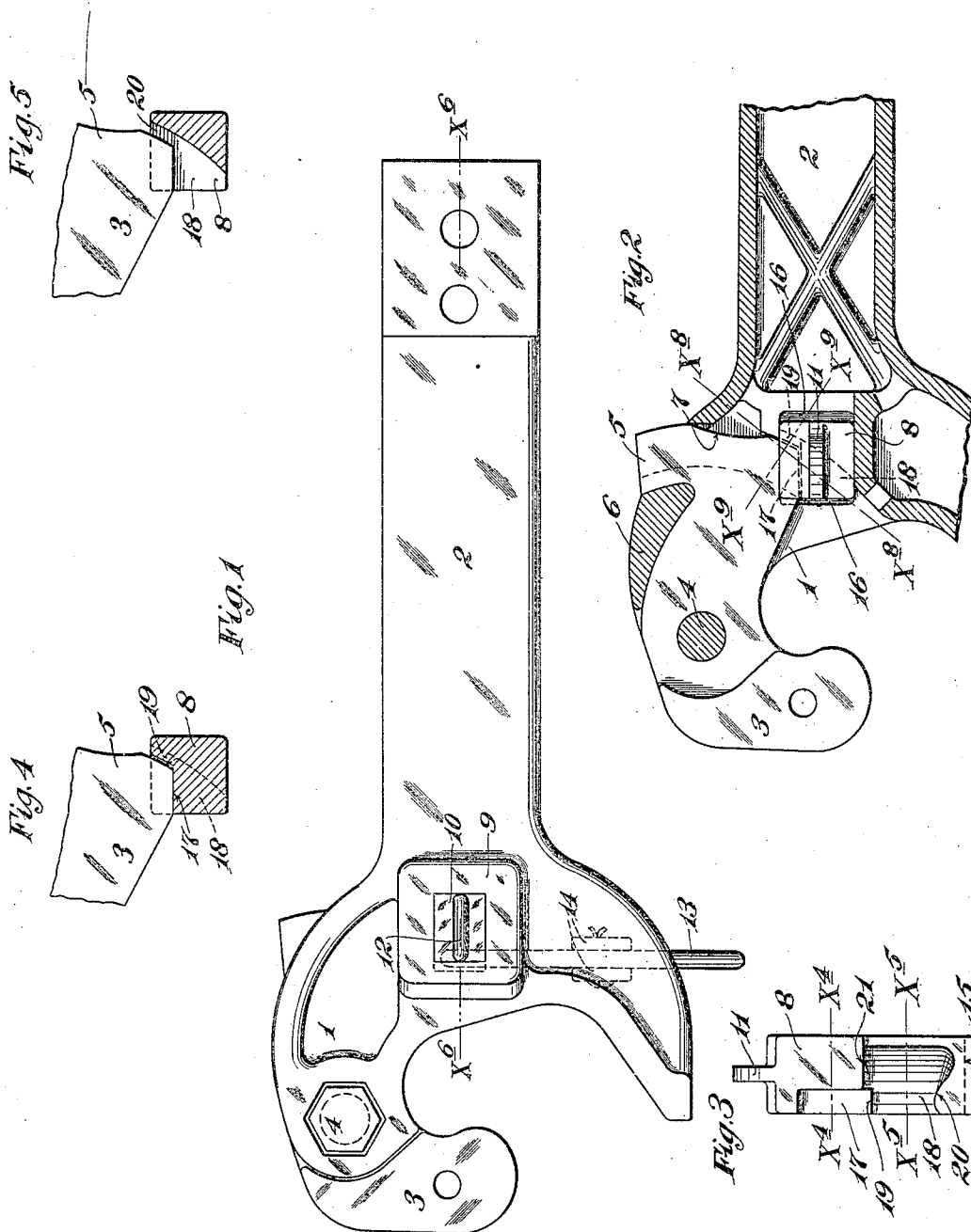


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CAR COUPLING.
APPLICATION FILED JULY 2, 1908.

946,176.

Patented Jan. 11, 1910.
2 SHEETS—SHEET 1.



Witnesses:

W. H. Souba,
Makie Hoel.

Inventor:

E. C. Washburn.
By his Attorneys.

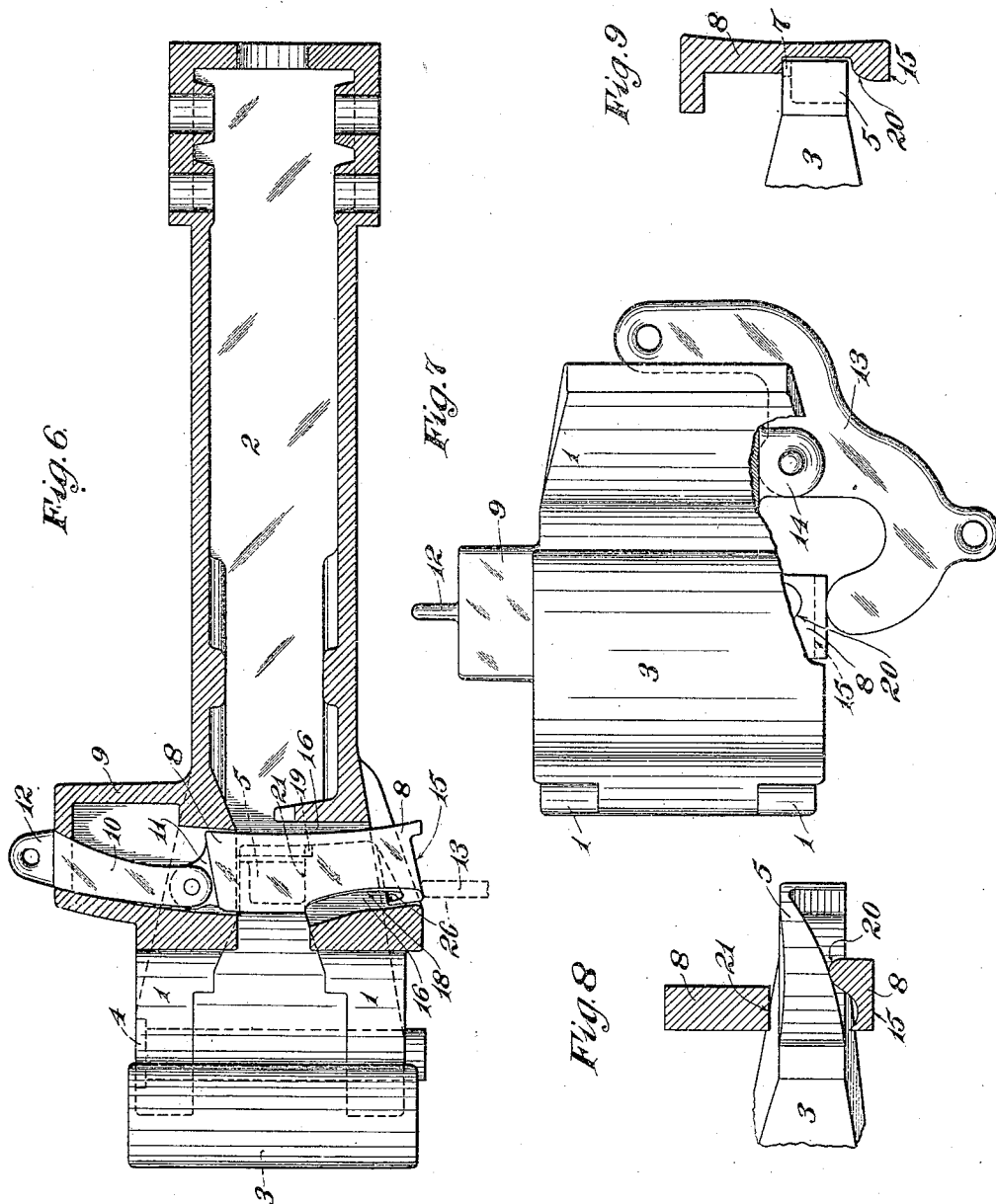
William M. Mendenhall

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By his Attorneys:

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UNITED STATES PATENT OFFICE.

EDWIN C. WASHBURN, OF MINNEAPOLIS, MINNESOTA.

CAR-COUPLING.

946,176.

Specification of Letters Patent. Patented Jan. 11, 1910.

Application filed July 2, 1908. Serial No. 441,589.

To all whom it may concern:

Be it known that I, EDWIN C. WASHBURN, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, 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.

My present invention has for its object to provide an improved car coupler of the Master Car Builders' type; and to this end it consists of the novel devices and combinations of devices hereinafter described and defined in the claims.

In the accompanying drawings which illustrate the invention, like characters indicate like parts throughout the several views.

Referring to the drawings, Figure 1 is a plan view showing the improved coupler. Fig. 2 is a fragmentary view of the coupler, partly in plan but chiefly in horizontal section. Fig. 3 is a detail in front elevation, showing the lock dog removed from the coupler head. Figs. 4 and 5 are views principally in sections taken respectively on the lines X⁴ X⁴ and X⁵ X⁵ of Fig. 3 with a portion of the knuckle shown in full. Fig. 6 is a vertical section taken through the coupler on the line X⁶ X⁶ of Fig. 1. Fig. 7 is a front elevation of the coupler, some parts being broken away; and Figs. 8 and 9 are views principally in vertical sections taken respectively on the lines X⁸ X⁸ and X⁹ X⁹ of Fig. 2 but with some parts shown in full.

The recessed coupler head 1, as is customary, is cast integral with a hollow draft bar 2, and the knuckle 3 is pivotally connected to lugs of the said head, in the usual way, by means of a pin 4. This knuckle, except as hereinafter noted, is of substantially the construction disclosed and claimed in my prior patent 810,008, of date January 16, 1906, entitled car coupling. The tail of said knuckle is provided with a lug 5 that engages behind a lug 6 on the coupler head, when the said knuckle is closed. The upper surface of the tail of the knuckle is flat and is horizontally extended, but its under surface is beveled, as shown in Fig. 8. In its vertical segmental outer edge the tail of the knuckle is formed with a notch or inwardly extended cam surface 7 which constitutes a novel feature of the present knuckle.

The lock dog 8 works through both upper and lower walls of the coupler and, when raised, extends into a guide pocket 9 integrally formed in the top of the coupler head. For the purpose of raising the dog by an overhead lifting device, a link 10 which works through the upper wall of the pocket 9 is pivotally connected to a lug 11 formed on the upper end of the dog and located forward of its center of gravity. This link 10 is provided with a perforated head 12 at its upper end to which a lifting chain or connection (not shown) may be attached, and the said head further limits the downward movement of the said link and, hence, of the lock dog. For the purpose of raising the dog by pressure applied to its lower end, a lifting lever 13 is intermediately pivoted to lugs 14 on the bottom of one side of the coupler head. The curved lower end of this lever 13 engages with a bevel surface 15 formed on the lower end of the lock dog and so inclined that the dog will be caused to swing forward at its lower end when raised. Also the link connection above described is so applied to the dog that the free end of the dog will be swung forward, when raised, it being, of course, understood that the lock dog seat, indicated as an entirety by the numeral 16, is such as to permit both vertical and forward swinging movements of the lock dog when said dog is raised.

By reference to Fig. 6 it will be noted that the entire front wall of the lock dog seat 16 is curved so that it gives a minimum of metal at the central portion of the coupler head and a maximum of metal at the top and bottom thereof; and it will also be noted that the lock dog is correspondingly curved. By this construction the greatest possible projection of the lock dog into the coupler head for engagement with the tail of the knuckle is afforded without unnecessarily weakening the coupler head in front of the lock dog. The link 10 is also preferably curved in the same direction as the lock dog.

For a short distance below its upper end the lock dog 8 has one corner cut away, as indicated at 17, and below its cut away portion the lock dog is cut away to a greater extent, as indicated at 18. This latter cut 18 is such that the tail of the knuckle may swing to an open position when the said cut portion 18 is alined therewith. The lower extremity of the cut 17 affords a raised

shoulder 19, and the lock dog, at the lower extremity of the cut 18, is formed with a cam lug or surface 20. By reference to Figs. 3 and 9 it will be noted that the raised shoulder 19 projects below the raised shoulder 21 formed on the lock dog adjacent thereto, at the upper extremity of the cut 18 of the said lock dog. The purposes of the cuts 17-18, and shoulders 19 and 21, and cam lug 20 will appear in the description of the operation.

Assume that the the two couplers are connected with the knuckles in their closed positions and that the lock dog is raised or moved upward as far as it will go under these conditions. This upward movement of the said lock dog will carry its raised shoulder 19 in position to drop onto the flat upper surface of the tail of the knuckle. Then when the knuckle is moved outward by an opening movement of the knuckle, the notch or in-cut cam surface 7 in said knuckle tail, will permit the dog to drop so that the said shoulder 19 will fall into the said notch 7, and the recessed shoulder 21 will then engage the flat upper surface of the said knuckle tail and hold the dog against further downward movement, but with its cut away portion 18 alined with the tail of the knuckle so that the knuckle may be moved into an extreme open position. After this has taken place, if the knuckle be moved into its extreme open position, the notch or cam surface 7, acting on the shoulder 19, will force the dog laterally back into its seat and thereby carry the shoulder 19 out of the line of movement of the tail of the knuckle, so that the lock dog will drop by gravity into position to lock the knuckle as soon as the tail of the knuckle is moved inward beyond the shoulder 21. It should be understood that while the lock dog is capable of a swinging movement in a vertical plane longitudinally of the draft bar 2, it is not capable of lateral swinging movement transversely thereof. If from the position above noted, in which the shoulder 19 is dropped into engagement with the notch or cam surface of the knuckle tail, the knuckle be again returned to closed position without first making complete opening movement, the lock dog will be forced backward and caused to lock the knuckle in the same manner as above stated, when the action was described in respect to a complete opening movement of the knuckle. When the lock dog is given an extreme upward movement, its cam lug or surface 20 will be engaged with the beveled under surface of the tail of the knuckle and will impart a pivotal opening movement to the knuckle. In view of the curved form of the lock dog, of the lock dog seat, and of the link 10, the said lock dog will be held radially drawn upward into an open position

if the coupler should be torn loose from the draft rigging, it being, of course, understood that the upper end of the said link will be connected, in the usual way, to the body of the car by a chain or other suitable connection which will, of necessity, have an upward and rearward drawing action on the said link under such abnormal forward movement of the coupler.

What I claim is:

1. A coupler having a knuckle and a lock dog, said dog arranged, when raised, to set on the tail of said knuckle for automatic uncoupling, and the tail of said knuckle having a curved vertical edge with an intermediate cam surface operative on said dog to force said dog laterally back into its seat under opening movement of said knuckle.

2. A coupler having a pivoted knuckle and a vertically movable lock dog, said dog having a shoulder adapted to be set on the tail of the knuckle for automatic unlocking, and the tail of the said knuckle having a cam surface operative on said dog to force said dog back into its seat when said knuckle is moved in either direction from an intermediate position.

3. A coupler having a pivoted knuckle and a vertically movable lock dog, said dog having two shoulders, one above the other, which lower shoulder is adapted to be set on the tail of the knuckle for automatic uncoupling, and the tail of said knuckle having a cam notch or in-cut surface into which the lower shoulder of said dog may drop and permit the upper shoulder of said dog to rest upon the tail of the knuckle, and which cam notch or surface is operative on said dog under movement of the knuckle in either direction from an intermediate position to force said dog laterally back into its seat.

4. A coupler having a pivoted lock dog and a vertically extended forwardly curved lock dog seat and provided with a vertically movable forwardly curved lock dog adapted to be set on the tail of the knuckle for automatic uncoupling, and to be forced laterally back into its seat by movement of said knuckle.

5. A coupler having a pivoted knuckle and vertically extended forwardly curved lock dog seat, and provided with a vertically movable forwardly curved lock dog adapted to be set on the tail of the knuckle for automatic uncoupling and to be forced laterally back into its seat by opening movement of said knuckle.

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

EDWIN C. WASHBURN.

Witnesses:

MALIE HOEL,

HARRY D. KILGORE.