation, the track upholds the can bodies; the two parallel, overhead guides hold them down, in contact with the molten solder in the solder tank; the carrier track upholds the carrier; a link of the carrier surrounds a can body, and engages the latter end so as to move it as the chain moves, forward along the track; the acid tank applies acid, and the solder tank applies molten solder, to the seams of the cans, as they pass; the wiper rubs off the surplus solder from the outside of the seams; and the hood exerts sufficient pressure from above to compel the moving can body to rub against the wiper. Each of the devices described has a function, and is necessary to success, in the operation of the machine. The claims of the patent which are to be considered show, in connection with the accompanying specifications and drawings, each of said devices to be an essential part of the combinations constituting the invention. They are as follows:

"(2) In a machine for soldering side seams of cans, a track for the cans, a carrier to move the cans, and a solder bath, in combination with guides, M, M, substantially as and for the purpose specified. (3) In a soldering machine, a wiper, J, for the purpose of removing surplus solder from the outside of the can, in combination with a hood, K, for the purpose of holding the can in contact with the wiper, substantially as specified."

To make a case against the defendants of infringement of this patent, the Jensen machine must be shown to have substantially

the same combinations, including every one of the above-mentioned devices, or mechanical equivalents for any that may have been omitted. "Mechanical equivalents," as that phrase is to be understood in this connection, are such devices as were known previously, and which, in the particular combination of devices specified as constituting the patented invention, can be adapted to perform the functions of those specified devices for which they are employed as substitutes, without changing the inventor's idea of means. In other words, without introducing an original idea, producing, as the result of it, an improvement which is itself a patentable invention. 1 Rob. Pat. §§ 248, 253, 254. By comparing the two, we find that the Jensen machine does the work of soldering the side seams of tin cans and wiping the outside by the same mode of operation as the Norton patented machine; the devices for holding and applying acid and molten solder are substantially the same in both machines; the carrier and wiper of the Jensen machine are different in form, but may well be regarded as equivalents for the mechanism for performing the same functions in the Norton machine. The important difference is in tracks. The Jensen track is two parallel bars framed together, and suspended so as to be inside of the can bodies; the upper edges upholding them as they pass through the soldering and wiping process, and the lower edges of the frame at the same time exerting all the downward pressure necessary to bring them in contact with the solder bath and the outside wiper, and dispensing entirely with the guides and hood of the Norton machine, without creating any necessity for equivalent devices for supplying external force from above. The single device of the frame, P, as constructed by Jensen, does all the work of the track, E, E, the guides, M, M, and the hood, K, described in the specifications of the Norton patent. The guides, M, M, are essential parts of the combination, and an element of claim 2; and the hood, K, is an essential part of the combination and an element of claim 3. As the Jensen machine does not have either of these devices, nor any substitute therefor, but gets the pressure which they have to supply, to render Norton's mechanism effective, from the frame, P, which also does all the work of Norton's track, it is entitled to be regarded, not as a mere improvement, but as a new invention.

The Leavitt Can-Body Forming Machine (Patent No. 250,266).

This is an automatic machine for making can bodies with interlocked side seams. The claims supposed to be infringed by Jensen's machine are as follows:

"(2) The combination of the horn, P, former, M', heads, W, nipping hammer, f^7, angular guides, M, an edge-folding mechanism, and separate means for relatively operating the several parts, substantially as and for the purpose specified." "(12) The horn, P, constructed with longitudinal grooves in its opposite sides, in combination with the longitudinally movable stripping jaws, A*, substantially as and for the purpose herein set forth."

It is our conclusion that the horn, P, or shaping device, which is an element of the combination described in each of these claims,

has not been reproduced or imitated by Jensen, and that, by omitting that important part of the mechanism of this patent from his machine, infringement has been avoided with respect to both claims. To properly understand and appreciate the features and functions of horn, P, it becomes necessary to refer to the specifications and drawings descriptive of the invention which accompany and explain the claims. By such reference we find horn, P, described as follows:

"It will be observed that in describing the operation of bending the blank to form the body of the can or box, and also the operation of forming the seam, I have spoken of the horn, P, as if it were solid. So far as the operation of the said horn is concerned, its parts are rigid and practically solid during the bending of the blank; but during the interlocking of the end-folded edges, and also during the removal of the finished body from the horn, it is necessary that the horizontal diameter thereof, especially at the upper part, should automatically diminish, to meet the exigencies of the work. Thus, for example, if the horn did not contract laterally at its upper part, the hooked or end-folded edges of the blank could not pass one over the other, as I have just described; and, in like manner, if such contraction were not provided during the removal of the body from the horn, the former would be so closely bound upon the latter that the friction would prevent its facile or speedy removal. To provide for this contraction in a certain direction of the horn, P, at certain stages in the operation of the machine, the said horn is constructed as follows: It is bored from its inner end nearly to its outer end, as represented at g^7, in Fig. 5, and its main or rigid portion is beveled at one side, as shown in the cross section, Fig. 8; and there is fitted to the said side, as also represented in the said figure, a hinged leaf, C^7. A lateral opening, m^7, extends from the bore, g^7, out through the adjacent beveled side of the horn, and into and through this opening projects a stud, n^7, which extends inward from the leaf, C^7. Working longitudinally in the bore, g^7, is a rod or bar, D^7, the inner end of which is beveled to the wedge-like form shown at r^7, in Fig. 5. These parts are so proportioned that when the rod, D^7, has been pushed inward, the wedge, r^7, acting against the inner end of the stud, n^7, will force outward the leaf, C^7, to give the size and contour to the horn, P, required while the blank is being bent around the latter, as hereinbefore explained; but when the rod, D^7, is drawn in an opposite direction, the wedge r^7, being withdrawn, permits the leaf, C^7, to move inward against the beveled surface, i^7, of the main portion of the horn, thereby narrowing the said horn, considered as a whole, at its upper side. In order to give the requisite longitudinal movement to the rod D^7, its outer end is provided with a head, u^7, which is fitted within a socket, F^7. The construction last described is more clearly indicated in Figs. 5 and 8 aforesaid. The socket, F^7, is really a vertical, inwardly flanged groove, formed in the upper end of a lever, G^7, which is attached to a rock shaft, H, from which extends a horizontal lever, H', from which extends upwards the rod H", as shown in Fig. 4. This rod, H", as shown in Fig. 2, is actuated from two cams, H^4, H^7, on the shaft, G, by devices substantially the same as those by which the rod, C, is operated from the cams, I^4, and I^5, on one of the shafts, E. With reference to the mechanism for forming the end-folded edges upon the blank by this means, such movement is given to the rod D^7, as to expand the horn to its full size at the requisite stages of the operation of bending the blank to form the body and of forming the joint in the latter, and to permit the contraction of the upper part thereof when such is necessary. The leaf, C^7, it should be mentioned, is pushed inward to contract the available size of the horn by the impact of the adjacent pusher, e^7, when the same advances with the contiguous folding head, W; the leaf yielding, of course, simultaneously with the withdrawal from the stud, n^7, of the wedge, r^7, and also simultaneously with the passage of the uppermost of the end-folded edges of the blank upon and over the undermost of said edges."

The multiplication of parts, and the union and adjustment thereof, above described, is certainly very intricate, and the functions

of each part must be important and necessary to the accurate and successful working of the machine; and yet the argument of counsel for the complainants treats this device as if it were a simple, solid, round thing, without any use other than to co-operate with the exterior forming devices so as to prevent mashing while the blanks are being pressed into cylindrical form. Care has been shown to call attention to the similarity of Jensen's forming horn in the matter of the side grooves for the stripping jaws to work in, but the important differences between the two devices have been ignored. And in his testimony the complainants' expert witness, Mr. Dayton, also makes full and graphic descriptions of the parts of the Leavitt machine which do resemble corresponding parts found in Jensen's machine; but his description of this horn, P, consists principally of mere references to the drawings, and the following statement:

"This roller acts as the can body is being drawn off the horn, by means of the stripping jaws, Q^1, Q^1, which have the same construction and operation, substantially, as the stripping jaws, A*, in the Leavitt patent, and the hooks of which extend into side grooves in the horn seen at G^2, in Fig. 8, exactly corresponding to the side grooves in the horn of the Leavitt patent. Said side grooves are also seen at G^2, and the stripping jaws at Q^1, in Fig. 1 of the Jensen patent. In both the Leavitt patent and the Jensen machine, there are also devices for positively causing the hooks on the edges of the metal sheet to engage with each other before the seam is compressed, but, as these are not made an element of either claims 2 or 12 of the Leavitt patent, I have not heretofore mentioned them. In the Leavitt patent this device consists of a hinged part of the horn itself, whereby the latter may expand within the can body, and thus cause its overhooked edges to engage each other. In the Jensen patent it consists of an external hinged or pivoted part, N^1, seen in Figs. 8, 9, and 18. The folding devices first bring the edges into their proper relation, or past each other, in both machines. In the Leavitt patent the nipping hammer, f^7, first bears lightly upon the outer or over folded edge of the blank, 'and thereby prevents it from lifting during retraction, so that by this means the hooking of the two edges together is assured. When this is done the further downward movement of the nipping hammer * * * forcibly compresses the uppermost of the folded edges upon the lowermost thereof, thereby bringing them firmly and closely together to form a tight and snug joint, required in the finished body of the can or box.' In the Jensen machine the lever, N^1, also bears lightly against the outer fold or edge of the sheet, and in like manner insures its interengagement with the opposite folded edge upon the retraction of said edges, or the expansion of the can body."

This is manifestly intended to be misleading. The particular device for positively causing the hooks on the edges of the metal sheet to engage with each other before the seam is compressed, of the Leavitt patent, which Mr. Dayton here asserts is not made an element of either claim 2 or 12, is an essential part of the horn, P, as the inventor's specifications clearly show; and it is not a part merely of horn, P, nor part of the purpose of its peculiarities of form and construction, but the whole of it, and the purpose in full, which is made an element of both of said claims. Hendy v. Iron Works, 127 U. S. 370, 8 Sup. Ct. 1275. Now, what is represented as being the part of Jensen's machine corresponding to the horn, P, of the Leavitt patent, is a solid piece of wood, nearly round, approx-

imating in diameter the diameter of the cans, and adapted to cooperate with other devices so as to prevent mashing of the tin in the process of rolling the blanks into cylindrical forms. But the whole mechanism and operation of Jensen's machine differ from the Leavitt machine, and particularly the horn. The Jensen horn is not bored; has no lateral opening, hinged leaf, stud, lever, rod, wedge, nor socket. It is not capable of expansion or contraction, and it does not by itself positively cause the bent edges of the metal sheets to interlock, nor assist in causing such interlocking of edges, in the manner of the Leavitt horn; that is, by forcibly expanding the can bodies so as to draw the folded edges into each other.

Patent No. 395,795.

This patent is for a combined can-body forming and side-seam soldering machine. It may be briefly described as the Leavitt can-body forming machine, with its mechanism inverted so as to make the interlocked side seam under, instead of on, the upper part of the forming horn, and then coupling that reorganized machine to the Norton side-seam soldering machine, heretofore described. The claims of this patent alleged to have been infringed by the Jensen machine are as follows:

"(1) The combination, with a can-body former horn, of a side-seam closing device below the horn, adapted and operating to close the side seam against the lowermost part of the horn, a side-seam soldering device having a can-body carrier, and mechanism for delivering the can body from said horn into said carrier, substantially as specified. (2) The combination, in a can-body forming machine, with a can-body blank feed device, of a can-body former horn below said feed device, and above which the blanks are fed, and mechanism for folding the blank downward around said horn, and a device below said horn for closing the folds of the seam against the horn, substantially as specified. (3) The combination, with a can-body former horn, of mechanism above the horn for folding or forming the can body downward around the horn, and a seam-closing device for squeezing or closing the folds of the seam against the horn, substantially as specified. (4) The combination, with a can-body forming machine constructed and adapted to interlock and close the seam at the under side of the can body, of a side-seam soldering machine having a bath or soldering device over which the can body is carried, and means for delivering the can body from the forming machine to the side-seam soldering machine, substantially as specified. (5) The combination, with a can-body former horn, of a device for feeding the blank sheets in above the horn, a device for folding the sheet downward around the horn, devices for forming the side seam of the can body, a side-seam soldering device having a carrier, and a device for moving the can body from said horn, and delivering the same into said carrier, substantially as specified." "(10) The combination, with a can-body former horn, of a device below the horn for closing the seam against the horn, substantially as specified."

These are all combination claims, and each is broad enough to include every imaginable style of mechanism for forming can bodies and soldering the side seams thereof. So regarded, they would all be void for failure to describe any patentable invention. They must necessarily be limited to include only the particular devices specified. Thus construed, each of said claims, except the fourth, is for a combination, one essential element of which is the expan-

sion forming horn of the Leavitt machine, heretofore described. The Jensen machine, having no such device, is innocent of infringement of the several claims of which it is an element. That which appears to be original with the patentee, in the mechanism described in this patent, and which is therefore to be regarded as his invention, is the can conveyor, K, described in the specifications, consisting of a track, guides, hooks, and springs placed between the can-forming horn and the tracks and endless-chain carrier of the soldering machine, and designed to pull the can bodies off the former horn, and deliver them to the soldering machine in proper position to be operated upon by the latter. This intermediate can conveyor is a principal element of the fourth claim. In the Jensen machine there is no intermediate can conveyor for delivering the cans to the soldering apparatus, and no mechanism whatever corresponding to any part of it, except the hooks which pull the can bodies from the horn directly over the frame, which is hooked directly to the end of the horn, and which serves as a track for conducting the can bodies over the acid and solder baths. Use of the hooks, merely, without the other specified appliances, in a machine having so many other points of difference, is not sufficient to fill the place of Norton's conveyor, or complete the combination so as to become an infringement.

The Hipperling Inside Wiper (Patent No. 366,482).

This contrivance for automatically removing surplus solder from the inside of can bodies during the process of soldering the side seams by machinery, like Norton's, having an outside track and guides for conducting the cans over the solder bath, comprises the wiper proper, and means for supporting it and making it work inside the can bodies without obstructing their onward progress. The wiper is mounted upon a bar made in two parts, hinged together at one end like an ordinary pocket or folding rule. A spring placed between the two sections of this bar gives pressure to the end of the lower arm of the bar to which the wiper is attached, and a weight placed on that part also adds to the pressure, the object being to supply sufficient pressure to insure effectual wiping. The bar is suspended from a supporting frame by a series of slides and dogs which spring laterally into grooves or pockets in each side of the upper section, and adjusted to be easily pushed out of place by an endless-chain can carrier so as to permit the cans to pass them, and spring back to support the bar after each can has passed. The invention, which is the foundation of the patent right, is found in the ingenious method of suspending a device for working inside of moving can bodies to an outside supporting frame, and the means of supplying force to thoroughly wipe. Jensen's inside wiper is comparatively a very simple device. It is just a wiper, and nothing else, attached to his inside frame, which serves as a track for conducting the can bodies over the acid and solder baths heretofore described. It does not contain any of the mechanism which Hipperling invented. Consequently, it does not infringe his patent.

The Leavitt Combined Can-Body Forming and Side-Seam Soldering Machine (Patent No. 444,000).

The complainants assert that this patent covers an invention of the primary class, inasmuch as it embodies the original idea of combining in one organized machine mechanism for forming automatically, from a flat, rectangular piece of tin, a can body with an interlocked and welded side seam. But after considering with care all the claims, specifications, and drawings of the patent, and the testimony and arguments relating thereto, we regard this patent as being, in the main, descriptive of an aggregation of previously known machinery, rather than of any new discovery in the realm of mechanic arts. Take from what the inventor has described the framework, the driving wheels, belts, gearing, and means for connecting the operating mechanism with the power which actuates it, none of which are original with this inventor, and the inside wiper, and means for attaching it to the projecting end of the former horn, and the mechanism for giving to each can body a half revolution after its side seam has been compressed so as to bring the seam into position to come in contact with the molten solder beneath the track, which are new, and nothing will be left, except an improved Norton machine for soldering side seams of cans, as described in patent No. 250,096, and Leavitt's machine for making can bodies with interlocked side seams, described in patent No. 250,266, each of which is capable, without co-operation from the other, of doing all the work assigned to it. In his specifications, Mr. Leavitt himself declares that:

"It is the principal object of my invention to save the labor of the attendant whose duty it is to place the can bodies in the soldering machine can carrier, and at the same time always deliver the can bodies into the carrier with their seams turned directly downward, so that the can bodies need be immersed in the solder bath only to the depth necessary to solder the seam, and thus dispense with the necessity of immersing the can body in the solder bath to a greater depth in order to compensate for slight inaccuracies in turning the seam of the can bodies directly downward, as must always be the case where such work is done by hand. * * * My invention consists primarily in the combination, with a can-body forming machine or its horn, of a side-seam soldering bath, into which the can body may pass directly from the body-forming horn, and with its seam turned down. It further consists in the combination, with a body-former horn and the side-seam solderer, of suitable mechanism for turning the body a part of, or one-half of, a revolution, so that the seam will be underneath at the time the soldering is being done. It further consists in the combination, with a body-former horn, of a side-seam solderer and an inside wiper secured to and supported by the horn, so that the can body, as it passes off the horn and through the soldering device, may at the same time pass around the wiper or wiper-carrying rod, and the can thus be effectually wiped upon the inside, without any complicated mechanism, and without interfering with the continuous movement of the can bodies as they are carried along. The invention further consists in the combination, with a can-body former horn and suitable mechanism for moving the can bodies along and off of said horn, of mechanism for revolving the can body a part of a revolution on said horn, and a stop or projection adapted to engage the interlocked side seam to limit the extent of such revolving movement of the can body on the horn. It further consists in a can-body former horn having a longitudinal guide groove at the lower part of its circumference to receive the side seam, and thereby guide the can body into the side-seam solderer, with the seam directly underneath, in proper position for

soldering. It further consists in certain novel features in the construction of the side-seam solderer and of its fluxing device, hereinafter fully described. It also consists in the novel devices and novel combinations of parts or devices herein shown and described, and more particularly pointed out in the claims."

The defendants are charged with infringement of 9 of the 34 claims of the patent. They are the following:

"(20) In a can-soldering machine, the combination, with a horn, of a rod connected thereto, a wiper connected to the end of the rod, a solder tank over which the rod extends, and a means, substantially as described, for advancing the can bodies, as and for the purposes stated." "(22) In a combined can-body-forming and side-seam-soldering machine, the combination, with a can-body former horn, of a side-seam-soldering device and mechanism for delivering the can body to the soldering device from the horn with its seam turned down so that the soldering may be done from below, substantially as specified. (23) The combination, with a can-body former horn, of a side-seam solderer, and means for moving the can body along from the horn over the solderer, substantially as specified." "(25) The combination, with a can-body former horn, of a side-seam solderer and an inside wiper secured to the horn, and means for moving the can body along from the horn over the solderer, substantially as specified. (26) The combination, with a can-body former horn having a longitudinal groove on its under side, at the end section thereof, for the side seam, of a side-seam solderer, into which the can bodies are delivered directly from the horn, with their seams turned down, so that they will be soldered from below, and means for moving the can body along from the horn over the solderer, substantially as specified. (27) In a combined can-body forming and side-seam soldering machine, the combination, with a can-body former horn, of a side-seam solder bath and can-forwarding mechanism, for conveying the cans from the horn through and over the solder bath, substantially as specified. (28) In a combined can-body forming and side-seam soldering machine, the combination, with a can-body former horn, of a side-seam solder bath and can-forwarding mechanism for conveying the cans from the horn through and over the solder bath, and an inside wiper secured to the horn, substantially as specified." "(30) In a combined can-body forming and side-seam soldering machine, the combination, with a can-body former horn, of mechanism for advancing the can body along the same, a side-seam solderer, and a can-carrier device for conveying the cans through and over the solderer,—said side-seam solderer being beneath the path of the can-carrier,—substantially as specified. (31) The combination with the can-body forming machine, having a horn around which the can body is formed, and means for advancing the can body along the horn, of a side-seam soldering machine having a solder bath or device for moving the can body along over said soldering bath or device, substantially as specified."

These are all combination claims, and everything within the scope of each of them which Mr. Leavitt did invent, as shown by his specifications, and which may be found reproduced or imitated in Jensen's machine, is claimed only as part of a combination with other things, which are thereby made essential elements of the patented invention, and which are not in the Jensen machine. Mechanism for giving the cans a half revolution, so as to bring them to the solder bath with seams down, which is made an element of the twenty-second and twenty-sixth claims, is not in the Jensen machine, nor does it have any mechanism adapted to the especial task of giving the can bodies a revolving movement previous to the soldering process. An inside wiper connected to the end of a long rod attached to and supported by the end of the can-body forming horn, which is made an element of the combina-

tions of the twentieth, twenty-fifth, and twenty-eighth claims, bears some resemblance to Jensen's device for wiping inside of the advancing cans. The latter is certainly a means for doing the same work in a similar manner. But Leavitt claimed this device only in combination with "a means, substantially as described, for advancing the can bodies, * * * means for moving the can body along from the horn over the solderer, substantially as specified," and "can-forwarding mechanism for conveying the cans from the horn through and over the solder bath." The means for advancing the cans and can-forwarding mechanism specified, which are elements of each of these claims, differ from the means and mechanism of Jensen's machine, as we have heretofore shown, by comparison of the latter machine with the Norton soldering machine. These claims must be limited to the upper and lower tracks, supporting arms and shafts, wheels, chains, blocks, brackets, rollers, saddles, and the rest of the complicated mechanism for conveying the can bodies through and over the solder bath, described in the specifications, or known equivalents for said can-forwarding mechanism. The law does not authorize an extension of said claims to cover the subsequently invented and comparatively simple can-body conveyor of the Jensen machine. This one principle of patent law strikes every one of these claims, with the possible exception of the twenty-second; and, in view of the length to which this opinion has already progressed, it becomes unnecessary and inexpedient to further continue comparing this machinery. We have gone down the list, and shown that each claim covers a combination of elements not found in Jensen's machine, and that is enough. The decree is reversed, and the cause will be remanded to the circuit court for the district of Oregon with directions to dismiss the bill, with costs.

S. F. HEATH CYCLE CO. v. HAY et al.

(Circuit Court, D. Indiana. April 22, 1895.)

No. 9,064.

1. PATENTS—VALIDITY OF COMBINATION CLAIMS.
   A combination, to be patentable, must produce a single new and useful result, or an old result in a better or cheaper manner; and if it only produces an aggregate of single results, each the complete result of one of the combined elements, it is not patentable. It is not necessary, however, that the mode of action of every element should be changed by each of the others, but, so long as a new and useful result is produced, it is immaterial whether their operation is simultaneous or successive. Pickering v. McCullough, 104 U. S. 310, criticised, and National Cash Register Co. v. American Cash Register Co., 3 C. C. A. 559, 53 Fed. 367, followed.

2. SAME—ANTICIPATION—INVENTION.
   The fact that, after a combination which accomplishes a new and useful result has once been produced, it would seem but a simple and easy matter to change a pre-existing device so as to produce the same result in the same way, is not sufficient to show anticipation by such device, when it appears that, although the latter was long in common use, no one had pre-