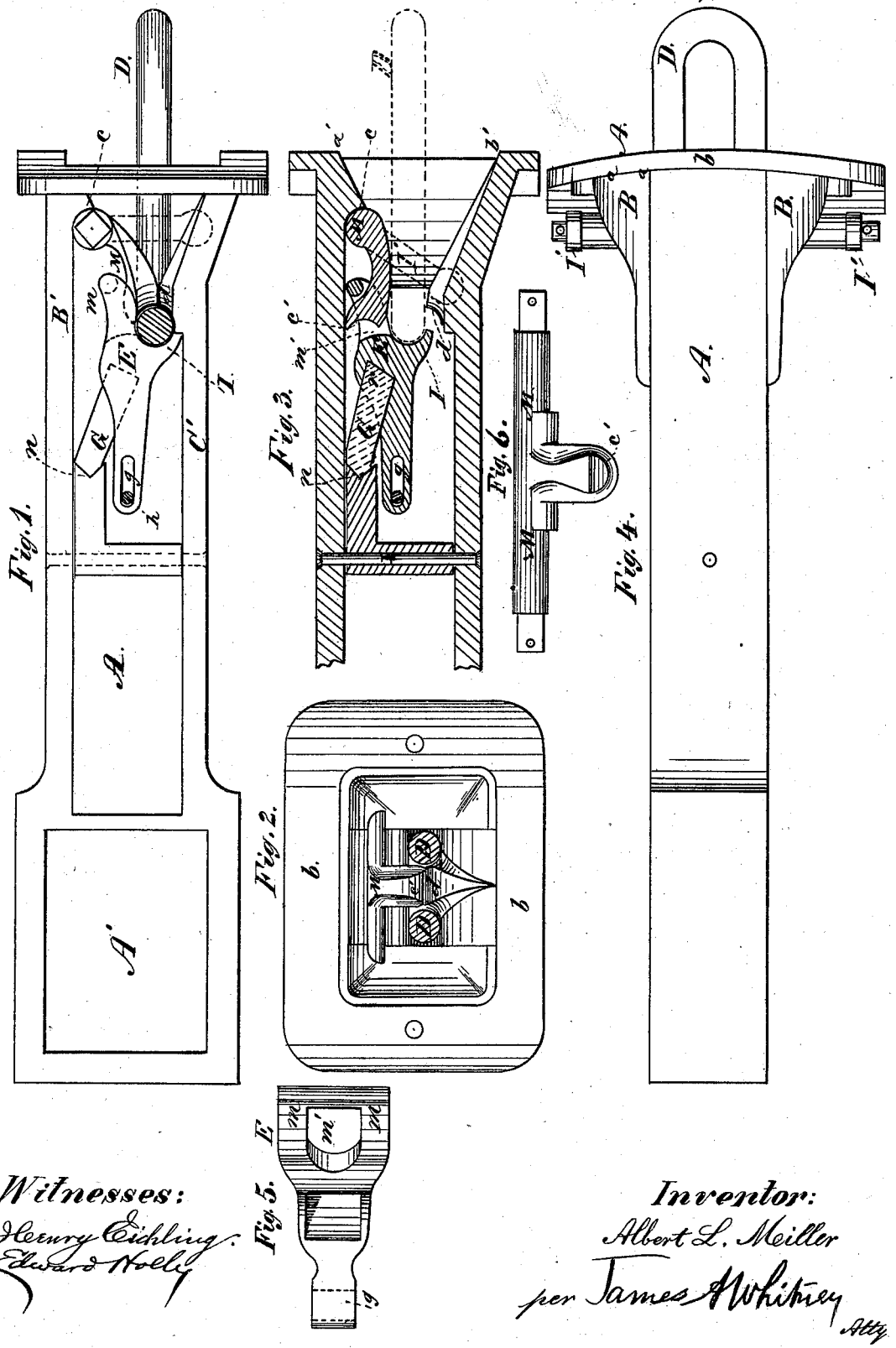
A. L. MILLER.
Car-Couplings.

No. 199,658. Patented Jan. 29, 1878.



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UNITED STATES PATENT OFFICE.

ALBERT L. MILLER, OF NEW YORK, N. Y.

IMPROVEMENT IN CAR-COUPLINGS.

Specification forming part of Letters Patent No. **199,658**, dated January 29, 1878; application filed December 26, 1876.

To all whom it may concern:

Be it known that I, ALBERT L. MILLER, of the city, county, and State of New York, have invented certain Improvements in Car-Couplings, of which the following is a specification:

This invention comprises a draw-head constructed with a concave shoulder in its top or upper plate, and with a peculiarly-arranged heel on its bottom or lower plate, in combination with detachable side pieces secured in any suitable manner to the sides of the draw-head, whereby provision is made for the easy insertion in position of the internal or operative parts of the car-coupling, and for the strong and permanent retention of said parts in place.

The invention further comprises a novel combination of the detachable side pieces with a wrought-iron draw-head, having its top and bottom plates formed with straight parallel and perpendicular sides, whereby great simplicity and cheapness of construction combined with unusual strength are secured.

The invention further comprises a novel combination of a peculiarly-constructed coupling-pawl with the concave shoulder in the top of the draw-head, the heel in the bottom of the latter, one or more actuating-levers, and a longitudinally-yielding dog, arranged to operate in concert with the aforesaid pawl, to prevent the link passing too far inward to the draw-head, and to lift said link to a position above the heel aforesaid when said link is to be withdrawn, whereby an effective and certain operation of the coupling, whether in connecting or disconnecting the cars, is provided for.

The invention further comprises a dog yielding in a longitudinal direction, in combination with a spring of india-rubber or like elastic material with the hereinbefore-mentioned yielding dog and pawl, and the heel provided in the bottom of the draw-head, whereby efficient provision is made for the proper action of the pawl in holding upon the hook when the cars are coupled, and also for the proper action of the dog when it is desired to lift and eject the link from the coupling.

Figure 1 is a side view, with one of the side pieces removed, of a car-coupling made according to my invention. Fig. 2 is an end view of said coupling. Fig. 3 is a longitudinal sectional view of the same. Fig. 4 is a plan view thereof, and Figs. 5 and 6 are detail views thereof.

A is the draw-head, attached in position by means of the usual slot A′, or any other suitable means. This draw-head has its top and bottom plates B′ C′ made with flat and parallel sides—that is to say, the adjacent edges of said top and bottom plates are in the same vertical plane. B indicates two side pieces or cheeks bolted upon the sides of the top and bottom plates, to close the sides of the draw-head, as shown more fully in Fig. 4. These side pieces or cheeks are firmly bolted to the top and bottom plates aforesaid. Said top and bottom plates are to be made of wrought-iron. The cheeks may be of cast metal, if desired; and it is to be expressly understood that these cheeks are made flaring on their inner sides, so that their inner sides, when said pieces are put in place, will constitute the flaring mouth, throat, or entrance of the draw-head, the forward end *a* of said pieces abutting against the face-plate *b*, which is riveted to the forward extremities of the top and bottom plates. The ends of the top and bottom plates, moreover, are sloped upward and downward, as shown at *a′ b′*, to give the requisite flare vertically to the mouth, throat, or entrance of the draw-head. Provided within the upper plate of the draw-head is a concave shoulder, *c*, which affords a bearing for the shaft of the coupling-pawl hereinafter presently explained. Upon the inner surface of the lower plate, as represented at *d*, is a concave heel, which acts in conjunction with the free or swinging end of the pawl aforesaid in holding the link when the cars are coupled.

The free or swinging end of the pawl M is made concave, as represented at *c′*, so that when said end of the pawl is brought down upon the heel, the said heel and the concave end of said pawl form, as it were, a semicircular socket, which (the link D being inserted, as represented in Fig. 1) holds against the inner end of said link, and thereby clutches, locks, or couples the same.

E is a dog, the innermost end of which is slotted, as shown at *g*, a fixed bolt or pin, *h*,

passing through this slot in such manner that a longitudinal movement may be afforded to the dog at the same time that said dog is permitted to turn upon said bolt or pin. Projecting downward and forward from the free or swinging end of this dog is a semicircular tongue, I, the function of which will be presently herein explained. Projecting forward and upward from the forward extremity of said dog is an arm, *m*, in which is a vertical slot, *m'*. The free or inner end of the pawl M swings upward into this slot, and bears against the forward or outer end thereof, as indicated in Fig. 3. G is a block of india-rubber, one end of which has a fixed bearing or support, as shown at *n*, the other end being attached to the dog E, as shown at *r*, this block G of india-rubber being so arranged as to give a forward and downward pressure upon the dog.

It is to be understood, of course, that any other spring may be substituted for the india-rubber, so long as the arrangement and operation thereof remain substantially the same.

The operation of the invention is as follows: Previous to the insertion of the link the pawl M and dog E rest upon the bottom of the draw-head in the same position as after the said insertion. The link, being thrust inward, lifts the pawl M, so that the inner end of the link passes beyond the inner end of said pawl and beyond the heel *d*, and, striking the tongue I of the dog E, forces the latter back as far as may be, and permits the pawl to descend, by which means the inner end of the link is brought behind the concave end of the said pawl M, and also behind the concave heel *d*, the forward movement of the dog consequent upon the action of the spring G balancing against the thrust of the link to bring the latter into the position just described, said dog being continually pressed against the link, thereby taking up what slack there may be allowed for swing of the pawl, the two draw-heads being thus coupled so as to prevent bumping, except under a heavy pressure, as in backing a train, when the blow would be first upon the dog, the spring of which, gradually yielding, would allow the draw-heads to come together, but with little or no force, the downward pressure also exerted by said spring upon the dog having previously caused the pawl to descend to its position just herein described, so that a secure and firm hold upon the inner end of the link is provided for.

It is to be understood that the concave shoulder *c* strengthens and sustains the shaft of the pawl against the draft exerted upon the latter by the strain upon the link in the operation of coupling; and, furthermore, that said shaft of the pawl M is provided, at one or both ends, with a lever, I', (more fully shown in dotted outlines in Fig. 1,) so that by pulling backward upon said lever by means of a bar, arm, chain, or any other connection, or by merely grasping said lever and turning the same back, the pawl is lifted, this upward movement of the pawl M also lifting the former end *m* of the dog, whereupon the tongue I, being concave and holding upon the rounded adjacent surface of the link, lifts the inner end of the link above the heel *d*, so that a clear way is afforded for the rapid, facile, and easy withdrawal of the link in uncoupling.

It is, moreover, to be understood that, inasmuch as the inner end of the link is fitted into the concave surface of the tongue I, the link is balanced against its point of suspension on the lower side of the draw-head, so that its forward or heavier end shall not fall, the link maintaining its horizontal position without special manipulation.

What I claim as my invention is—

1. A draw-head having the flaring mouth, throat, or entrance and the concave heel *d* at the lower side thereof, and concave shoulder on the upper side thereof, in combination with the detachable side pieces B, substantially as and for the purpose herein set forth.

2. The wrought-iron draw-head, constructed with the upper and lower plates B' C', having straight parallel and perpendicular sides or edges, in combination with the detachable side pieces B, substantially as and for the purpose herein set forth.

3. The pawl M, constructed with the shaft and concave free or inner end, in combination with the concave shoulder *c*, the heel *d*, the longitudinally-yielding dog E, and one or more actuating-levers, substantially as and for the purpose herein set forth.

4. The longitudinally-yielding dog E, in combination with a spring, G, substantially as and for the purpose herein set forth.

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