

No. 725,105.

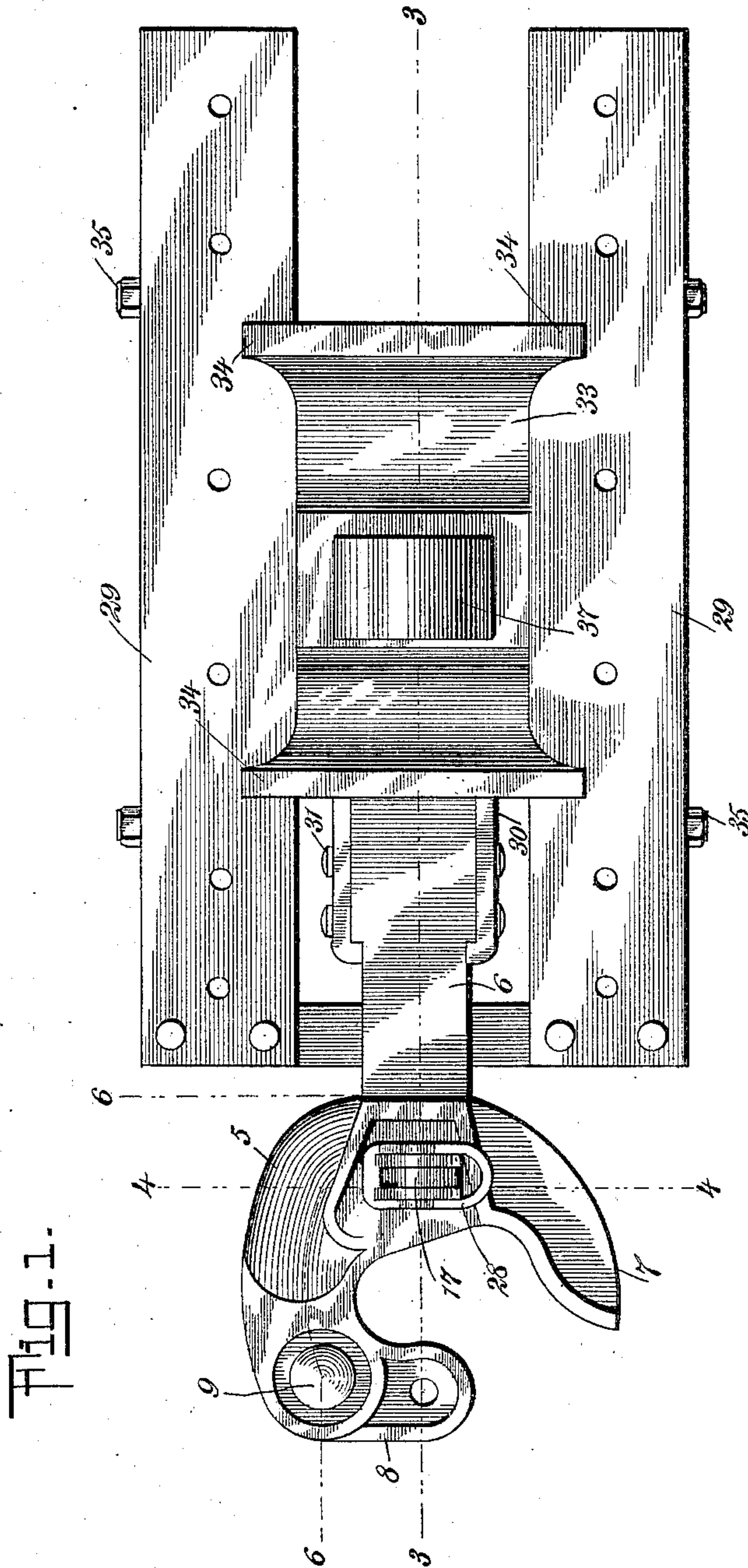
PATENTED APR. 14, 1903.

C. E. LUCAS.
CAR COUPLING.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



WITNESSES:

Charles F. Wilcox
A. H. Bernhart

INVENTOR

Charles E. Lucas

BY

Murray
ATTORNEYS.

No. 725,105.

PATENTED APR. 14, 1903.

C. E. LUCAS.
CAR COUPLING.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

3 SHEETS—SHEET 2.

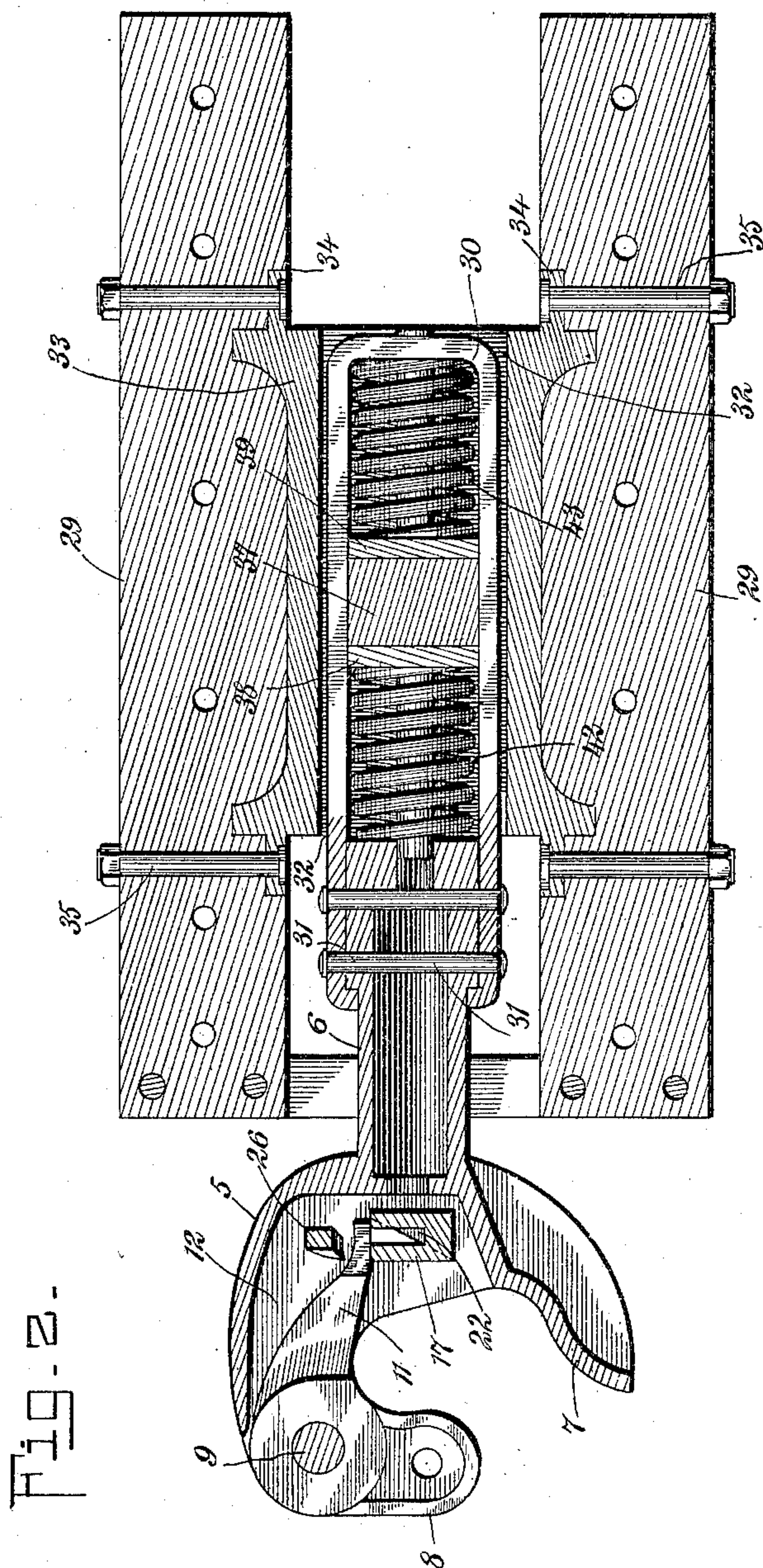


Fig. 2-

WITNESSES:

Charles F. Wilcox.
W. J. Berchard.

INVENTOR

Charles E. Lucas

BY

Mumford
ATTORNEYS.

No. 725,105.

PATENTED APR. 14, 1903.

C. E. LUCAS.
CAR COUPLING.

APPLICATION FILED MAY 20, 1902.

NO MODEL.

3 SHEETS—SHEET 3.

Fig. 4. Fig. 5. Fig. 6.

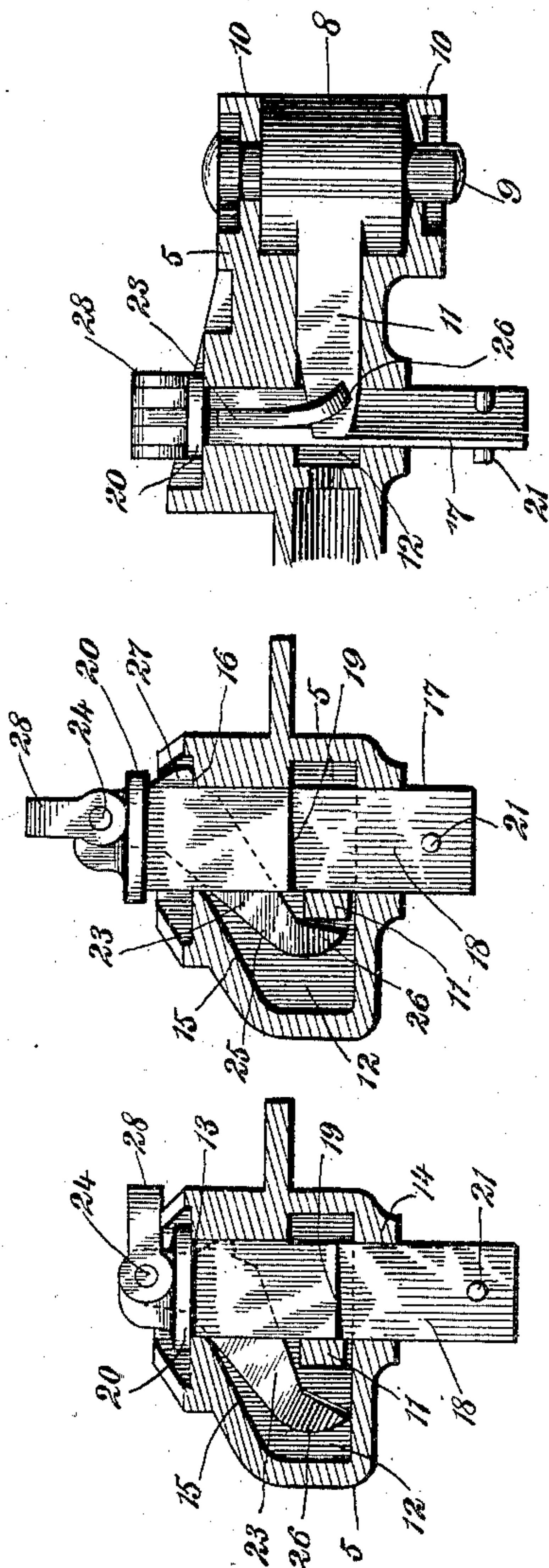
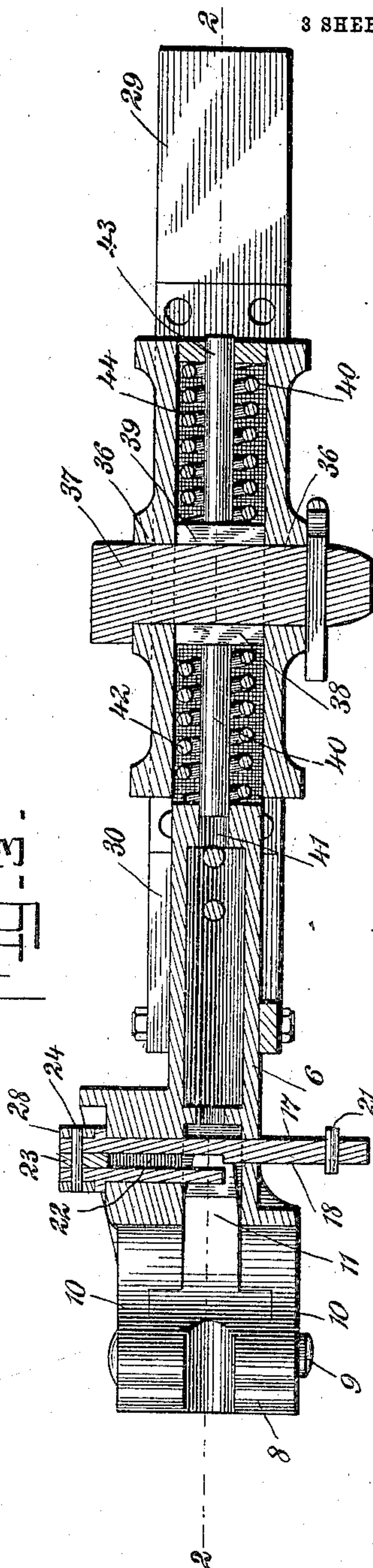


Fig. 3.



WITNESSES:

Charles F. Wilcox
H. J. Bernhardt

INVENTOR

Charles E. Lucas

BY

Mumford
ATTORNEYS.

UNITED STATES PATENT OFFICE.

CHARLES EUGENE LUCAS, OF McCOMB, MISSISSIPPI, ASSIGNOR OF ONE-HALF TO ALVIN J. HACKETT, OF McCOMB, MISSISSIPPI.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 725,105, dated April 14, 1903.

Application filed May 20, 1902. Serial No. 108,198. (No model.)

To all whom it may concern:

Be it known that I, CHARLES EUGENE LUCAS, a citizen of the United States, residing at McComb, in the county of Pike and State of Mississippi, have invented a new and useful Car-Coupler, of which the following is a full, clear, and exact description.

My invention relates to improvements in car-couplers; and the primary object that I have in view is the provision of an improved construction by which the knuckle may be adjusted to an open position for engagement by an approaching draw-head without requiring the brakeman to pass between the cars, whereby the operation of coupling may be performed automatically, and the device can be uncoupled or it can be set for such automatic coupling without danger to the brakeman.

With these ends in view the invention consists in the novel combination, construction, and arrangement of parts, which will be hereinafter fully described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of a car-coupler and draft-rigging therefor constructed in accordance with my invention. Fig. 2 is a horizontal sectional view taken in the plane indicated by the dotted line 2 2 of Fig. 3. Fig. 3 is a vertical longitudinal section taken in the plane of the dotted line 3 3 of Fig. 1. Fig. 4 is a vertical transverse section taken in the plane of the dotted line 4 4 of Fig. 1 and showing the locking device and the trigger in their active positions to lock the knuckle against pulling clear of the companion coupler. Fig. 5 is a cross-section similar to Fig. 4, but showing the locking device raised to its inactive position and the trigger moved to a position wherein it will hold the knuckle in the path of an approaching draw-head for coupling automatically therewith; and Fig. 6 is a detail longitudinal section taken in the plane of the dotted line 6 6 of Fig. 1.

5 designates a draw-head, which is provided with a rearwardly-extending draw bar or stem 6 and with a laterally-extending jaw 7, which lies in opposing relation to a knuckle 8. This

knuckle is pivotally supported by a vertical bolt 9 between ears 10 of the draw-head, and the knuckle is formed with a central tail-piece 11, the latter extending into a chamber 12, which is formed in said draw-head, as shown more clearly by Fig. 2. The draw-head is provided with openings 13 14 in its top and bottom, said openings being in communication with the chamber 12 and in vertical registration with one another. The top wall of the chamber 12 at the side of the draw-head in which the knuckle is pivoted is inclined upwardly toward the opening 13 in order to form the cam-surface 15, as shown more clearly by Figs. 4 and 5. The top of the draw-head on the opposite side of the opening 13 from the inclined portion 15 is formed with a rest surface or ledge 16, the same adapted to accommodate the shoulder or lug of a pivoted trigger which is adapted to move or travel with the knuckle-locking device, to be hereinafter described.

The locking-bar for holding the knuckle in its coupled position is indicated at 17, said bar being slidably fitted in the openings 13 14 of the draw-head and extending in a vertical direction across the chamber 12, whereby the bar is adapted to lie in the path of the tailpiece 11 on the pivoted knuckle. The lower part of the locking-bar 17 is cut away, so as to form an inclined face, (indicated at 18,) the upper limit of the face being defined by the shoulder or rib 19, (indicated more clearly by Figs. 4 and 5,) said cut-away lower part of the locking-bar providing a space through which the extremity of the tailpiece 11 on the knuckle is adapted to sweep when said locking-bar is raised to its inactive position, as shown by Fig. 5, thereby allowing the knuckle 8 to turn on the axis afforded by the bolt 9 and to assume a set position wherein it is adapted to automatically engage with a similar knuckle on an approaching draw-head. The locking-bar is provided at its upper extremity with a head 20, which is adapted to rest upon the draw-head and to thereby limit the dropping movement of said bar. A stop 21 is secured to the bar 17 near its lower portion, and this stop is adapted to impinge the under face of the draw-head, so as to limit the upward movement of the lock-

ing-bar and prevent its withdrawal from said draw-head. The locking-bar is furthermore provided between the head 20 thereof and the cut-away portion 18 with a vertical slot or recess 22, (indicated more clearly by Fig. 3,) and in this slot or recess is arranged the gravity-trigger 23, the same being movable in a vertical path with the locking-bar and also capable of a limited movement independently of said vertical adjustment or movement of the locking-bar itself. This trigger is connected pivotally at its upper end to the upper extremity of the locking-bar by the pin or bolt 24, and the trigger is formed with a curved edge 25 and with an angular heel 26, the latter adapted to engage with the inner edge of the tailpiece 11, as indicated more clearly by Figs. 2, 4, and 5. The upper portion of the trigger below its pivotal extremity is widened in order to produce the laterally-extending shoulder or lug 27, and in the raised position of the locking-bar this shoulder or lug is adapted to bear upon the rest surface or ledge 16 of the trigger.

Any suitable means may be employed for the manual elevation of the gravity locking-bar and the trigger associated therewith, such means being operable either from the side of the car or from the top of the car. As many styles of operating devices may be employed for this purpose, I have not considered it necessary to illustrate or further describe a particular type of operating device, but it may be remarked that a part of such operating device is adapted for connection with the gravity locking-bar by the provision of an eye or clip 28, which is pivoted by the pin 24 to the headed end of the gravity locking-bar.

With the locking-bar 17 lowered to the position indicated by Figs. 3 and 4 the enlarged upper part of the locking-bar lies in the path of the tailpiece 11 on the knuckle, so that said knuckle will be practically restrained from oscillation on its pivot 9 and will be held positively in its coupled position, the same being indicated by Fig. 2. In this position of the parts the trigger 23 lies in the rear of the tailpiece 11 and below the inclined or cam portion 15 of the draw-head, the lug or shoulder 27 of said trigger being withdrawn into the slot 22 of the locking-bar, as indicated by dotted lines in Fig. 4. In order to uncouple the cars, the operating mechanism heretofore described should be manipulated, so as to raise the locking-bar 17 and the eye 28 to the positions shown by Fig. 5, and during such elevation of these parts the edge 25 of the trigger will ride against the inclined or cam portion 15 of the draw-head, whereby the trigger is positively turned on its pivot, so as to throw the heel 26 against the tailpiece 11 and to move the knuckle 8 to its opened position, whereby the knuckle will be positively operated or set on the elevation of the locking-bar. The described movement of the trigger throws or projects the lug or shoulder 27 beyond the edge of the locking-bar, and this

lug is adapted to engage with the rest surface or ledge 16 of the draw-head, thus maintaining the locking-bar and the trigger in their raised positions. The impingement of a knuckle or draw-head of an approaching car against the knuckle 8 or the draw-head 5 will turn said knuckle 8 and force the tailpiece 11 into the chamber 12, thus making the tailpiece impinge the heel 26 of the trigger and turn the latter on its pivot, so as to withdraw the lug 27 from engagement with the ledge 16, whereupon the locking-bar 17 will drop by gravity and assume the position shown by Fig. 4, wherein it will lock the tailpiece and the knuckle against movement on the bolt 9.

I will now proceed to describe the draft-rigging by which the draw-bar is mounted in the sills 29, which are adapted to be fastened by the usual bolts to the sills below the floor of a car. The bar or stem 6 of the draw-head is fitted in the open end of a yoke 30, and these parts are united together in a strong manner by means of the bolts 31 or their equivalents. (See Fig. 2.) The yoke 30 is formed, preferably, from a single bar of metal, which is doubled upon itself to partake of the shape indicated by Fig. 2, and said yoke is arranged to extend slidably through a longitudinal opening or passage 32, which is provided in a metallic guide-boxing 33. This guide-boxing is cast in a single piece of metal or otherwise produced, and it is formed with the flanges 34, said flanges embracing or embedded in the parallel sills 29 and adapted to receive the bolts 35, which serve to firmly or solidly fasten the guide-boxing to the sills. The guide-boxing 33 is furthermore provided with vertical openings 36 in its top and bottom, and through these openings is passed the heavy solid key 37, the latter also extending through the space or opening of the yoke 30, as shown more clearly by Figs. 2 and 3. On opposite sides of this vertical key 37 are disposed the follower-plates 38 39, each of which is provided with a stem 40. The plate 38 has its stem extending in a forward direction, so as to fit slidably in an opening 41 of the stem or draw-bar 6, and around said guide-stem is a powerful coiled spring 42, one end of which is seated against the draw-bar 6, while the other end is engaged with the follower-plate 38 in order to afford a cushion to the movement of the draw-head and the draw-bar in starting a train. The other follower-plate 39 has its stem 40 extending loosely through an opening 43, which is provided in the rear part of the yoke 30, and around said guide-stem is a similar coiled spring 44, one end of which is seated against the follower-plate 39 and the other end against the rear closed part of the yoke for the purpose of absorbing some of the shock incident to coupling the cars.

My improved construction of the draft-rigging serves to cushion the movement of the draw-bar and the draw-head in starting and

stopping the train, and these cushion devices overcome any tendency of the parts to pull out or break loose in the service of the draft-rigging. The parts are so disposed and arranged that in the event of breakage of any one of them the rigging can be easily separated or taken apart and the broken part or member can be replaced without requiring the services of a skilled mechanic.

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

1. In a car-coupler, the combination of a draw-head having an inclined or cam surface at its upper side, a knuckle having a tailpiece, a vertically-slidable locking-bar adapted to lie in the path of said tailpiece, and a trigger movable with said bar and disposed in operative relation to the cam-surface of the draw-head and to the tailpiece, said tailpiece being adapted to lie between said trigger and the bar; said trigger being inclined or curved to ride against the cam-surface of the draw-head on the upward movement of the bar, and adapted to positively turn the knuckle by engagement with the tailpiece thereof.

2. In a car-coupler, the combination of a draw-head having an inclined or cam surface at the upper side of the knuckle-chamber, a knuckle having a tailpiece, a vertically-slidable locking-bar, and a trigger pivoted to said locking-bar and arranged to ride against said cam-surface of the draw-head on the elevation of the bar, and to press against the tailpiece for positively turning the knuckle.

3. In a car-coupler the combination with a draw-head and a knuckle, of a gravity locking-bar having a cut-away lower portion and a slotted upper portion, and a trigger pivoted to the locking-bar and disposed in coöperative relation to the draw-head and the tailpiece of the knuckle, said trigger having an offset shoulder or lug, adapted to rest upon a ledge of the draw-head.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES EUGENE LUCAS.

Witnesses:

PERCY E. QUIN,
W. N. HAWKINS.