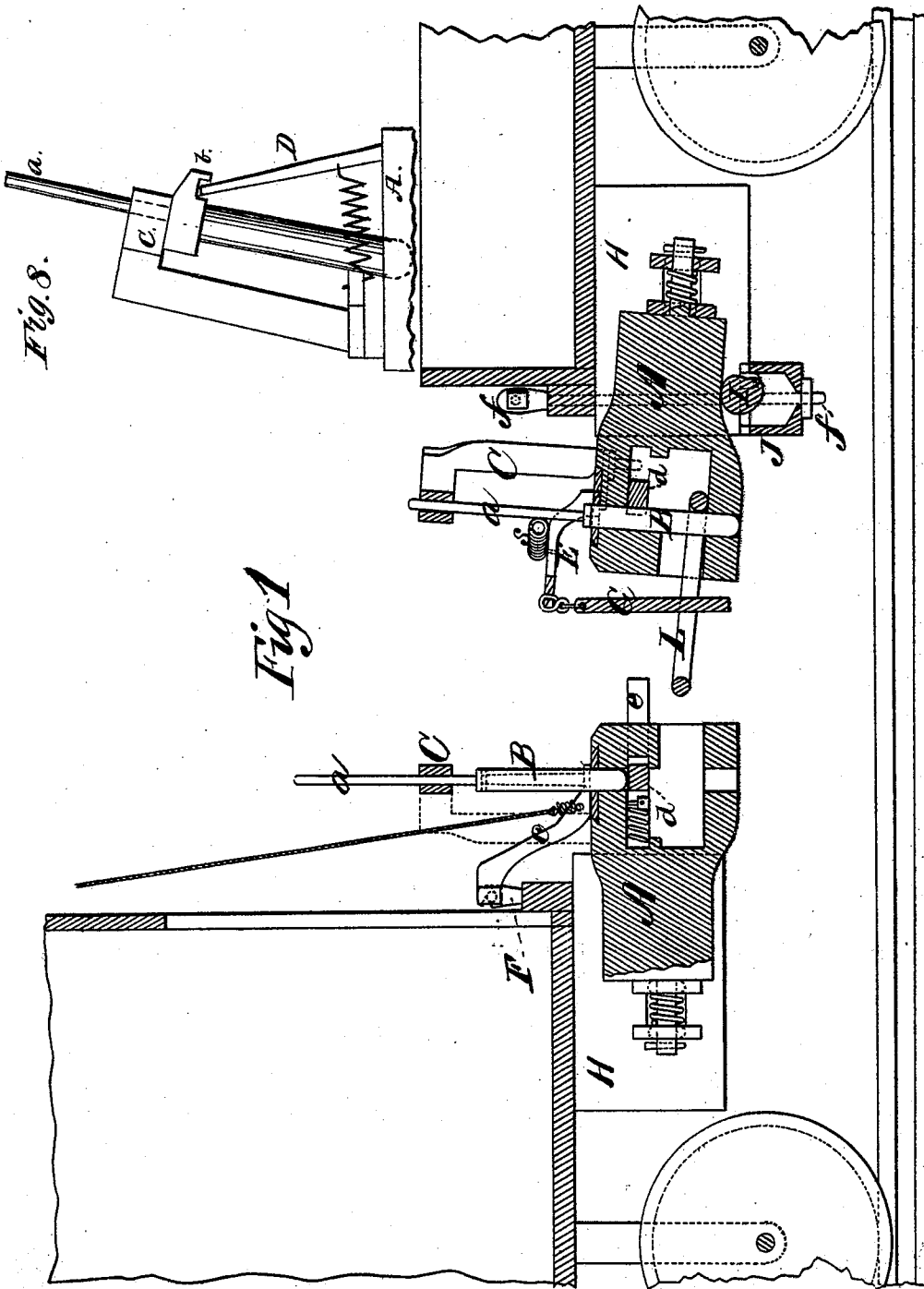


W. BISHOP.
CAR-COUPLING.

No. 172,958.

Patented Feb. 1, 1876.



WITNESSES

Villette Anderson.
E. A. Bates

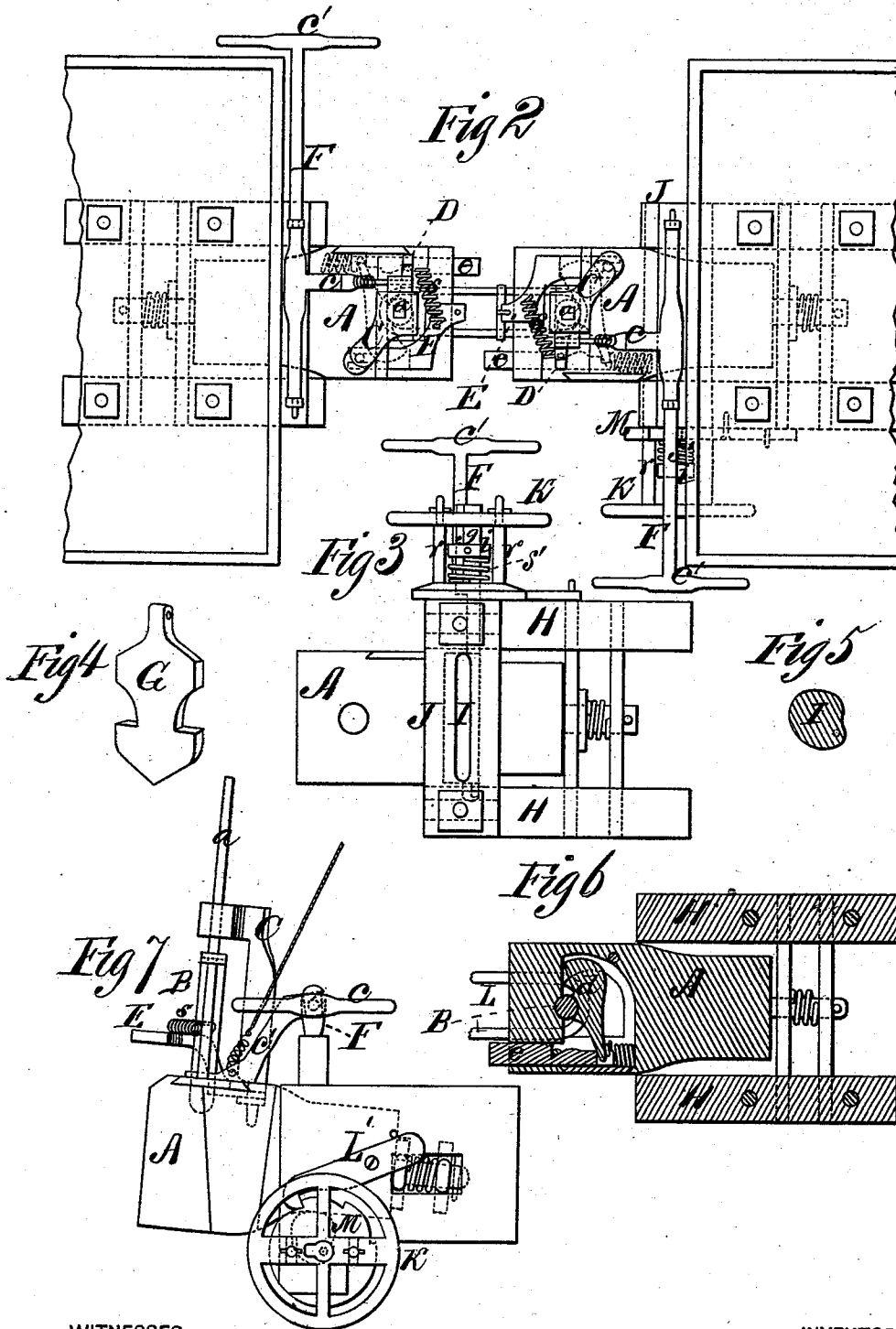
INVENTOR

Wm Bishop
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William Bishop
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UNITED STATES PATENT OFFICE

WILLIAM BISHOP, OF MARSHALLTOWN, IOWA.

IMPROVEMENT IN CAR-COUPPLINGS.

Specification forming part of Letters Patent No. **172,958**, dated February 1, 1876; application filed June 5, 1875.

To all whom it may concern:

Be it known that I, WILLIAM BISHOP, of Marshalltown, in the county of Marshall and State of Iowa, have invented a new and valuable Improvement in Coupling for High and Low Cars; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of a longitudinal vertical section of my coupling, and Fig. 2 is a plan view of the same. Figs. 3 and 4 are side views, and Figs. 5 and 6 sectional detail views. Fig. 7 is a side view of my coupling, and Fig. 8 is an end view of my improved coupler.

This invention has relation to improvements in automatic car-couplers; and the nature of the invention consists in a vertically-vibrating draw-bar, an eccentrically-mounted cylindrical lifter arranged under the former, whereby it may be raised or lowered for the purpose of adapting it to couple with cars of different heights. It furthermore consists in combining, with a vertically-vibrating draw-bar, and a rotating lifter for adjusting the same, a ratchet-wheel and a pawl for holding the draw-bar to its proper adjustment when obtained. It consists, also, in certain arrangements and novel constructions of the various co-operating parts of the coupler, as will be fully understood from the annexed description.

In the annexed drawings, A designates a chambered draw-bar, of the usual well-known construction, having in its floor and ceiling registering perforations, in which a coupling-pin, B, is designed to be placed. The upper end of this pin is provided with a prismatic extension, *a*, which passes through an angular guiding-arm, C, rigidly secured to the upper part of the draw-head, and overhanging the coupling-pin holes. Extension *a*, at or near its point of union with the pin, is provided with a lug, *b*, the under side of which is notched. D represents a strong upright, which is so mounted in the upper wall of the draw-bar as to have a vibratory motion to and from pin B, and the upper end of which is designed

to be engaged in the notch of the lug *b*, thereby holding the pin free from the chamber of the draw-bar, and preventing a coupling from being effected when it is desired, as is often the case, to bring cars together without so doing. The moment the pin B is slightly raised, upright D will be pushed from under lug *b* by the reaction of a suitable spring, *s*, one end of which is rigidly secured to the said upright, the other being attached to an arm, E, projecting upward and forward from the draw-head, the functions of which will hereinafter fully be shown. Pin B is raised out of the draw-bar by means of a rod, F, which has its bearings upon the car-body in a position transverse to its length. This rod is provided with a lifting-finger, *c*, the outer extremity of which passes under lug *b* on the coupling-pin, and at its end, which extends outward to the side of the car, with a cross-handle, *c'*. When lifter-rod F is caused to rotate, its finger will raise the pin clear of the chamber of the draw-bar, and, when necessary, will give it a still further lift, for the purpose of releasing upright D from the notch on lug *b*.

The upper wall of the draw-bar is recessed for the purpose of receiving a segment-shaped shelf, *d*, which interlocks with an actuating-rod, *e*, passing into the draw-head from in front, and projecting considerably beyond its front edge. In its normal position, shelf *d* will be directly under the pin-hole in the upper wall of the draw-bar, the lower end of the pin finding a rest thereon; but when the cars are brought together to be coupled the faces of the draw-head, striking against rods *e*, will force them inward, thereby thrusting shelves *d* from under the pins, allowing them to fall through a slotted link, L, and effect a coupling. Both pins being supported out of the chamber of the draw-bar, I use a link-holder, G, of the form shown in Fig. 4, for the purpose of maintaining the link in a position proper for entering the chambers of the draw-bars. This device is detachably suspended, by means of a hook, from arm E, before alluded to, as shown, and it serves as a glut for holding the cars closely coupled, hanging, as it does, between the contiguous ends of the draw-bars.

Draw-bar A is suspended under the car in

a stirrup-frame, H, and it has a degree of vertical vibration therein for the purpose of allowing its front end to be raised or lowered, according to the height of the draw-bar of the car to be coupled. This is accomplished by means of a rotating cylindrical or cam-shaped roller, I, provided at each end with spindles, which are eccentrically arranged in relation to the roller, which cylinder is mounted, and finds its bearings directly under the front portion of the draw-bar, either in hangers or in a casing, J, adapted to close over the lower portion of the said roller, which casing will be secured to the stirrup-frame by means of bolts *f*.

When eccentric roller I is caused to rotate by means of a hand-wheel, K', applied upon the end of a spindle extending out to the side of the car, the draw-bar will be raised in proportion to the extent of rotation imparted to the said roller, and the degree of adjustment thus obtained will be maintained by the engagement of a pawl, L', pivoted to the side of the draw-bar, with a ratchet-wheel, M, on the roller.

In practice I may, if I so elect, connect ratchet-wheel M and hand-wheel K rigidly together by means of rods *r*. In this case they will have endwise movement to and from cylinder I, and will be prevented from rotating on the spindle by means of the usual well-known spline. By this means the hand-wheel and rack will be capable of being withdrawn from the side of the draw-bar, and the cylindrical roller somewhat more easily operated.

When this construction is used the automatic return of the ratchet-wheel to an engagement with the pawl will be secured by

means of a spring, S', arranged on spindle *g* of the lifter, between the said ratchet-wheel and a collar, *i*, rigidly secured, in any suitable manner, on the said spindle.

By drawing outward upon hand-wheel K the pawl and ratchet-wheel will be disengaged and the draw-bar raised or lowered, as the case may require, without using the hand directly for the purpose, or going between the cars.

When the pins are raised shelf *d* will be returned to its normal position, and actuating-arm *e* protruded, ready for a second coupling, by means of a spring, *j*, arranged in rear of the said parts, as shown in Figs. 1 and 6.

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

1. In a car-coupling, an eccentric lifting-roller, I, in combination with a vertically-vibrating draw-bar, substantially as specified.

2. In combination with a vertically-vibrating draw-bar, A, and an eccentric roller, I, for adjusting the same, a ratchet-wheel, M, and a pawl, L, for maintaining this adjustment, substantially as specified.

3. The coupling-pin B, having prismatic extension *a*, in combination with the angular guiding-arm C, supporting-arm D, spring *s*, and lifting-rod F, having fingers C', substantially as specified.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

WILLIAM BISHOP.

Witnesses:

JOEL SMITH EDWARDS,
THOMAS WALLACE.