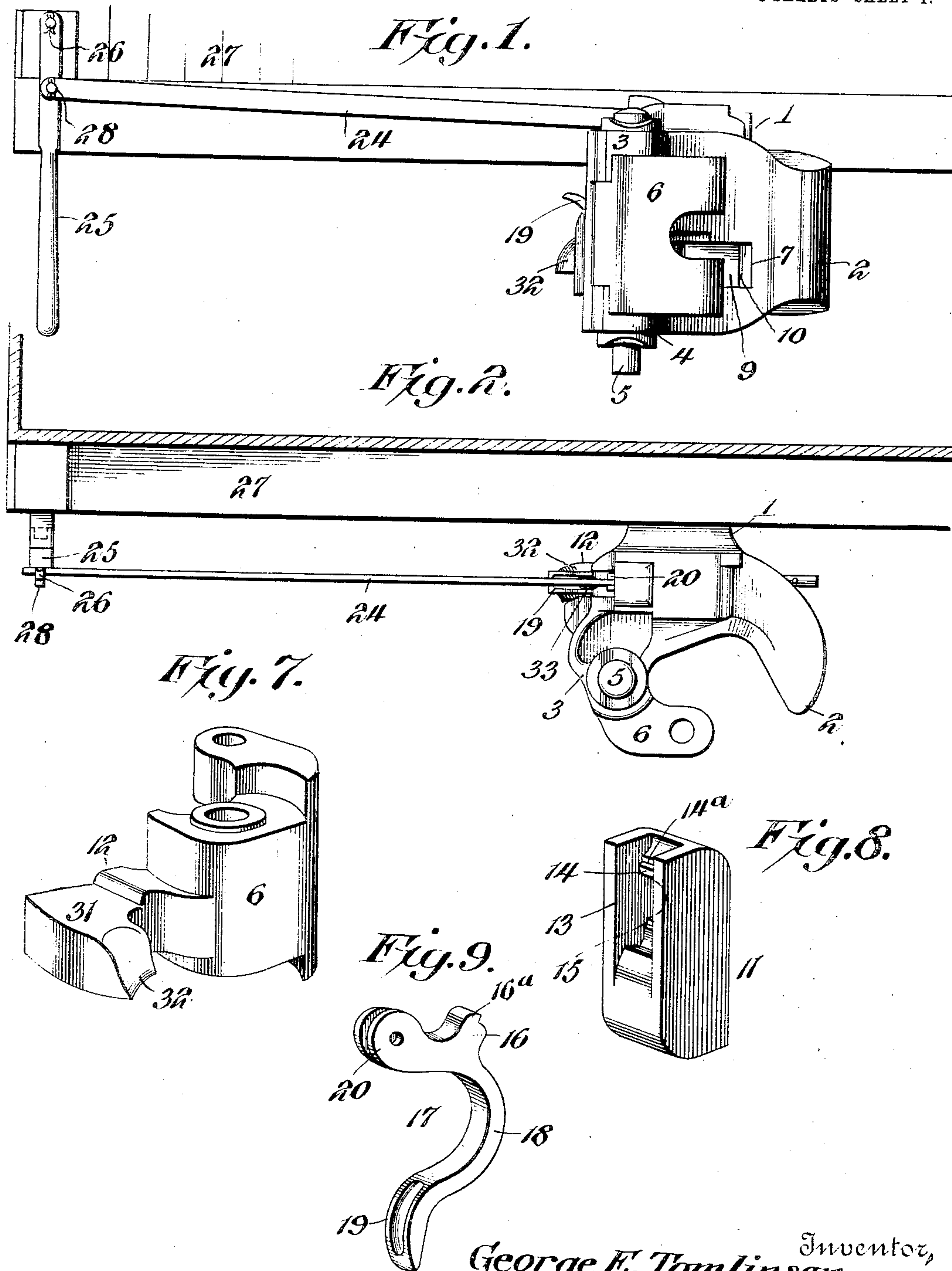


G. E. TOMLINSON.
CAR COUPLING.
APPLICATION FILED APR. 26, 1906.

931,097.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 1.



Witnesses
Howard W. Orr.
H. F. Piles

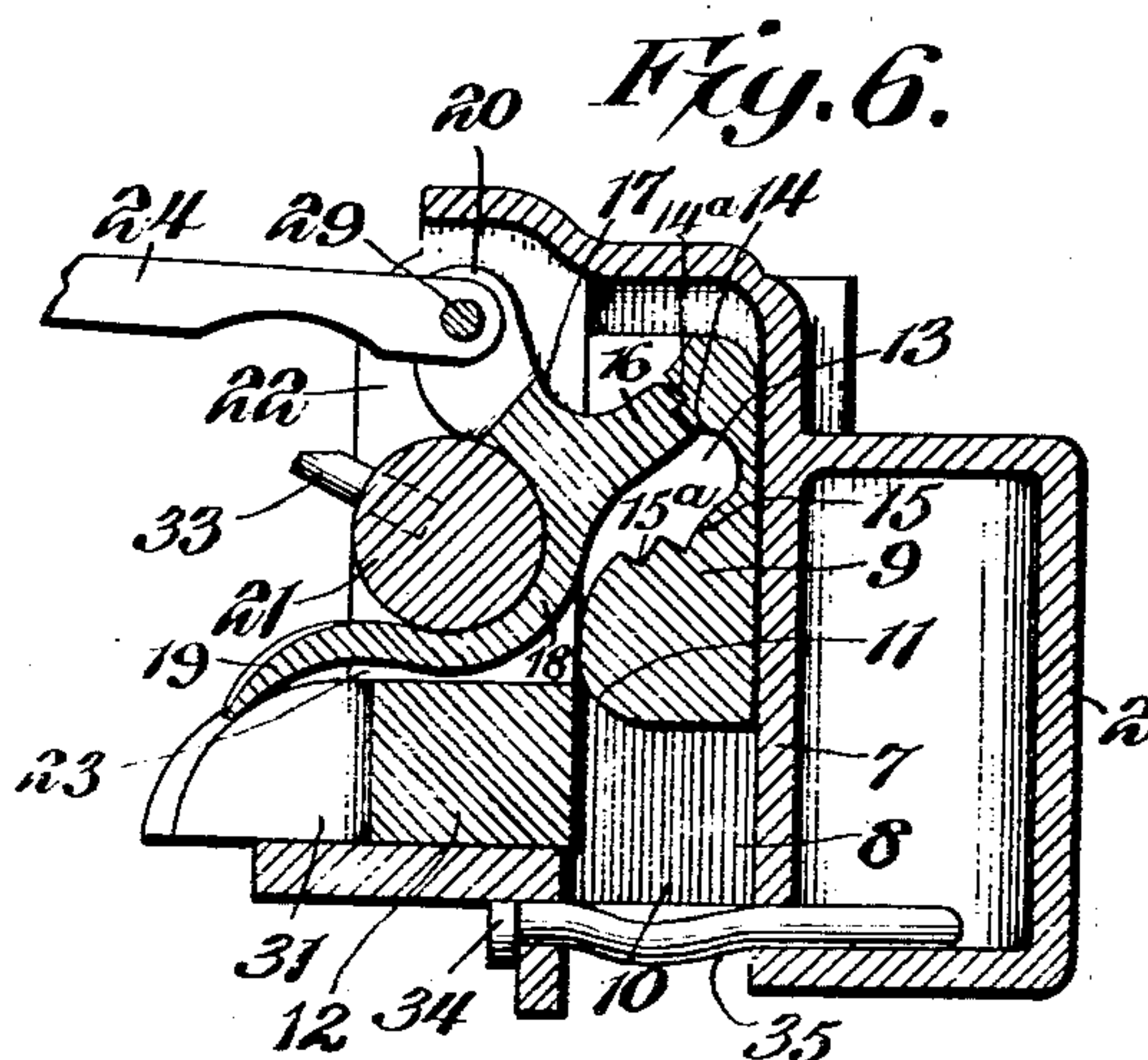
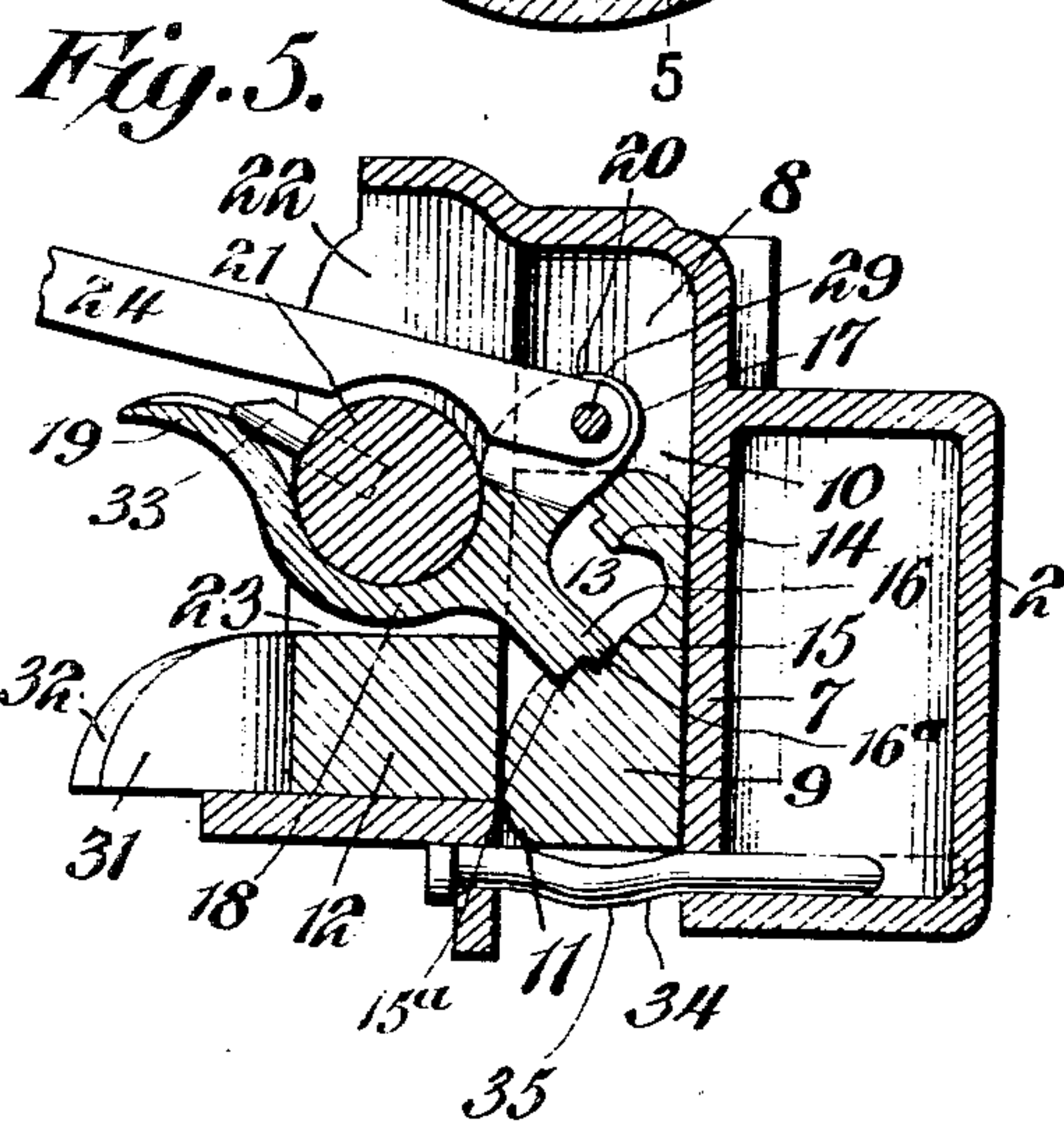
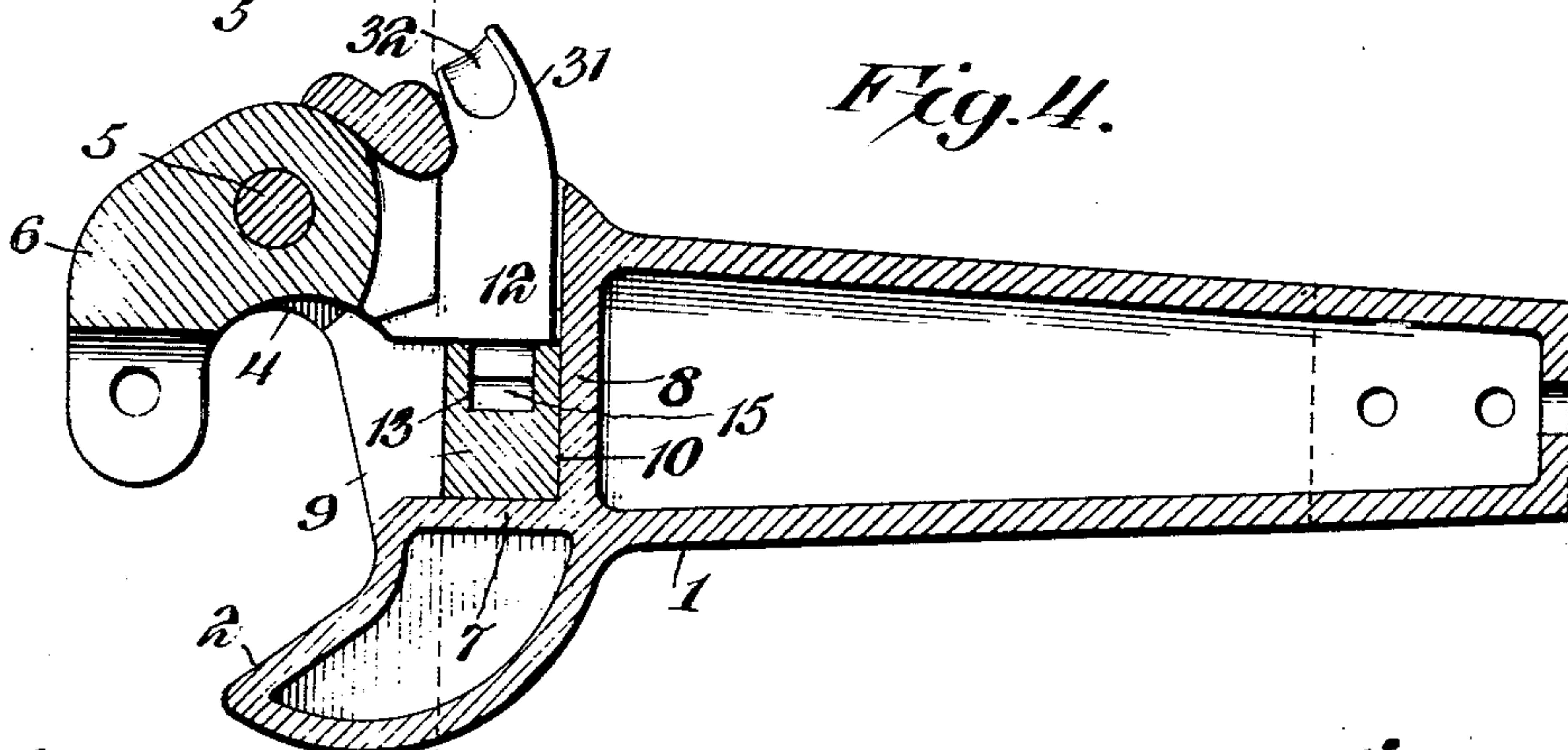
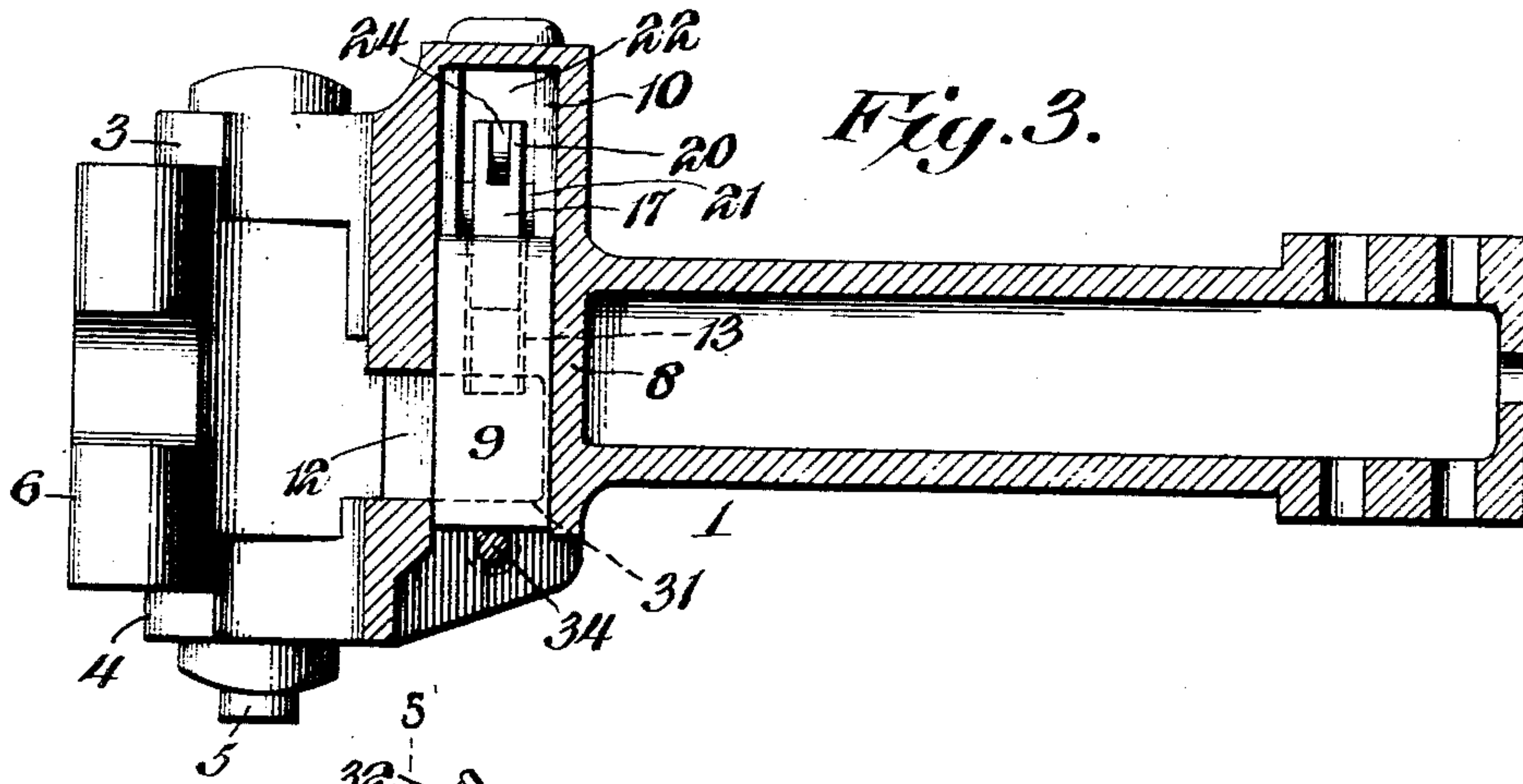
George E. Tomlinson, Inventor,
By *E. J. Siggers* Attorney

G. E. TOMLINSON.
CAR COUPLING.
APPLICATION FILED APR. 26, 1906.

931,097.

Patented Aug. 17, 1909.

2 SHEETS—SHEET 2.



George E. Tomlinson, Inventor,

By

C. G. Siggers.

Attorney

Witnesses

Howard D. Orr.
J. J. Riley.

UNITED STATES PATENT OFFICE.

GEORGE E. TOMLINSON, OF PEKIN, ILLINOIS.

CAR-COUPLING.

No. 931,097.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed April 26, 1906. Serial No. 313,817.

To all whom it may concern:

Be it known that I, GEORGE E. TOMLINSON, a citizen of the United States, residing at Pekin, in the county of Tazewell and State of Illinois, have invented a new and useful Car-Coupling, of which the following is a specification.

The invention relates to improvements in car couplings.

The object of the present invention is to improve the construction of car couplings, and to provide a simple, and comparatively inexpensive one of great strength and durability, capable of coupling automatically, and adapted to be readily uncoupled without going between the cars.

A further object of the invention is to provide a car coupling having means for positively opening the knuckle to set the same for automatic coupling.

Another object of the invention is to provide a locking block operating device, adapted to lock the locking block in engagement with the knuckle, and capable also of supporting the said locking block in an elevated position until the arm of the knuckle, in the opening movement of the latter, passes outward beneath the locking block.

Another important object of the invention is the provision of a knuckle opening lever of simple construction, comprising a single integral casting, having one end constructed to move the locking devices or locking block to lock set position, and having a tongue or arm to engage the rear of the knuckle tail to force the knuckle open. By the implication that the locking devices may be brought to lock set position I mean, of course, that the locking device is so arranged that it can be moved by the operator from the locked position while the coupler is closed, to an unlocked position in which it may be retained while the coupler remains in closed position, whereby the cars may be uncoupled without the necessity of manually maintaining the lock in raised or unlocking position during their separation.

With these and other objects in view, the invention consists in the construction and novel combination and arrangement of parts, hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims,

may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

In the drawings: Figure 1 is a front elevation of the front of a car provided with an automatic car coupling constructed in accordance with this invention. Fig. 2 is a plan view of the same. Fig. 3 is a longitudinal sectional view of the car coupling, the knuckle being locked. Fig. 4 is a horizontal sectional view of the same. Fig. 5 is a transverse sectional view on the line 5—5 of Fig. 4. Fig. 6 is a transverse sectional view, illustrating the manner of supporting the locking block in an elevated position. Fig. 7 is a detail perspective view of the knuckle. Fig. 8 is a similar view of the vertically movable locking block. Fig. 9 is a detail perspective view of the combined knuckle-opener and locking block actuating and locking device.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a draw-head, having a guard arm 2 at one side, and provided at the opposite side with upper and lower eyes 3 and 4, for the reception of a knuckle pin 5, which pivots a knuckle 6 to the draw-head. The draw-head is provided at the side adjacent the guard arm with a vertical wall 7, and it has a rear transverse wall 8, arranged at right angles to the side wall 7, and adapted to assist in guiding a vertically movable locking block 9, which also operates in a vertical guide-way 10, formed in the top of the draw head. The top of the draw-head is closed to prevent dust and other accumulation from entering the draw-head and interfering with the operation of the mechanism. The guide-way 10 is provided with vertical front and rear walls, and with a vertical side wall, the side and rear walls forming continuations of the side and rear walls 7 and 8 of the draw-head.

The locking block, which is substantially oblong, is rounded at the bottom at one side at 11 contiguous to the arm 12 of the knuckle to enable the said arm 12, in moving outward from the position illustrated in Fig. 6 of the drawings, to lift the locking block and pass beneath the same, when the latter is supported in an elevated position, as hereinafter fully explained. The locking block is adapted when the knuckle is closed, to engage the inner side face of the arm 12, where-

by the knuckle is securely locked in its closed position, as illustrated in Fig. 5 of the drawings.

The upper portion of the locking block is provided at one side with a recess 13, which extends downwardly from the upper end of the locking block, and which is open at one side, as clearly shown in Fig. 8. The locking block is provided within the recess with upper and lower shoulders 14 and 15, and it is concavely curved between the shoulders to form a bearing portion for the reception of an inwardly extending arm 16, of a combined knuckle-opening and locking block operating and locking device 17. The arm 16 inclines downwardly and inwardly when the knuckle is closed and locked, as clearly illustrated in Fig. 5 of the drawings, and it is provided at its engaging end with a projection or nose 16^a, forming a prolongation of the arm 16 and arranged flush with the upper face of the same and forming an end recess at its lower face. The inner wall of the recess of the locking block is provided above and below the upper and lower shoulders 14 and 15 with horizontal grooves or recesses 14^a and 15^a, which form upper and lower portions that conform to the configuration of the engaging end of the arm 16, whereby the latter is adapted to interlock with the upper and lower portions of the locking block. When the arm 16 of the combined knuckle opening and locking block operating device 17 is inclined downwardly and inwardly in the position illustrated in Fig. 5, it is interposed between the pivot of the combined knuckle opening and locking block operating device and the locking block, and the latter is held against upward movement, and when the said arm 16 is swung upwardly from the position shown in Fig. 5, it lifts the locking block by first engaging the shoulder 14 and a continued upward movement carries the arm 16 into engagement with the grooved or recessed portion 14^a, whereby the locking block is held in an elevated position. The opening movement of the knuckle carries the arm 12 into engagement with the beveled or rounded corner 11, and thereby disengages the arm 16 from the locking block and permits the arm to drop to the lower portion of the recess 13.

The knuckle opening and locking block engaging device 17 consists of a lever, having an intermediate curved body portion 18, and provided with a reversely curved lower knuckle-opening arm 19. The lever is also provided with an upper outwardly extending operating arm 20, arranged at an angle to the upper inwardly extending locking block engaging arm 16. The curved body portion 18 of the lever is arranged on a round journal or bearing 21, preferably cast integral with the draw-head, and arranged horizontally at one side thereof, at a point

above the arm of the knuckle, when the latter is closed. The draw-head is provided above and below the journal or bearing portion 21 with openings 22 and 23. The upper opening receives a connecting bar 24, which is arranged at a slight inclination and which extends from the operating arm 20 to an operating lever 25. The operating lever 25 is fulcrumed at its upper end on a stud 26 of the car 27, and it is connected at an intermediate point with the outer end of the bar 24. It is preferably provided with a stud 28 to receive the outer end of the bar 24, suitable keys being provided for retaining the lever on the stud 26, and the outer end of the bar on the stud 28 of the lever. The operating arm is slotted or bifurcated to receive the inner end of the bar 24, which is connected to the operating arm by a suitable pivot 29. The curved body portion 18 is arranged on the journal or bearing portion at the lower side thereof, when the knuckle is closed, and locked, as shown in Fig. 5, and it is adapted to slide or partially rotate upwardly to raise the locking block and to open the knuckle.

The arm of the knuckle is provided with a laterally extending portion or horn 31, which projects through the lower opening 23 of the draw-head, whereby the knuckle is positively interlocked with the adjacent side of the draw-head, and is effectually prevented from being pulled out, should the knuckle-pin break. The projecting horn or portion 31 is curved or beveled at the upper side, and is provided with a concave bearing face 32, which conforms to the configuration of the lower knuckle-opening arm 19, and when the operating arm 20 is moved outwardly by the operating mechanism, the knuckle-opening arm is swung inwardly and engages the arm of the knuckle and positively opens the latter. This movement simultaneously raises the locking-block, through the engagement of the same with the upper inwardly extending arm 16, and the arm of the knuckle passes beneath the locking-block, and supports the same in an elevated position. The parts are then in position for automatic coupling, and when the knuckle closes, its arm is withdrawn from beneath the locking-block, which drops into engagement with the arm of the knuckle.

The rotary movement of the knuckle-opening and locking-block engaging device, is limited in each direction by a stop 33, projecting from the bearing or journal 21 of the draw-head, and consisting preferably of a pin or stud seated in a recess or socket of the journal or bearing portion 21.

The locking-block is prevented from dropping out of engagement with the arm 16 by means of a cotter-pin 34, which extends across the bottom opening 35 of the draw-

head, and is or may be provided with an offset or curve 34', as clearly shown in Figs. 5 and 6. Said offset 34' permits the pin 34 to be sprung into position and prevents its accidental removal. The pin is advantageous, as it will prevent the locking device dropping through the bottom opening 35 of the draw-head, should the stop 33 become broken and fail to limit the movement of the knuckle-opening and locking-block engaging device 17.

The parts are assembled before the knuckle is pivoted to the draw-head. The knuckle-opening and locking-block engaging device 15 is first placed in position through the upper opening, and it is arranged with the knuckle engaging portion in substantially a horizontal position. This will permit the locking-block to be readily introduced into the draw-head through the bottom opening. The knuckle is then placed in position, and the cotter-pin is passed through the perforations provided at the bottom of the draw-head for its reception. The parts are removed in reverse order.

It will be seen that the car coupling is exceedingly simple and inexpensive in construction, and that the means for locking the knuckle and for opening the same and for retaining the locking device in engagement with the knuckle, consists of two parts only, the locking-block and the lever 17. It will also be clear that as the locking-block has a solid lower knuckle engaging portion, it is not liable to become broken, and that, after the parts are locked, the lever 17 is relieved of all strain. The inwardly extending arm of the lever 17 operates to prevent the locking-block from being accidentally jarred or thrown out of engagement with the arm of the knuckle. The arm of the knuckle limits the closing movement of the same, so that sufficient space is provided for the reception of the knuckle of another draw-head.

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

1. In a car coupling, the combination of a draw-head, a pivoted knuckle, a locking block movable into and out of engagement with the knuckle, and a lever having an arm arranged to move the locking device into and out of engagement with the knuckle and interposed between a fixed portion of the draw-head and the said locking block, when the knuckle is closed, to retain the locking block in engagement with the knuckle.

2. In a car coupling, the combination of a pivoted knuckle, a locking device slidable upwardly and downwardly to release and engage the knuckle, said locking device being provided with a recess at one side between the top and bottom thereof, and a lever having knuckle-opening means and ex-

tending into the recess of the locking-block, whereby it is adapted, when oscillated, to raise and lower the said block.

3. In a car coupling, the combination with a draw-head, of a pivoted knuckle having a horn extending through one side of the draw-head for interlocking the knuckle with the same, a locking device for engaging the knuckle, and an operating device provided with means for operating the locking device and having means for engaging the horn of the knuckle for opening the latter.

4. In a car coupling, the combination of a draw-head, a pivoted knuckle having a horn extending through one side of the draw-head, a locking device for engaging the knuckle, and a lever provided with means for operating the locking device and having an arm arranged to engage the horn of the knuckle for opening the same.

5. In a car coupling, the combination of a draw-head, a pivoted knuckle having a horn extending through one side of the draw-head when the knuckle is closed, a vertically movable locking-block, and a lever provided with an arm for raising and lowering the locking-block, said lever being also provided with an arm arranged to engage the horn of the knuckle for opening the same.

6. In a car coupling, the combination of a draw-head, a pivoted knuckle, a vertically movable locking-block having a recess and provided within the same with upper and lower shoulders, and a lever fulcrumed on the draw-head, and having an arm extending into the recess, and arranged to engage the shoulders for raising the locking-block.

7. In a car coupling, the combination of a draw-head having a horizontal journal, a pivoted knuckle, a vertically movable locking-block for engaging the knuckle, and a lever having a curved portion conforming to the configuration of and arranged on the journal portion of the draw-head, said lever being also provided with an arm for operating the locking device.

8. In a car coupling, the combination of a draw-head having a horizontal journal, a pivoted knuckle, a vertically movable locking-block for engaging the knuckle, and a lever having a curved portion conforming to the configuration of and arranged on the journal portion of the draw-head, said lever being also provided with an arm for operating the locking device and having means for directly engaging the knuckle for opening the same.

9. In a car coupling, the combination of a draw-head having an integral horizontal journal, and provided above and below the same with openings, a pivoted knuckle having a horn extending through the lower opening, a locking device, and a lever having a curved face to fit the journal of the draw-head, and provided with a lower por-

tion operating in the lower opening and arranged to engage the horn of the knuckle to open the latter, said lever being also provided with upper arms extending inwardly 5 and outwardly, one of the arms being arranged to operate the locking device, and the other arm being arranged to operate in the upper opening of the draw-head.

10. In a car coupling, the combination of 10 a draw-head having an integral horizontal journal, and provided above and below the same with openings, a pivoted knuckle having a horn extending through the lower opening, a locking device, a lever having a 15 curved face to fit the journal of the draw-head, and provided with a lower portion operating in the lower opening and arranged to engage the horn of the knuckle to open the latter, said lever being also provided 20 with upper arms extending inwardly and outwardly, one of the arms being arranged to operate the locking device, and the other arm being arranged to operate in the upper opening of the draw-head, and a stop lo- 25 cated on the journal portion of the draw-head and arranged to be engaged by the knuckle-opening arm of the lever and by the outwardly extending upper arm.

11. In a car coupling, the combination of 30 a draw-head, a pivoted knuckle, a locking block movable upwardly and downwardly to release and engage the knuckle, and an operating device having an oscillatory arm arranged to engage the locking block to 35 raise and lower the same, said arm when at the limit of its downward movement being arranged to lock the block in engagement with the knuckle, and when at the limit of its upward movement being arranged to 40 support the block in an elevated position.

12. In a car coupling, the combination of a draw-head, a pivoted knuckle, a locking block movable upwardly and downwardly to 45 release and engage the knuckle, and a combined operating and locking lever having an arm arranged to raise and lower the block and provided with a projecting nose for en- 50 gaging the locking block, said locking block being grooved at its upper and lower portions to fit the engaging end of the arm, whereby it is interlocked with the same at the limit of its upward and downward move- 55 ments to support the locking block in an elevated position, and to lock the same in engagement with the knuckle.

13. In a car coupling, the combination

with a draw-head, a pivoted knuckle having an arm, and a locking block mounted on the draw-head and movable upwardly and down- 60 wardly into and out of engagement with the knuckle, of an operating lever mounted in the draw-head above the arm of the knuckle and provided with knuckle opening means and having an arm adapted to raise and 65 lower the locking block and arranged to support the said block in an elevated position.

14. In a car coupling, the combination with a pivoted knuckle, and a locking block movable upwardly and downwardly, of an 70 operating lever provided with knuckle opening means and having an arm for raising and lowering the locking block, said arm being arranged at an inclination when at the limit of its movement in either direction, 75 whereby it is adapted to support the block in an elevated position and lock the block against upward movement.

15. In a car coupling, the combination of a pivoted knuckle, a locking device movable 80 upwardly and downwardly to release and engage the knuckle, and an operating lever provided with means for opening the knuckle and for raising and lowering the locking device and for supporting the same in an 85 elevated position and for holding the said locking device against upward movement.

16. In a car coupling, the combination of a pivoted knuckle, a locking device movable 90 upwardly and downwardly to release and engage the knuckle, and a lever provided with a knuckle opening arm and having an arm for raising and lowering the locking 95 device, the latter arm and the locking device having interlocking portions for holding the locking device both in and out of engagement with the knuckle.

17. In a car coupling, a pivoted knuckle having a tail, a locking device, and an in- 100 tegral lever having one end adapted to move the locking device to a position where it will be supported and will release the knuckle, said lever having an arm near the other end to engage the knuckle tail to open the knuckle.

In testimony, that I claim the foregoing 105 as my own, I have hereto affixed my signature in the presence of two witnesses.

GEORGE E. TOMLINSON.

Witnesses:

E. H. ZIMMER,

C. T. MCKINSTRY.