

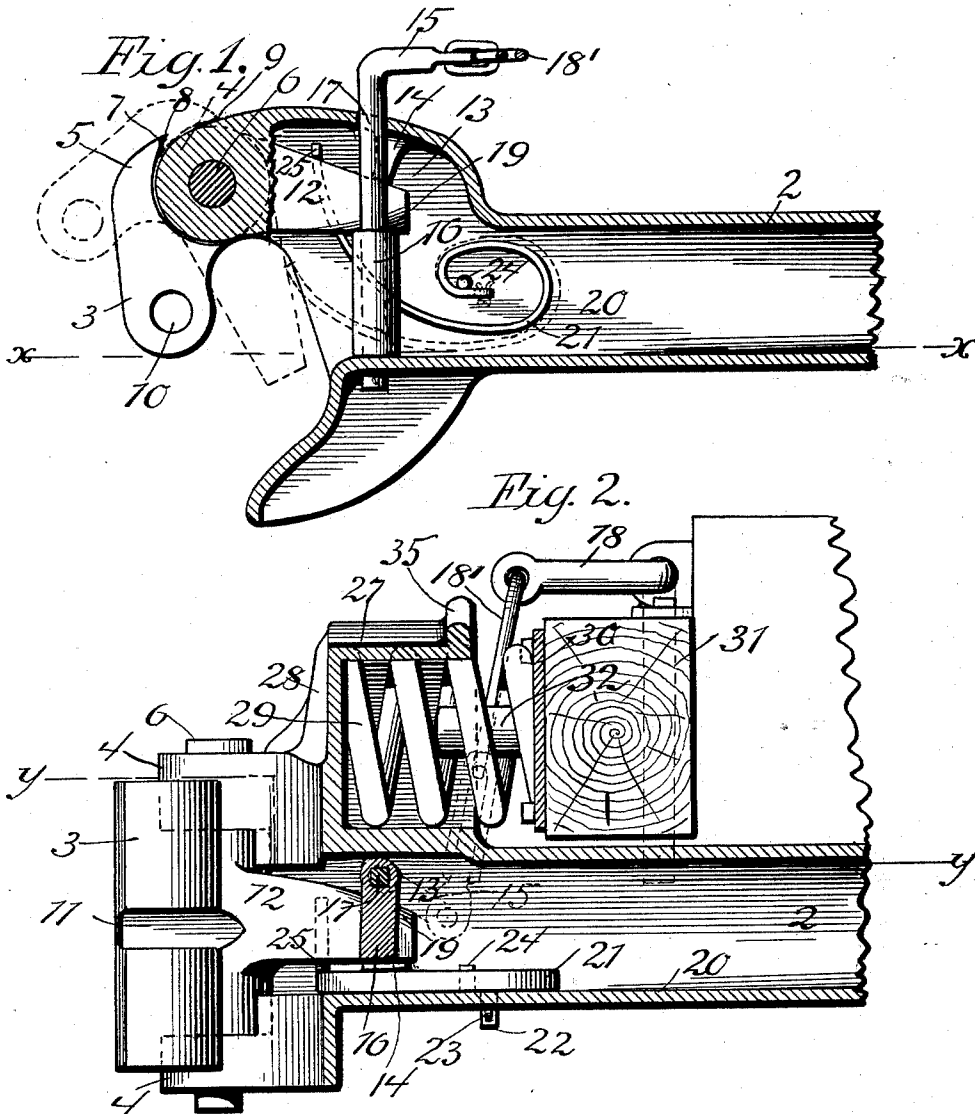
(No Model.)

2 Sheets—Sheet 1.

G. C. McMICHAEL.
CAR COUPLING.

No. 485,211.

Patented Nov. 1, 1892.



Witnesses.

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C. F. Hawley.

Inventor.

George C. McMichael.

By Paul K. Mowin
Attorneys.

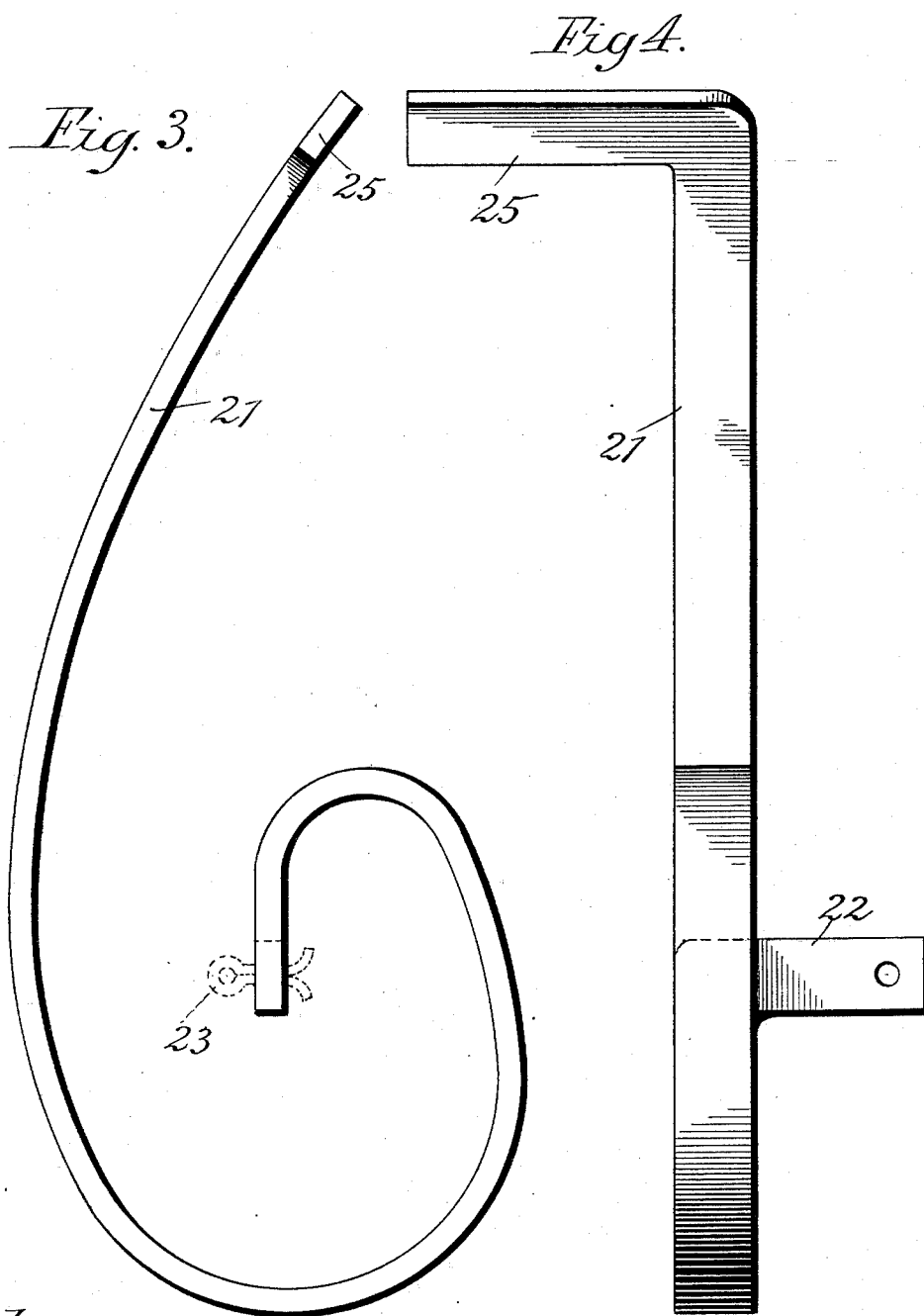
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UNITED STATES PATENT OFFICE.

GEORGE C. McMICHAEL, OF ST. PAUL, MINNESOTA, ASSIGNOR TO THE
EUREKA COUPLER AND BUFFER COMPANY, OF WEST VIRGINIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 485,211, dated November 1, 1892.

Application filed April 18, 1892. Serial No. 429,542. (No model.)

To all whom it may concern:

Be it known that I, GEORGE C. McMICHAEL, of St. Paul, in the county of Ramsey and State of Minnesota, have invented certain improvements in Car Couplers and Buffers, of which the following is a specification.

My invention relates to improvements upon the car-couplers of the "master car-builder" type, and especially to improvements upon my car-coupler shown and described in Letters Patent of the United States of America numbered 453,172, granted May 26, 1891.

The object of the invention is to simplify the general construction of the draw-bar head, knuckle, and finger, to perfect the locking device, and to provide an opening-spring which, unlike those heretofore devised, will not break or lose its strength in use.

To this end my invention consists in the combination of the draw-bar head of the type above mentioned with a knuckle pivoted therein and having a forward part adapted to protect the head and the pivot-pin from the force of impact between the couplers, said knuckle having stop-surfaces for limiting the movement thereof, and in an opening-spring made up of a single coiled steel strap or rod having all of its coils lying in the same plane, and in particular constructions and combinations, all as hereinafter described, and particularly pointed out in the claims.

The invention will be more readily understood by reference to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a sectional plan view on the line *yy* of Fig. 2. Fig. 2 is a vertical sectional elevation on the line *xx* of Fig. 1. Figs. 3 and 4 are respectively plan and side views of my novel opening-spring.

As shown in the drawings, 2 represents the shank of the draw-bar, the tail end of which is fastened beneath the car in the usual manner. On the bar is the coupler-head, which, taken together with the swinging knuckle 3, has the contour described in the master car-builders' type. The inner end 4 of the head, however, is shorter than usual, the length of the head being made up by the forward part 5 of the knuckle, which passes around the end 4 and fits snugly thereto, so that the

knuckle and the head take the strain of buffing off the pivot-pin 6. The inner surface 7 of the knuckle is flared out at a tangent to the rest of its curve, so that the knuckle may swing back the full distance into the dotted position before the edges or corners 8 will strike the side 9 of the head, the two together forming a stop. The knuckle is slotted and has the vertical opening or hole 10 to receive the coupling-pin when the ordinary coupler-link is used. The finger 12 on the knuckle is adapted to project back into the hollow 13 of the head, and when closed engages the stop-lug 14, provided on the inner walls thereof.

16 represents the gravity-lock, which is secured upon the transverse shaft 17, having the crank end 15 and secured in bearings in the opposite walls of the head. The crank 15 is connected by the links 18' with the crank-arm 18 of the operating-bar, which passes out to the side of the car, and as the arm 15 slants downwardly (see dotted lines of Fig. 2) it will be seen that in case the tail-fastenings of the bar are broken and the bar pulled out of place the gravity-lock 16 will be thrown back and up, thereby loosening the finger and knuckle to uncouple the cars, and at the same time the detached coupler will be prevented from dropping down onto the track by the chain connection between the bar and the rod on the end of the car. The unlocking of the car-coupler at such times is rendered more easy by beveling the upper corner of the locking-surface of the finger, as shown at 19 in Figs. 1 and 2. On releasing the tongue or finger it is immediately pushed outward by a spring arranged in the draw-bar and adapted to engage the back of the finger 12. This spring is preferably fastened on the bottom wall 20 of the bar and its head and consists of the single steel strap or rod 21, wound about an axis coincident with its downwardly-projecting end 22, which end projects through a hole in the wall 20 and is fastened by a cotter-pin 23. The post or lug 24, provided on the bottom wall 20, prevents twisting of the spring. On the free end of the spring is the upwardly-extending arm 25, adapted to engage the slanting rear side 26 of the finger, the engagement being at a point about midway on the finger, so that when the same swings out-

wardly the spring still presents its side to the tongue instead of its end. The result of this construction is that when the finger is thrown back the spring will slide up or forward thereon and will not bind upon the finger, thus preventing the bending or breaking of the spring. The exact form of the spring and its full size are shown in Figs. 3 and 4, by reference to which it will be seen that its curve, taken as a whole, is substantially that of a geometric spiral, except that the side curves are slightly flattened, in order that the spring may be gotten into the shank, and at the same time a sufficient length used to insure a constant tension and strength at all points in the travel of the free end thereof. On the top of the bar I arrange the hood or barrel 27, strengthened on its outer side by the vertical rib or ribs 28 and adapted to receive the heavy coiled buffer-spring 29, loosely arranged therein. The spring presses constantly against the chafing-plate 30, fixed on the dead-wood 31 of the car, and is prevented from falling out of the barrel when the head is drawn away from the dead-wood by the stud or pin 32, projecting from the chafing-plate into the spring and barrel. The edge of the barrel is strengthened by the rib or bead 35, which also prevents cracking of the hood in casting. I thus provide a car coupler and buffer of a most simple construction, having few parts which require accurate fitting, and which is entirely without bolts or threads, and which is extraordinarily durable and reliable.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with the draw-bar having a swinging coupler part, of means for locking said part and a spring arranged in said draw-bar, said spring being of a spiral form coiled in a single plane and having its free end in engagement with said coupler part, substantially as described.

2. The combination, with the draw-bar having the coupler-head and a swinging knuckle, of a spirally-wound spring 21, arranged therein, one end of said spring being fastened and the other end having an upturned arm adapted to engage the finger of said knuckle, a post or lug 24, and a locking device, substantially as described.

3. The combination, with the draw-bar, of the head and the swinging knuckle thereof, a stop formed upon said knuckle, a locking device to engage the finger of the knuckle, and the spiral spring arranged within the draw-bar and having one end fast therein, said spring being coiled in a single plane, the free and upturned end of the spring adapted to engage

the rear side of said finger, and the arrangement of the finger and knuckle and spring being such that when said finger is in its open position the spring still presents a curved side thereto, whereby damage to the spring upon the return of the finger is prevented, substantially as described.

4. As an article of manufacture, the car-coupler spring, of the irregular-curved form described, coiled in a single plane and having the long outward projection or arm 21, substantially as described.

5. As an article of manufacture, the car-coupler spring herein described, coiled in a single plane and of a single turn, consisting of the short straight inner part, the short curve, the intermediate portion formed upon a larger curve, and the long projecting end formed in a still larger curve and provided with the projection 25, substantially as described.

6. The combination, with the car-coupler having the barrel, of the cushion spring or springs in said barrel and a chafing-plate arranged on the car, substantially as described.

7. The combination, with the draw-bar provided with the barrel or hood, of a cushion spring or springs arranged in said barrel, a chafing-plate on the car, and a stud projecting from said chafing-plate, substantially as and for the purpose specified.

8. The combination, with the car, of a draw-bar and the swinging knuckle thereof, the gravity locking-block, the transverse shaft upon which said block is secured, the downwardly-turned crank-arm 15 thereof, the operating-bar arranged on the car and having the crank-arm 18, and the link or links extending between the arms 15 and 18, whereby the draw-bar is attached to the car regardless of the tail-fastening of said bar, substantially as described.

9. The combination of the draw-bar having the integral spring-barrel 27 and its strengthening rib or ribs 28 with a buffer spring or springs provided in said barrel, as and for the purpose specified.

10. The combination, with a draw-bar, of the coupler part thereof, the barrel formed integrally therewith and having the strengthening-rib 35, and a buffer spring or springs arranged in said barrel, substantially as described.

In testimony whereof I have hereunto set my hand this 11th day of April, 1892.

GEORGE C. MCMICHAEL.

In presence of—

FRED S. LYON,
C. G. HAWLEY.