

adapted to be used in conjunction with the well-known form of triple valve in an air brake as an auxiliary means of venting the train pipe into the brake cylinder. It is arranged within a casing of the brake cylinder, and is actuated by the triple valve. The claims cannot be expanded to cover inventions not suggested by the specification.

The bill is dismissed, with costs.

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ST. LOUIS CAR-COUPLER CO. v. NATIONAL MALLEABLE  
CASTINGS CO.

(Circuit Court of Appeals, Sixth Circuit. March 8, 1898.)

No. 527.

**1. PATENTS—COMBINATIONS—IMPLICATION AS TO ELEMENTS.**

Where all the claims are for combinations only, this implies that all the rest is old, or, at least, that the patentee does not claim the elements separately.

**2. SAME—SUBSEQUENT PATENT—PRESUMPTION OF PATENTABLE DIFFERENCE.**

The granting of a subsequent patent for a similar machine or device affords a presumption of a patentable difference between the two.

**3. SAME—PATENTABILITY OF COMBINATION.**

To sustain a patent for a combination each element of which is old, considered separately, there must be some peculiar combination of these elements, producing new and useful results.

**4. SAME—AUTOMATIC CAR COUPLERS.**

The Lorraine and Aubin reissue, No. 10,941 (original, No. 369,195), for an automatic car coupler, which is intended as an improvement on couplers of the Janney or Master Car Builders' type, is only sustainable, if at all, by confining it to the precise form shown in the specifications and delineated in the drawings, and is not infringed by a coupler made in accordance with the Tower patent, No. 541,446. 81 Fed. 706, affirmed.

**Appeal from the Circuit Court of the United States for the Eastern Division of the Northern District of Ohio.**

The complainant below and appellant here is engaged in the manufacture and sale of an automatic car coupler, generally known as the "St. Louis Coupler," and made under and in accordance with reissued patent No. 10,941, dated June 26, 1888. The original patent was No. 369,195, dated August 30, 1887. Both the original and reissue were to Madison J. Lorraine and Charles T. Aubin. The object of the bill was to restrain an alleged infringement of said reissued patent by the defendant company, which is engaged in the manufacture and sale of a rival car coupler, under a patent to C. A. Tower of June 18, 1895, and numbered 541,446. This patent is for an improvement on the patent issued to the same patentee, June 5, 1894, and that was an improvement on the patent issued to the same patentee, October 24, 1893, No. 507,511. Upon a final hearing, before Taft, circuit judge, the bill of complainant was dismissed, upon the ground that the Tower device did not infringe the Lorraine and Aubin patent. The opinion of the circuit court is reported in 81 Fed. 706. The defenses were noninfringement, invalidity of patent for want of novelty and patentable invention, and that the reissued patent is void for unlawful extensions of the claims of the original patent.

The character of the reissued patent to Lorraine and Aubin is thus stated in the specifications: "Our invention relates to that class of car couplings known as 'vertical plane,' and having a pivoted outwardly opening coupling head or clutch and an extended arm or buffer. The object of our invention is to provide a vertical plane coupling free from complicated parts, locking by means of a simple automatic gravity pin, requiring no adjusting and made in one piece; to provide a vertical plane coupling in which, when a coupling-head is unlocked and released, said coupling-head, by reason of its own weight,

will turn outwardly and open, and thus automatically set itself in position to effect a coupling with a similar opposing coupling-head, which may be either open or closed; to provide an improved and simplified means of setting, not to couple; to so construct and arrange the coupling-head that it will be unusually strong, and to make a coupling that will perform the work under all circumstances, as well on the sharpest curves as on a tangent, and with the greatest variations in height of the opposing parts.—In fact, to provide a car coupling that will be simple in construction, automatic in action, and free from springs and superfluous and loose parts, that will combine strength and durability with simplicity and perfection of action.”

For further illustration, we here set out Figs. 1, 2, 3, 5, 9, and 10, shown in the drawings of the patent. The drawings show but one form and arrangement of a vertical plane coupler, and the specifications describe only that form, and do not suggest any modification:

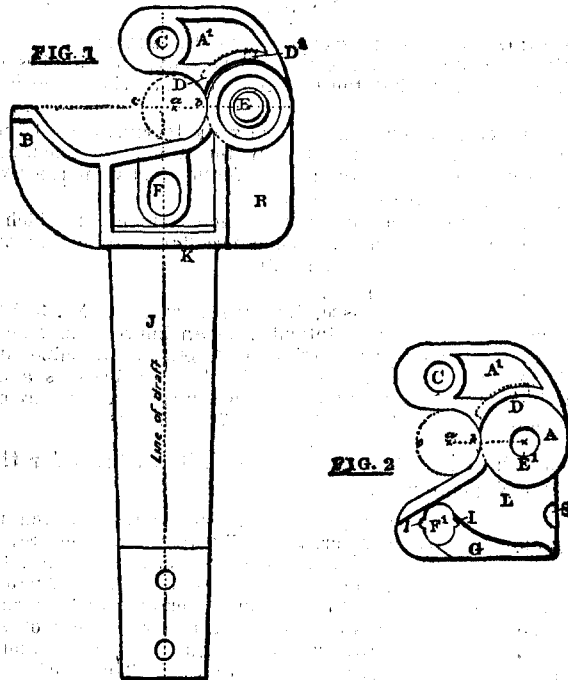


Fig. 1 is a plan of draw-head, with coupling-head—sometimes called a “knuckle”—attached and closed. Fig. 2 is a plan of coupling-head detached from draw-head.

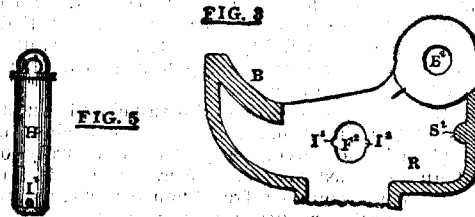


Fig. 3 is a horizontal section, showing lower half of draw-head separate from coupling knuckle. Fig 5 is a side view of locking pin.

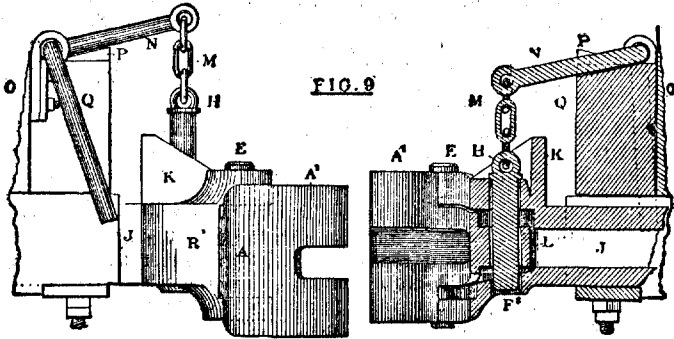


Fig. 9 is a side view of two draw-heads, with coupling-heads attached, about to make a coupling, with the left-hand coupling-head closed up and locked, and showing vertical longitudinal section of draw-head through line X<sup>o</sup>, Y<sup>o</sup>, of Fig. 10.

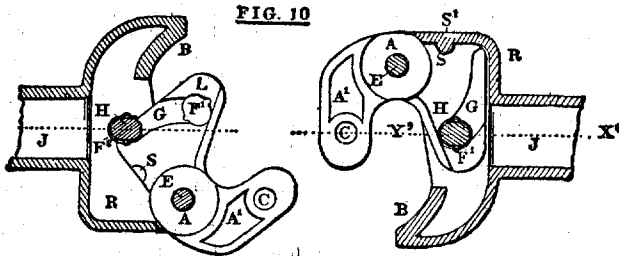


Fig. 10 is a horizontal longitudinal section of two opposing draw-heads, with coupling-heads attached, about to make a coupling, with left-hand coupling-head unlocked and open, and the right-hand coupling-head closed and locked. The same letters of reference refer to the same parts throughout.

In Fig. 10, J is the draw-bar; R is the draw-head; B is the buffer; A is the coupling-head, which is pivoted at its center to the draw-head, and which, viewed in position shown in Fig. 2 (which shows the knuckle of Fig. 10), has a general U shape; E is pin that pivots coupling-head to draw-head; A<sup>1</sup> is the outer arm or clutch of U-shaped coupling-head; L is rearward arm of U-shaped coupling-head; H is locking pin (said locking pin can be either oblong, round, or square); \* \* \* F is hole in top of draw-head for reception of locking pin (this is not shown in Fig. 10, but is in Fig. 1); F<sup>1</sup> is hole which perforates inner arm of coupling-head for purpose of receiving locking pin, and F<sup>2</sup> is a hole in bottom of draw-head for same purpose; G is groove in inner arm of coupling-head for guiding locking pin as hole F<sup>1</sup> moves from or towards it; S is recess in arm, L, made to receive rib, S<sup>1</sup>, which is cast to side of draw-head.

The outer or hook arm of the coupling-head is divided so as to receive a link when coupling with common draw-head. The operation of this coupler, as described in the patent, is as follows: "Should the two similarly constructed draw-heads approach each other in the position shown in Figs. 9 and 10, the arm, A<sup>1</sup>, of the closed coupling-head, encounters the point of the arm, L, of the open coupling-head, turning it partly inward, when the point of the arm, A<sup>1</sup>, of the open coupling-head, then encounters the concave face of the buffer-arm, B, which forces it completely around to the limit of its inward movement. As the coupling-head turns inwardly, the projecting knob or pin, D<sup>1</sup>, being at the commencement of this movement at the top of the inclined or curved groove, D, the upper side of the groove travels up and across the pin, D<sup>1</sup>, and by this movement raises the coupling-head up into a space left at the top to allow for this upward movement. At the same time the coupling-head is turning, and raising the pin, H, which rests on top of the inner arm, L, is guided in the guide groove, G, towards the hole, F, and when it is over said hole the pin,

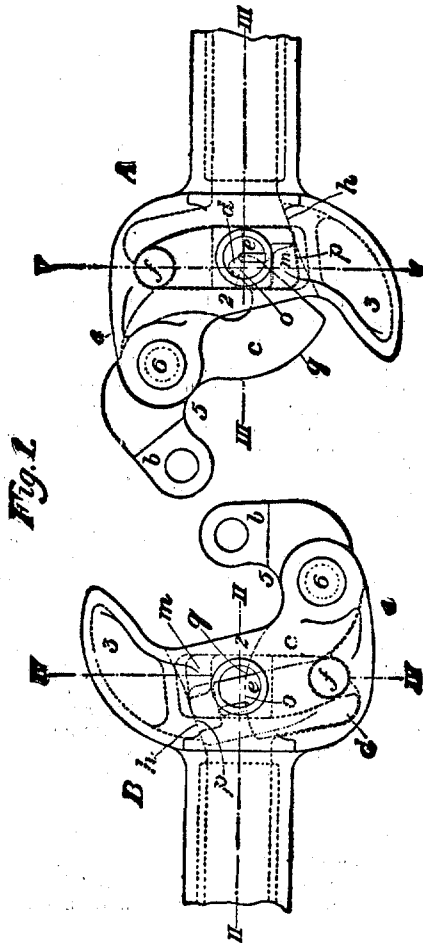
H, falls through it and into the hole, F<sup>2</sup>, and thus securely holding and locking the coupling-head. The rib, S<sup>1</sup>, fitting into the recess, S, is intended to give the coupling-head a solid bearing against draw-head when the coupling head is locked by the pin, H. For uncoupling, the lever arm, N, or any suitable device, is used. To uncouple, the arm, N, is raised, and this in turn, through the chain, M, raises the pin, H. The coupling-head has then nothing to retain and support it, and as the opposing head draws away from it the action of gravity draws the coupling-head down into the vacant space beneath, and as it falls, by reason of the top of the groove, D, traveling down and across the knob or pin, D<sup>1</sup>, the coupling-head turns and opens and is set into position for another coupling. Should both heads be closed when desiring to make a coupling, the pin, H, is raised, and the automatic action of the coupling-head immediately opens and turns it ready for coupling. After the coupling-head is open the pin, H, is allowed to fall, and rests (in the position shown in Figs. 7 and 10) in the groove and on top of the arm, L, of the coupling-head. Should it be necessary to set not to couple, the lever arm, N, is raised and pushed or pulled on top of the block, P (Fig. 9), and as this keeps the pin, H, in a raised position, the coupling-head can therefore not be locked and a coupling cannot be effected. It is only necessary that one pin be operated to set to couple, to uncouple, or set not to couple."

The claims of the patent said to be infringed are the 1st, 2d, 3d, 6th, 7th, 8th, 10th, 11th, 12th, 18th, 19th, and 20th, and are as follows: "(1) The combination of the  $\cap$ -shaped coupling-head pivoted at its center, the draw-head, and the automatic locking pin, for the purposes set forth. (2) The combination of the  $\cap$ -shaped coupling-head, the draw-head, the pivot, E, the inclined (or curved) groove, D, and the knob or pin, D<sup>1</sup>, for the purpose of making an automatically opening coupling-head. (3) The combination of the  $\cap$ -shaped coupling-head, the groove, G, the draw-head, the locking pin resting on top of the arm, L, when the coupling-head is open, and falling through the holes, F<sup>1</sup> and F<sup>2</sup>, when the coupling-head is closed, and the lever arm and chain, substantially as described." "(6) The combination of the  $\cap$ -shaped coupling-head having the recess, S, the locking pin engaged with the rearward arm of said coupling-head, and the draw-head having the rib, S<sup>1</sup>, which fits in the recess, S, only when the coupling-head is closed for making the coupling-head firm and secure when locked. (7) The combination of a coupling-head turning laterally on its pivot, and having an external arm extended to engage with and grip a like fellow and a rearward arm intended to engage with some locking mechanism, with a draw-head carrying a common gravity vertically moving locking pin, said automatically locking pin riding directly upon such rearward arm when opened, and locking such inner arm by dropping through a hole perforated in the inner arm of the coupling-head, substantially as described. (8) The combination of two similarly constructed draw-heads having  $\cap$ -shaped pivoted automatically opening coupling-heads and the automatic locking pins, substantially as described, for the purpose of making an automatic coupling." "(10) The combination of a coupling-head, the draw-head, the groove, G, the locking pin resting on top of the arm, L, when the coupling-head is open, and falling through the holes, F<sup>1</sup> and F<sup>2</sup>, when the coupling-head is closed, and the lever arm and chain, substantially as described. (11) The combination of the draw-head, the pivoted coupling-head, and the locking pin, said locking pin resting upon the inner arm of the coupling-head when the coupling-head is opened and riding upon said inner arm when the coupling-head is turned to be closed, and said inner arm being grooved to receive and guide the locking pin. (12) The combination of the draw-head, the pivoted coupling-head, and the locking pin, said locking pin working vertically in a perforation in the draw-head and resting directly upon the inner arm of the coupling-head when the coupling-head is opened, riding directly upon said inner arm when the coupling-head is turned to be closed, and dropping through said inner arm to secure said coupling-head when closed." "(13) The combination of the draw-head, the pivoted coupling-head, and the vertically moving locking pin, the inner arm of said coupling-head, when the coupling-head is closed, being held by said pin, and also interlocked with the draw-head at a point between the location of said locking pin and the coupling-head pivot, for the purpose described. (19) The combination of a coupling-head turning laterally upon its pivot, and having an external arm intended to engage with and grip a like fellow, and an inner arm intended to engage with some

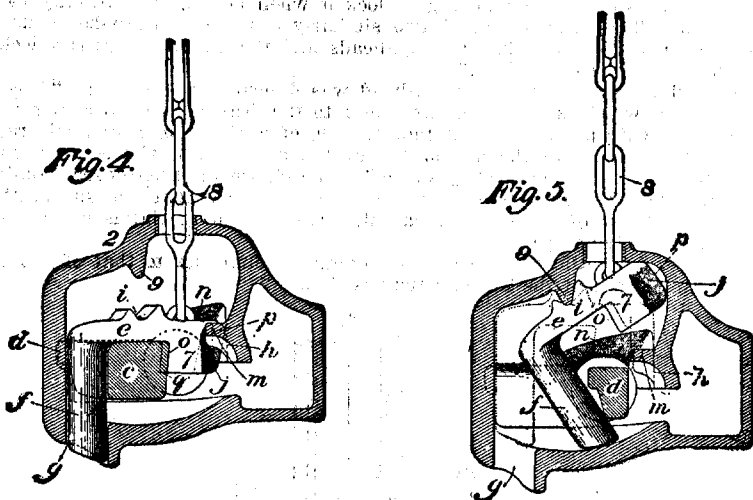
locking mechanism, with a draw-head carrying a common gravity vertically moving locking pin riding directly and solely upon such inner arm when the coupling-head is open and dropping to lock it when closed, substantially as described. (20) The combination of two similarly constructed draw-heads having pivoted automatically opening coupling-heads and the automatic gravity locking pins, substantially as described."

In the original patent the coupling-head was described as follows: "A is the coupling-head, which is pivoted at its center to the draw-head (said center being in direct line with prolongation of radius, a, b, of circle, a, b, c, and said radius being at right angle to the line of the draft), and which, viewed in position shown in Fig. 2, has a general 'D' shape." The clause in parentheses is omitted in the reissue. The first eight claims of the reissued patent are substantially the same as those of the original patent. The remaining claims are not contained in the original patent.

The Tower device bears a very close general resemblance to that of Lorraine and Aubin. Fig. 1 of the Tower patent is this:



This figure is a plan view, showing two coupler-heads, one closed and the other open, about to close. Figs. 4 and 5, set out below, show the Tower locking device,—Fig. 4 when the coupling-head is closed, and Fig. 5 when open:



The draw-head is identical with that of the complainant's device. The operation of this device is thus described in the opinion of the circuit court: "In one of the prongs swings the coupling-head, and the other prong is used as a buffer bar. The knuckle or coupling-head is formed with an outer arm, b, and an inner (and preferably longer) arm, or tail, c, which project substantially at right angles to each other, and the rear side of the tail is formed into a hook, d. In order to hold the knuckle in locked position (the position shown in Fig. 4, and at B, in Fig. 1), an angled-locking and opening piece is set within the coupler head, and shown most clearly in Fig. 4 and Fig. 5. The upper and transversely extending member, or arm, e, of this angled piece, reaches over the tail of the knuckle. Its dependent block or head, 7, is adapted to fit in front of and to lock the knuckle when in closed position, and its dependent arm, f, which extends downwardly at the rear of the knuckle, and is substantially upright when the knuckle is in locked position, passes through a guide hole, g, in the floor of the coupler. When the knuckle is locked, the head, 7, of the angled piece, fits between the front side of the knuckle tail and the shoulder, h, on the coupler-head; but when the brakeman raises the angled piece by a link, or lifting rod, 8, it is raised above the knuckle, and out of its path of motion. The notch, i, on the upward side of its member, e, engages a projecting rib or shoulder, 9, on the coupler-head, which shoulder acts as a fulcrum upon which the arm, f, acquires a radial motion against the rear side of the tail of the knuckle, moving it outwardly into the open space. The end of the arm, f, will then drop upon and be supported by the bottom or floor of the draw-head until the knuckle tail swung back and the operation of locking again succeeds. In this operation the rear side of the knuckle tail engages the arm, f, and moves the angled piece so as to carry the arm back into a vertical position until its lower end comes into register with the hole, g, and then the angled piece will drop by gravity, its arm, f, entering the hole, and its head, 7, adjusting itself in front of the knuckle tail, and locking the knuckle. As a security against the jumping of the locking piece the opposite sides of the head, 7, are not in parallel vertical planes, but with downward divergent surfaces." 81 Fed. Rep. 712.

John W. Munday, Edmund Adcock, and Henry M. Post, for appellant.

M. B. Philipp, T. W. Bakewell, and E. A. Angell, for appellee.

Before LURTON, Circuit Judge, and SEVERENS and CLARK, District Judges.

LURTON, Circuit Judge, after making the foregoing statement of facts, delivered the opinion of the court.

The whole subject of car couplers has long been a fruitful field of invention, and no less than 6,500 patents have been issued for improvements in this single device. The particular type of coupler to which both those in contest belong is that established by the automatic vertical plane coupler patented to Eli H. Janney, April 29, 1873, No. 138,405. This was followed by patent No. 156,024 of October 20, 1874, to the same patentee, for an improvement upon his original device, and another in 1879, and still another in 1882, and on April 2, 1878, by a reissue of his original patent, being reissue No. 8,153.

The narrowness of the field for further invention in couplers of the type now in question will not escape observation if we examine the devices covered by Janney's patents. For this purpose we reproduce Figs. 1 and 4 from the drawings of the patent to Janney of April 29, 1873:

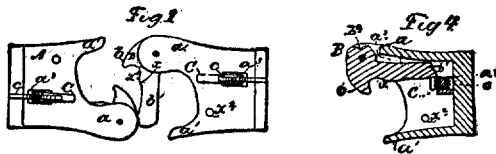
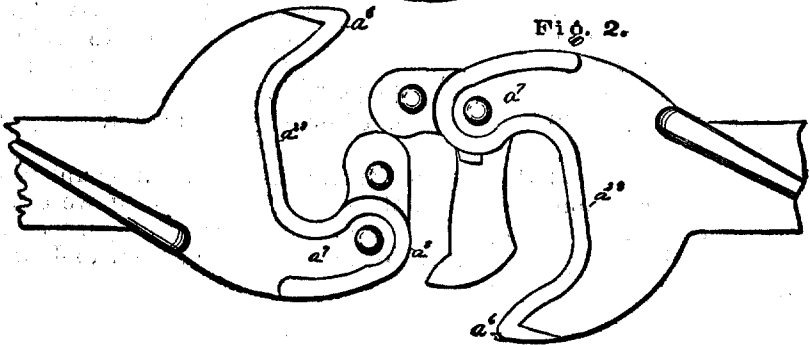
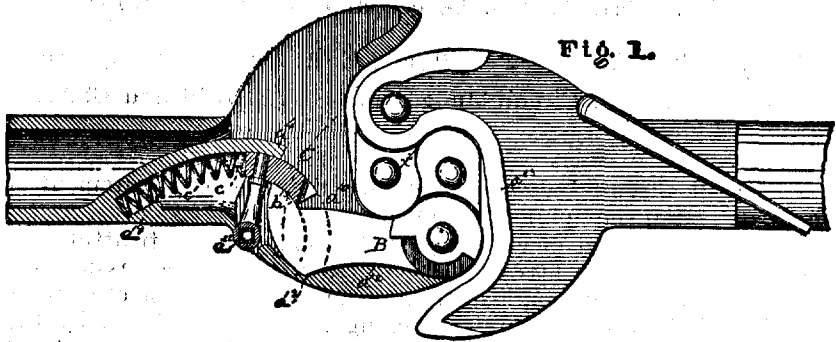
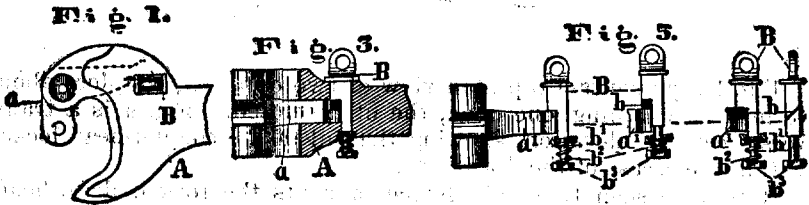


Fig. 1 represents a top plan view of two opposing couplers about to make a coupling, one open, the other closed. Fig. 4 is a transverse sectional elevation, showing the tail of the coupler-head locked within the recess of the draw-head.

It will be seen that this device presents the forked draw-head, which is one element in each of the claims of the Lorraine and Aubin patent here involved. One arm of this draw-head acts as a buffer, and also as a guard to prevent uncoupling from lateral motion of the cars; to the other a coupling-head or knuckle is pivoted which swings horizontally on the pivot in opening or closing to couple or uncouple, with a twin knuckle upon an opposing draw-head. The draw-head and coupling-head of Janney's improvement of 1879 is shown by Figs. 1 and 2, from the drawings of patent No. 212,703:



The form reached by his improvements patented February 21, 1882, No. 254,093, is shown by Figs. 1, 3, and 5 of the drawings:



This coupler is similar in construction to those of Janney's prior patents, with the exception that it has an automatic vertically moving gravity locking pin. It is guided in holes at the top and bottom walls of the draw-head, and moves freely in a vertical direction. The locking device in all the Janney patents, prior to 1882, is a spring latch engaging the tail or inner arm of the coupler-head. But this patent of February 21, 1882, is for a locking device which consists in a locking pin provided with an inclined face and a shoulder for holding the pin in a raised position. This pin extends downward through a hole in the top of the draw-head, and drops behind the inner arm of the knuckle-head when open, and in front of it when closed, the inner arm of the knuckle being also provided



with a double inclined face so as to push the pin up until the knuckle passes under, which then drops by gravity in front of the inner arm, and thus holds it in a locked position.

In Figs. 3 and 5, shown above, this locking pin is shown with a spring, b<sup>2</sup>, but it is intended to be used, and is used, without such spring, the specification stating, "It may be provided with a spring."

In 1887 the Master Car Builders' Association adopted a standard shape of a vertical plane coupler, which was substantially that of the Janney coupler, and fixed upon gauges to decide the limits allowed in variation of sizes. These gauges fix the dimensions of the coupler-head or knuckle, and the size and contour of space between knuckle and draw-bar. The size and shape of the tail of knuckle, method of locking, point of pivoting knuckle-head, and location of locking pin, were left to discretion of the respective manufacturers of couplers. Couplers built on these lines are known as couplers of the M. C. B. type, and to this type both the contending couplers belong. It follows, from what has already been said, that couplers of the class to which the Lorraine and Aubin device belong were old, and that the most which can be said for the patent in suit is that it is for an improvement upon other automatic gravity locking couplers, accomplishing the same general result, in much the same way.

In summing up the argument for the patent in suit, counsel for appellant in their brief say:

"Lorraine and Aubin were the first to embody in a single coupler all the advantages, without any of the disadvantages, of the couplers of the old art." "This [say appellant's counsel] they accomplish by a new combination of old parts. And they were enabled to produce this new combination by reason of having invented a single new part,—the centrally pivoted  $\sqsupset$ -shaped knuckle,—which was the key to the solution, and enabled the parts to go together in such manner that all of the numerous desirable results or features of advantage could be embodied without interference with each other."

Continuing, they say:

"The primary combination to which all of this is due, and which is included in all the claims of the patent, consists in the union of the following parts in a single coupler: (1) The Master Car Builders' forked draw-head; (2) The centrally pivoted  $\sqsupset$ -shaped knuckle; (3) The pivot pin; (4) The automatic, riding, gravity actuated locking pin."

In respect to the defendant's coupler, the same counsel, in conclusion, say that "it embodies this primary combination and in its mode of operation, and produces all of its results and embodies all of its advantages, and is therefore an infringement of the principal claims of the patent in suit."

It must be conceded that, if the patent in suit is such as to entitle it to a liberal construction and a broad application of the rule as to equivalents, the device of the defendant company is an unblushing infringement. But this was not the view entertained by the learned trial judge, who, after an elaborate review of the prior art, reached the conclusion that the patent to Lorraine and Aubin could only be sustained by confining it to the precise form shown in the specifications and delineated in the drawings of the

patent, and that when thus limited the Tower device did not infringe.

This claim to the "centrally pivoted  $\supset$ -shaped knuckle," as a "new part" "invented" by Lorraine and Aubin, is not the subject of any separate or distinct claim of the patent. The knuckle described is only claimed as one element in a combination, and the combination is not infringed unless all of the elements of the combination are found in the infringing device. The invention claimed by the patentees is the combination of the elements mentioned in the several claims of the patent. This implies that all the rest is old, or, at least, that the patentee does not, so far as this patent is concerned, claim the elements separately. The Corn-Planter Patent, 23 Wall. 181-224.

But it cannot be admitted that a  $\supset$ -shaped knuckle is new. If this particular shape or form of the coupling-head be regarded as a limitation and as differentiating this element from the L-shaped knuckle of Janney, or the S-shaped knuckle of Tower or Dowling, it is not to be distinguished in form from the coupling-head of the patent to Hien of July 26, 1881, No. 244,724, nor Ferguson, No. 361,867, nor from the same element in the Kling patent of April 12, 1887, No. 361,165, which issued upon an application prior to the application of Lorraine and Aubin. For the purpose of showing this conformity in form or shape of the prior coupling knuckles of the old art, we here set out Figs. 2 and 3 of the drawings of the patent to Hien for an automatic car coupler:

FIG. 2.

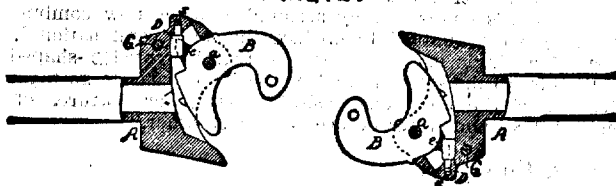
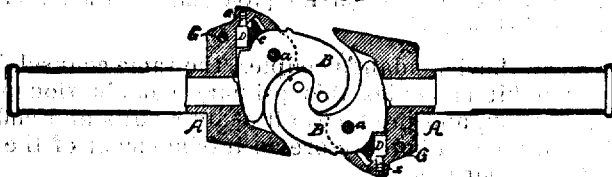
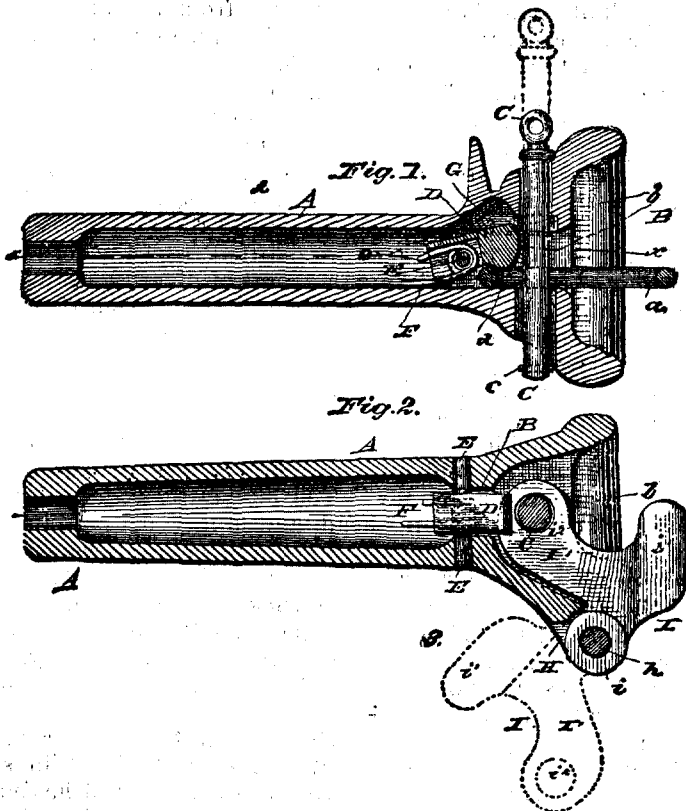


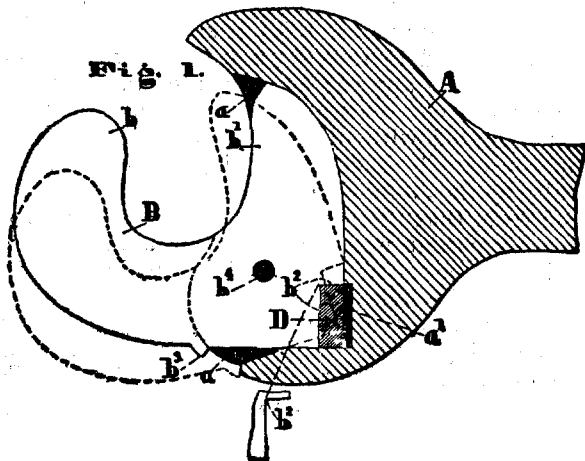
FIG. 3.



We also show below Figs. 1 and 2 from the drawings of the patent to Kling. Kling calls this knuckle a coupling-hook, and describes it as "my improved coupling-hook, I," which he says "is in general form similar to the ordinary ones in present use, and is provided with the hinge arm, i, and front vertical position or head, i, which is adapted to engage with the head of a similar hook to couple them as usual."



The patent to Wineman of January 29, 1884, No. 292,724, also shows this same  $\cap$ -shaped coupling knuckle. We here set out Fig. 1 from the drawings of that patent:



But appellant says that these knuckles from the old art, if  $\supset$  shaped, are not centrally pivoted, and therefore do not answer to this element in the device in suit. The expert of appellant says that by "centrally pivoted" is meant a knuckle pivoted opposite the gap between the arms of the knuckle. In the original patent of which the patent in suit was a reissue, the coupling-head was described as "pivoted at its center to the draw-head [said center being in direct line with prolongation of radius, a, b, of circle, a, b, c, and said radius being at right angles to the line of the draft]. \* \* \*". The words in brackets are omitted from the reissue, but the drawings of the original show the point of pivoting as described in the original. This drawing has been heretofore set out. This fact will become important if it shall be found that the central pivoting of this  $\supset$ -shaped knuckle should be treated as a limitation of the patent in suit. But in the Kling patent, as is seen by an inspection of Fig. 2 of that patent shown above, and in Ferguson by Fig. 14, the knuckle is not only  $\supset$ -shaped but centrally pivoted. The most that can be said of the patent in suit is that it is an improvement upon the Janney. The Janney has the bifurcated draw-head, the rotary coupling-head, and is locked by a pin which drops by gravity. The inner arm of the coupling-head, called the "tail," when uncoupled, projects out into the cavity between the arms of the draw-head, so as to be struck by the coupling-head of an opposing coupler. Thus, the Janney, itself a combination, accomplishes the same result in substantially the same way. The unlocking devices are not here involved, and for the present we shall not refer to them.

Now, in what respect is the device in suit to be differentiated from the improved Janney coupler? The great object in securing an automatic coupler was to avoid the necessity of having the trainmen go in between the cars, and with their hands guide the link and drop the pin, a necessity which existed under the old method of coupling with link and pin, and led to great destruction of life and limb. So great has been the danger attendant upon the old link and pin methods of coupling that congress, in 1893, enacted that after January 1, 1898, it should be unlawful for common carriers engaged in interstate traffic to permit to be hauled or used on their lines any car used in interstate traffic "not equipped with couplers coupling automatically by impact, and which cannot be uncoupled without the necessity of men going between the ends of the cars." That a coupling by impact could be made automatically by the Janney device is clear. His method of uncoupling differed from that of either of the patents in suit. That operation under his patent was performed by a movement of a lever placed on the side or top of the draw-head, which necessitated some exposure between the ends of the cars by the trainmen manipulating this lever. This defect led to many attempts to improve on his mode of uncoupling by the use of springs, levers, etc., which are the subject of several patents discussed in Coupler Co. v. Pratt, 70 Fed. 622, and Gould Coupler Co. v. Trojan Car-Coupler Co., 21

C. C. A. 97, 74 Fed. 794. Though defective in this particular, the Janney devices have nevertheless come into most extensive use, although a large number of patents have been since granted covering mechanisms which are supposed to be improvements upon them. That Lorraine and Aubin were granted a patent for their combination affords a presumption that there is a patentable difference between their device and those of Janney or any of the many improvers who obtained patents between Janney and the application of Lorraine and Aubin. *Boyd v. Tool Co.*, 158 U. S. 260, 15 Sup. Ct. 837. But the same presumption exists also in favor of the Tower patent.

Confining ourselves for the present to the first claim of the patent in suit, and comparing the combination there claimed of the bifurcated draw-head, the  $\supset$ -shaped knuckle centrally pivoted, and the automatic gravity locking pin, we find in Janney, Hien, Wineman, Ferguson, Kling, Dowling, and others of the prior art the same forked draw-head combined with same form of coupling knuckle and some form of gravity locking device, performing substantially the functions of the combination of the first claim of the patent in suit. To distinguish them from the device of complainant, we must read into its claims the description of these elements found in the specifications and drawings of its patent. When we do so, we find some peculiarities in the form and shape of the knuckle, in its place of pivoting, and in the mechanism of the locking device, not precisely paralleled in any one of these devices of the prior art, though each element, considered separately, is found in some of them and is old. Lorraine and Aubin are at most but mere improvers upon Janney and upon those devices which were confessedly but improvements upon Janney. Unless, therefore, their combination, as claimed in the first claim of their patent, shall develop under examination some peculiar combination of old elements producing some new and useful result, their patent cannot be sustained at all. The knuckle of the old art assumed many shapes. In Janney it somewhat resembles an L, though the longer limb has some peculiarities of form distinguishing it from the letter it most resembles. In others of the old art this knuckle has more the shape of an S, as in Dowling, No. 379,888, and in the patent to Tower, under which the alleged infringing device is made. In still others, as in Hien, Ferguson, Kling, and Wineman, the knuckle has a general  $\supset$  shape.

In every one of the old devices the shape of the knuckle is made to depend upon the function it performs as a part of the locking mechanism. That the tail should be long enough to project into the cavity of the draw-head is important only if it is desirable that the tail should receive a blow from the head of the opposing knuckle to insure proper rotation and the necessary engagement of the tail and locking pin. In Janney's device this would seem to be necessary. The head of the knuckle when open is so presented to the opposing head of its twin as that closing would not always result from the impact. But in Hien, Harrington, Ferguson, Wineman,

and Dowling the head of the opened knuckle is presented to the head of the opposing knuckle at such an angle as that closing is insured without regard to whether the tail is struck. In these last-mentioned devices the projecting, long, inner arm was therefore unnecessary, and might be omitted without interference with the other functions of the knuckle. Still another matter determining the shape and form of the knuckle is the character of the locking device. In Janney the pin is arranged to drop by gravity in front of the knuckle. When unlocked, his pin is behind the inner arm or tail of the knuckle. To raise the pin and pass the tail under it, the face of both the pin and the tail of the knuckle are so inclined as that the effect of the blow upon the front of the tail forced the pin up and the tail under it, so that by gravity the pin drops outside the tail and holds it locked. Lorraine and Aubin adopted a different mode of locking. To them it seemed desirable that the pin should ride on the tail of the knuckle until dropped by gravity into a hole in the tail and thus lock it in position. This locking device was, however, not peculiar to Lorraine and Aubin. A locking device in which a gravity pin is carried on the tail of the knuckle until dropped into a locking position is seen in the patent to Richard E. Gray, No. 261,702, and in Dowling, No. 379,888, the latter only being of the Janney type. Thus, if a gravity pin is to be carried on the tail of the knuckle, the latter must be so shaped as to furnish a surface upon which it may ride. In Dowling, the pin drops in front of the tail, as in Janney, but in Lorraine and Aubin it drops through a hole in the tail and a corresponding hole in the floor of the chamber in the draw-head. This required, therefore, greater breadth of tail than in Dowling. The head of Dowling's knuckle swings when open at such an inclination that a blow thereon from the head of the closed opposing knuckle insures rotation and secures locking. His tail need not, therefore, be long enough to project into the space between the arms of the draw-head to be struck by the head of an opposing knuckle. The head of the knuckle of the patent in suit is not so pivoted as to insure rotation under all conditions when struck by the opposing knuckle. It was therefore important to adopt the long tail of Janney. Thus the character of the locking device adopted by Lorraine and Aubin determined the shape of his knuckle and its place of pivoting. The patent itself does not specifically state any advantages in a  $\square$ -shaped knuckle, except as they are implied from what is said as to the advantages of a central pivoting. Of this feature of the patent the specifications say:

"The object of pivoting the coupling-head at its center is threefold: First, if the coupling-head was otherwise pivoted, by reason of its shape, when uncoupled, the arm, L, of the unlocked head would bind with arm A<sup>1</sup> of its neighbor, and prevent uncoupling with facility, and this it would do especially on curves; second, if the coupling-head were pivoted back of its center or in the arm, L, it would then be necessary to open both heads to either couple or uncouple, which would be unnecessary and faulty; third, if the coupling-head were pivoted in its forward arm, A<sup>1</sup>, when the coupling-head was entirely open, the arm, L, would then come entirely without the draw-head, and there would be

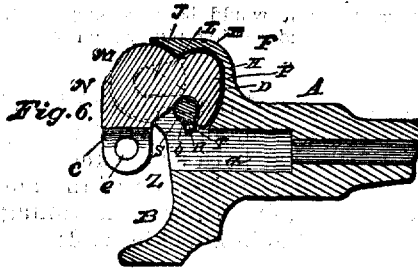
nothing to support the locking pin in a raised position, and it would accordingly fall, and when coupling it would be necessary to construct some mechanism to automatically raise said locking pin, which would be complicated and is unnecessary."

The supposed advantages of the  $\sqsupset$ -shaped knuckle centrally pivoted, as stated by M. E. Dayton, an expert for complainant, supports the conclusion we reach that both shape and point of pivoting are but incidents of the locking mechanism of the Lorraine and Aubin combination. Mr. Dayton, in stating the advantages of the peculiar form of the Lorraine and Aubin knuckle, said:

"As to the advantages of the  $\sqsupset$ -shaped coupling-hook thus mounted in the draw-head, and thus combined with a centrally placed locking pin, he must, in my opinion, be a very poor mechanic to whom these advantages are not apparent from the described and obvious operation. The primary advantage is that the rear leg of the  $\sqsupset$ -shaped coupling-hook swings far enough forward in opening to bring its front edge into the cavity of the draw-head and into the path of an approaching coupling-hook, while, at the same time, its rear edge remains within the chamber of the draw-head in position to act as a support for the uplifted locking pin. At the same time, also, by reason of the changed position of the pivot pin, the front arm of the coupling-hook is opened and moved laterally far enough to admit an opposing similar hook, which is closed. Still further, at the same time, the whole enlarged and changed coupling-hook is easily embraced within the limits of the inclosed coupling-head. Additionally, the added leg of the  $\sqsupset$  which gives the  $\sqsupset$  shape to the coupling-hook, gives a rear surface to the latter which may abut broadly against a transverse rear wall of the chamber in the draw-head to give great strength in resistance of bumping strain substantially in line with the front arm of the hook against which such strains are initially applied."

If this knuckle was not shaped as it is, and rotated from its center, it would not perform the double function of projecting out into the recess of the draw-head to be struck by the opposing coupler and at the same time support the pin when unlocked. If either of these functions be omitted, and some other locking device substituted, as in Janney, or the advantage of the projecting tail be omitted, as in Dowling, then the precise central pivoting of the knuckle is of no direct advantage. If it be pivoted far enough from the locking device to prevent adverse leverage, there is no mechanical reason for central pivoting not due to its peculiar shape and locking device. The evidence afforded by such practical men as compose the Master Car Builders' Association is of great weight; and it is in evidence that they have recommended that the point of pivoting should be  $2\frac{1}{2}$  inches forward of a prolonged radius at right angles to the line of draft, of a circle of which the gap in the knuckle should form a part.

The fact that the rear of the tail has a bearing against the rear wall of the chamber in the draw-head is not mentioned in the specifications, nor is any strength in resisting buffing blows claimed therein as a result of such abutment. It is doubtless of some advantage of the character indicated, but is one found to a large degree in the Dowling No. 379,888. The abutment of Dowling's S-shaped knuckle against the rear wall of the recess in which it is locked is shown by Fig. 6 from the drawings of that patent shown below:



The specifications of that patent say: "The rear wall of this recess curves forward, and its outer or marginal portion, E, extends to the lugs, F and C, and forms a bearing and stop for the claw, N." The tail of Dowling's knuckle does not project transversely across the open recess of the draw-head as in Lorraine and Aubin, but, if it did, we should then have a  $\cap$ -shaped knuckle centrally pivoted, the rear wall of the chamber serving as a bearing for the tail of the knuckle. As it is, the buffing strains are in part sustained by the bearing of the short tail of an S-shaped knuckle against the rear wall of the chamber in draw-head. But this advantage of a parallel sided knuckle having a bearing against the rear wall of the chamber in the draw-head is more distinctly seen in the device patented to P. Hien, No. 244,895, Figs. 2 and 3 of which have been shown in a former part of this opinion.

We reach the conclusion from these considerations, based upon the history of the prior art, that the patent in suit can only be supported by limiting its claims to the precise form of the device described in the specifications and delineated in the drawings. That the combination has some merit may be conceded, but it is a merit dependent upon slight changes in shape and form of old elements, thereby enabling the patentees to combine in a slightly new way old elements for the purpose of doing substantially what they had been doing in the old art. These changes are of so slight a character, and the improvement by the new combination so debatable, that if any liberality in construction, or in the application of the doctrine of equivalents, be conceded for the purpose of including other improvers along the same lines within the scope of this patent, it will have the necessary effect of rendering it void for anticipation. "That which infringes if later, anticipates if earlier." The invention is in no sense one of primary character, and complainant upon this ground is not entitled to that range of equivalents accorded to such an invention.

In *McCormick v. Talcott*, 20 How. 402-405, the court said:

"If he be the original inventor of the device or machine called the 'divider,' he will have a right to treat as infringers all who make dividers operating on the same principle, and performing the same functions, by analogous means or equivalent combinations, even though the infringing machine may be an improvement of the original, and patentable as such. But if the invention claimed be itself but an improvement on a known machine by a mere change of form or combination of parts, the patentee cannot treat another as an infringer who has improved the original machine by use of a different form or combination performing the same functions. The inventor of the first improvement cannot



invoke the doctrine of equivalents to suppress all other improvements which are not mere colorable invasions of the first."

In *Miller v. Manufacturing Co.*, 151 U. S. 207, 14 Sup. Ct. 318, Justice Jackson, for the court, said: "The range of equivalents depends upon the extent and nature of the invention." This is also the rule of the English courts in regard to mere improvements. In *Proctor v. Bennis*, 36 Ch. Div. 740, Lord Justice Cotton said:

"Where there is no novelty in the result, and where the machine is not a new one, but the claim is only for improvements in a known machine for producing a known result, the patentee must be tied down strictly to the invention which he claims, and the mode which he points out of effecting the improvement."

In *Bragg v. Fitch*, 121 U. S. 478-483, 7 Sup. Ct. 981, the court, speaking of an invention in the light of the prior art, said: "It is one in a series of improvements, all having the same general object and purpose; and that in construing the claims of his patent they must be restricted to the precise form and arrangement of parts described in his specifications, and to the purpose indicated therein."

In *Wells v. Curtis*, 31 U. S. App. 123-158, 13 C. C. A. 494, and 66 Fed. 318, this court had occasion to consider this whole question of the range of equivalents where the invention was but a mere improvement, and reached the conclusion in that case that the inventor, where the step in advance was a slight one, must be held rigidly to the specific form of the device he had described and delineated.

When we come to compare the complainant's device with that made in accordance with the Tower patent, we find that, although defendant's has the forked draw-head, it does not have either the  $\supset$ -shaped knuckle centrally pivoted, nor the automatic gravity locking pin of Lorraine and Aubin. The Tower knuckle has the shape of an S, and is not centrally pivoted, though nearly so. The change in shape is not merely colorable, for it in shape and form is just what it must necessarily be in order to perform its function in co-operation with a locking device which does not necessarily ride on the knuckle, though it may exceptionally do so. If the tail of the knuckle was filled in to give it the  $\supset$  shape of complainant, a different locking device would be necessary. Shaped as it is, an absolute central pivoting is not necessary to its operation, and yet it is pivoted near enough to the center to properly rotate the knuckle and avoid adverse leverage. The locking device is a two-legged pin or block. The shorter leg drops by gravity outside the tail, and holds it in a locked position. The longer leg rides in a groove in the floor of the chamber in the draw-head. When the device is locked, this long leg drops behind the tail, and through a hole in the floor of the draw-head. When the pin is raised by the action of trainmen in lifting the chain attached, the long leg rides under the tail as a result of the radial motion given to it by the pull of the brakeman upon it, and ejects the tail from the chamber, thrusting it out into the opening between the arms of the draw-head, in position to be struck by an opposing coupler and relocked. The complainant's opening is the result of the force of gravity, which swings the tail of the knuckle down an inclined plane, where it remains open until closed again by force. This, as stated by the circuit judge, is an automatic opening, while the open-

ing in the defendant's coupler is the result of the raising of the locking block through the interposition of a trainman. These differences between the two devices serve to distinguish the defendant's mechanism from that of the complainant's quite as markedly as complainant's device is distinguished from the old art. If there is a patentable difference between the invention of Lorraine and Aubin and the many devices prior in time to them for accomplishing the same result, there is the same patentable difference between the defendant's coupler and that of complainant. Both are mere improvers. The field was a narrow one for either. There is as much to distinguish Tower from Lorraine and Aubin as there was to distinguish the latter from Janney, Dowling, Ferguson, Wineman, Kling, and others who have traveled over the same field. We therefore conclude, that although an S-shaped knuckle, not centrally pivoted, in combination with a gravity pin which does not normally ride on the tail of the knuckle, performs substantially the same functions as the knuckle and gravity lock of the patent in suit, yet this fact is not enough to justify us in finding infringement of a patent so limited as that of Lorraine and Aubin. Unless complainant is entitled to a considerable range of equivalents, it cannot be said that the elements in the defendant's combination are identical with those in the first claim of the patent in suit. Such a range of equivalents as would bring the defendant's device within the scope of the complainant's first claim would invalidate this claim upon the ground of anticipation. The elements included in the first claim should all be read into each of the other claims here involved. Two of the elements, the D-shaped knuckle centrally pivoted and the gravity pin riding directly on the tail of the knuckle, are not found in the infringing device, limited as we have limited the first claim. The groove, G, and the recess, S, nor the shoulder, S<sup>1</sup>, which are elements in some of the other claims, are not found in the infringing device, nor any equivalent for them, within the limited range of equivalents to which complainant is entitled.

We have not deemed it necessary to go into the question raised by the criticisms made upon the reissued patent, nor have we deemed it at all important, in the view we have as to the question of infringement, to consider the effect of the proceedings in the patent office as limiting the claims of the reissued patent. The decree of the circuit court must be affirmed upon the defense of noninfringement. We express no opinion as to the validity of the Tower patent.

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**CHRISTY et al. v. HYGEIA PNEUMATIC BICYCLE SADDLE CO. et al.**

(Circuit Court, D. Maryland. June 13, 1898.)

**1. PATENTS—INVENTION—BICYCLE SADDLES.**

There is no invention in constructing a bicycle saddle top with vertical walled depressions, adapted to receive two cushions or pads, and hold them firmly in place.

**2. SAME—EVIDENCE OF PATENTABILITY—LARGE SALES.**

Large sales and increasing popularity cannot be accepted as certain proofs of novelty and invention when the article, as made and sold by