

H. S. HALLWOOD.

CAR COUPLING.

APPLICATION FILED NOV. 22, 1910.

Patented Aug. 13, 1912.

2 SHEETS-SHEET 1.

1,035,698.

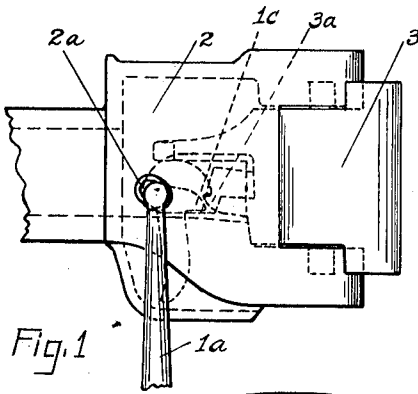


Fig. 1

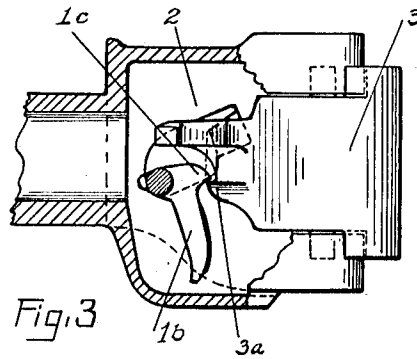


Fig. 3

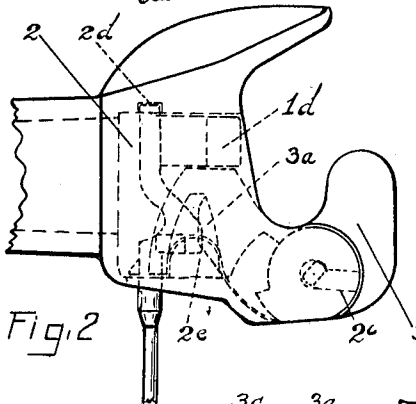


Fig. 2

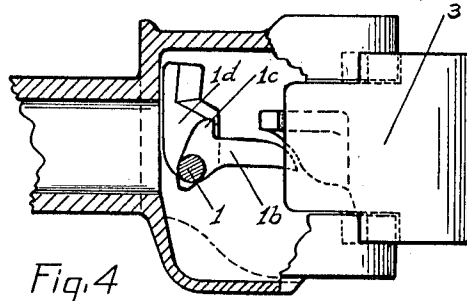


Fig. 4

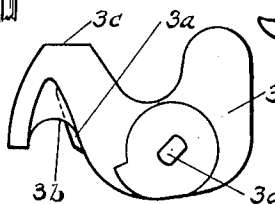


Fig. 5

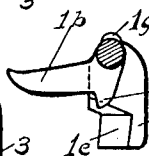


Fig. 7

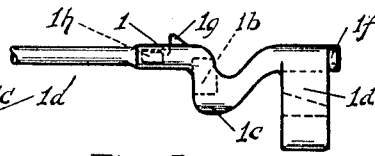


Fig. 8

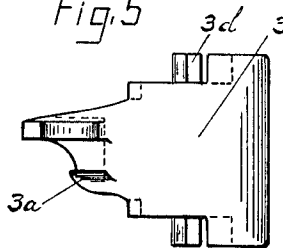


Fig. 6

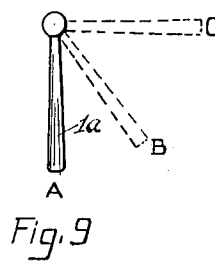


Fig. 9

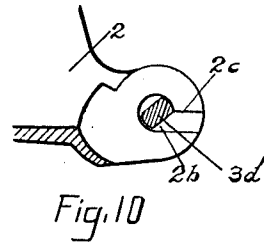


Fig. 10

WITNESSES:

C. M. Shigley
Mintie V. Shuman.

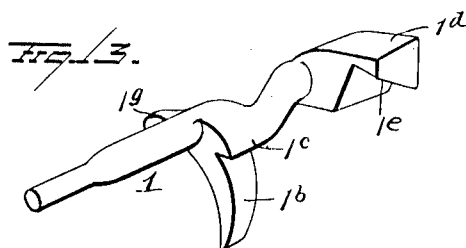
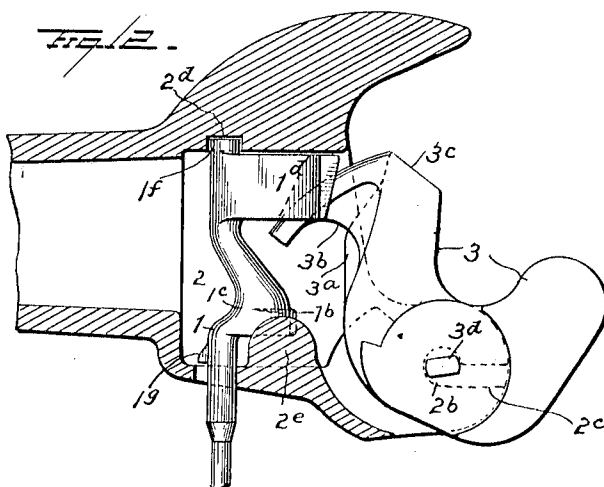
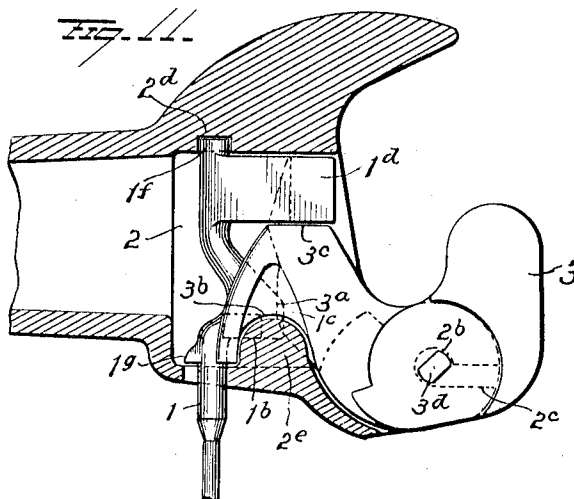
INVENTOR.

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ATTORNEY.

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2 SHEETS-SHEET 2.



WITNESSES
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UNITED STATES PATENT OFFICE.

HENRY S. HALLWOOD, OF COLUMBUS, OHIO.

CAR-COUPLING.

1,035,698.

Specification of Letters Patent.

Patented Aug. 13, 1912.

Application filed November 22, 1910. Serial No. 593,694.

To all whom it may concern:

Be it known that I, HENRY S. HALLWOOD, of Columbus, in the county of Franklin and State of Ohio, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to what is known as the "Janney" type of car-couplers.

The first object of this invention, is to produce a three-piece car coupler which will be strong in design, simple in construction and efficient in use.

A further object is to provide a knuckle of an improved form by reason of which the entire coupler may be strengthened. To accomplish this I eliminate entirely the knuckle pin and its holes, and remove all stress from the knuckle pivot and the lugs, by transferring the strain of the pull to the head, by means of a tapered lock plate adapted to wedge and lock the hook of the knuckle tightly to a curved projection designed to receive it.

A further object is to provide in a single piece of mechanism, a cam lever, adapted to indicate, by the position of its handle, which one of its triplicate functions is ready for use.

A further object is to provide means by which the said lever will be free from hard knocks and consequently not liable to injury in ordinary usage.

A further object is to so position the said single piece operating mechanism, that it cannot be injured or broken by the impact of a blow or a jerk either in the transportation of trains, switching in the yards, or in making up trains, and to so time and design the movement of the said mechanism that no matter how violently the cars may be handled no injury can be done to the operating mechanism when in use as a lock, when lock set, when ejecting or receiving an incoming mate.

These objects I accomplish in the manner illustrated in the following drawing, in which:—

Figure 1 is a side elevation of a coupler showing a single piece operating lever in locked or normal position. Fig. 2 is a plan view of the same. Fig. 3 is a vertical cross section of the same looking toward the side

away from the knuckle supporting lugs, and showing the operating lever in tentatively "set" position. Fig. 4 is a section similar to Fig. 3 but showing the operating lever and knuckle in "open" position. Fig. 5 is a plan view of the pivoted knuckle. Fig. 6 is a side view of the pivoted knuckle showing the integral pivots. Fig. 7 is a sectional end elevation of the single piece operating lever. Fig. 8 is a plan view of the single piece operating lever. Fig. 9 is a diagram showing the three indicating positions of the hand lever. Fig. 10 is a plan view of one of the supporting lugs showing the location of the integral pivots of the knuckle when same is in unlocked position. Fig. 11 is a view in plan, the top of the draw head being broken away, showing the knuckle in its locked position; Fig. 12 is a similar view showing the knuckle partly open and the latch riding on the tail of the knuckle, and Fig. 13 is a view in perspective of the single piece operating mechanism.

Similar figures of reference refer to similar parts throughout the different views.

Figs. 2, 3, 4, 7 and 8 show a single piece operating lever 1 which is provided with a latch 1^d of such shape and design as to securely lock the knuckle 3 in its inward position. The lever 1 is further provided with a finger or cam 1^b of such shape and in such relative position to the latch as to be adapted to eject the said knuckle after the said latch 1^d has passed the tentatively releasing position shown in Fig. 3. On the same lever another cam projection 1^c is so located and timed in relation to the latch that when the handle 1^a is moved to the position shown by B, Fig. 9, the said cam 1^c will force the lever up in its inclined slot 2^a until it rests upon the shoulder 3^a on the lower back part of the knuckle as shown in Fig. 3, thereby tentatively holding the locking latch 1^b in an unlocked position.

It is obvious that as the hand lever is oscillated the cam 1^c will rest on the projection 3^a and as the knuckle swings out on its pivots, the projection 3^a will be carried from under the cam 1^c, thereby causing the latch 1^d to ride on the tail of the knuckle, and as the projection 3^a is returned to normal position it moves over the cam 1^c and permits the latch to fall into locking position. During these movements no matter if the knuckle is open or closed, neither the

lever 1 or its latch or cams are in a position to receive the impact of a blow from the cars when coming together. A projection 1^a keeps the lever in its proper place when turned to the position shown in Fig. 4.

Instead of making the lever in one part as shown, the portion thereof within the coupling head may be of one part and the handle or stem separate therefrom, but secured thereto, by bending the end of the stem and securing the bent end within a transverse opening as shown at 1^b in Fig. 8.

The numeral 2 represents a drawhead similar to those in general use, having an inclined slotted hole 2^a on one side through which the operating lever projects, a recess 2^b on the other side forms a bearing for the inside end 1^c of said lever.

In the construction shown I have provided the knuckle with integral pivot projections, 3^d (Figs. 5 and 6) on the upper and lower bearing of the knuckle. In the drawhead Fig. 10, a groove 2^c leads inwardly to a recess 2^b on the inside face of both the lower and upper wings of the drawhead, the purpose of said groove being to allow the admission of the projections 3^d to the recess 2^b. This eliminates the usual loose coupling pin and the holes in the knuckle and drawhead for receiving the same, thereby reducing the number of parts and strengthening the entire coupler. To place the knuckle in the drawhead the operating lever handle is turned up to permit entering the tail of the knuckle, and the pivots 3^d to pass through the grooves 2^c into their bearings 2^b, then as the latch 1^a drops into locking position, the knuckle will be locked to the drawhead. It is thus obvious that the knuckle cannot be removed from the drawhead except by manually lifting the latch to the same position as for entering the pivots into their bearings. It is also obvious that as soon as the knuckle is turned away from its normal position as shown in Fig. 10, the pivots 3^d cannot pass out through the grooves 2^c provided for assembling the parts. By locating the slot 2^c as shown its relation to the pivot 3^d is such that the pivot is prevented from fouling the mouth of the groove 2^c as the knuckle starts to revolve from its inward position when tentatively set for release.

The numeral 3 represents the knuckle with an outer end of the usual design, the inner end or tail is a hook normally locked to the head between the latch 1^a and the projecting part 2^e of the head as shown in Fig. 2. This knuckle is provided with a cam face on the under side of projection 3^a to receive the thrust of the finger 1^b when ejecting the knuckle from its normal or inward position. When the coupler is in normal or locked position the hand lever 1^a is vertical and this indicates to the brakeman

that the coupler is locked. If it is desired to uncouple, he simply raises the lever and lets go of the handle and this movement lifts the cam 1^c until it rests on the projection 3^a on the tail of knuckle thus setting the latch 1^a in its unlocked position, Fig. 3, and the cars free to move away from each other. But if the brakeman discovers that he has made a mistake and unlocked the wrong car, he may restore the latch to its locking position by a very light push. If a car is coming to be coupled, he lifts the lever as shown by C, Fig. 9, and throws the knuckle wide open, and during this outward movement the latch 1^a on its face 1^c rides upon the tail of the knuckle and stays there until the knuckle has been closed by the incoming car. Whereupon the latch automatically drops and locks them together. Thus the lifting of the lever throws the knuckle wide open and permits the said knuckle to automatically return and lock the two knuckles together without the possibility of the latch dropping into a locking position until the knuckle is in its extreme inward position. The functions of the coupler are indicated by the position of the operating lever as shown in Figs. 1 and 9, and the handle with its lever is of sufficient weight to prevent the vibrations of the car from tilting the latch away from the knuckle, and when locked, it is clear that the coupler is entirely independent of its pivots, that is to say, should the pivots be broken the coupler would be just as effective without them.

In assembling the parts, the hand end of the operating lever, is passed into the mouth, or open end of the draw head, and through the opening in the side of said head, and when the lever and its integral parts are wholly in, its pintle or bearing end 1^c is inserted in its socket in the draw head, by an inward or reverse movement of said lever. After the lever has been placed, it is turned to carry the latch out of the path of the tail of the knuckle, thus permitting the latter to enter the mouth of the knuckle until its pintles are in alinement with the grooves 2^c, after which a lateral movement of the knuckle carries the pintles into the recesses 2^b.

Owing to the simplicity of this coupling and the absence of complicated parts, it is not necessary for the brakeman to go between the cars for the purpose of operating the coupler. From the foregoing description it will be seen that the drawhead and knuckles are of unusual strength arising from the fact that they are not weakened by the cutting away of stock to accommodate the operating mechanism, and in this manner they are protected in winter from freezing together.

It is obvious that no repair parts will

be necessary to carry in stock for the reason that the said lever at no time receives any stress and that even in a wreck or collision, my improved malleable lever may be bent but not broken and again used with a new head or a knuckle.

It is further obvious that my improvement affords greater safety and protection to the railroad men who are to use it than can be obtained from any other device employing a larger number of parts for the reason that my improvement consists of a very simple mechanism which is absolutely reliable in all of its functions.

Having fully described my invention what I claim as new and desire to secure by Letters-Patent, is:—

1. In a car coupling, the combination with a draw head and a knuckle, of a single piece lever lock comprising a horizontal lever adapted to turn and have a limited movement toward and away from the knuckle, a fixed locking latch thereon for locking the knuckle in closed position, and a second member also rigid with said lever and adapted to move by and to be supported on a portion of the knuckle tail for holding the locking latch tentatively lock set, and which may be released from engagement with said knuckle tail to return the locking latch to its locking position.

2. In a car coupling, the combination with a draw head and a knuckle having a projection on its tail below the top surface of the latter, of a single piece lever lock comprising a horizontal lever adapted to turn and have a limited movement in the draw head toward and away from the latter, a fixed latch thereon for locking the knuckle in closed position, and a member also rigid with said lever and adapted to move by and be supported on the projection on the tail of the knuckle for holding the locking latch tentatively lock set, and which may be released from engagement with said projection to return the locking latch to its locking position.

3. In a car coupling, the combination with a draw head and a knuckle, of a lever extending transversely of the draw head and carrying a fixed latch for locking the knuckle, a fixed member independent of the locking latch and adapted to move by and be supported on a portion of the knuckle tail for holding the locking latch out of the path of the tail of the knuckle and which may be released from the knuckle to permit the locking latch to assume its locking position, and an ejector cam also fixed to said shaft and adapted when the lever is manipulated to engage the knuckle and move same to open position.

4. In a car coupling, the combination with

a draw head and a knuckle, of a rocking lever mounted in the draw head in rear of the knuckle and carrying a fixed latch for locking the knuckle in closed position, a fixed member independent of the latch and adapted to engage and rest on the knuckle for holding the locking latch out of the path of the tail of the knuckle and a fixed ejector independent of said latch and member for moving the knuckle to its open position, the said block, member and ejector operating in sequence by a continuous operation of said lever.

5. In a car coupling, the combination with a draw head having an oblong angle bearing in the side, and a knuckle pivoted to said draw head, of a hand lever mounted in the draw head and passing through said angle bearing and carrying a fixed locking latch and a cam, the latter adapted, when oscillated by the lever, to force the cam and lever rearwardly in the angle bearing said angle bearing causing the cam and lever to tentatively rest on the tail of the knuckle and hold the latch in its elevated position.

6. In a car coupling, the combination with a draw head having an elongated opening at one side and a knuckle, of a rocking lever mounted in the draw head in rear of the knuckle and passing through said elongated opening, a fixed latch on said lever for locking the knuckle in its closed position, a fixed member independent of said latch and adapted when turned to engage and rest on the knuckle for holding the locking latch out of the path of the knuckle, and a projection on said lever adapted to rest adjacent the inner face of the wall of the draw head having the elongated opening therein for locking the lever against endwise movement when the parts are assembled.

7. In a car coupler, the combination with a draw head having an elongated inclined slot in one side wall thereof, and a knuckle, of a lever passing through said slot in the wall of the draw head and resting in a bearing in the opposite wall, the said lever carrying a latch for locking the knuckle in closed position, a fixed member adapted to move past and be supported on the tail of the knuckle for holding the latch tentatively lock set, and an ejector for moving the knuckle to its open position, the said latch, member and ejector operating in sequence by a continuous operation of said lever.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

HENRY S. HALLWOOD.

Witnesses:

C. M. SHIGLEY,
MINTIE SHUMAN.

It is hereby certified that in Letters Patent No. 1,035,698, granted August 13, 1912, upon the application of Henry S. Hallwood, of Columbus, Ohio, for an improvement in "Car-Couplings," an error appears in the printed specification requiring correction as follows: Page 3, line 73, for the word "block" read *latch*; and that the proper corrections have been made in the files and records of the Patent Office and are hereby made in the said Letters Patent.

Signed and sealed this 8th day of October, A. D., 1912.

[SEAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.