

No. 768,365.

PATENTED AUG. 23, 1904.

J. A. HINSON, DEC'D.

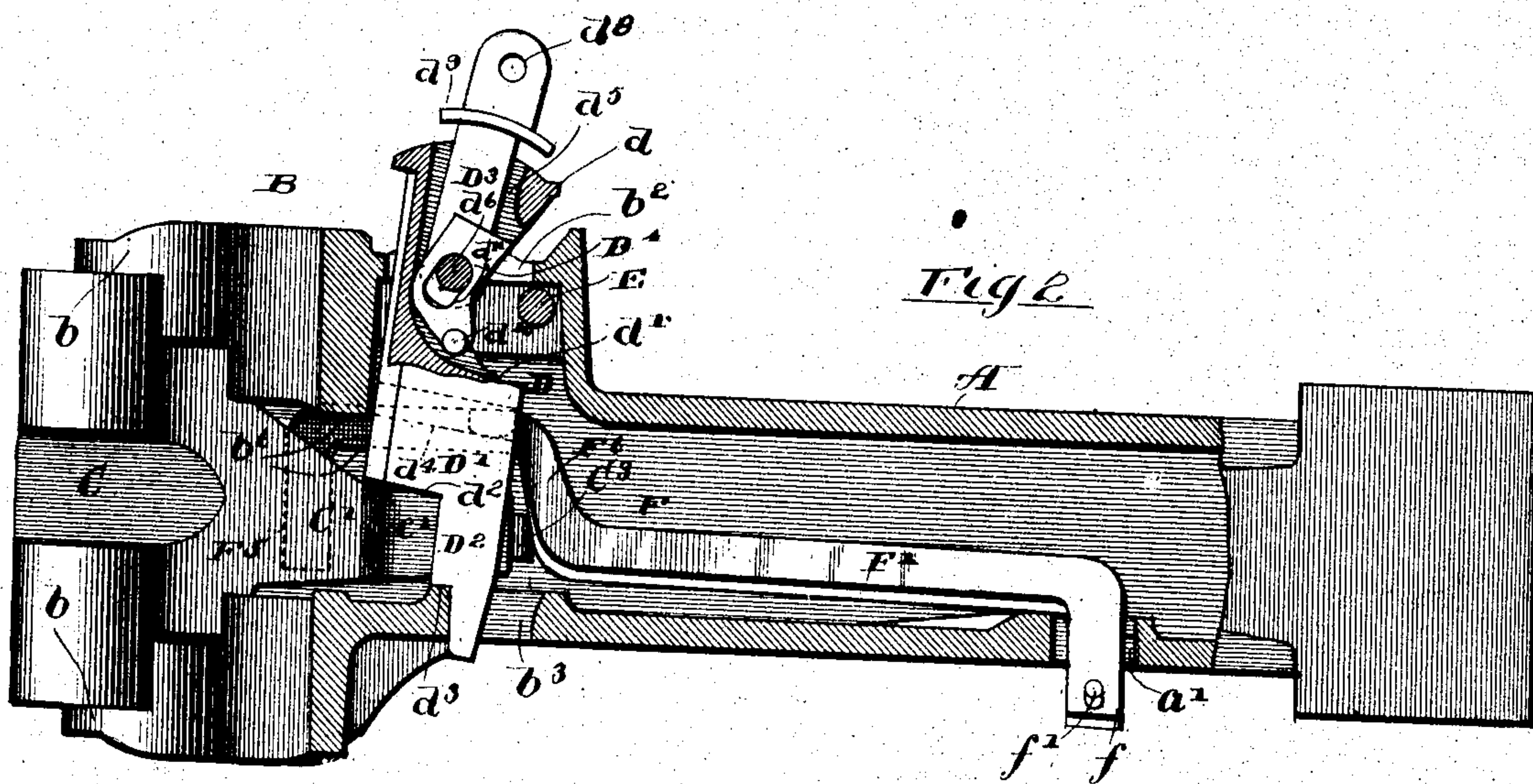
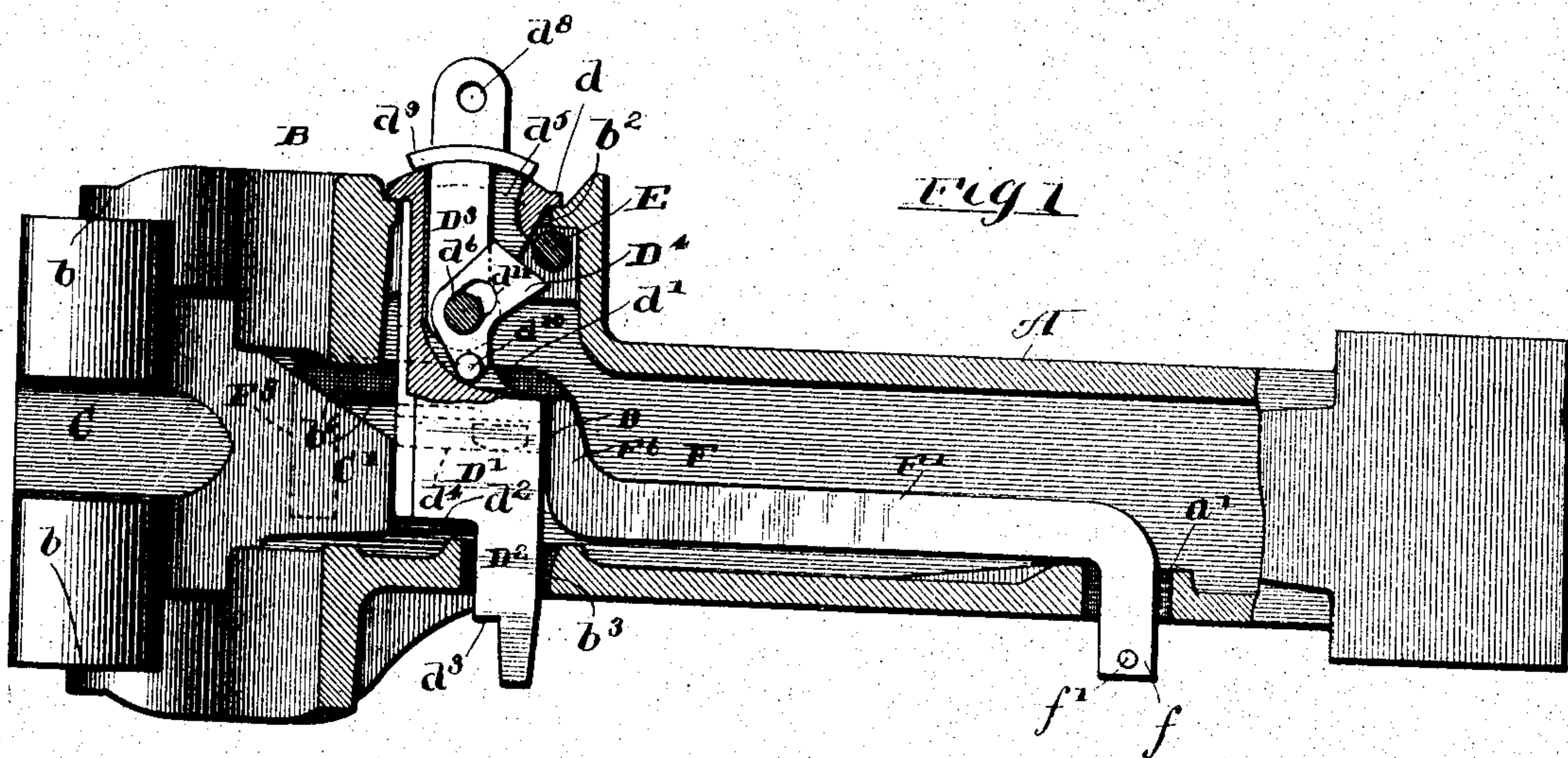
M. HINSON, ADMINISTRATRIX.

CAR COUPLING.

APPLICATION FILED JUNE 2, 1902.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses:-

Carl H. Crawford

William H. Hall

Inventor:

James A. Hinson

by_

Robert Brown
his Attorneys

Their Attorneys

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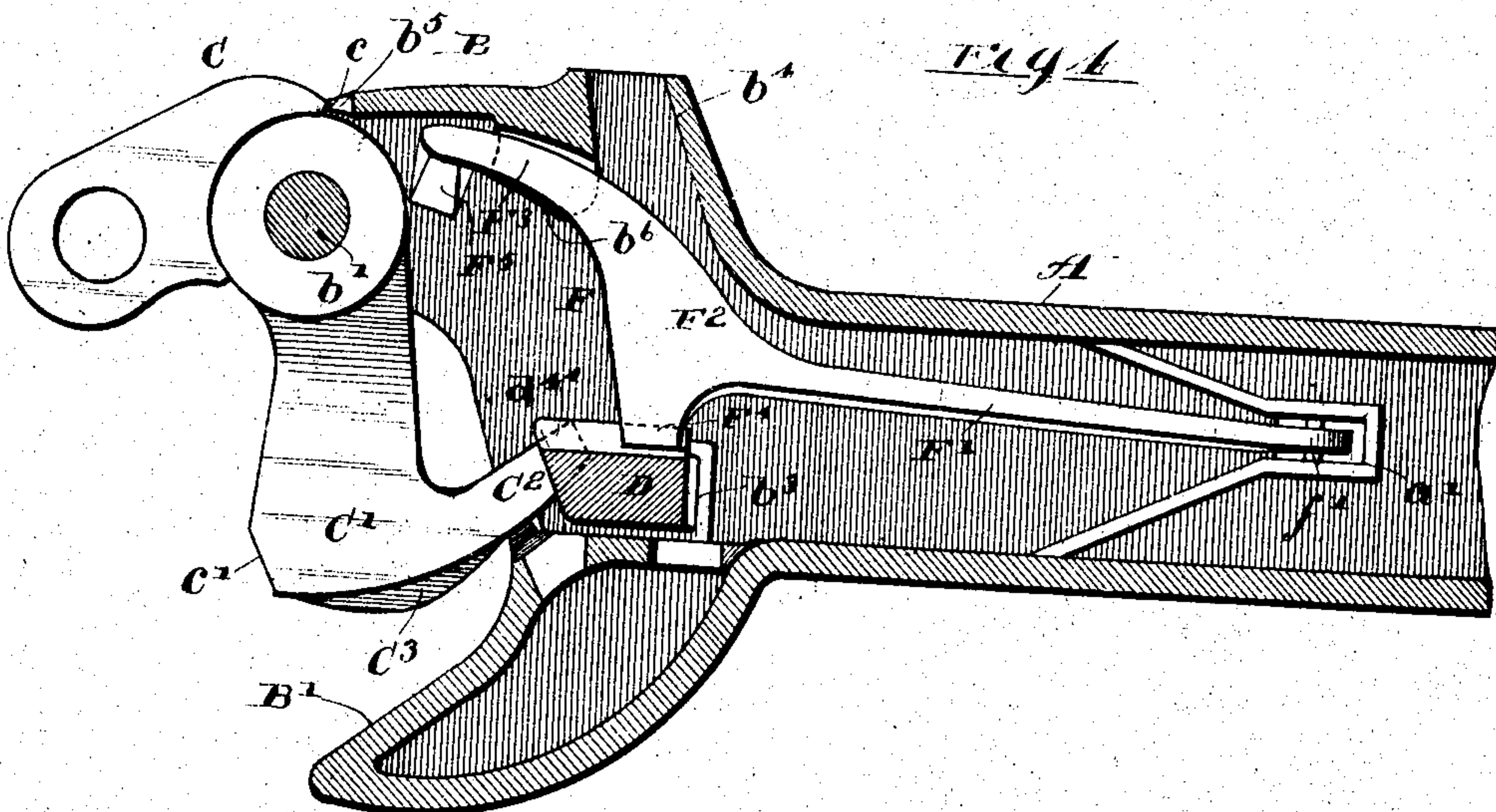
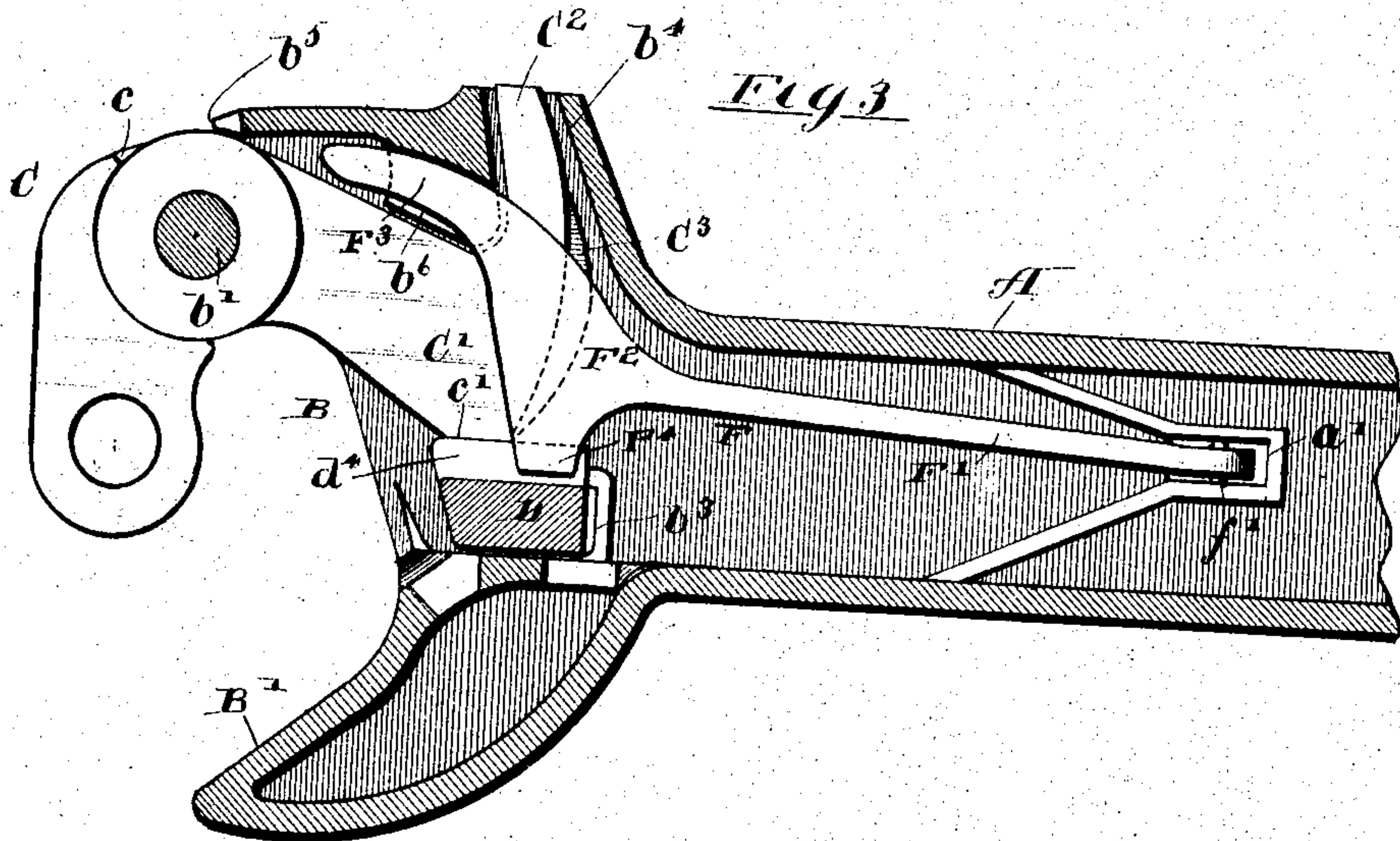
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3 SHEETS—SHEET 2.



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3 SHEETS--SHEET 3.

Fig 5

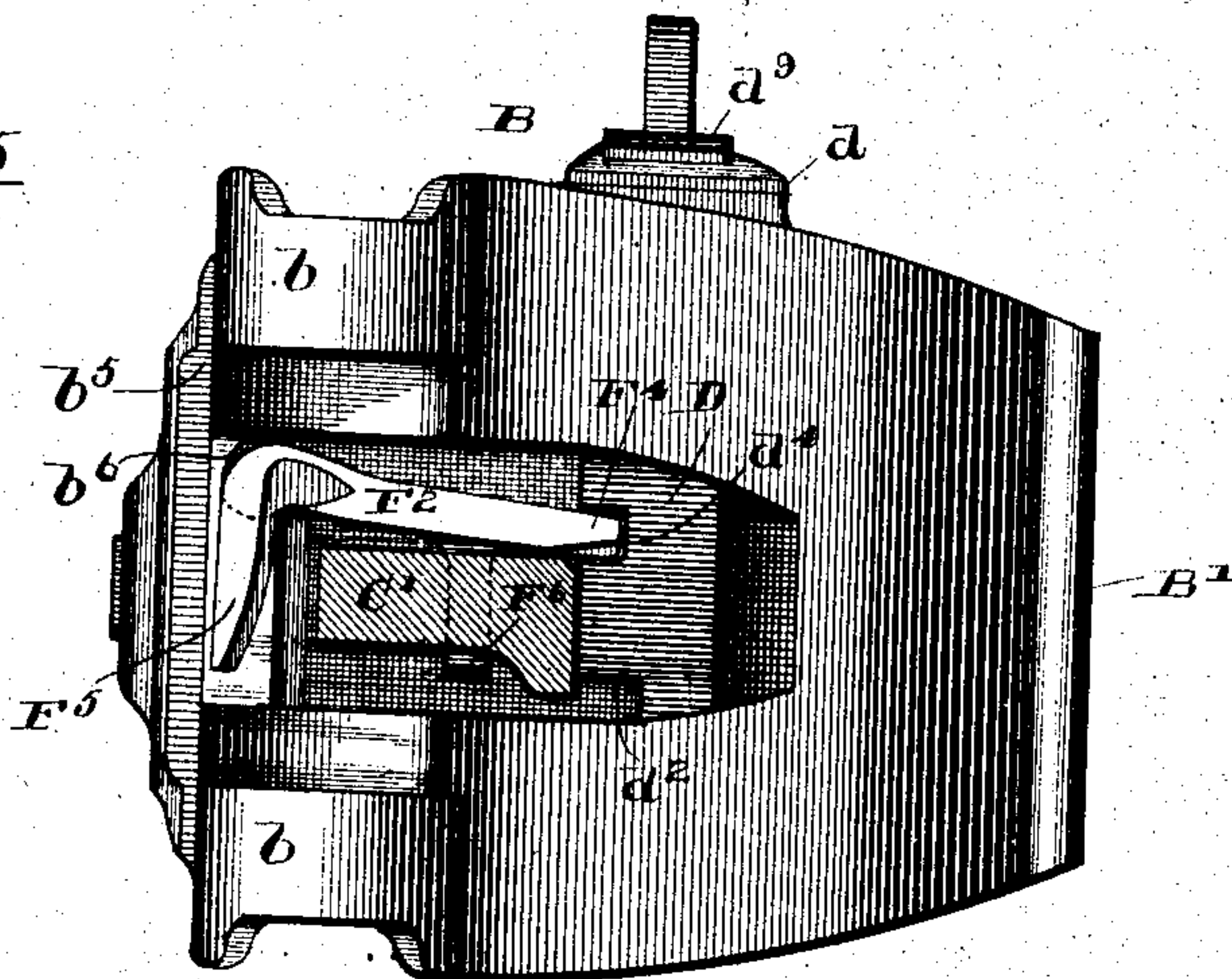


Fig 6

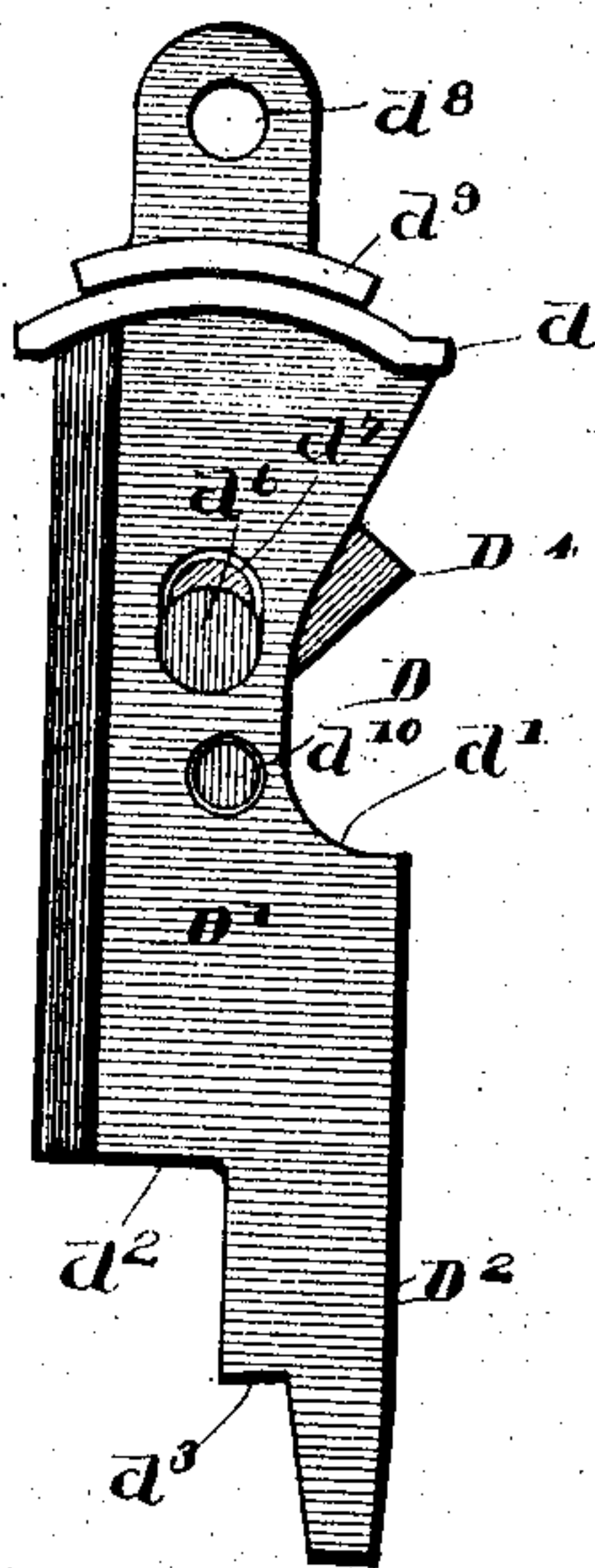
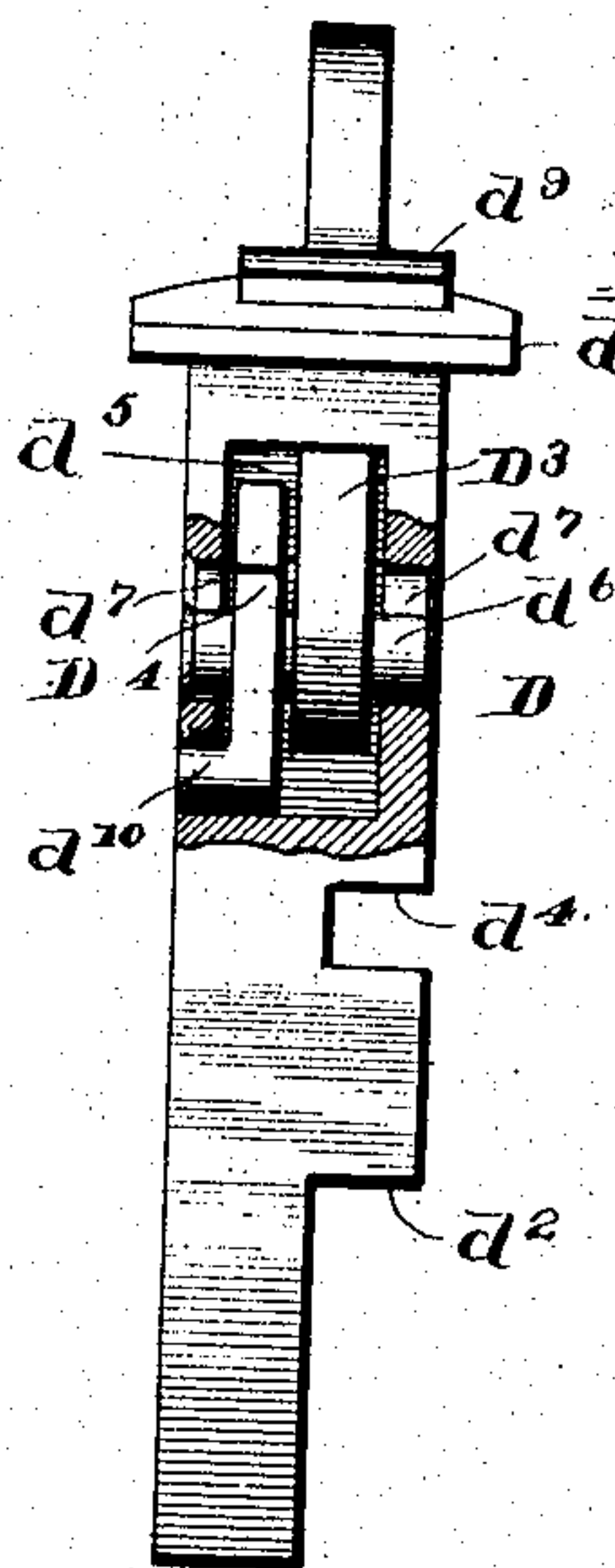


Fig 7



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UNITED STATES PATENT OFFICE.

JAMES A. HINSON, OF CHICAGO, ILLINOIS; MARGARET HINSON ADMINISTRATRIX OF SAID JAMES A. HINSON, DECEASED.

CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 768,365, dated August 23, 1904.

Application filed June 2, 1902. Serial No. 109,832. (No model.)

To all whom it may concern:

Be it known that I, JAMES A. HINSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Car-Couplers; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in car-couplers; and the invention consists in the matters hereinafter set forth, and more particularly pointed out in the appended claims. In the drawings, Figure 1 is a partial longitudinal vertical section of a coupler embodying my improvements, certain parts of the devices being broken away to better illustrate other parts thereof. Fig. 2 is a similar view with parts of the device in changed positions. Fig. 3 is a partial horizontal longitudinal section of the coupler, showing the knuckle in its closed position. Fig. 4 is a similar view showing the knuckle in its open position. Fig. 5 is a front elevation of the coupler with the knuckle-tailpiece shown in section. Fig. 6 is a side elevation of the knuckle-locking pin. Fig. 7 is an edge elevation thereof with parts broken away.

As shown in said drawings, A designates a hollow draw-bar; B, a hollow draw-bar head; C, a horizontally-swinging knuckle, which is pivoted to and between forwardly and laterally projecting arms *b* on one side of said draw-head by means of a vertical pin *b'*, and B' a guide-arm or guard projecting laterally from the other side of the head. Said knuckle C is provided with a tailpiece C', which extends rearwardly between the arms *b* of the draw-head and into the interior of the head, as shown in Fig. 3.

D designates a locking-pin which passes downwardly through openings *b²* *b³* in the top and bottom walls of the draw-head, said openings being located in a manner to hold the coupling-pin at one side of the knuckle-tailpiece and when said pin is in its lowermost position and the knuckle closed to lock said knuckle from swinging outwardly on its pivot.

The coupling-pin is provided at its upper end with a flange *d*, which projects over the upper wall of the draw-head and serves to limit the downward movement of the coupling-pin. Said coupling-pin is provided on its rear edge with a recess *d'*, the bottom of which is adapted for contact with a horizontal stop-bolt E at the rear of the opening *b³*, as shown in Fig. 1, said bolt preventing the complete withdrawal of the pin from the draw-head. The coupling-pin D is provided with a downwardly-facing shoulder *d²* at its front edge, forming a wide upper portion D' and a narrower lower portion D², which latter is adapted to pass through the opening *b³* in the lower wall of the head. The lower or narrower end of the locking-pin is provided with a notch, forming a second downwardly-facing shoulder *d³*, which is adapted to engage a supporting-surface on the lower wall of the draw-head when the coupling-pin is elevated above the tailpiece of the knuckle, as shown in Fig. 2. When the locking-pin is in its lowermost position and the knuckle closed, the wider upper part thereof is in the path of the tailpiece of the knuckle, said locking-pin serving at this time as a stop to prevent the knuckle opening or from swinging outwardly. The knuckle-tailpiece is provided with a flat surface *c'*, which engages the locking-bolt when the tailpiece occupies its innermost position and when the pin is in its lowermost position. When the locking-pin is raised to bring the widened part thereof above the level of the tailpiece of the knuckle, said knuckle is permitted to swing outwardly in a manner to open the coupler, the tailpiece passing at this time below the shoulder *d²* of the locking-pin.

The rear end of the knuckle-tailpiece is provided with a laterally-curved projection C², which when the knuckle is in its closed position occupies a lateral opening *b⁴* in the head in the rear of the hinge of the knuckle, as shown in Fig. 3. When the knuckle is in its open position, as shown in Fig. 4, said projection is located below and engages the shoulder *d²* of the locking-pin and serves as a support for the locking-pin, as more clearly shown in Fig. 4, it being understood that the pro-

jection does not pass out of engagement with the pin when the knuckle is fully open. It follows from this construction that when said locking-pin is raised with the widened upper part D' thereof above the tailpiece of the knuckle and said knuckle is opened the extension C^2 of the tailpiece thereof supports the coupling-pin in its elevated position. When, therefore, the knuckle is swung inwardly into its closed position, the pin is held in its elevated position by said extension and the tailpiece of the knuckle until said tailpiece has passed the widened upper end of the locking-pin into the position shown in Fig. 3, after which the locking-pin drops and automatically locks the knuckle in its closed position. The said knuckle is provided on its outer curved surface with a stop-shoulder c , which is adapted to engage when the knuckle is fully opened, as shown in Fig. 4, a stop-surface b^5 , formed on the head to limit the opening movement of the knuckle.

Said tailpiece and the projection C^2 thereof are provided with a rearwardly-facing curved cam projection C^3 , which is adapted to engage the lower narrow part D^2 of the locking-pin as the tailpiece of the knuckle moves outwardly or inwardly, and thereby shift the lower end of said pin rearwardly sufficiently to clear the shoulder d^3 thereof from the supporting-surface of the bottom wall of the draw-bar and permit the lower end of the locking-pin to drop through the opening b^3 if the knuckle is in its closed position, or permit the shoulder d^2 of said pin to engage the tailpiece or its projection if the knuckle is wholly or partially opened.

F designates as a whole an actuating member which coöperates with the locking-pin in such manner as to swing the knuckle outwardly when the pin is lifted to bring the shoulder d^2 thereof above the level of the tailpiece of the knuckle. Said actuating member extends from front to rear of the bar and head and embraces a rearwardly-extending shank F' , which is located in the hollow draw-bar and is provided at its rear end with a downturned part f , which extends downwardly through an opening a' in the bottom wall of the draw-bar. Said shank is held from rising by means of a cross-pin f' , extending transversely through said downward extension of the shank. The opening a' is made considerably longer and wider than the downturned part of the shank, thereby affording a loose connection between the said member and the draw-bar wall, such as to permit the forward end of the member to be rocked or twisted about its longitudinal axis, as will hereinafter more fully appear. The forward end of said member consists of a flat horizontal web portion F^2 , which is located at one side of the locking-pin and over the knuckle-tailpiece, a forwardly and laterally curved arm F^3 , which has rocking engagement in a bearing socket or recess b^6 in

the wall, the draw-bar head at the rear of the knuckle-hinge, a lug or projection F^4 on the side of the member remote from the bearing-arm F^3 , which is adapted to engage a horizontal transverse groove d^4 in the adjacent side of the locking-pin, and a knuckle-actuating arm F^5 , depending from the bearing-arm F^3 . When the locking-pin is in its lowermost position, the actuating-arm F^5 occupies a vertical position parallel with the adjacent face of the tailpiece and located a distance to one side of the tailpiece. By reason of the engagement of the locking-pin with the actuating member on the side of the latter remote from the bearing-arm F^3 the lifting of said locking-pin acts to rock the said member in the bearing b^4 (the loose connection of the shank of said member with the wall of the draw-bar permitting such action) and said rocking movement of the bearing-arm serves to swing the lower end of the knuckle-actuating arm F^5 toward and in engagement with the tailpiece of the knuckle in a manner to throw the knuckle in its open position when the locking-pin is completely raised, the widened upper part of the locking-pin being at this time raised above the tailpiece of the knuckle. The horizontal web portion F^2 of said actuating member is joined to the shank F' by means of a vertically-curved connecting part F^6 .

Means are provided for preventing the locking-pin accidentally rising a distance to permit the release of the tailpiece of the knuckle. Said means are made as follows: D^3 designates a lifting-bar which is located in an upwardly-opening pocket or recess d^5 in the upper end of the locking-pin. Said lifting-bar is pivoted at its lower end to the locking-pin by means of a cross-pin d^6 , which fits closely in a transverse aperture in the lower end of the lifting-bar and engages vertical slots d^7 in the opposite wall of the hollow portion of the locking-pin, whereby said lifting-bar has a limited vertical movement with respect to the locking-pin. Said lifting-bar extends upwardly beyond the upper end of the locking-pin and is provided with an opening d^8 , adapted to be engaged by the hook of a lifting-chain and is also provided above said upper end of said locking-pin with a flange d^9 , which projects over said end of the locking-pin and limits the downward movement of the lifting-bar in said pin. D^4 designates a pivoted stop-latch, which is located in said pocket d^5 of the locking-pin at one side of the lower end of the lifting-bar. Said latch is provided at its lower end with a transverse lug d^{10} , which engages an opening in the wall of the locking-pin below the pivot-pin d^6 of the lifting-bar, whereby said stop-latch is pivotally connected with said locking-pin. Said stop-latch is also provided with a slot d^{11} , through which extends the pivot-pin d^6 of the lifting-bar. The stop-latch D^4 is so arranged with respect to the lifting-bar that the slot d^{11} thereof

when the lifting-bar is in its lowermost position, is disposed at an angle to the longitudinal axis of the lifting-bar D^3 . Furthermore, when said parts are in their lowermost positions the upper end of the stop-latch is located beneath the stop-pin E, whereby if the locking-pin as a whole be accidentally raised, as by shocks or jars brought upon the coupler, the upper end of the latch will be intercepted by the stop-pin E, which will act to limit the upward movement of the locking-pin before said locking-pin is sufficiently raised to release the knuckle. The construction of the parts is such, however, that if the locking-pin be raised through the medium of the lifting-bar D^3 the stop-latch is swung laterally out of line with the stop-pin E, so as to permit the pin to be raised to its full extent. This action is due to the fact that the lifting-bar has a limited vertical movement with respect to the locking pin before the locking-pin is raised thereby, and during such relative movement of the lifting-bar the pivot-pin thereof acts through the medium of the oblique slot of the latch to swing said latch toward the lifting-bar and out of line with the stop-bolt E. After said pivot-pin is moved upwardly into engagement with the end of the slot d^{11} of the stop-latch the locking-pin is lifted through the medium of the lifting-bar sufficiently to release the tailpiece of the knuckle.

The operation of the device described and the advantages arising from the employment of the several features thereof will appear from the following: When the knuckle is in its closed position, as shown in Figs. 1 and 3, the curved extension C^3 of the tailpiece occupies the recess b^4 . The widened upper part of the locking-pin is located in the path of the knuckle-tailpiece and engages the surface c' of the knuckle-tailpiece, so as to prevent the knuckle from swinging outwardly. At this time also the knuckle-actuating arm F^5 of the bearing-arm F^3 occupies a vertical position parallel with the adjacent side face of the tailpiece of the knuckle and located at a distance from said tailpiece. If it be assumed that the car to which the coupler is attached is included in a train and it is desired to set the parts to permit the train to be broken or uncoupled, the locking-pin D is lifted by means of the lifting-bar D^3 thereof, which permits the safety-latch to pass the stop-pin E in the manner before described. The pin is lifted until the shoulder d^3 is brought to the level of the supporting-surface in the lower wall of the draw-bar. Owing to the fact that the pivot-pin of the lifting-bar is located in rear of the longitudinal median line of the locking-pin, the upward pull upon the bar tends to swing the lower end of the pin forwardly, and when the shoulder d^3 of the pin reaches the level of said supporting-surface said shoulder slips into engagement with

said surface and the pin is supported thereby. At the time said shoulder d^3 is engaged with said supporting-surface of the draw-bar the widened upper portion D' of the locking-pin is raised above the level of the tailpiece of the knuckle, as shown in Fig. 2. Upon a separation of the cars connected by said coupler the knuckle C is swung outwardly by engagement with the companion knuckle of the adjacent coupler, the tailpiece of the knuckle and the extension thereof passing outwardly beneath the shoulder d^3 of the locking-pin. As before stated, said laterally-curved extension C^3 of the tailpiece does not in the opening of the knuckle pass from beneath the shoulder d of the locking-pin. During the outward swing of the knuckle-tailpiece the cam projection C^3 thereof engages the lower narrow part of the locking-pin and swings said pin rearwardly out of engagement with the supporting-surface therefor, said pin dropping downwardly with the shoulder d^3 thereof in engagement with the top of the curved extension of the tailpiece, whereby the pin is supported on said extension. It follows from this construction that when the knuckle is thrown inwardly in the act of again coupling the car to which the coupler is attached the tailpiece of the knuckle is free to swing beneath the said shoulder d^3 until the part c' of said tailpiece passes said shoulder, at which time the locking-pin drops to its lowermost position and locks said knuckle closed until the pin is again raised. If in the meantime between the uncoupling of two cars and the recoupling thereof the coupling-pin be raised either maliciously or otherwise, so that the pin is supported on the supporting-surface and is lifted with the shoulder d^3 thereof above the extension of the tailpiece, said pin will be engaged during the coupling operation by the cam projection C^3 and released from its elevated position and allowed to drop to its lowermost position when the knuckle-tailpiece passes the same. It will be understood that when the locking-pin is set preparatory to uncoupling the cars of a train the elevation of the coupling-pin will rock the knuckle-actuating member, so as to swing the actuating-arm F^5 thereof toward the tailpiece; but said actuating-arm is located such distance from the tailpiece that it will not be brought into contact with the tailpiece to swing the latter outwardly until the locking-pin is raised somewhat higher than the position shown in Fig. 2.

If it be assumed that it is desired to set a coupler of an unattached car in position to be automatically coupled to a companion coupler of another car, the operation of the device is as follows: The lifting-bar D^3 of the locking-pin is lifted, either through direct manual engagement or by the use of an ordinary lifting-chain. The first effect of lifting the bar D^3 is to shift the stop-latch D^4 thereof for-

wardly out of line with the stop-pin E to permit the latch to be lifted above said stop-pin. After the lifting-bar pivot-pin d^6 has shifted said latch out of alinement with the stop-pin E and the pivot-pin d^6 is brought into contact with the upper end of the slot d^{10} said locking-pin is lifted through the medium of said bar. By reason of the engagement of the projection F^4 of the knuckle-actuating member F, before described, with the groove d^4 of the pin the lifting of said pin has an effect to rock the said actuating member F on its longitudinal axis, thereby throwing the actuating-arm F^5 outwardly toward the adjacent face of the tailpiece of the knuckle. The said actuating-arm is brought into contact with the tailpiece just after the shoulder d^2 of the locking-pin is lifted above the level of the upper face of the tailpiece. Thereafter in the continued rising movement of the locking-pin the angular or rocking movement of the actuating member F is continued and the actuating-arm F^5 is forced against the tailpiece, with the result of swinging the knuckle outwardly into the position shown in Fig. 4. After the locking-pin has been raised to fully open the knuckle the locking-pin is dropped until the shoulder d^2 thereof rests upon the extension C^2 of the tailpiece, which extension acts as a support for the locking-pin to hold it in this position.

The extreme end of said extension C^2 of the tailpiece is located at a slightly lower level than the upper side of the rear end of the tailpiece, whereby when the shoulder d^2 of the locking-pin rests on the said projection the shoulder d^3 of the locking-pin is located slightly below the supporting-surface a on the draw-bar, so that when the knuckle is moved inwardly in the operation of coupling two cars the pin is free to drop downwardly into its lowermost position after said tailpiece has passed said shoulder d^2 of the locking-pin. If, however, the locking-pin should be raised after the parts have been set in the position shown in Fig. 4, so as to bring the shoulder d^3 in contact with the supporting-surface of the draw-bar, the cam C^3 on said tailpiece when the tailpiece is moved inwardly acts to thrust the lower end of said pin out of engagement with the lower wall of the draw-bar, so as to permit the pin to drop into its lowermost position.

An advantage of extending the shank F' of the actuating member rearwardly into the draw-bar and connecting the same with the bottom wall thereof in the manner shown is that in case the head of the draw-bar be broken in rear of the front end of the actuating member said actuating member will prevent said broken part from falling onto the track with a liability of derailing the cars of the train.

I claim as my invention—

1. The combination with a hollow draw-bar and its head, and a horizontally-swinging knuc-

kle having a rearwardly-directed tailpiece, of a horizontally-rocking, knuckle-actuating member having bearing in the head, a depending knuckle-actuating arm on one side of said member, a lock at the other side of said member which is adapted to stand in the path of the tailpiece to lock the knuckle closed, a rearwardly-directed shank having loose connection with the draw-bar, and means for raising said lock out of the path of the tailpiece to permit the knuckle to open and acting at the same time to rock said knuckle-actuating member in a manner to swing the knuckle-actuating arm against the tailpiece and thereby open the knuckle.

2. The combination with a draw-bar head, a horizontally-swinging knuckle, and a locking-pin which is lifted to release the knuckle, of an actuating member which is loosely connected at its rear end with the draw-bar, and provided at its forward end with a forwardly and laterally directed arm which has bearing in the wall of the head and is provided with a knuckle-actuating arm, and interlocking connections between said locking-pin and said actuating member, whereby, when the locking-pin is lifted, said member is rocked to swing the knuckle-actuating arm toward and against the tailpiece of the knuckle.

3. The combination with a draw-bar head, a horizontally-swinging knuckle and a locking-pin which is lifted to release the knuckle, of an actuating member which is loosely connected at its rear end with the draw-bar and provided at its forward end with a forwardly and laterally directed arm which has bearing in the wall of the head and provided with a knuckle-actuating arm, and an arm or lug on said member which engages a horizontal groove in the adjacent face of the locking-pin, whereby, when the locking-pin is lifted, the actuating member is rocked and the knuckle-actuating arm thereof swung outwardly toward and into contact with the tailpiece of the knuckle.

4. The combination with a draw-bar head, a horizontally-swinging knuckle and a locking-pin which is lifted to release the knuckle, of an actuating member provided with a rearwardly-directed shank having a downturned portion which fits loosely in an opening in the draw-bar, said member being provided at its forward end with a forwardly and laterally directed arm which has bearing in the wall of the draw-head and is provided with a knuckle-actuating arm, and interlocking connections between said locking-pin and said member, whereby, when the coupling-pin is lifted to release the knuckle, said member is rocked and the said knuckle-actuating arm is swung outwardly toward and against the tailpiece of the knuckle.

5. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a rearwardly-extending tailpiece and a lock-

ing-pin which is lifted to release the knuckle, of an actuating member which is located over the tailpiece of the knuckle when the knuckle is in its closed position, and is loosely connected at its rear end with the draw-bar, said actuating member being provided with a laterally and forwardly directed arm which has bearing in the wall of the head adjacent to said tailpiece, a downwardly-extending knuckle-actuating arm on said bearing-arm, and interlocking connections between said locking-pin and the actuating member, whereby, when the locking-pin is lifted to release the knuckle, said member is rocked in its bearing in a manner to swing the knuckle-actuating arm outwardly toward and against the tailpiece of the knuckle.

6. The combination with a draw-bar head, a horizontally-swinging knuckle having a rearwardly-directed tailpiece and a locking-pin which is lifted to release the knuckle, of an actuating member which is loosely connected at its rear end with the draw-bar, and provided at its forward end with a forwardly and laterally directed arm which has bearing in the wall of the head, a depending knuckle-actuating arm on said bearing-arm which is normally located a distance from the tailpiece of the knuckle, and interlocking connections between said locking-pin and said member, whereby, when the pin is lifted, said actuating member is rocked in its bearing-arm to swing the knuckle-actuating arm thereof outwardly toward and against the tailpiece of the knuckle.

7. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a rearwardly-directed tailpiece and a locking-pin, said pin being provided with a widened upper part which is located in the path of the tailpiece of the knuckle and with a downwardly-facing shoulder between said widened upper part and the narrower lower part of the pin, of an actuating member which is loosely connected at its rear end with the draw-bar and provided with a laterally and forwardly directed arm which engages a bearing in the wall of the head, a depending knuckle-actuating arm on said bearing-arm which is normally located a distance from the tailpiece of the knuckle, and interlocking connections between the locking-pin and said actuating member acting, when the pin is lifted, to rock said actuating member and swing the actuating-arm toward and against the tailpiece of the knuckle, said actuating-arm being adapted to engage the knuckle-tailpiece at the time the shoulder of the pin is raised above the level of the tailpiece.

8. The combination with a draw-bar head, a horizontally-swinging knuckle having a rearwardly-directed tailpiece, and a locking-pin which is lifted to release the knuckle, and means for preventing the locking-pin accidentally rising, of a horizontally-rocking ac-

tuating member having on one side an arm which has bearing engagement in the head, a depending knuckle-actuating arm on said bearing-arm, and interlocking connections between said pin and the side of the actuating member remote from the knuckle-actuating arm, whereby, when the pin is lifted, said member is rocked and the knuckle-actuating arm is swung toward and against the tailpiece of the knuckle in a manner to open the latter.

9. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a tailpiece, and a locking-pin having a part which is located in the path of the tailpiece, of a stop-latch pivoted to the locking-pin adapted to engage a stationary stop in the head, a lifting-bar pivoted to the locking-pin and having a limited vertical movement with respect thereto, said lifting-bar acting on the latch to swing the same out of alignment with the stationary stop of the head to permit the locking-pin to be lifted out of the path of the knuckle-tailpiece.

10. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a tailpiece, and a locking-pin having a part which is located in the path of the tailpiece, of a stop-latch pivoted to the locking-pin and adapted to engage a stationary stop in the head, a lifting-bar provided with a pivot-pin which engages a slot in the locking-pin, thereby permitting relative vertical movement of the locking-pin and lifting-bar, said latch being provided with an oblique slot engaged by said lifting-bar pivot-pin, whereby, in the limited movement of the lifting-bar, the latch is swung out of line with the said stationary stop of the head.

11. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a tailpiece, a locking-pin which is lifted to release the tailpiece, a pivoted stop-latch on said locking-pin adapted to engage a stationary stop in the head to prevent accidental rising of the pin sufficiently to release the knuckle, and means operated by the lifting of the pin to swing the latch out of line with the said stationary stop, of a rocking knuckle-actuating member which is actuated by the lifting of said pin to engage said tailpiece in a manner to open said knuckle.

12. The combination with a draw-bar head, a horizontally-swinging knuckle provided with a tailpiece having a laterally-curved extension, and a locking-pin provided with a wide upper part located in the path of the tailpiece of the knuckle and a downwardly-facing shoulder between said wide upper part and the lower narrower part of the pin, an actuating member which is operated through the lifting of the pin to act on said tailpiece in a manner to open the knuckle, said lateral extension of the tailpiece, when the knuckle is open, engaging said shoulder of the locking-pin and supporting said locking-pin.

13. The combination with a draw-bar head, and a locking-pin, of a horizontally-swinging knuckle provided with a tailpiece having a laterally-directed extension, said locking-pin 5 being provided with a wide upper part located in the path of the tailpiece and provided between said wide upper part and the lower narrower part of the pin with a downwardly-facing shoulder, a shoulder on the narrower 10 part of the pin adapted to engage a supporting-surface of the draw-bar head to hold the first shoulder of the pin above the level of the tailpiece, and means for shifting the lower end of the pin rearwardly when the knuckle 15 is swung outwardly to drop the pin on the extension of the tailpiece.

14. The combination with a draw-bar head, and a locking-pin, of a horizontally-swinging knuckle provided with a tailpiece having a 20 laterally-directed extension, said locking-pin being provided with a wide upper part located in the path of the tailpiece and provided between said wide upper part and the lower narrower part of the pin with a downwardly-facing shoulder, a shoulder on the narrower 25 part of the pin adapted to engage a supporting-surface of the draw-bar head to hold the first shoulder of the pin above the level of the tailpiece, and a cam-surface on the tailpiece 30 adapted to act on the lower end of the pin when the tailpiece swings outwardly to shift the lower end of the pin rearwardly to permit said pin to drop with the shoulder between the wider and narrower parts of the 35 pin resting on said extension of the tailpiece.

15. The combination with a draw-bar head, and a locking-pin, of a horizontally-swinging knuckle provided with a tailpiece having a 40 laterally-directed extension, said locking-pin being provided with a widened upper part which is located in the path of the tailpiece and provided between the widened upper part and the lower narrower part of the pin with a downwardly-facing shoulder, of an actuating 45 member which is operated through the lifting of the coupling-pin to swing the knuckle outwardly to open the same, a shoulder on the narrower part of the pin adapted to engage a supporting-surface on the draw-bar 50 head to hold the first shoulder of the pin above the level of the tailpiece, and a cam projection on the tailpiece adapted to engage the narrower part of the pin when the knuckle is swung outwardly to permit said pin to drop 55 with said first shoulder on the extension of the tailpiece.

16. The combination with a draw-bar head and a horizontally-swinging knuckle having a 60 tailpiece, of a pin having a wide upper part located in the path of the tailpiece and adapted to be raised above the level of the tailpiece, an actuating member which is set in motion by the locking-pin when said wide upper part thereof is lifted above the level of the tail-

piece to swing the knuckle outwardly, and 65 means for preventing the locking-pin accidentally rising comprising a stop-latch pivoted to the pin and adapted for engagement with a stationary stop of the head, and a lifting-bar pivoted to the stop-latch and constructed, when lifting power is applied to the 70 bar to swing said stop-latch out of line with the stationary stop, to permit the pin to be fully raised.

17. The combination with a draw-bar head, a 75 horizontally-swinging knuckle provided with a rearwardly-directed tailpiece having a laterally-directed extension, and a locking-pin having a wide upper part located in the path of the tailpiece, of an actuating member operated by the raising of the locking-pin to 80 throw the knuckle open, and a shoulder on the locking-pin adapted to rest on the tailpiece extension when the knuckle is thrown outwardly and thereby hold the wide part of 85 the pin above the level of the tailpiece.

18. The combination with a draw-bar head and a horizontally-swinging knuckle having a rearwardly-extending tailpiece, provided with a laterally-curved extension, of a locking-pin 90 which is provided with a wide upper part located in the path of the tailpiece and with a shoulder between the wide upper part and the lower narrower part of the pin, said shoulder on the pin resting on the extension of the tailpiece when the knuckle is opened, whereby 95 the knuckle may be automatically closed without lifting said locking-pin.

19. The combination with a hollow draw-bar and its head, a horizontally-swinging knuckle having a rearwardly-directed tailpiece, and 100 a locking-pin, of a horizontally-rocking actuating member which has rocking bearing in said head, a shank on said actuating member which extends rearwardly into said hollow 105 draw-bar and is provided with a part which extends through an opening in the wall of the draw-bar, a knuckle-actuating arm on said actuating member and operative connection between the pin and said member whereby when 110 the pin is moved to release the knuckle said actuating-arm is swung toward and against the tailpiece of the knuckle to open the latter.

20. The combination with a draw-bar head, a swinging knuckle provided with a tailpiece, 115 and a locking-pin having a part located in the path of said tailpiece, of a stationary stop on said head, a movable stop on the locking-pin adapted to engage the stationary stop to prevent accidental shifting of the locking-pin in 120 a manner to release the knuckle, means for shifting said movable stop to permit movement of the pin sufficient to release the knuckle, and a fixed shoulder on the pin adapted to engage the stationary stop to prevent complete withdrawal of the pin from the head. 125

21. The combination with a draw-bar head, and a locking-pin, of a horizontally-swinging

knuckle provided with a tailpiece which extends rearwardly into said head, said locking-pin being provided with a wide upper part located in the path of the tailpiece when the
5 pin is in its locking position, a supporting-surface on the draw-bar head adapted to be engaged by a downwardly-facing shoulder at the lower end of the pin to support the pin in its unlocking position, and a cam-surface
10 on the tailpiece adapted to act on the lower end of the pin to shift said lower end rear-

wardly to permit the pin to drop into its unlocking position.

In testimony that I claim the foregoing as my invention I affix my signature, in presence 15 of two witnesses, this 29th day of May, A. D. 1902.

JAMES A. HINSON.

Witnesses:

WILLIAM L. HALL,
GERTRUDE BRYCE.