

No. 629,614.

Patented July 25, 1899.

I. SADDLEMIRE.
CAR COUPLING.

(Application filed Dec. 23, 1898.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1.

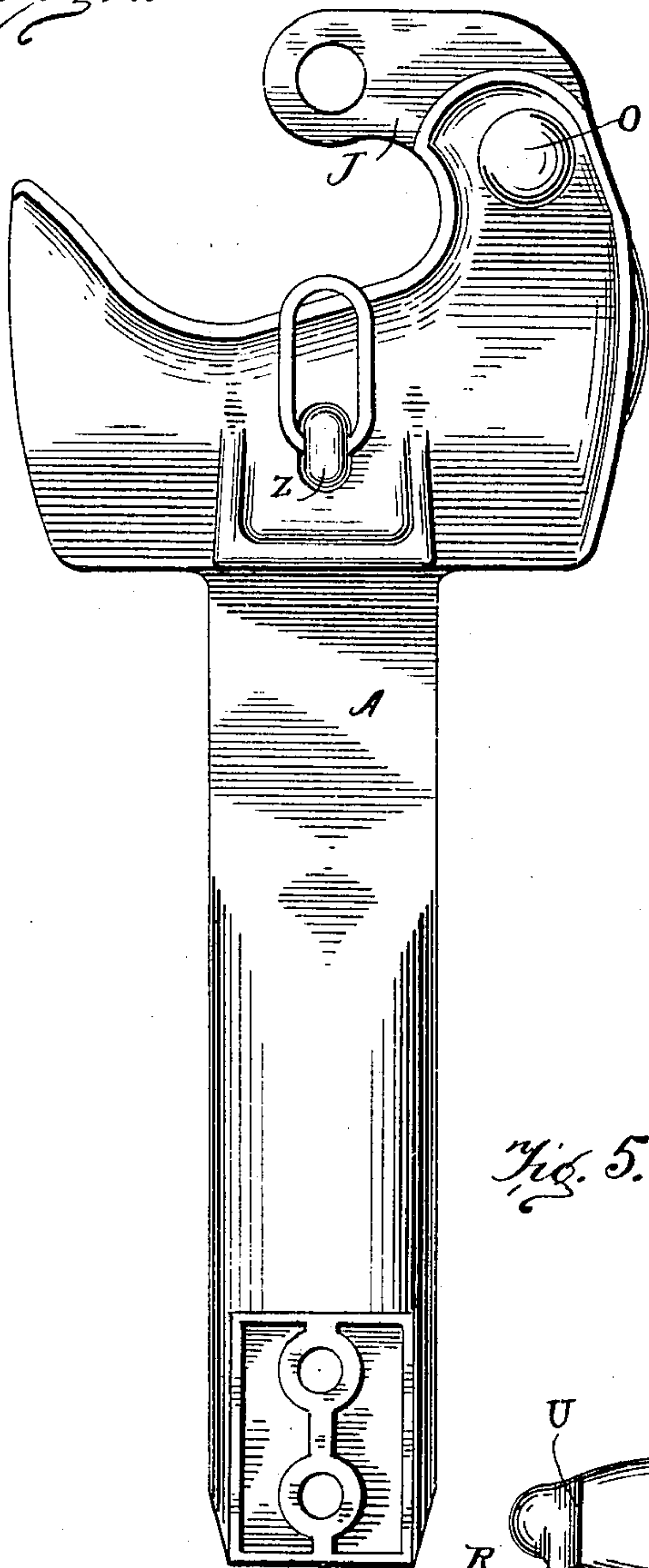


Fig. 2.

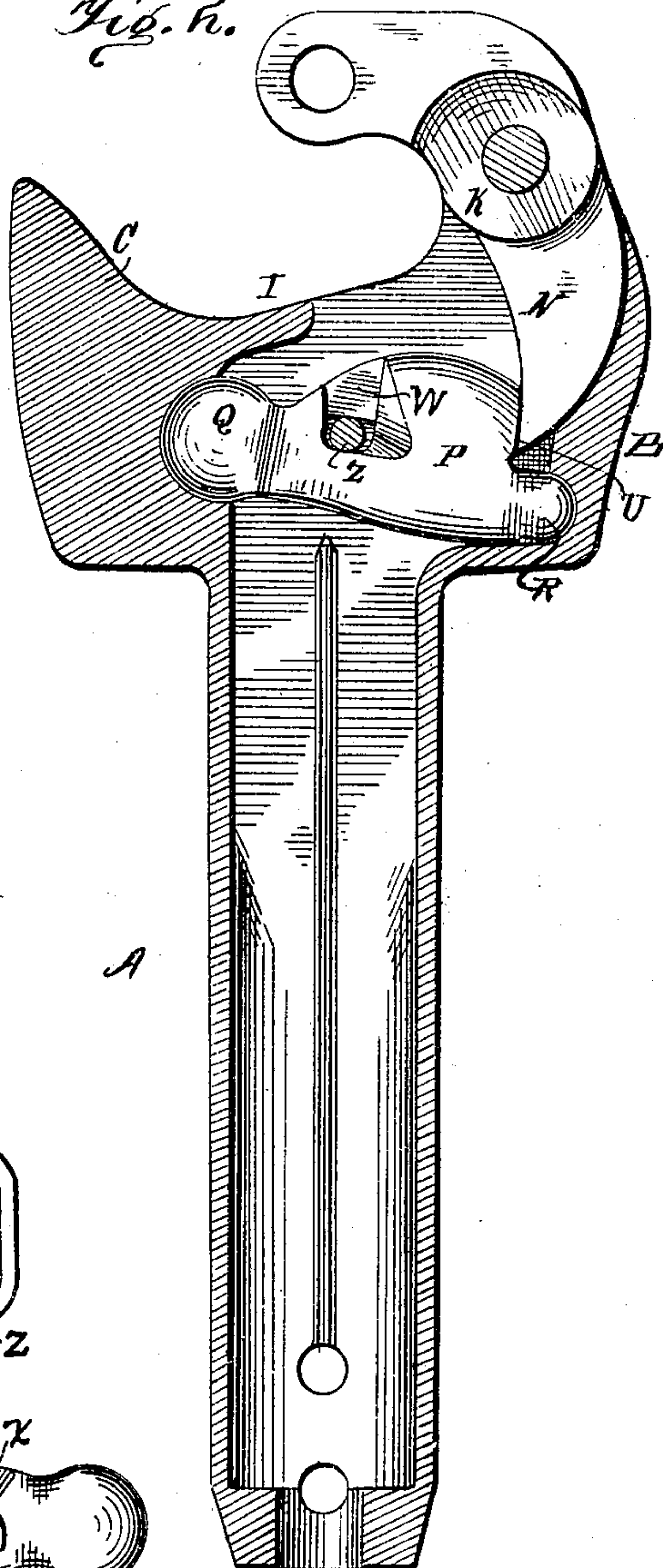
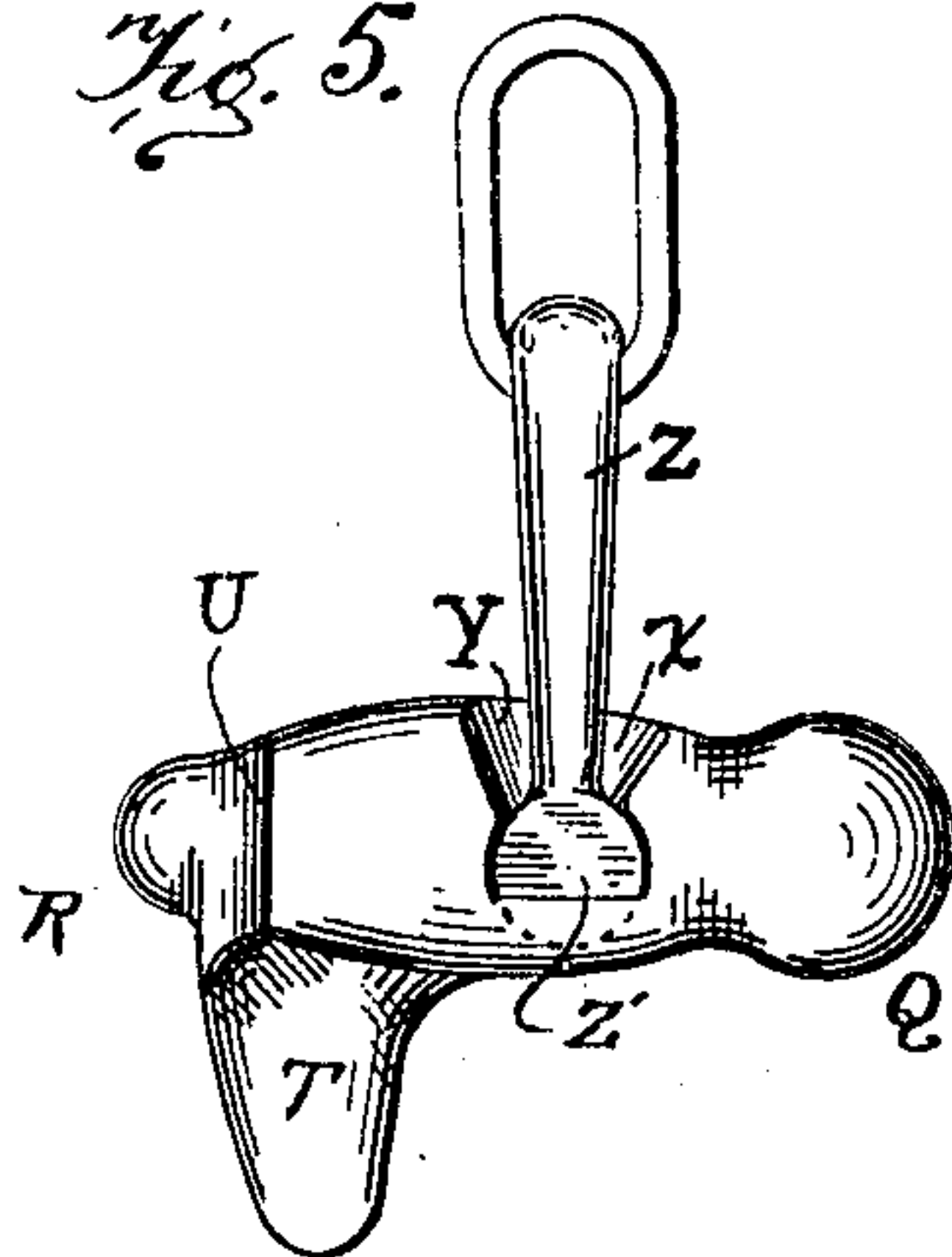


Fig. 5.



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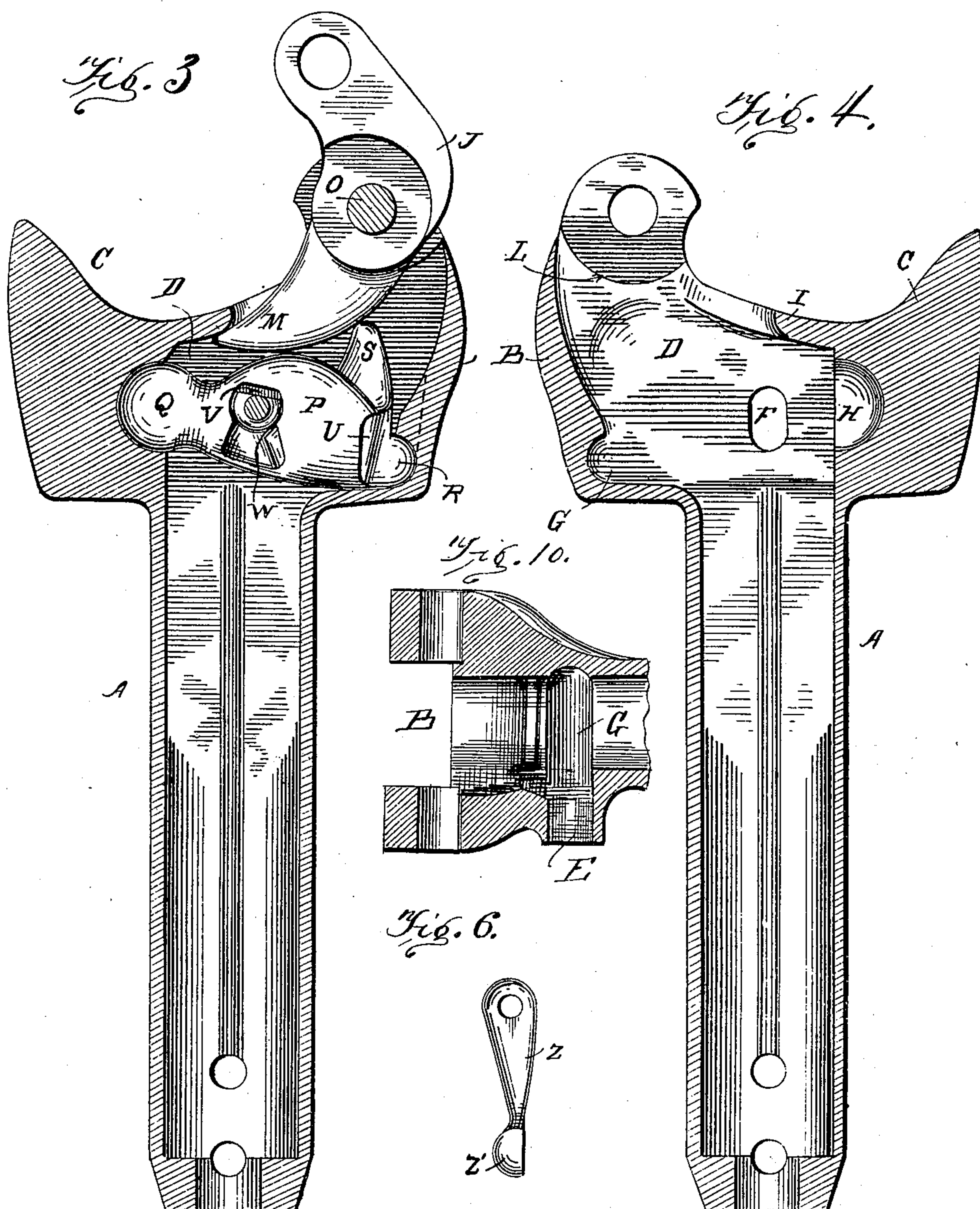
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3 Sheets—Sheet 2.



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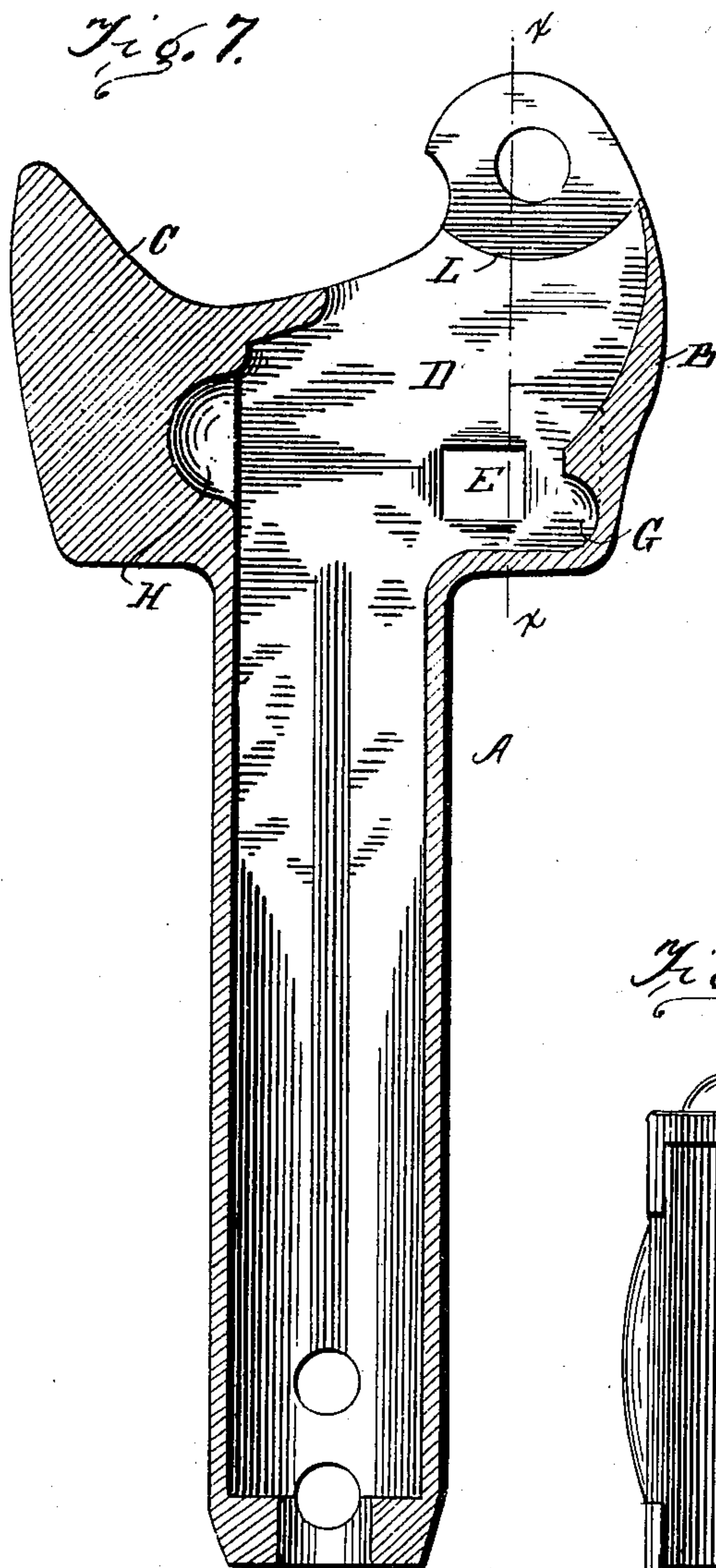


Fig. 8.

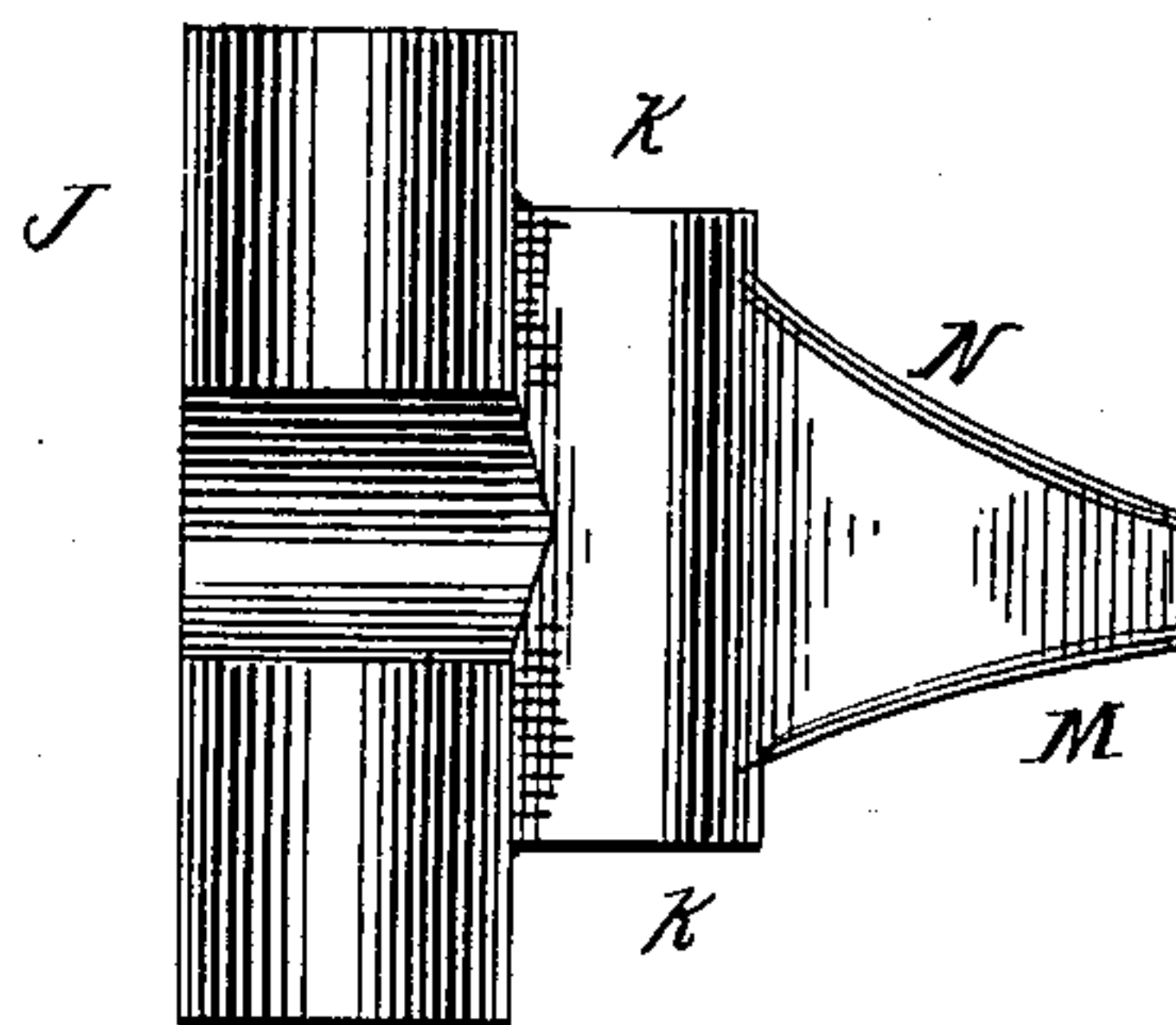
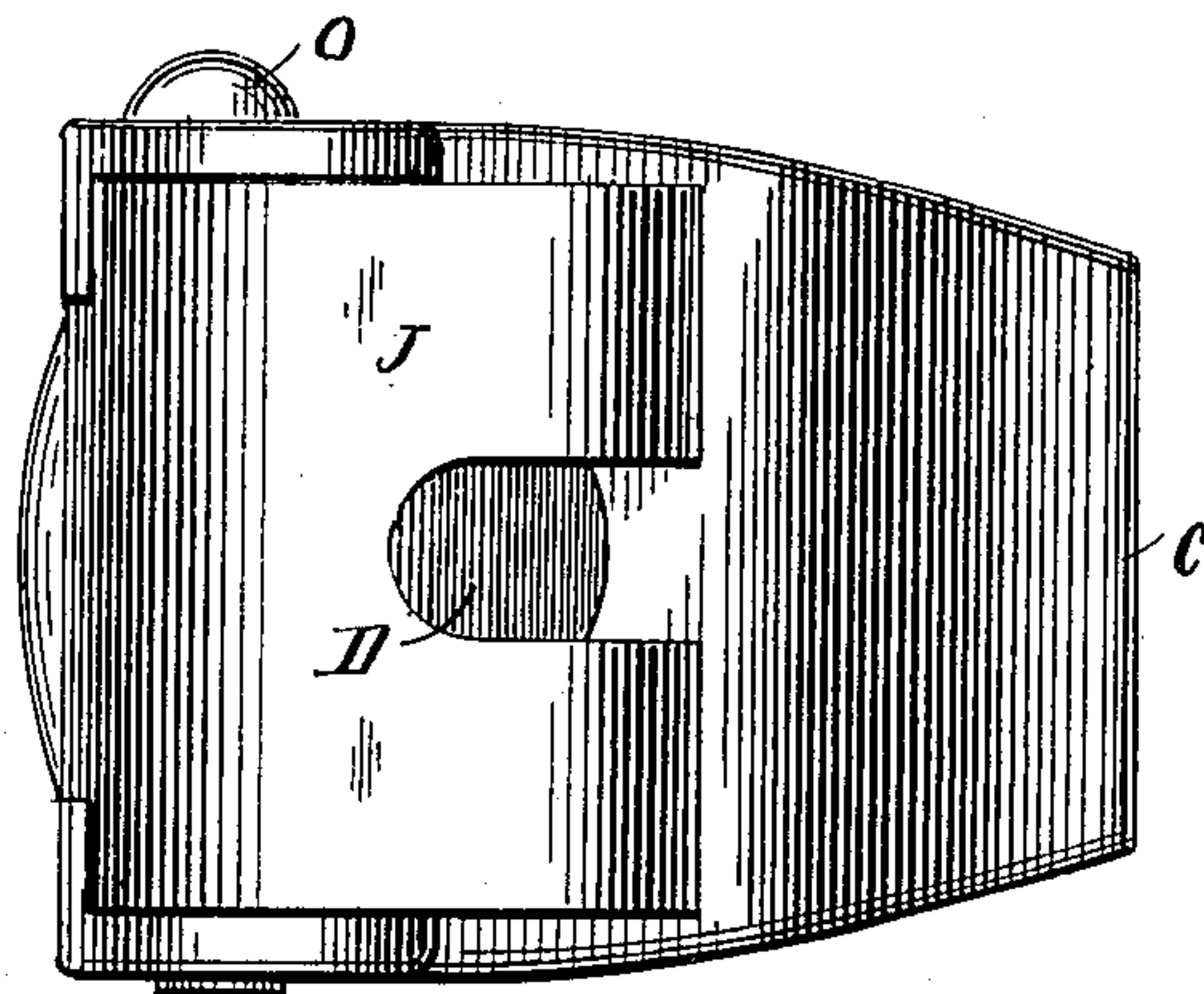


Fig. 9.



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UNITED STATES PATENT OFFICE.

IRA SADDLEMIRE, OF ONEONTA, NEW YORK.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 629,614, dated July 25, 1899.

Application filed December 23, 1898. Serial No. 700,110. (No model.)

To all whom it may concern:

Be it known that I, IRA SADDLEMIRE, a citizen of the United States, residing at Oneonta, in the county of Otsego and State of New York, have invented a certain new and useful Car-Coupler, of which the following is a specification.

The object of my invention is the production of an improved automatic car-coupler of the vertical-plane type which shall have a stronger guard-arm than any heretofore designed, which shall be so constructed as to limit and confine the movements of the tail of the knuckle to the throat of the coupler, which shall have a stop to engage the tail of the knuckle when the same is in an open position, which shall have the throat closed up enough to prevent the entrance of a coupling-link when such link is used, which shall have a locking-block adapted, first, to take the strains of drawing through its longest dimension and transmit the same to the guard-arm, and, secondly, to turn the knuckle into a coupling position during the act of uncoupling, which shall not become unlocked in service by the jolting or violent swaying of the car-body when in motion, which shall be simple in construction and easily and cheaply repaired when necessary, and which withal shall possess many other desirable features and characteristics suiting it to meet all the conditions and requirements of severe service.

With the above-mentioned end or purpose in view my invention consists in certain novelties of construction and combinations of parts hereinafter set forth and claimed.

The accompanying drawings illustrate an example of the physical embodiment of my invention formed and arranged by the best mode I have so far devised for the application of the principle.

Figure 1 is a top plan view of the specimen coupler embracing my improvements. Fig. 2 is a horizontal sectional view showing the movable parts in locked positions. Fig. 3 is a view like Fig. 2, but with the knuckle and block in their unlocked positions. Fig. 4 is a sectional view of the upper half of the coupler reversed. Fig. 5 shows the locking-block and operating-bar detached from the coupler. Fig. 6 is a side view of the operating-bar,

showing the semispherical head at one end thereof. Fig. 7 is a sectional view of the lower half of the coupler with the locking-block, operating-bar, and knuckle removed. Fig. 8 is a view of the knuckle detached. Fig. 9 is a front end elevation view of the coupler-head, knuckle, and guard-arm. Fig. 10 is a section taken on line *xx* of Fig. 7.

Referring to the several figures, the letter A designates the shank of the coupler, made as usual or with longitudinal strengthening-ribs, if so desired; B, the head of the coupler; C, the guard-arm; D, the throat or internal hollow space between the head and guard-arm; E, a downwardly-tapering hole through the wall of the head, the top edges of the said hole being rounded or curved; F, a slot through the upper wall adapted for the passage of an operating-bar; G, a perpendicular groove in the wall of the head adjacent the downwardly-tapering hole E and open to the throat at the bottom, as shown by dotted lines in Fig. 3; H, a socket in the guard-arm; I, the wall of the guard-arm extended toward the head and very much contracting the throat-opening; J, the knuckle; K K, bosses on the knuckle; L L, seats in the head to receive the bosses; M, the tail of the knuckle; N, the beveled edge of the tail; O, the knuckle-pin; P, the locking-block; Q, a ball at one end of the block adapted to fit the socket H in the guard-arm; R, a semispherical projection at the other end of the block adapted to fit and travel in the groove G within the wall of the head; S, the tail of the block; T, a beveled face of the tail; U, a flat face near the end of the block; V, a socket in the body of the block; W, a horizontal opening to the socket; X, a perpendicular opening to the socket; Y, the beveled edge of the perpendicular opening; Z, the operating-bar, and Z' the semispherical head of the bar.

The assembling of the parts in their relative positions, so that they can perform their several functions, is quite obvious. The locking-block is inserted within the throat of the coupler, so that the ball Q will fit the socket H of the guard-arm and the end R rest in the groove G, access to which is by the opening at the bottom of the groove, as shown in dotted lines, Fig. 3. Then the semispherical head of the operating-bar is adjusted through the

slot F and the horizontal opening W of the block; and finally the block is raised at its free end and rotated till the tail S drops into the hole E. The operating-bar will occupy a position within the perpendicular opening X and the head Z' of the bar be confined within the socket V of the block. The tail of the knuckle must be inserted within the throat of the coupler before the knuckle-pin is adjusted.

The *modus operandi* of the coupler is as follows: The parts being in locked positions, as shown in Fig. 2, the uncoupling is effected by elevating the operating-bar, which action also raises the free end of the block in the groove and moves the flat face U out of the path of the tail of the knuckle. As the spherical projection R travels up the groove G the block is rotated and the tail S withdrawn from the hole E and forced against the rear surface of the tail of the knuckle, which latter then takes the unlocked position. (Shown in Fig. 3.) The head Z' of the bar Z being semispherical in shape and fitting the socket V, having the horizontal opening W, the act of elevating the bar causes the head to shift its position in the socket. The relative positions of the head in the socket are shown in Figs. 2 and 3. In coupling the beveled edge N of the knuckle-tail slides under the locking-block till it engages the wall of the coupler-head, when the block, which has been forced back and rotated by the knuckle-tail engaging the tail of the block, drops by gravity and the flat face U comes in direct contact with the front face of the knuckle-tail and the tail of the block occupies a position within the hole E of the head.

From the foregoing description, taken in connection with the drawings, it will be seen that I have devised a coupler possessing certain novel characteristics of great utility. By extending the wall I of the guard-arm toward the head much farther than usual the said arm is thereby strengthened, a result greatly desired in view of the fact that most of the failures of couplers now in use are due to the breaking of the guard-arm. By closing up the throat as far as possible a link of an adjacent coupler when used cannot enter and break or derange the locking mechanism or operating-bar, and, finally, the wall I on the inside of the throat forms a stop for the tail of the knuckle, (see Fig. 3,) so that the bosses K K and the knuckle-pin are always the fulcrum of the knuckle whether the knuckle is closed or open. No stop is thus necessary on the head back of the coupling-pin, where the wall is generally comparatively thin, and the tail of the knuckle cannot pass out of the throat of the coupler.

By locating the locking-block as shown in Fig. 2 the strains of towing are transmitted from the tail of the knuckle longitudinally through the block in a straight line to the guard-arm, which, as before stated, is superlatively strong. By providing the block with

a tail S, engaging the hole E through the wall of the head, the said tail holds the block in place and there is no liability that the jolting and swaying of the car-body in service will occasion a release of the knuckle. The tail S performs the additional function of throwing the knuckle into a coupling position when the operating-bar is elevated.

Many other novel and valuable features of the coupler will be perceived by the study of its construction and mode of operation.

While I have illustrated and described only one example of the physical embodiment of my invention, I do not thereby intend to exclude other forms involving colorable modes of applying the principle, inasmuch as many changes of a minor character may be made at the will of the manufacturer without constituting a substantial departure. All examples slightly changed in shape or degree or having a different operating-bar for elevating and moving the locking-block I intend to embrace within the scope of my claims.

What I claim is—

1. A vertical-plane coupler having a rotary knuckle, and the entire tail of said knuckle confined in its movements by the guard-arm wall to the throat of the coupler; whereby the guard-arm is strengthened and the throat of the coupler sufficiently closed to prevent the entrance of a coupling-link, when such link is used; substantially as described.

2. The combination in a coupler of a knuckle having a tail; a locking-block having a ball at one end adapted to engage a socket in the guard-arm, and at the other end a flat face, as U, adapted to be engaged by the knuckle-tail; and means for elevating and simultaneously rotating the block; substantially as described.

3. The combination in a coupler of a knuckle having a tail; a locking-block having at one end a ball fitting a socket in the guard-arm and at the other end a flat face adapted to be engaged by the knuckle-tail when in a locked position; and means for elevating the block; the said block also being provided with a tail S fitting when lowered within a hole in the head and when raised engaging the rear of the knuckle-tail for the purpose of forcing the knuckle to a coupling position; substantially as described.

4. The combination in a coupler of a knuckle having a tail; a locking-block having a ball at one end fitting a socket and at the other end a flat face for engaging the knuckle-tail when in a locked position; and means for simultaneously elevating and rotating the block; the said block also having a projection R fitting and traveling in a groove G of the head; substantially as described.

5. The combination in a coupler constructed substantially as described, of a locking-block having a ball Q fitting a socket H, a projection R traveling in a groove G, a tail S adapted to fit within a hole E, and a flat face U; and means for operating the block.

6. The combination in a coupler constructed substantially as described, of a locking-block having a ball Q fitting a socket H in the guard-arm, and a tail S; and means for raising and rotating the block so as to cause the tail to engage the tail of the knuckle and force the said knuckle into a coupling position.

7. The combination in a coupler constructed substantially as described, of a locking-block having a ball Q movable in a socket H, a projection R traveling in a groove G open at the bottom, and a flat face U; and means for elevating the block.

8. The combination in a coupler constructed substantially as described of a knuckle and a locking-block; the said block fitting a socket H and groove G in the throat of the coupler and also provided with a tail S having a beveled face T adapted to be engaged by the tail of the knuckle and forced backwardly so it

can drop by gravity into the hole E during the act of coupling.

9. The combination in a coupler constructed substantially as described of a locking-block having a socket in the body thereof, and an operating-bar having a semispherical head adapted to movably engage the socket.

10. The combination in a coupler having a guard-arm wall I, of a knuckle; a locking-block provided with a ball Q fitting a socket H, and a projection R fitting a groove G; and means for elevating and rotating the block; in substance as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

IRA SADDLEMIRE.

Witnesses:

CONRAD G. CONDÉ,

JOHN T. BROWNELL.