

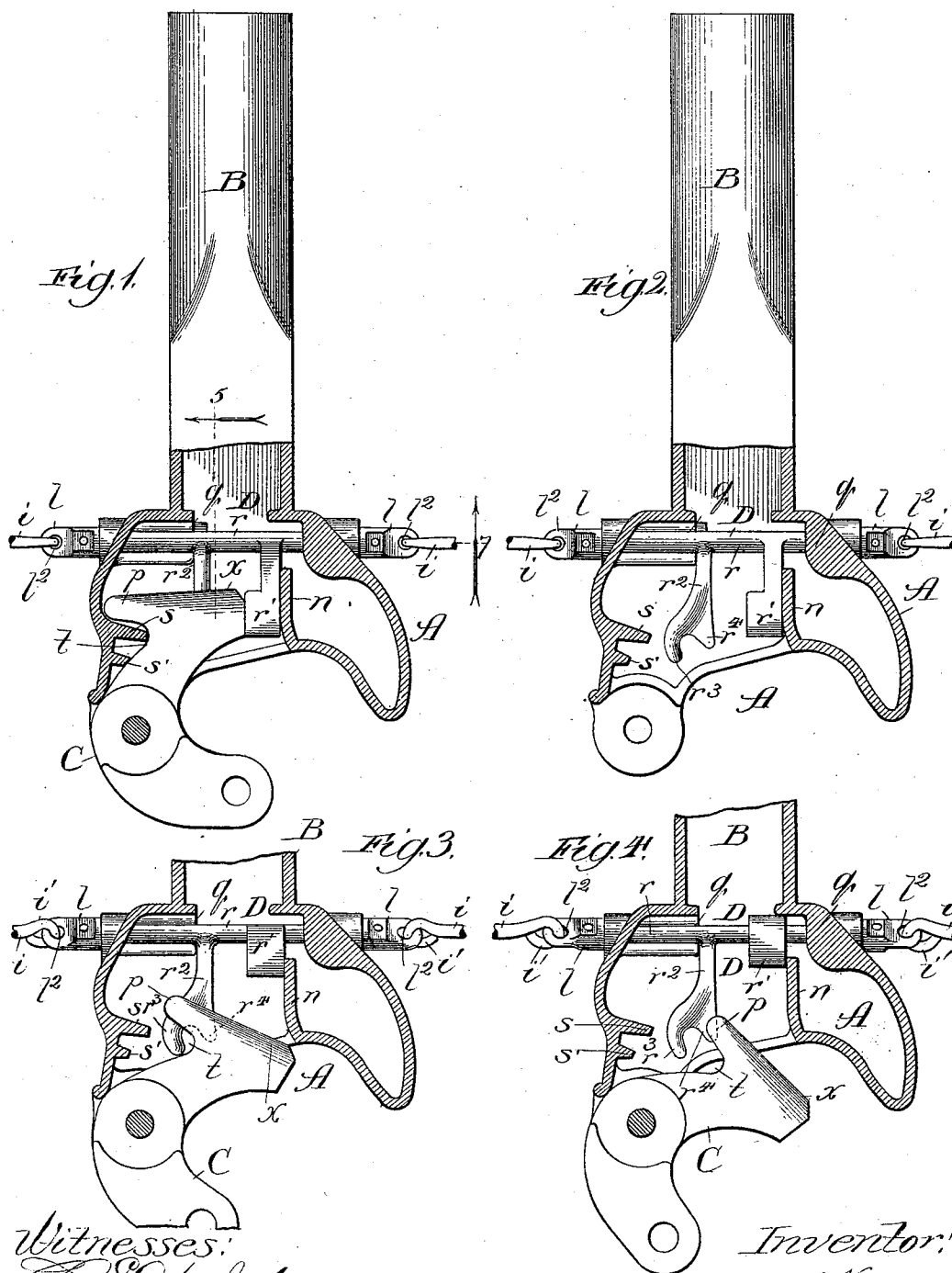
(No Model.)

2 Sheets—Sheet 1.

W. F. WHITE.
CAR COUPLING.

No. 538,804.

Patented May 7, 1895.



Witnesses:
E. J. Gaylord,
J. H. Dymfourt.

Inventor:
William F. White,
By Dymfourt & Dymfourt
Attys.

(No Model.)

2 Sheets—Sheet 2.

W. F. WHITE.
CAR COUPLING.

No. 538,804.

Patented May 7, 1895.

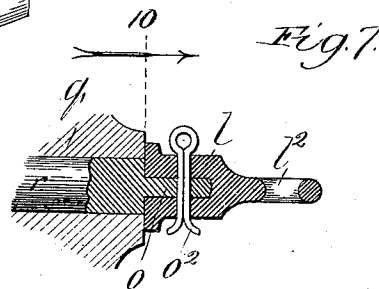
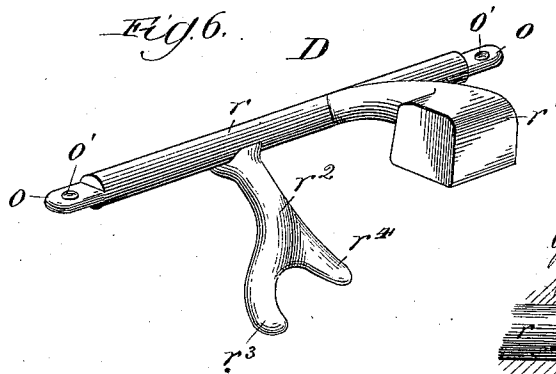
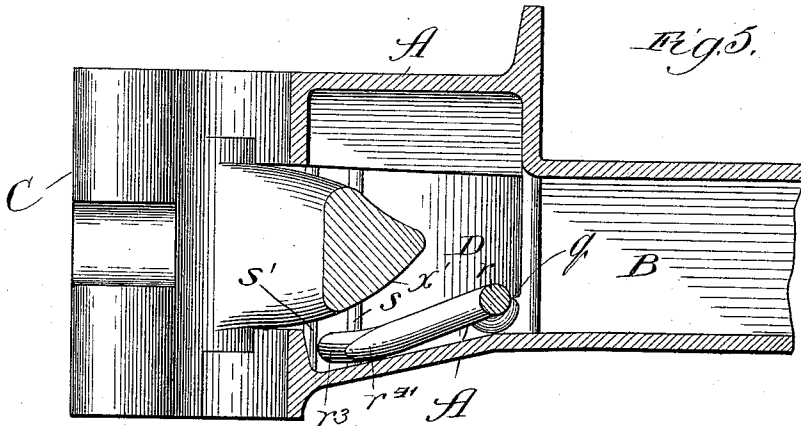
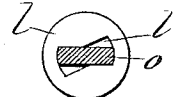
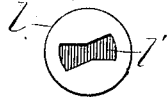
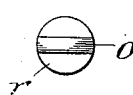


Fig. 8.

Fig. 9.

Fig. 10.



Witnesses:
C. E. Gaylord,
J. H. Dyrenforth.

Inventor:
William F. White,
By Dyrenforth & Dyrenforth
Attys—

UNITED STATES PATENT OFFICE.

WILLIAM F. WHITE, OF CHICAGO, ILLINOIS, ASSIGNOR TO JOSEPH E. FORSYTH, OF SAME PLACE.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 538,804, dated May 7, 1895.

Application filed September 5, 1894. Serial No. 522,189. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. WHITE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Car-Couplers, of which the following is a specification.

My invention relates to an improvement in the class of car-couplers known as the Master Car-Builders' type, wherein the draw-bar carries a horizontally swinging jaw or knuckle provided with means for locking it at the tail-piece, when closed, or in the condition of coupling, and with means for unlocking and throwing out the knuckle by the uncoupling operation.

My improvement relates, particularly, to the locking and unlocking (including the throwing out) means for the swinging jaw; and it also relates to the construction of a jointed pivotal connection between the rock-shaft of the locking and unlocking device and the crank-rod for operating it, whereby not only shall the play of the draw-bar leave the crank-rod undisturbed, but the throw of the rock-shaft of the locking and unlocking device shall not be transmitted to the operating crank-rod.

Referring to the accompanying drawings, Figure 1 is a broken sectional plan view of a car-coupler provided with my improvement and showing the knuckle in locked condition. Fig. 2 is a view like that presented by Fig. 1, but with the knuckle removed. Fig. 3 is a broken view showing the draw-head in horizontal section with the knuckle in unlocking condition and part way thrown out. Fig. 4 is a view like that presented by Fig. 3, but showing the knuckle wholly thrown out. Fig. 5 is a section taken at the line 5 on Fig. 1, viewed in the direction of the arrow and enlarged. Fig. 6 is a perspective view of my improved combined knuckle locking and unlocking device in its preferred form. Fig. 7 is a broken section taken at the line 7 on Fig. 1, viewed in the direction of the arrow and enlarged. Fig. 8 is an end view of the rock-shaft of the knuckle locking and unlocking device. Fig. 9 is an inner end view of the cap for receiving the reduced end of the rock-shaft and provided with a socket flaring out-

ward from opposite sides of its center to permit turning of the rock-shaft without turning the operating-rod connected with the cap, and Fig. 10 is a section taken at the line 10 on Fig. 7 and viewed in the direction of the arrow.

A is the draw-head on the draw-bar B, both being of the usual, or any suitable, general construction; and C is the knuckle, pivoted, as usual, to one side, near the outer end, of the draw-head to be swung on the pivot. The tail-piece C' of the knuckle C should be beveled at its inner end, the bevel extending to its upper side near the extremity of the tail-piece, as indicated at *x*; and it is also beveled on its under side from near the hub of the tail-piece upward toward its extremity, as indicated at *x'* in Fig. 5, the tail-piece being formed with a recess *t* in its rear side, to admit the stress-taking ribs *s, s'* projecting from the adjacent inner wall of the head A, and to lighten its weight, the recess affording a rearward extending projection or bearing *p* on the tail-piece.

At or near the junction between the draw-bar and draw-head, I provide bearings *q* at opposite sides of the open end of the draw-bar, for the rock-shaft *r* of my improved combined knuckle locking and unlocking device D, the rock-shaft projecting at its opposite ends through openings in the opposite sides of the draw-head and at which the bearings *q* terminate; and each (or either) end of the shaft *r* is reduced to the shape of a flattened tongue *o*, which should be perforated or have an eye *o'* formed in it, as shown in Fig. 6, for a purpose hereinafter explained.

From the rock-shaft *r*, near one of its ends, there projects forward the locking-head or lug *r'*, shown as of general rectangular shape; and toward the opposite end of the rock-shaft there is provided, to project forward from it, the unlocking or throwing out finger *r²* for the knuckle, being shown as having two prongs, *r³* and *r⁴*, at its extremity to bear against the beveled under surface or surfaces *x'* on the knuckle by turning the rock-shaft backward, both of the prongs, as shown, being substantially upon the same plane.

The operation of my improved locking and unlocking device is as follows: The tail-piece

of the knuckle C, when the latter is swung inward, encounters the lug or head r' in its path, and when the bevel at x strikes the locking-head it raises the latter, turning the rock-shaft r backward, and is thus enabled to pass the head r' , which, when the tail-piece has passed it, falls, by its own weight (turning the rock-shaft forward) and blocks the return-path of the tail-piece, a web n being shown in the draw-head to afford an outer-side bearing for the lug r' .

To unlock the knuckle C the shaft r is turned backward, thereby raising the head r' out of the path of the tail-piece C' and raising the prongs r^3 and r^4 till the former encounters that portion of the beveled surface x' on the tail-piece which is in its path, and the strain of the rotatably moving prong r^3 against the beveled surface of the tail-piece tends to turn it outward and thus throw out the knuckle on its pivot; and soon after it has been started, the prong r^4 encounters the adjacent portion of the beveled surface x' , or that portion on the under side of the projection p , and continues the outward throw of the knuckle till it has reached the end of the throw, the prong r^4 still remaining in contact with the projection, so that the latter will be sure to slip over, and not strike against it, when the tail-piece is swung back for coupling.

It may here be stated that the beveled surface x' could be continuous by joining the projection p with the body of the tail-piece, but that would unduly increase the weight of the knuckle and the bearing-ribs s and s' could not so well be provided to take the stress of the coupling blow; and in that case, there would be no purpose of forming the end of the finger r^2 with the two prongs.

When the shaft r is thrown, in the manner described, were no means provided to prevent it, the crank (not shown) which forms the termination on each of the operating rods m , which are connected, respectively, and preferably in the manner hereinafter described, with the opposite ends of the shaft r , would fly up or down, with liability to hurt any one, as a brakeman, standing near. To prevent this, I provide the flattened perforated tongues o at the ends of the shaft to enter caps l , through which the eyes o' cotter-pins o^2 are passed, loosely, to fasten the caps to the rock-shaft. The socket l' in each cap l flares outwardly from the longitudinal center, as most clearly shown in Figs. 9 and 10, to afford a central bearing or attenuated ridge for the respective tongue o to turn on without, as a consequence of the turning of the shaft, also turning the cap, since the latter is afforded lost motion, in either direction, toward opposite sides of the flaring socket l' , as represented in Fig. 10, sufficient to correspond with the extent of rocking of the shaft r .

The caps l should terminate at their outer ends in eyes l^2 to be engaged by the hooks or eye-ends i' on the operating-rods i , which are

supported in bearings, in a usual or any suitable manner, on the front end of the car (not shown) and terminate at their outer ends in the crank-arms, hereinbefore referred to, by which to turn the operating-rods to rock the shaft r backward for the unlocking function of my device D. The provision of the two rods i is shown merely to indicate that the coupler is adapted for freight and passenger cars, on which the rods for operating the coupler extend to contrary sides of a car.

By providing the flexible connection between a rod i and the end of the shaft r , or cap l , thereon, the play of the draw-bar B is not hampered, as it would be were the connection stiff. However, my improved device D may be adapted to be employed where a chain-connection is used in a common manner between the operating rod and shaft r ; so I do not limit it to the particular operating connection with which it is shown.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a car-coupler, a combined locking and unlocking device for the knuckle, comprising a rock-shaft journaled in horizontal position in the draw-head and carrying, toward one end, a locking head projecting forward into the path of the tail-piece, said shaft carrying, toward its opposite end, a finger projecting forward to bear against and force out the tail-piece by turning the rock-shaft to raise the locking-head for unlocking, substantially as described.

2. In a car-coupler, the combination with the knuckle having its tail-piece provided with the beveled surfaces x and x' and the projection p , of a combined locking and unlocking device for the knuckle, comprising a rock-shaft carrying a locking head projecting forward into the path of the tail-piece, and a finger r^2 projecting forward and terminating in prongs r^3 and r^4 to bear against the beveled surface x' and force out the tail-piece by turning the rock-shaft for unlocking, substantially as described.

3. In a car-coupler, the combination with the knuckle, of a combined locking and unlocking device therefor, comprising a rock-shaft carrying a locking-head projecting forward into the path of the tail-piece and a finger projecting forward to bear against and force out the tail-piece by turning the rock-shaft for unlocking, a tongue affording a flattened extremity of the rock-shaft and a cap containing a socket flaring laterally in opposite directions from its longitudinal central portion and fastened upon said tongue, substantially as and for the purpose set forth.

4. In a car-coupler, the combination with the knuckle, of a combined locking and unlocking device therefor, comprising a rock-shaft carrying a locking-head projecting forward into the path of the tail-piece and a finger projecting forward to bear against and force out the tail-piece by turning the rock-shaft for unlocking, a tongue affording a flat-

tened extremity of the rock-shaft, a cap containing a socket flaring laterally in opposite directions from its longitudinal central portion and fastened upon said tongue, and an
5 operating rod connected with said tongue by a flexible joint, substantially as and for the purpose set forth.

10 5. In a car-coupler, the combination with the knuckle having its tail-piece provided with the beveled surfaces x and x' , of a combined locking and unlocking device D comprising a rock-shaft r terminating at its ex-

tremities in tongues o in the flaring sockets l' of caps l on said tongues and provided with eyes l^2 , said rock-shaft carrying the forward 15 projecting locking-head r and unlocking finger r^2 , and an operating rod m linked to the eye in a cap, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

WILLIAM F. WHITE.

In presence of—

J. N. HANSON,

J. W. DYRENFORTH.