

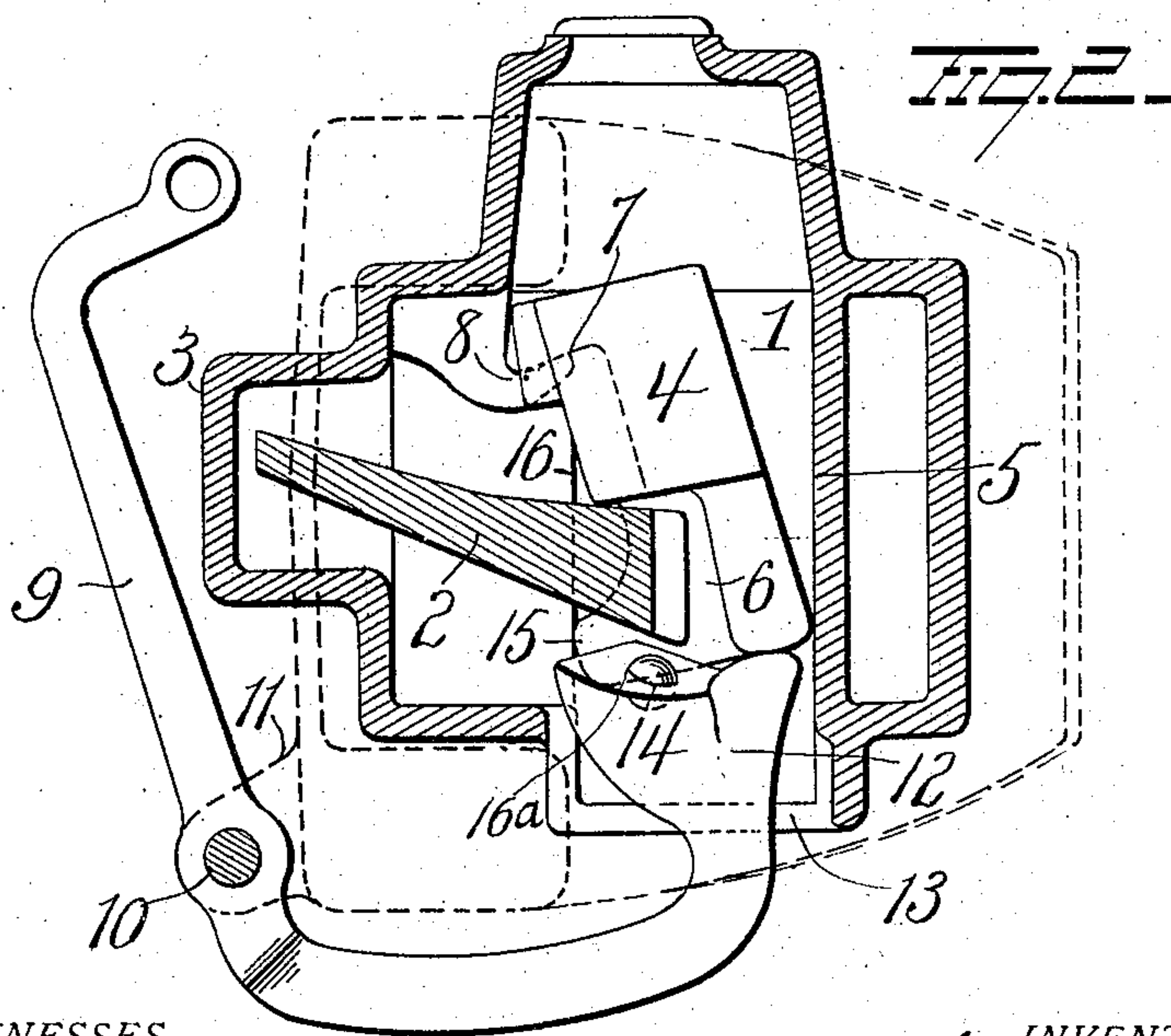
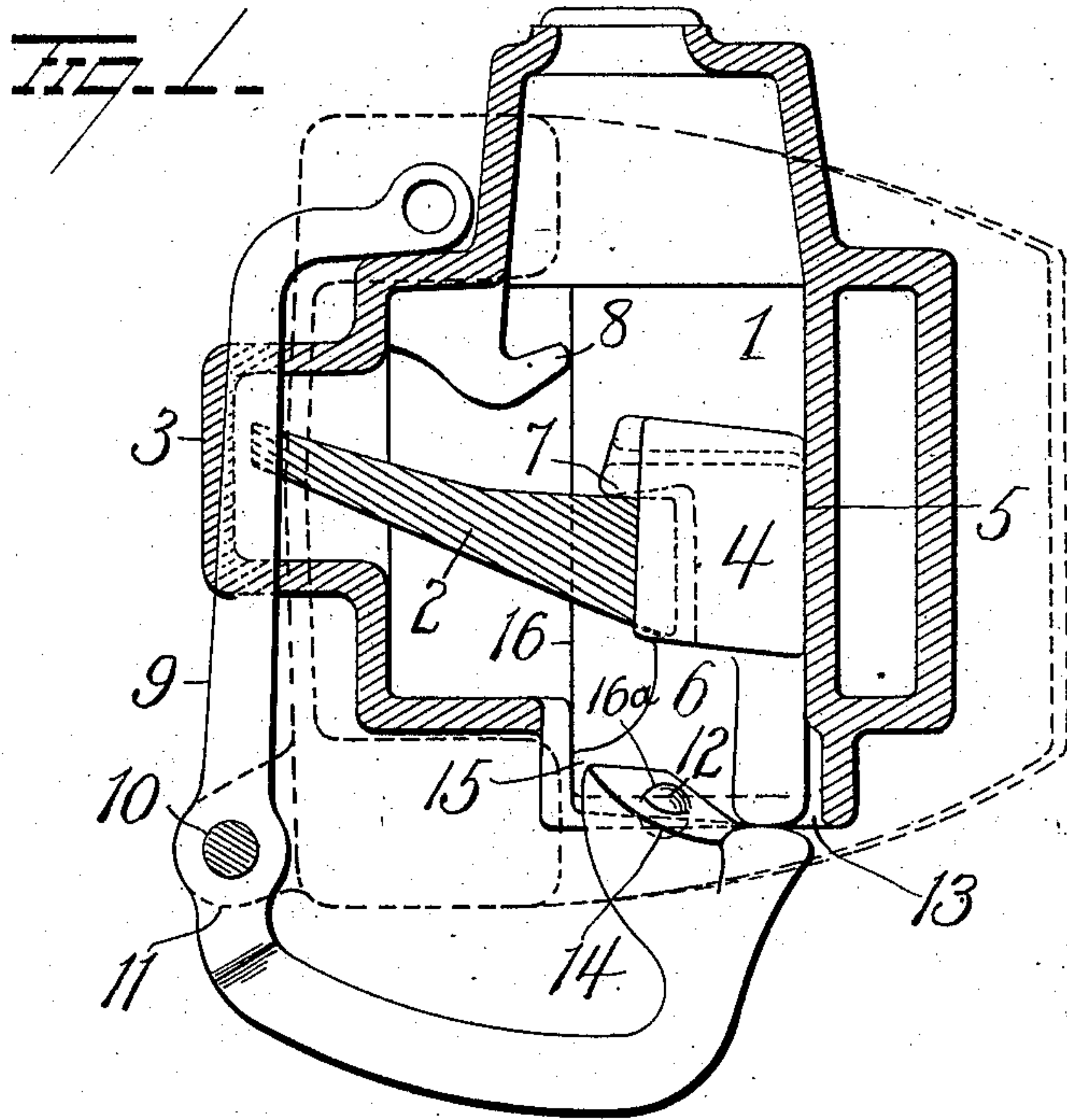
No. 785,086.

PATENTED MAR. 21, 1905.

S. P. BUSH & J. TIMMS.  
AUTOMATIC CAR COUPLING.

APPLICATION FILED OCT. 24, 1904.

2 SHEETS—SHEET 1.



WITNESSES  
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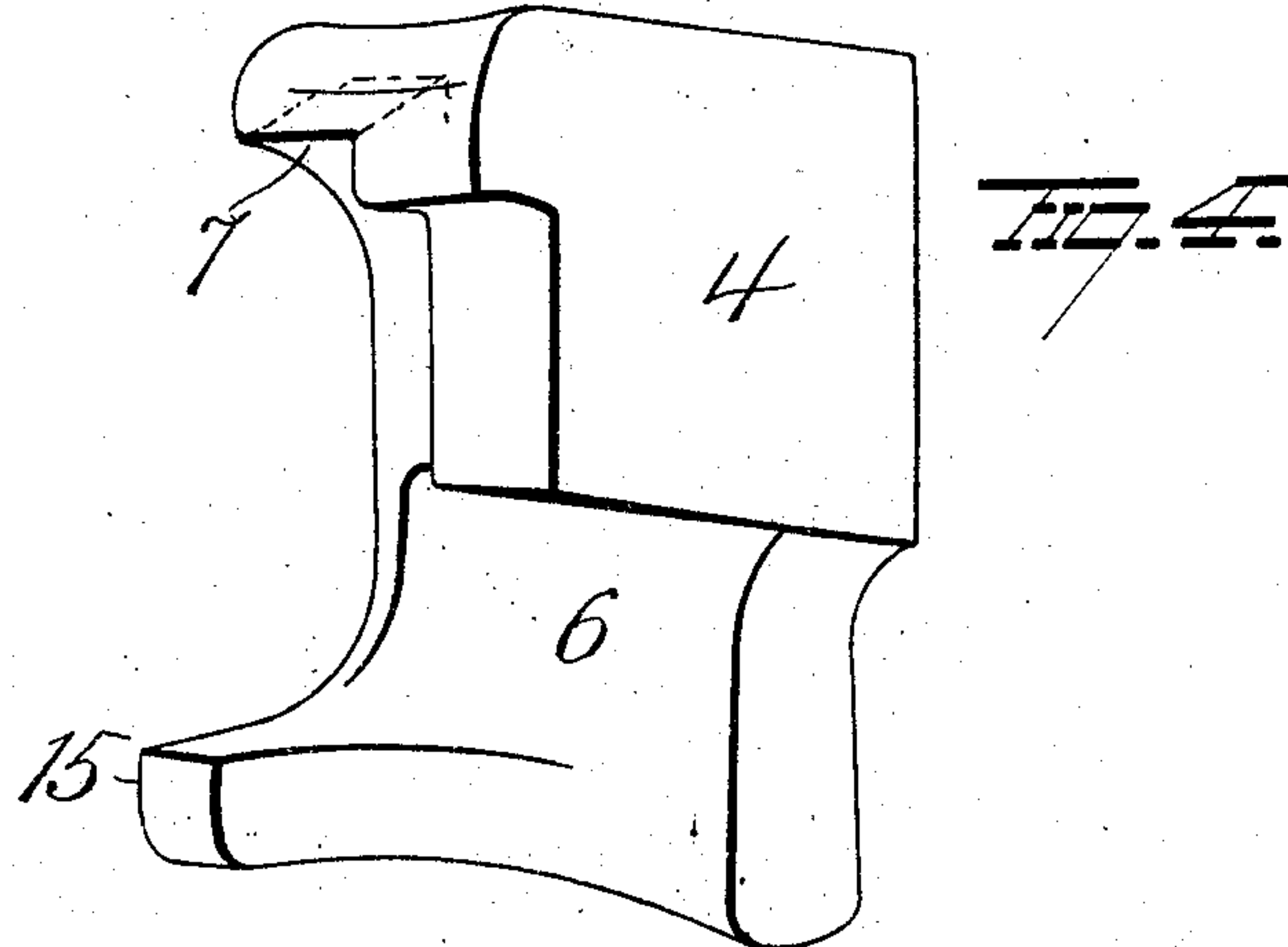
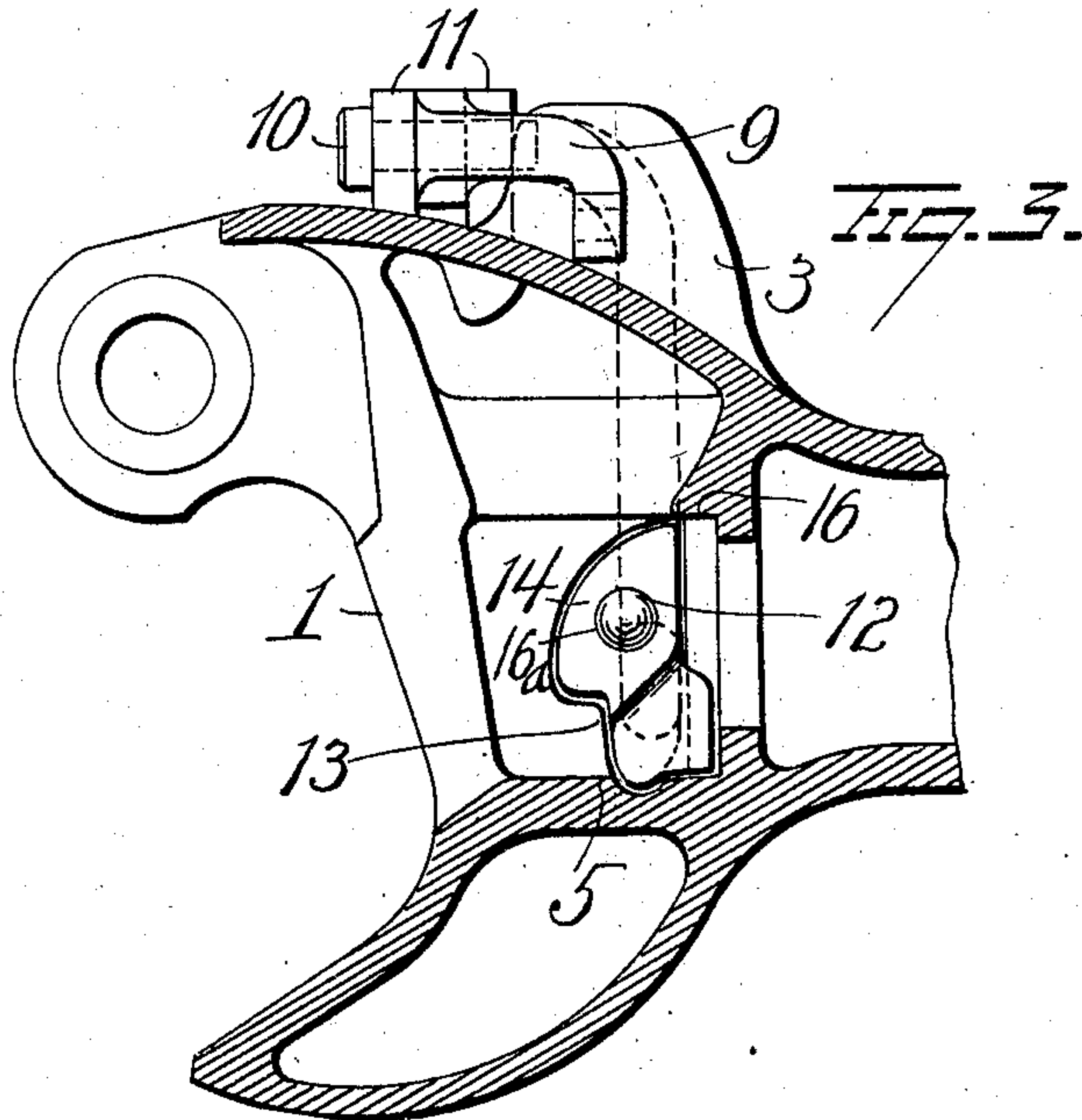
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# UNITED STATES PATENT OFFICE.

SAMUEL P. BUSH AND JAMES TIMMS, OF COLUMBUS, OHIO.

## AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 785,086, dated March 21, 1905.

Application filed October 24, 1904. Serial No. 229,776.

*To all whom it may concern:*

Be it known that we, SAMUEL P. BUSH and JAMES TIMMS, residents of Columbus, in the county of Franklin and State of Ohio, have  
5 invented certain new and useful Improvements in Automatic Car-Couplings; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which  
10 it appertains to make and use the same.

Our invention relates to an improvement in couplings, the object of the invention being to provide an improved coupling in which the locking device is moved from below by a lever or arm to move the locking device into a  
15 lock-set position or to throw the knuckle open; and the invention consists in certain novel features of construction and combinations and arrangements of parts, as will be more fully  
20 hereinafter described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a view in vertical cross-section of the coupling, showing the parts in locked position.  
25 Fig. 2 is a similar view with the parts in lock-set position. Fig. 3 is a view in horizontal section with knuckle removed, and Fig. 4 is an enlarged view of the locking-block.

1 represents the coupling-head in which  
30 the knuckle is pivoted, and said knuckle is made with a tail 2 at its inner end, having an inclined or beveled lower face, the head being made with an offset or pocket 3 to receive the end of the knuckle-tail. The knuckle  
35 is locked in its closed position by a locking-block 4, having a rectangular portion to fit between a flat face of the knuckle-tail and the wall 5 of the head, and the lower portion of the block is recessed, as shown at 6, to permit the knuckle-tail to freely pass the block  
40 when the latter is elevated. The upper portion of the block is recessed at one side, forming a lip 7 to engage over a hook 8 in the head 1 and hold the block in lock-set position.  
45 The block being top-heavy, when elevated tilts to one side to the position shown in Fig. 2. At the lower end of the block a laterally-projecting lug or finger 15 is provided and moves against a vertical guide-wall 16 in the

head, preventing the lower end of the block 50 from swinging to one side and compelling the upper end of the block to tilt over and engage the hook.

At one side of head 1 a lever 9 of the general shape shown is fulcrumed between its  
55 ends on a pin 10, secured in a pair of lugs 11, integral with the head. The upper end of this lever 9 extends partly over head 1 and has an eye therein to receive the ordinary operating-chain connected with a crank-shaft  
60 and used to open the coupling in uncoupling or to adjust the parts to lock-set position. The lower inner end of lever 9 is enlarged, as shown at 12, and adapted to bear against the  
65 lower end of locking-block 4, which projects into an opening 13 in the bottom of the head. This enlarged end 12 has a curved integral lip 14, adapted when raised to a predetermined height to engage the lower inclined  
70 face of the knuckle-tail, and a continued upward movement of the lower end of lever 12 will, due to the cam action, force the knuckle open. Instead of having this lip 14 on the enlargement 12 it might be on the locking-  
75 block, the operation being just the same as though it were on the lever.

The operation of our improvements is as follows: When the parts are in the position shown in Fig. 1, the knuckle is effectually  
80 locked in its closed position. An outward pull on the upper end of lever 9 serves to raise the lower end 12 thereof and elevate locking-block 4, and as the latter is raised out of its locking position owing to its top-heavy  
85 construction and the contact of finger 15 with the guide-wall in the head the upper end of the block will tilt over and engage over hook 8, holding the block in lock-set position, as shown in Fig. 2. Should the knuckle then be  
90 swung open, it will first dislodge the locking-block 4 from hook 8 and support the same on the knuckle-tail, and when the knuckle is closed the block will drop from the tail and fall into its locking position. With the parts  
95 as shown in Fig. 2 should the enlarged end 12 be moved upward its lip 14 will engage the inclined face of the knuckle-tail and force the knuckle open. When the lever 9 is re-



leased, its heavier lower end will compel it to assume its normal position. (Shown in Fig. 1.)

To reduce friction and render the operation easy, a ball or roller 16<sup>a</sup> is located in a recess 5 in the contacting face of lip 14, and this ball or roller engages the knuckle-tail and reduces the friction of the lip thereagainst as the knuckle is forced open by the upward movement of the lever end.

10 A great many slight changes might be made in the general form and arrangement of the parts described without departing from our invention, and hence we do not restrict ourselves to the precise details set forth, but consider ourselves at liberty to make such slight 15 changes and alterations as fairly fall within the spirit and scope of our invention.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

20 1. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of an operating device movable vertically through the opening in the bottom of the head and operating to raise the 25 locking-block and cooperating with the tail of the knuckle to throw the latter open.

2. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, 30 and a locking-block, of an operating device movable vertically through the opening in the bottom of the draw-head to raise the locking-block, said operating device having a part cooperating with the inclined face of the tail of 35 the knuckle to throw the latter open by cam action when said operating device is raised.

3. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, 40 of an operating device movable vertically through the opening in the bottom of the coupling-head and having a part cooperating by cam action with the inclined face of the 45 tail of the knuckle to throw the knuckle open when said operating device is raised.

4. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, 50 of an operating device vertically movable through the opening in the bottom of the coupling-head, said operating device cooperating by cam action with the knuckle-tail to throw the knuckle open when said operating 55 device is raised, and an antifriction device between the faces of the operating device and the knuckle-tail.

5. The combination with a coupling-head having an opening in its bottom, a knuckle having a tail provided with an inclined lower face, 60 and a locking-block, of an operating device constructed to embrace the coupling-head and having a part vertically movable through the opening in the bottom of the coupling-head,

said vertically-movable part cooperating with 65 the locking-block to raise the same and with the tail of the knuckle to open the latter.

6. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a bent lever pivotally attached to the exterior to the coupling-head 70 and having a part to project upwardly through the opening in the coupling-head and engage the locking-block and knuckle-tail to operate the same.

7. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a lever pivotally attached to one side of the coupling-head and having a 75 part vertically movable through the opening in the bottom of the coupling-head and cooperating with the locking-block and knuckle to operate the same.

8. The combination with a coupling-head having an opening in its bottom, a knuckle and a locking-block, of a lever pivoted to and partially embracing the coupling-head, said lever 85 having a part movable vertically through the opening in the bottom of the coupling-head and adapted to engage the locking-block to 90 raise the same and the tail of the knuckle to throw the latter open.

9. The combination with a coupling-head, of a pivoted knuckle therein, a tail on the knuckle, a locking-block in the head, a hook in the 95 head to enter a recess in the block and hold the latter in lock-set position when elevated, a lever adapted to enter the head through an opening in the bottom thereof, engage the 100 locking-block to move it to its lock-set position, and engage the knuckle-tail to throw the knuckle open.

10. The combination with a coupling-head, of a pivoted knuckle therein, a locking-block in the head, a lever pivoted between its ends to 105 the outside of the head and having an eye at its upper end to receive operating means, an enlargement at the other end of the lever to enter an opening in the bottom of the head and engage the locking-block to operate the latter. 110

11. The combination with a coupling-head having an opening in its bottom, of a pivoted knuckle in said head, an inclined tail on the 115 knuckle, a locking-block in the head, a lever pivoted between its ends to the outside of the head, an enlargement on one end of the lever to enter the opening in the bottom of the head and engage the block to unlock the knuckle, and a lip on said enlargement to engage the 120 inclined tail of the knuckle and throw the knuckle open.

12. The combination with a coupling-head having an opening in its bottom, of a pivoted knuckle in said head, a locking-block in the head, a lever engaging the block from below 125 to move it upward, a hook in the head to hold the block in lock-set position when the block is raised and tilted, a laterally-projecting lug



or finger on the block, and a guide-wall in the head against which the lug or finger moves to insure the tilting of the block when raised.

13. The combination with a coupling-head, 5 of a knuckle pivoted therein, a tail on the knuckle having its lower face inclined, and a lever pivoted to the outside of the head and having a face adapted to engage the lower face of the knuckle-tail and operating by cam action to 10 throw the knuckle open.

14. The combination with a coupling-head, a knuckle pivoted therein, said knuckle provided with a tail having an inclined under face, and a locking device in the head to lock 15 the knuckle in its closed position, of an operating device movable vertically under the locking device and also under the knuckle-tail, and adapted to cooperate with the inclined under face of the knuckle-tail and open

the knuckle by cam action between said inclined face of the knuckle-tail and the operating device when the latter is raised. 20

15. The combination with a coupling-head, of a knuckle pivoted therein, and a tail on the knuckle, of a lever pivoted between its ends, 25 and an antifriction rotary device in the end of the lever adapted when the latter is moved, to engage the knuckle-tail and throw the knuckle open.

In testimony whereof we have signed this specification in the presence of two subscribing 30 witnesses.

SAMUEL P. BUSH.  
JAMES TIMMS.

Witnesses:

J. W. GLAZE,  
G. C. TAYLOR.