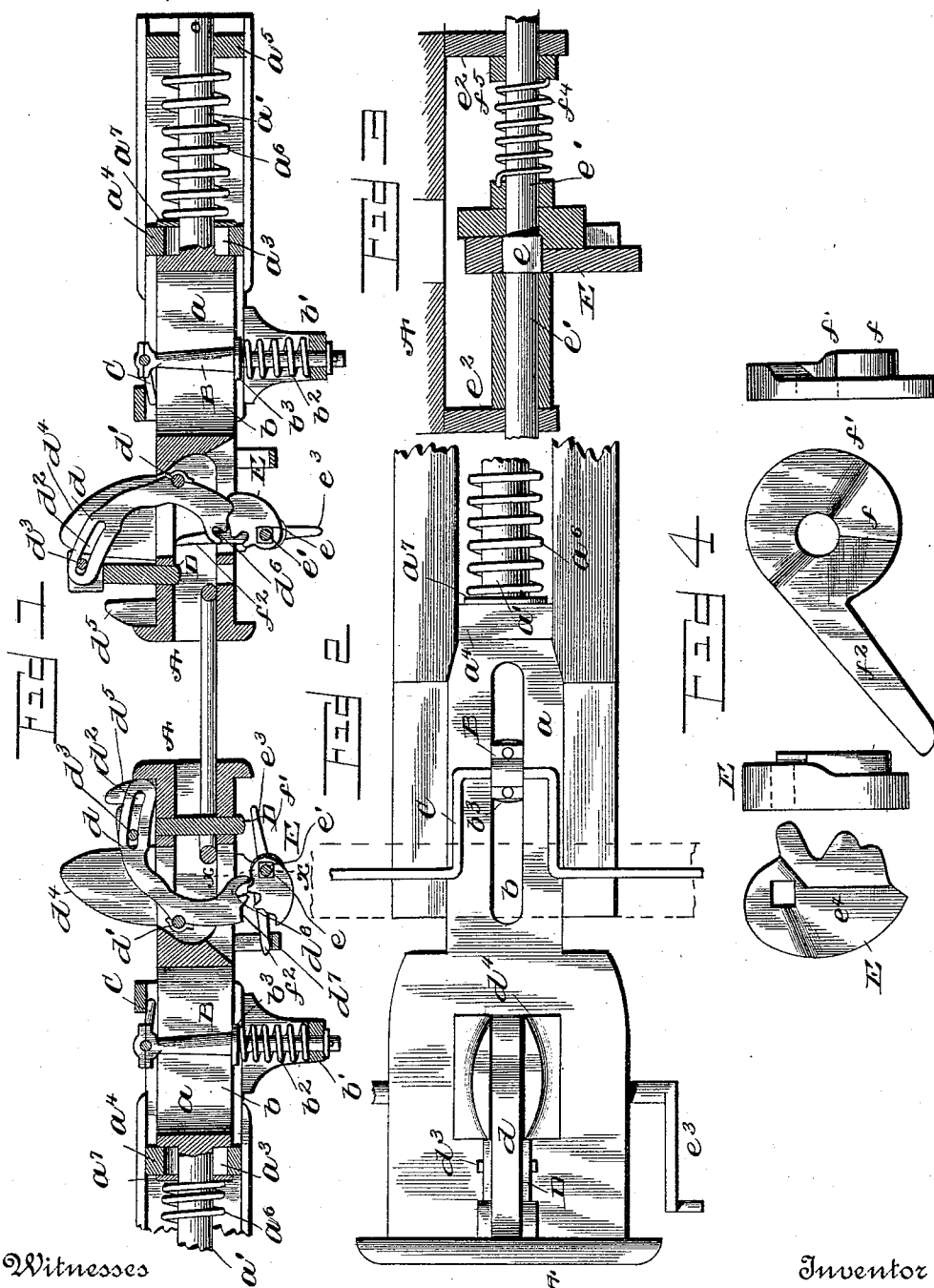


(No Model.)

H. A. FRANTZ.
CAR COUPLING.

No. 472,290.

Patented Apr. 5, 1892.



Witnesses

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UNITED STATES PATENT OFFICE.

HIRAM A. FRANTZ, OF TAMAQUA, ASSIGNOR OF ONE-HALF TO AMANDES FRANTZ, OF LEHIGH COUNTY, PENNSYLVANIA.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 472,290, dated April 5, 1892.

Application filed November 19, 1891. Serial No. 412,417. (No model.)

To all whom it may concern:

Be it known that I, HIRAM A. FRANTZ, a citizen of the United States, residing at Tamaqua, in the county of Schuylkill and State of Pennsylvania, 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.

This invention relates to certain new and highly-useful improvements in car-couplings, and has for its object, first, the production of simple and efficient means, whereby a draw-head may be raised or lowered to effect the coupling of cars of different heights, and, second, to provide improved means for raising and lowering the coupling-pin and also permit of the operation of the latter by hand independent of the mechanism provided for that purpose.

The invention comprises the novel features of construction, combination, and arrangement of parts, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is vertical longitudinal sectional view of two adjoining draw-heads, the coupling-pin being lowered in one and raised in the other. Fig. 2 is a plan view of one of the draw-heads. Fig. 3 is a transverse sectional view on the line *x x*, Fig. 2. Fig. 4 is a view of details.

Referring to the drawings, A designates a chambered draw-head having slots in the upper and lower portions and also having an inner narrowed portion *a* and a reduced circular portion *a'*, extended between parallel side bars *a²* of the car-frame. The circular portion *a'* is projected through an elongated opening *a³* in a cross-piece *a⁴* of the car-frame, while its extreme end fits within a corresponding opening in a second cross-piece *a⁵*. A coil-spring *a⁶* encircles this circular portion and bears at its rear end against cross-piece *a⁵*, while its forward end holds a circular guide-plate or washer *a⁷* against the rear side of cross-piece *a⁴*.

B designates a vertical rod, which is extended up through a slot *b* in the narrowed portion *a* of draw-head A and its lower end

is extended through an opening in a bracket *b'*, depending from the draw-head. A coil-spring *b²* encircles this rod and at its lower end bears upon said bracket, while its upper end holds a washer *b³* tight against the under side of the draw-head. Thus an elastic cushion or bearing is provided for the draw-head. A bail C, pivotally held to the car-frame, has its U-shaped portion loosely connected to the upper end of rod B, the extreme end of said rod being removable for this purpose. By turning the bail the draw-head can be lowered to effect the coupling of cars of different altitudes, the elevation of the draw-head being effected by the spring *b²* and rod B.

D is the coupling-pin loosely secured at its upper end to a curved lever *d*, fulcrumed on a cross-rod *d'*. This lever has a slot *d²* therein, through which a cross rod or bolt *d³* is passed for connecting the pin to the lever. The lever *d* is guided by two parallel plates *d⁴*, projecting from the top of the draw-head, and its outer end is further guided by two additional smaller plates *d⁵*, said plates also serving as guides for the pin. The inner toothed end of this lever has a curved groove or recess *d⁶* and a flat shoulder *d⁷*, with which are designed to engage a corresponding toothed portion of a cam E, rigidly secured to a sleeve *e*, fast upon a shaft *e'*, loosely mounted in depending bearings or boxes *e²*, secured to the under side of the draw-head. To the ends of this shaft are secured crank-handles *e³*. The cam E has a portion of one of its side faces removed, forming a shoulder *e⁴*, with which is designed to engage a tooth *f* on the hub *f'* of the main operating-arm *f²*, which latter is designed to project up through the opening in the bottom of the draw-head and to be in the path of the coupling-link upon entrance thereof into the draw-head. This hub *f'* is on shaft *e'*, and to a reduced portion *f³* thereof is secured one end of a coil-spring *f⁴*, to the other end of which is secured a collar *f⁵*, fast upon said shaft. This arrangement permits the arm and its hub to yield when said arm is struck by the link and to avoid too great a jar in engaging the cam E and effecting the turning thereof and lowering of the outer end of the lever; but the main object of this spring is to normally hold

the operating-arm raised up into the draw-head ready to effect the coupling at anytime a link enters said draw-head. As soon as the link strikes the operating-arm the latter is forced down, effecting the lowering of the coupling-pin. When the arm is raised and the pin is elevated, the extreme forward portion of the inner end of the lever is above the top surface of the lower portion of the draw-head, whereby a link on entering will force the lever down and cause the lowering of the coupling-pin should the operating-arm fail of operation.

By turning the crank-shaft the lever and coupling-pin will be elevated and the operating-arm f^2 will be projected up into the draw-head. A link coming in contact therewith will automatically effect the rotation of said shaft and its cam and the consequent lowering of the coupling-pin. The construction and arrangement are such that the operator can raise the coupling-pin without the aid of the mechanism provided for that purpose by grasping the upper end thereof.

I claim as my invention—

1. The combination, with the car-frame having a depending bracket, of a draw-head having a slot therein, a rod projected through said bracket and slot, a coil-spring bearing on said bracket and against said draw-head, and the bail loosely connected to said rod, substantially as set forth.

2. The combination, with the car-frame having a depending bracket and two cross-pieces, one of which has an elongated slot and the other a circular opening, of the draw-head having a circular portion projected through said elongated slot and circular opening, a coil-spring encircling said reduced portion and bearing against said cross-pieces, a rod projecting through said bracket and a slot in the draw-head, a coil-spring supporting said

draw-head, and the bail pivotally connected to said rod and designed to bear down on said draw-head, substantially as set forth.

3. The herein-described improved car-coupling, comprising the draw-head, the lever pivotally connected thereto, the coupling-pin loosely secured to said lever, the rotary shaft having a cam engaging the inner end of said lever, and the spring-pressed arm engaging said cam and designed to be engaged by the coupling-link, substantially as set forth.

4. The herein-described improved car-coupling, comprising the draw-head, the lever pivoted therein and having an inner toothed end, the coupling-pin loosely connected to said lever, the rotary shaft, the cam secured thereon having teeth corresponding to those of said lever, the arm having its hub mounted on said shaft and engaging said cam, and the spring connected to said hub, said arm being designed to be engaged by the coupling-link, substantially as set forth.

5. The herein-described improved car-coupling, comprising the draw-head having slots in its upper and lower portions, and guide-plate, the lever pivoted in said draw-head and projected between said guide-plates and having an inner toothed end, the rotary shaft, the cam having teeth engaging those of said lever and having a shoulder in one of its side faces, the operating-arm having its hub on said shaft provided with a tooth engaging said shoulder, the collar on said shaft, and the coil-spring connected to said collar and to said hub, substantially as set forth.

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

HIRAM A. FRANTZ.

Witnesses:

H. H. WALTERS,
LEW. BACHMAN.