(No Model.) 2 Sheets—Sheet 1.

J. MEYER.

CAR COUPLING.

No. 581,125. Patented Apr. 20, 1897.

Fig. 1.

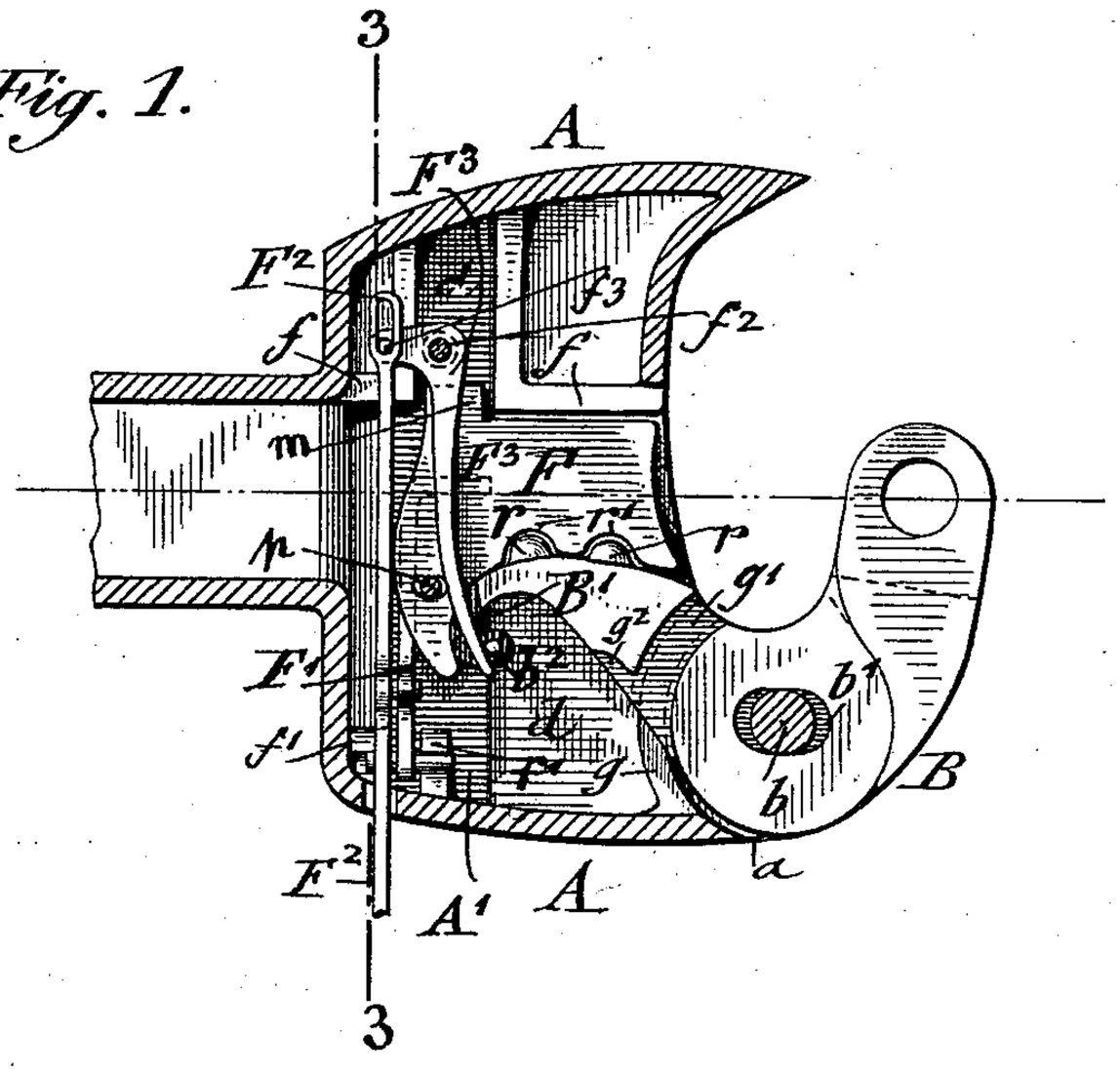
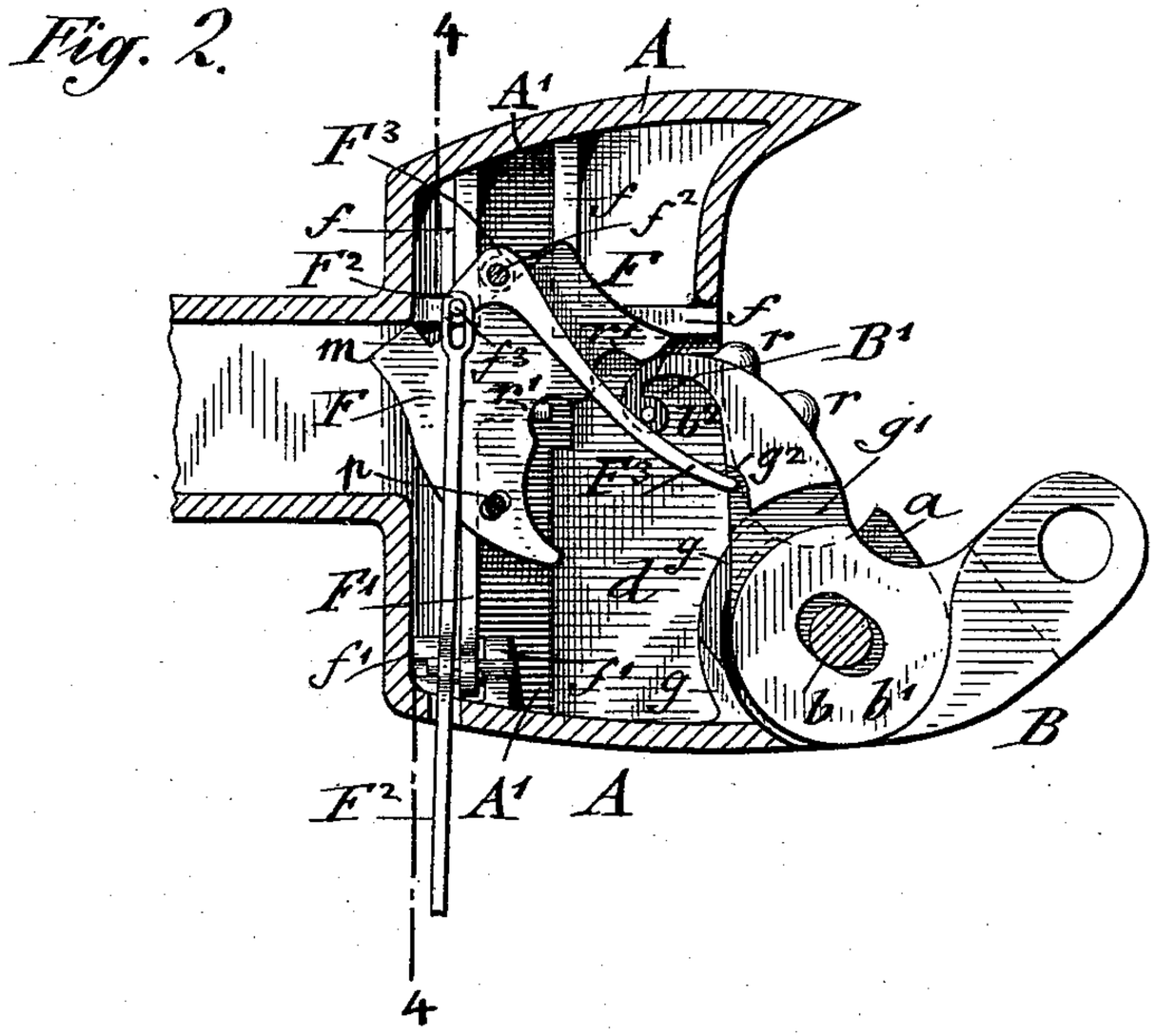


Fig. 2.



WITNESSES:
Geo. H. Jaekel.
R. F. Pelouze

INVENTOR
Julius Meyer
BY Lacey & Lacey
ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

J. MEYER.

CAR COUPLING.

No. 581,125. Patented Apr. 20, 1897.

Fig. 3.

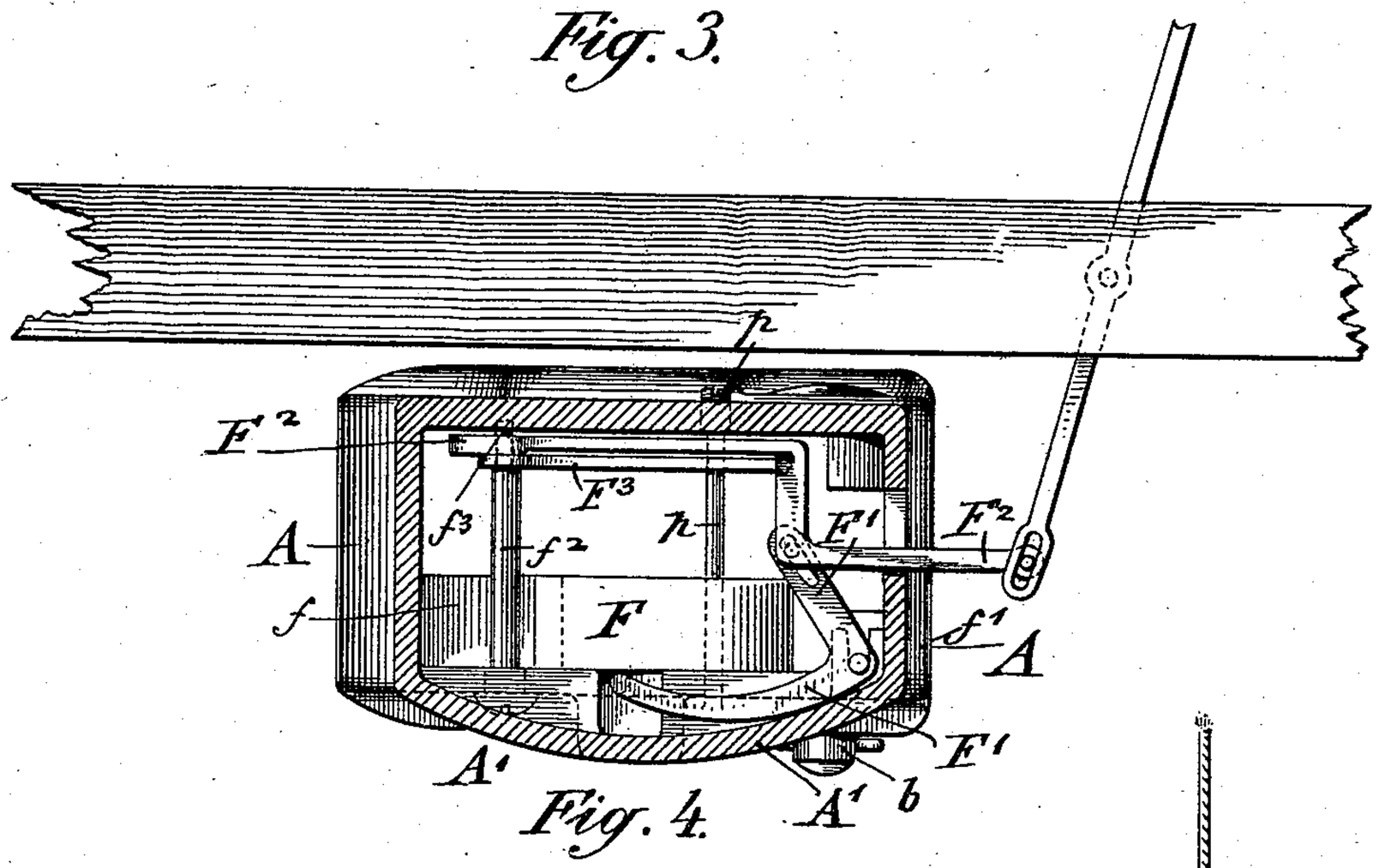


Fig. 4.

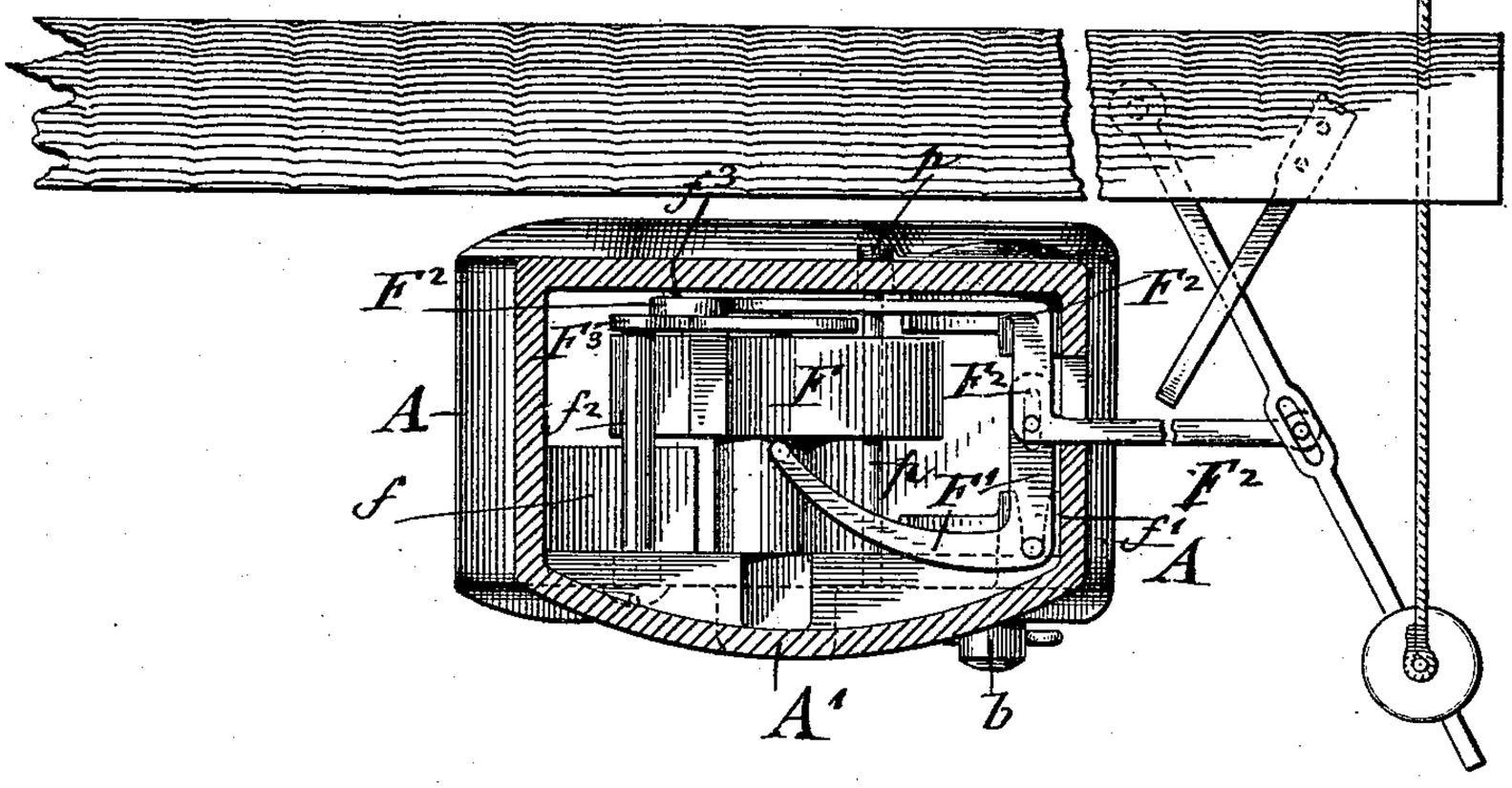
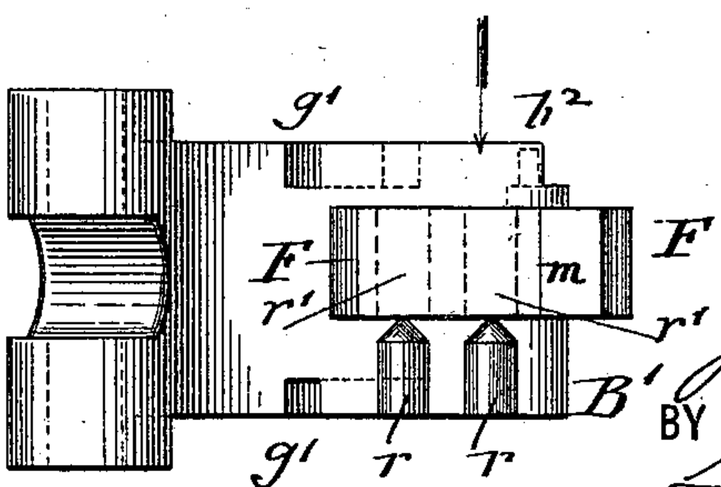


Fig. 5.



WITNESSES:
Jed. H. Jaekel
R. F. Pelouze

INVENTOR
Julius Meyer
BY
Howell & Haegener
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JULIUS MEYER, OF NEW YORK, N. Y.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 581,125, dated April 20, 1897.

Application filed December 8, 1896. Serial No. 614,869. (No model.)

To all whom it may concern:

Be it known that I, JULIUS MEYER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

This invention relates to certain improvements in the type of car-couplings which is shown and described in the Letters Patent granted to M. J. Grady and R. McMillan, Nos. 537,527, 549,566, and 563,166, dated, respectively, April 16, 1895, November 12, 1895, and June 30, 1896.

Various objections were made against the Grady and McMillan coupler, the main objection being that the pull or push on the coupler is exerted on the draw-head at one side of the center line of the same. The effect thereof is eccentric wear of the knuckles and uneven wear of the flanges of the two wheels on the car-axles, inasmuch as the flange of one wheel is drawn against the rail-head and the flange of the other wheel away from it. Another objection is that the knuckle pulls on the knuckle-pin and the latter on the lugs, which are the weakest part of the draw-head. Another objection is that the knuckle when in closed position is not positively locked, but will pull out of the draw-head if the lugs break. Furthermore, the lever lifting the lock-block acts on the same eccentrically, so that the block is liable to tilt and get stuck; further, that unless the couplers are made rights and lefts, as far as said levers are concerned, the interlocked couplers will have their levers located on opposite sides of the cars, so that the brakeman will have to pass from one side of the train to the other to reach the other lever, which it is necessary for him to do when in coupling without stepping in between the cars he wants to reopen both knuckles, they having been jarred into their closed position. A further objection consists in the location of the guide-pin of the lock-block in the center line of the coupler, whereby the putting in of the tail-bolt, which forms in many cars a necessary part of the draft-rigging, is prevented, while shocks on the lock-block come directly on said pin and are liable to bend it, rendering thereby the lock-block inoperative.

My invention is intended to obviate the objectionable features referred to and provide means by which they are avoided, so that this style of coupler is improved in the following particulars: first, that the knuckle-pin is simply used as a pivot and not for receiving or transmitting strains; second, that the knuckle transfers the pulling and buffing strains imparted to it to the body of the draw-head direct; third, that the knuckle is locked positively in its closed position; fourth, that a lock is provided by which the pull or push on the closed knuckle is transferred also to the other side of the draw-head direct, so that uneven wear is done away with; fifth, that the guide-pin of the lock-block is kept free from strains; sixth, that the knuckle having been opened may be held open at will; seventh, that a pull on a single rod will accomplish two results—viz., first, the unlocking and opening of the knuckle, and, secondly, the reopening of the same should it have been closed by jars.

My invention consists, therefore, of a car-coupling the draw-head of which is provided with a cavity, a V-shaped knuckle pivoted to a knuckle-pin at one side of said cavity, a lock-block within said cavity, a guide-pin for said lock-block, means for interlocking the knuckle with said lock-block, means for interlocking both with the draw-head, means for raising the lock-block above its locking position, means for holding the lock-block in its raised position, and means for swinging the knuckle into open position.

The invention consists, further, of certain details of construction by which a longitudinal play is imparted to the knuckle and lock-block when interlocked, as will be fully described hereinafter and finally pointed out in the claims.

In the accompanying drawings, Figure 1 represents a horizontal section of my improved car-coupling, showing the lock-block and knuckle locked in closed position, the lock-block resting on the bottom of the draw-head. Fig. 2 is a horizontal section through the top part of the coupling, showing the lock-block and the knuckle unlocked and in open position, the lock-block being raised and resting on the vertical ribs of the draw-head. Fig. 3 represents a vertical transverse section on

line 3 3, Fig. 1, showing the parts of the coupling in rear elevation. Fig. 4 is a like section on line 4 4, Fig. 2, and Fig. 5 is a detail side elevation of the knuckle, showing the lock-block raised ready to drop and to interlock with the knuckle and the draw-head.

Similar letters of reference indicate corresponding parts.

Referring to the drawings, A represents the draw-head of my improved car-coupling, which is attached in any approved manner to the framework of the car. The draw-head is provided with top and bottom projecting lugs *a*, each of which has a pin-hole of the size of the pivot-pin *b* of the knuckle. The draw-head is furthermore provided with an interior cavity *d*. In said cavity, on the same side of the draw-head with said lugs, are arranged on the top and bottom of the draw-head arc-shaped ribs *g* concentrically with the pivot-pin of the knuckle, which engage corresponding recesses *g'* in the top and bottom portions of the knuckle B. In said cavity on the opposite side are arranged low vertical ribs *f f*, which engage a lock-block F when the same has been raised and swung open. The knuckle B is provided with a slotted opening *b'* for the knuckle-pin *b*. The longitudinal axis of the slot in the knuckle is parallel with the longitudinal center line of the draw-head when the knuckle B is in its closed position. The longitudinal movement of the closed knuckle B is limited by the arc-shaped ribs *g* and the somewhat wider arc-shaped recesses *g'* in the top and bottom of the knuckle. The slot in the knuckle B is longer than the width of said recesses *g'*.

The V-shaped knuckle is provided on its tail end B' with a pin b^2, as shown in Figs. 1 and 2 and in dotted lines in Fig. 5. The front end of the knuckle B^2 has the ordinary standard shape and is provided with a hole for permitting the coupling with the ordinary link and pin. The body of the knuckle between the front end and tail end is provided at its outer face with one or more ribs *r*, which fit into corresponding corrugations *r'* in the adjacent face of the lock-block F. The upper ends of the ribs *r* are made conically tapering, said cones guiding the lock-block into its proper place when it drops, so that its corrugations engage with the ribs of the knuckle. The height of the ribs *r* is less than the height of the lock-block. The raised lock-block finds a smooth face on the knuckle, allowing both to slide upon and along each other.

The lock-block F is located in the cavity *d* of the draw-head and is of somewhat less than half the height of the same. It is provided at its rear side, opposite to the face with corrugations, with a nose *m*, which, when the lock-block is in its lower position, enters between the vertical ribs *f*, which limit the longitudinal play of the lock-block and lock it to the draw-head, thereby indirectly providing a second lock of the knuckle with the draw-head. The longitudinal play of nose *m* between the ribs *f* is equal to the longitudinal play of the arc-shaped ribs *g* of the draw-head in the grooves *g'* of the knuckle, both, however, being less than the play of the knuckle and lock-block on their respective pins. The lock-block is engaged from below by a curved lever F', which is bent at a right angle at its inner end, the bent end extending toward the center of gravity of the lock-block, whereby the tilting of the latter in lifting and its consequent resistance against it are obviated. The tapering end of the lock-block, that extends laterally into the cavity of the draw-head and around the tail end of the knuckle, is provided with an elongated slot, through which the lock-block is pivoted on a stationary guide-pin *p*, which is located at one side of the longitudinal center line of the draw-head. The rear part of the bottom of the draw-head is concavely depressed at A', corresponding to the shape of the said lever F', for which it forms a recess to drop into when in its lower position, as shown in Fig. 3.

The lever F' is fulcrumed by laterally-extending fulcrum-pins into recessed lugs *f''* at the lower corner of the draw-head A, its upper slotted end being connected with a pivot-pin of an angular pull-rod F^2, which latter extends through an opening in the side of the draw-head to the outside of the same, and there is connected either with a fulcrumed lever that is operated from the platform of a passenger-car or by an extension of the pull-rod operated by hand from the side of the car or by a rope or chain from the top of the car in case the coupling is used for freight-cars. In the latter case a weighted and slotted lever is preferably connected with the outer end of pull-rod F^2, as shown in Fig. 4, so that the lifting-lever F' does not require to be pushed down by the weight of the lock-block, but is forced down into its recess by the impact of the weight on the rod.

In place of the weight the rectangularly-bent inner end of lever F' may be weighted, so that it is heavier than the balance of the lever plus the outer part of the pull-rod and consequently will pull the lever F' down into its recess. The other or inward end of pull-rod F^2 is bent twice at right angles and ends in a slotted head which engages a pin f^3 on the shorter arm of a horizontal lever F^3, fulcrumed on a vertical pin f^2, which is located between the ribs *f* of the draw-head, or it may be fulcrumed on the guide-pin of the lock-block. The longer arm of the lever F^3 engages the pin b^2 on the tail end of the knuckle B, which latter is recessed at its upper portion to allow the free movement of said longer arm and for the same purpose has the arc-shaped depression g^2, both of which are clearly shown in Figs. 1 and 2. By pulling on the outward end of pull-rod F^2 the lifting-lever F' is turned on its fulcrum and thereby lifts the lock-block clear of the ribs *f* and the ribs *r*. At this juncture the slotted head of pull-

rod F^2 engages the horizontal lever F^3. By continuing to pull on the outward end of the pull-rod F^2 the longer arm of the horizontal lever F^3 engages the pin on the tail end of the knuckle and swings the knuckle open, thereby also swinging the lock-block around its guide-pin into the position shown in Fig. 2. When the lever F' is now allowed to return into its recess, the lock-block will drop upon the ribs *f f* and will be held by them in raised position, as shown in Fig. 2. When coupling, the levers having been returned to their initial positions, (shown in Figs. 1 and 3,) the two front ends of the open knuckles will pass each other, each striking against the body of the other knuckle and thereby swinging it around the pivot-pin *b* into its closed position. In so doing the curved tail end of the knuckle engages the inner curved face of the lock-block and swings the latter around its guide-pin into the position shown in Fig. 5, whereupon the lock-block drops by gravity, interlocking at one side by its corrugations with the ribs on the body of the knuckle and at its opposite side by its nose *m* with the ribs *f* on the bottom of the draw-head. The displacement forward or backward of the lock-block relative to the knuckle on account of the play allowed around the pivot and guide pins is compensated by the conical heads of the knuckle-ribs, which shift the dropping lock-block into its proper position.

By providing the knuckle and the lock-block with an elongated slot, which when the knuckle is in closed position are in a position parallel with the center line of the draw-head, a certain longitudinal motion is allowed to the knuckle, which forms a point of superiority over the couplers of this type as heretofore constructed, inasmuch as it reintroduces the good feature of the old link-and-pin coupling—namely, that the locomotive in setting a freight-train in motion does not pull the entire train at once, but takes its load gradually, taking up one car after another. No strain is exerted on the knuckle-pin when the draft is applied to the coupling, but the strain is imparted by the interlocked knuckle and lock-block in the center line of the draw-head.

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

1. A draw-head, having forwardly-extending top and bottom lugs at one side of the same, an interior cavity, arc-shaped ribs on the top and bottom of the draw-head within said cavity on the lug side, and vertical ribs of less than one-half of the height of the said cavity on the other side within said cavity at the bottom of the draw-head, said side ribs forming a vertical slot between them, substantially as set forth.

2. The combination, with a draw-head having forwardly-extending top and bottom lugs at one side of the draw-head, an interior cavity and separated vertical side ribs on the other side of and at the bottom of said cavity of less than one-half of the height of said cavity, of a V-shaped knuckle pivoted to the said top and bottom lugs, and a lock-block adapted to interlock with said vertical side ribs or to be raised above and clear of the same, substantially as set forth.

3. The combination, with a draw-head having forwardly-extending top and bottom lugs at one side of said draw-head, an interior cavity, separated vertical ribs on the other side of the same, said ribs being of less than one-half of the height of said cavity, and arc-shaped ribs on the top and bottom of the draw-head on the lug side of the same, of a V-shaped knuckle pivoted to said top and bottom lugs, said knuckle having arc-shaped grooves engaging the arc-shaped ribs of the draw-head, and a lock-block adapted to engage said vertical side ribs or to be raised above and clear of the same, substantially as set forth.

4. The combination, with a draw-head having forwardly-extending top and bottom lugs at one side of the same, an interior cavity and vertical side ribs at the opposite side of the draw-head of less than one-half of the height of said cavity, of a V-shaped knuckle pivoted to the said top and bottom lugs and adapted to interlock with the draw-head, a lock-block adapted to interlock with said vertical side ribs or be raised above and clear of the same, and a weighted lever adapted to raise the lock-block above said side ribs and be returned by gravity into its position of rest, substantially as set forth.

5. The combination of a draw-head, having an interior cavity and locking-ribs at one side of the same, a V-shaped knuckle pivoted to the opposite side of the draw-head, a lock-block having a laterally-extending nose adapted to enter between said locking-ribs, and means for raising the lock-block above and clear of said ribs, substantially as set forth.

6. The combination, with a draw-head provided with an interior cavity and forwardly-extending top and bottom lugs, of a knuckle-pin connecting said lugs, a V-shaped knuckle pivoted to said pin and provided with an elongated pin-hole, a lock-block pivoted in said draw-head and having an elongated pin-hole, and means for interlocking the knuckle and lock-block, said knuckle and lock-block being longitudinally movable in the draw-head when interlocked with each other, but each pivotally movable on its pivot-pin when disconnected from each other, substantially as set forth.

7. The combination of a draw-head having an interior cavity and a knuckle-pin at one side of the same, a V-shaped knuckle pivoted to said knuckle-pin, and provided with an elongated pin-hole, a lock-block having an elongated pin-hole, a guide-pin for said lock-block, means for locking the lock-block in its lower position in the draw-head, and means for interlocking the lock-block with the knuckle and the knuckle with the draw-head

so as to produce the interlocking of these parts simultaneously with the draw-head and with each other and permit the joint longitudinal play of the knuckle and lock-block, substantially as set forth.

8. The combination of a draw-head having an interior cavity and a knuckle-pin at one side of the same, a V-shaped knuckle pivoted to said knuckle-pin and provided with ribs on its body, a vertically-movable lock-block and means for locking said block in its lower position in the draw-head, said lock-block being provided with corrugations interlocking with the ribs on the body of the knuckle, substantially as set forth.

9. The combination, with a draw-head having an interior cavity and locking-ribs at one side of the same, of a V-shaped knuckle pivoted to the opposite side of said draw-head, a lock-block having a laterally-extending nose engaging said ribs, a guide-pin for said lock-block, means for interlocking the knuckle and lock-block, means for lifting the lock-block clear of its locking means, and means for swinging the knuckle in open position, substantially as set forth.

10. The combination, with a draw-head having an interior cavity and locking-ribs at one side of same, of a V-shaped knuckle pivoted to the opposite side of said draw-head and provided with a curved tail end, a lock-block having a laterally-extending nose for engaging said ribs, a guide-pin for said lock-block, means for raising the lock-block above said locking means so as to permit the swinging of the knuckle, means for supporting the lock-block in its raised position, and means for moving the knuckle into open position, substantially as set forth.

11. The combination of a draw-head having an interior cavity, of a V-shaped knuckle pivoted to one side of said draw-head, a lock-block also pivoted to the draw-head back of the knuckle, means for locking the lock-block in its lower position, a fulcrumed lifting-lever below the lock-block adapted for raising the same above said locking means, a fulcrumed knuckle-opening lever above the lock-block and a pull-rod engaging the lifting and the knuckle-opening levers, substantially as set forth.

12. The combination of a draw-head having an interior cavity, a V-shaped knuckle pivoted to one side of said draw-head and provided with a curved tail end, a lock-block provided with a curved portion engaging said tail end, a guide-pin for said lock-block, means for locking the lock-block in lower position, a fulcrumed lifting-lever below said lock-block, a fulcrumed lever above the lock-block for opening the knuckle, and a pull-rod connecting both the lifting and knuckle-opening levers by which the raising of the lock-block and the opening of the knuckle are produced, substantially as set forth.

13. The combination of a draw-head having a V-shaped knuckle pivoted to jaws at one side of said draw-head, said knuckle being provided with a curved tail end recessed at its upper end, a pin on said tail end, a lock-block pivoted to said draw-head and provided with a curved portion engaging the tail end of the knuckle, means for locking the lock-block in its lower position, a fulcrumed lifting-lever below the lock-block for raising the same, a fulcrumed knuckle-opening lever above the lock-block adapted to engage the pin on the tail end of the knuckle, and an angular pull-rod connected with the lifting-lever and the knuckle-opening lever by which the raising of the lock-block above its locking means, the opening of the knuckle and simultaneously the swinging of the lock-block clear of the knuckle are produced, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JULIUS MEYER.

Witnesses:
PAUL GOEPEL,
GEO. W. JAEKEL.