

No. 862,204.

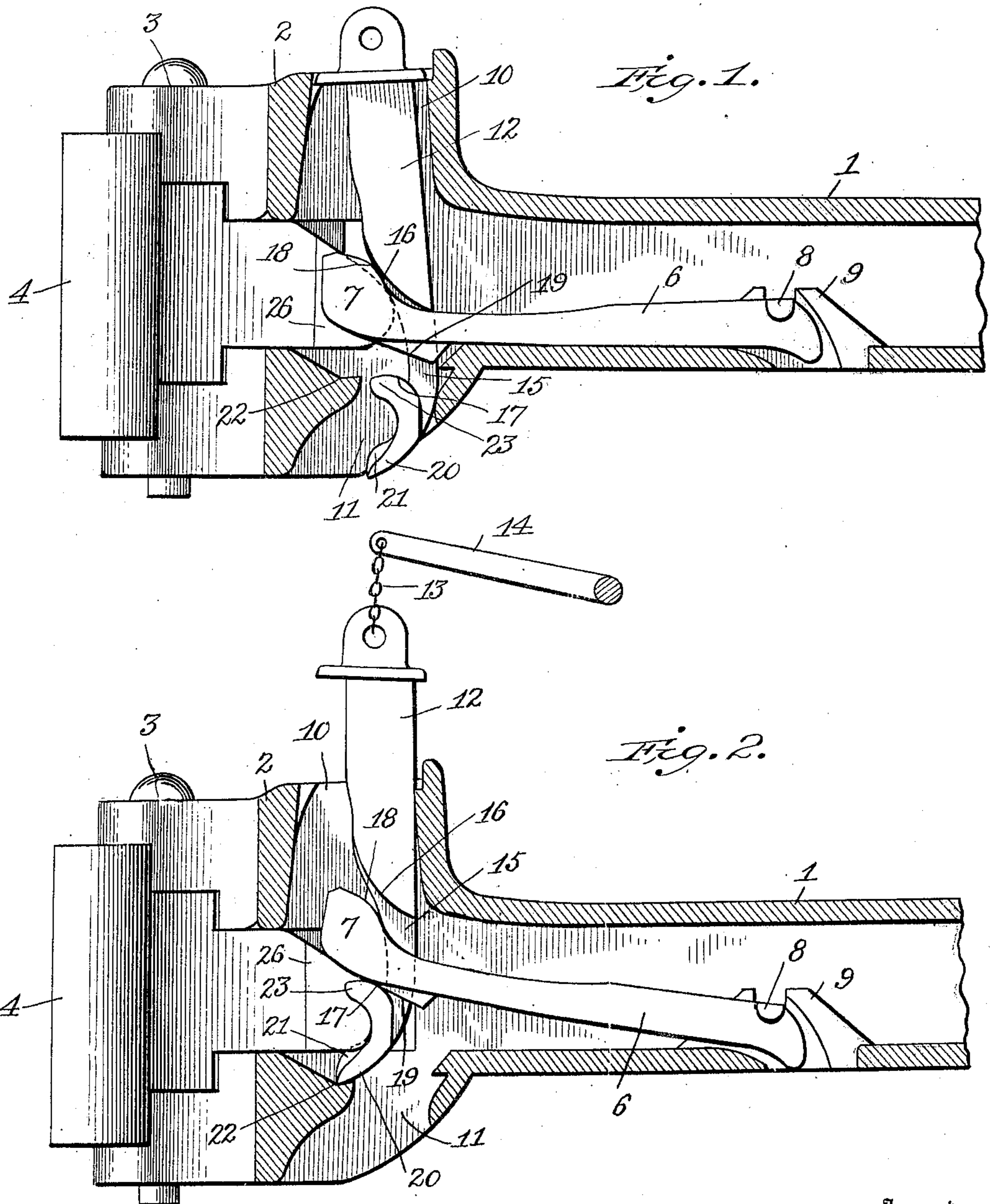
PATENTED AUG. 6, 1907.

W. S. SCHROEDER.

CAR COUPLING.

APPLICATION FILED FEB. 4, 1907.

4 SHEETS—SHEET 1.



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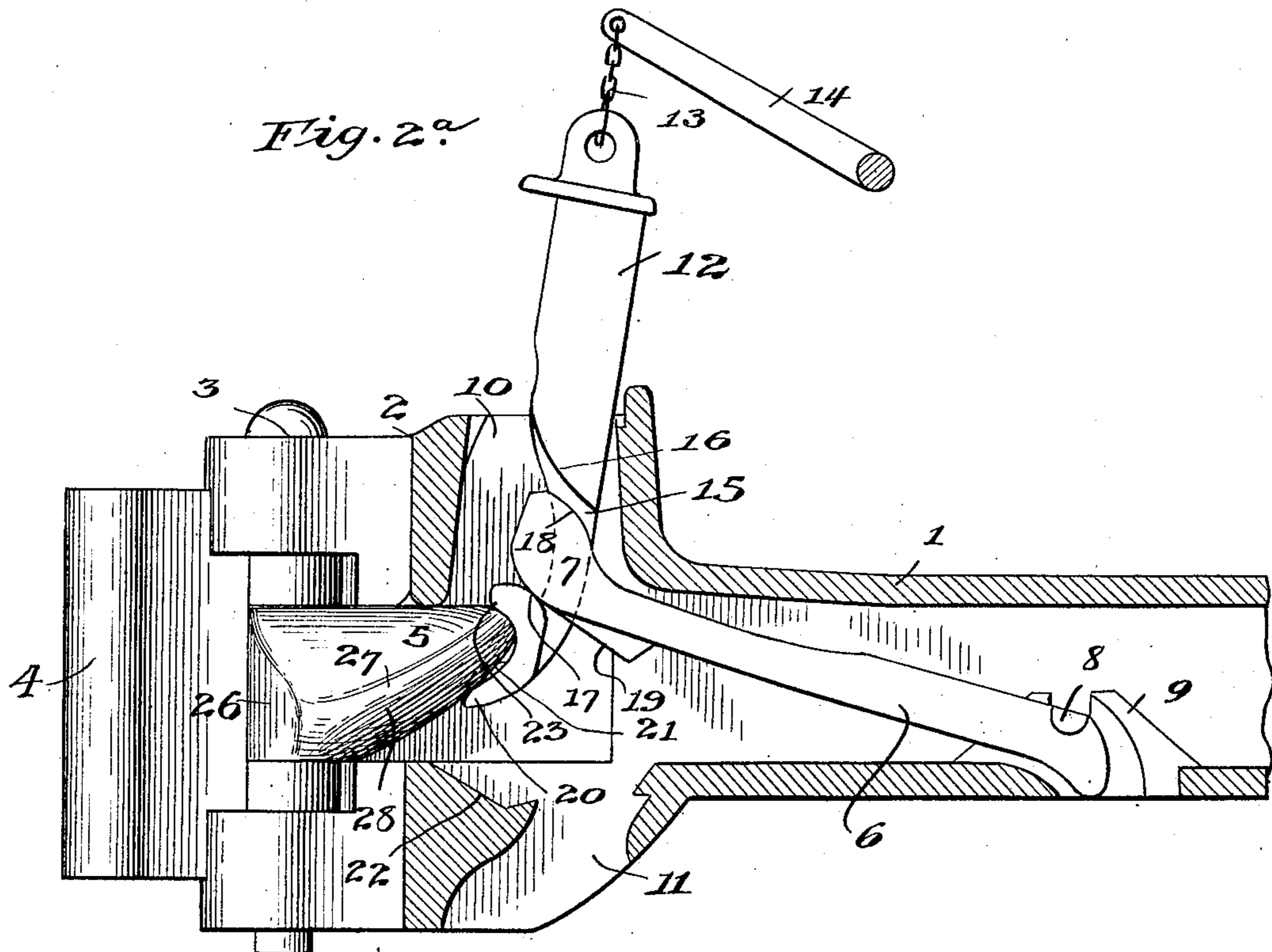
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4 SHEETS—SHEET 2.



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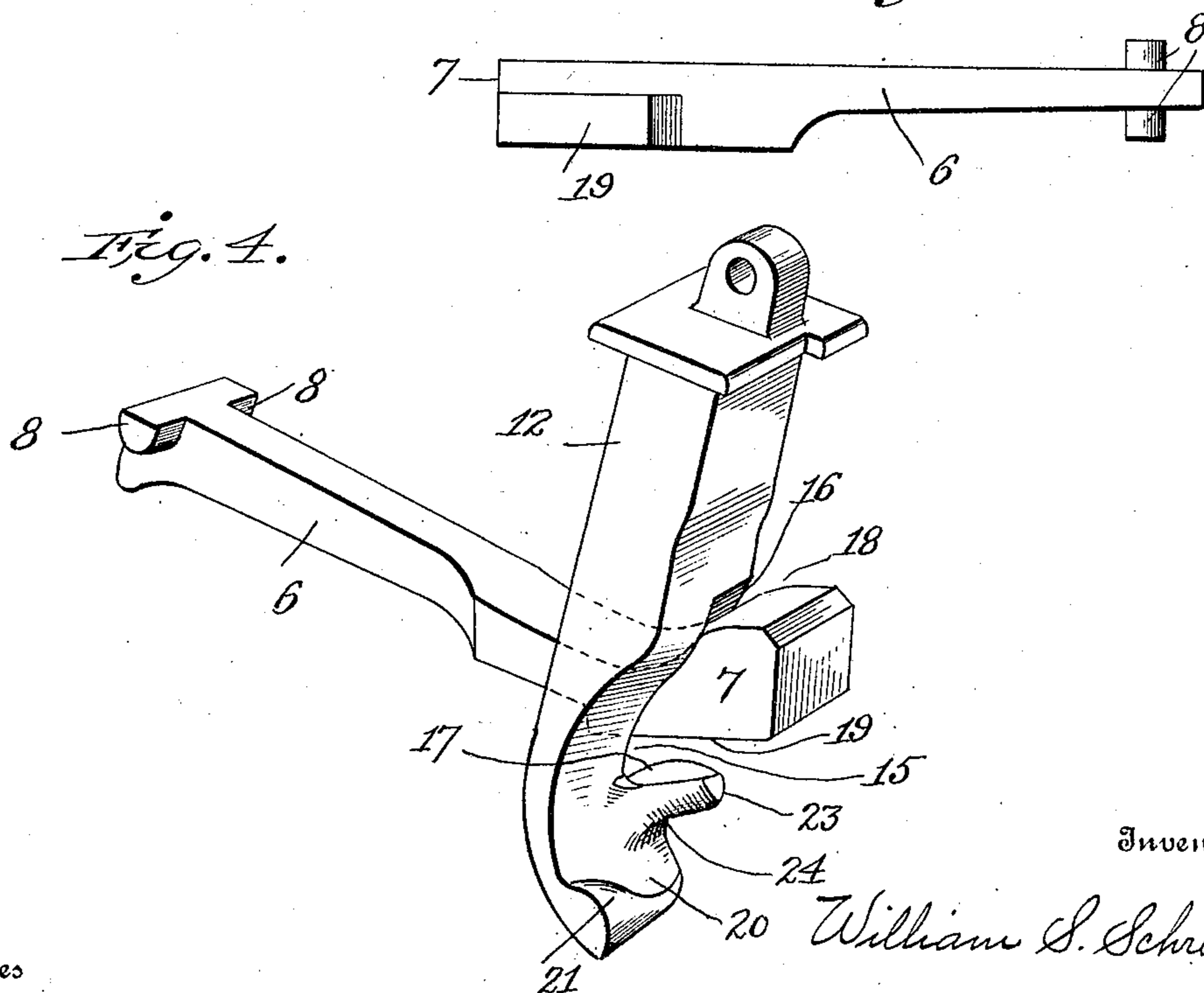
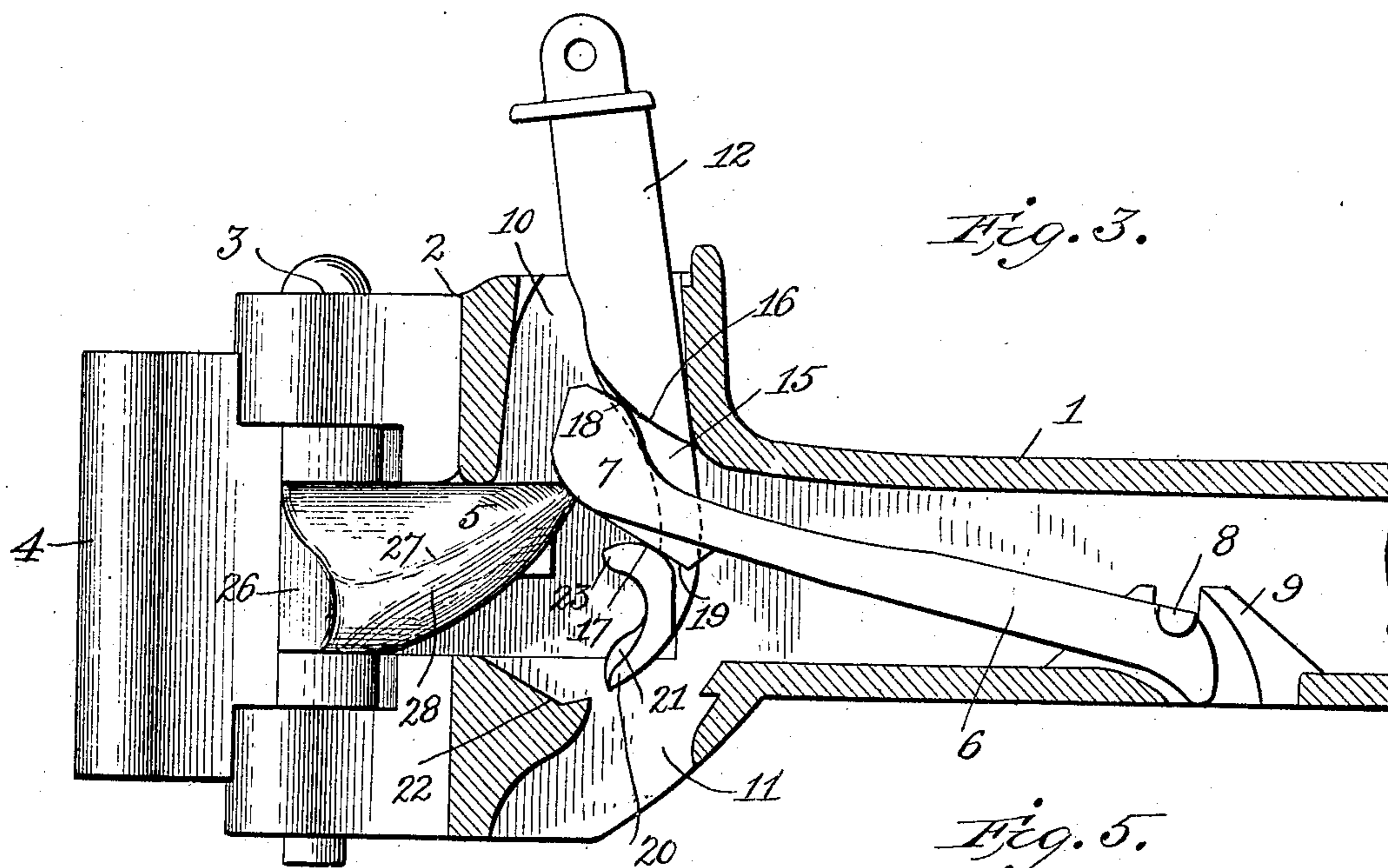
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4 SHEETS—SHEET 3.



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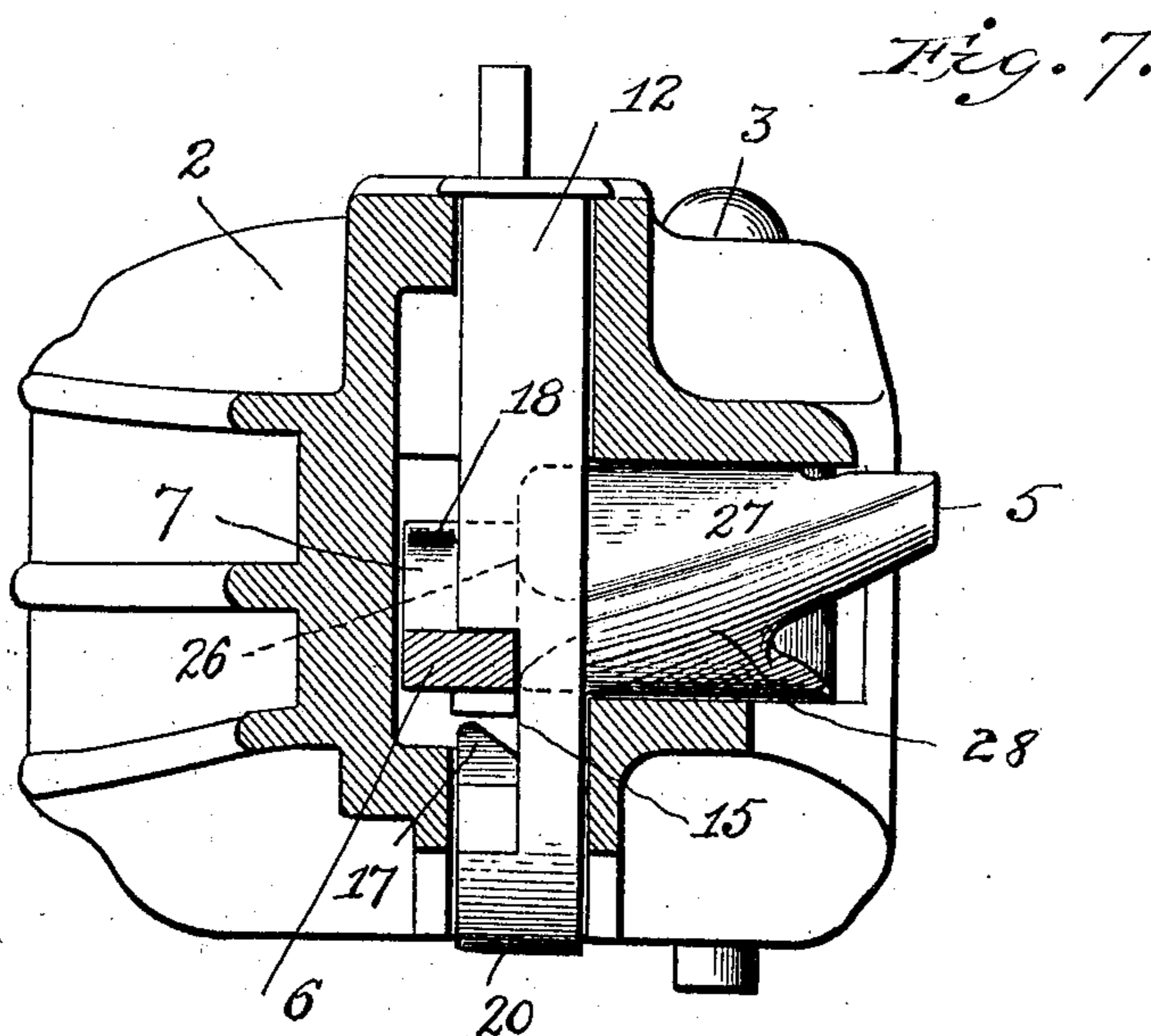
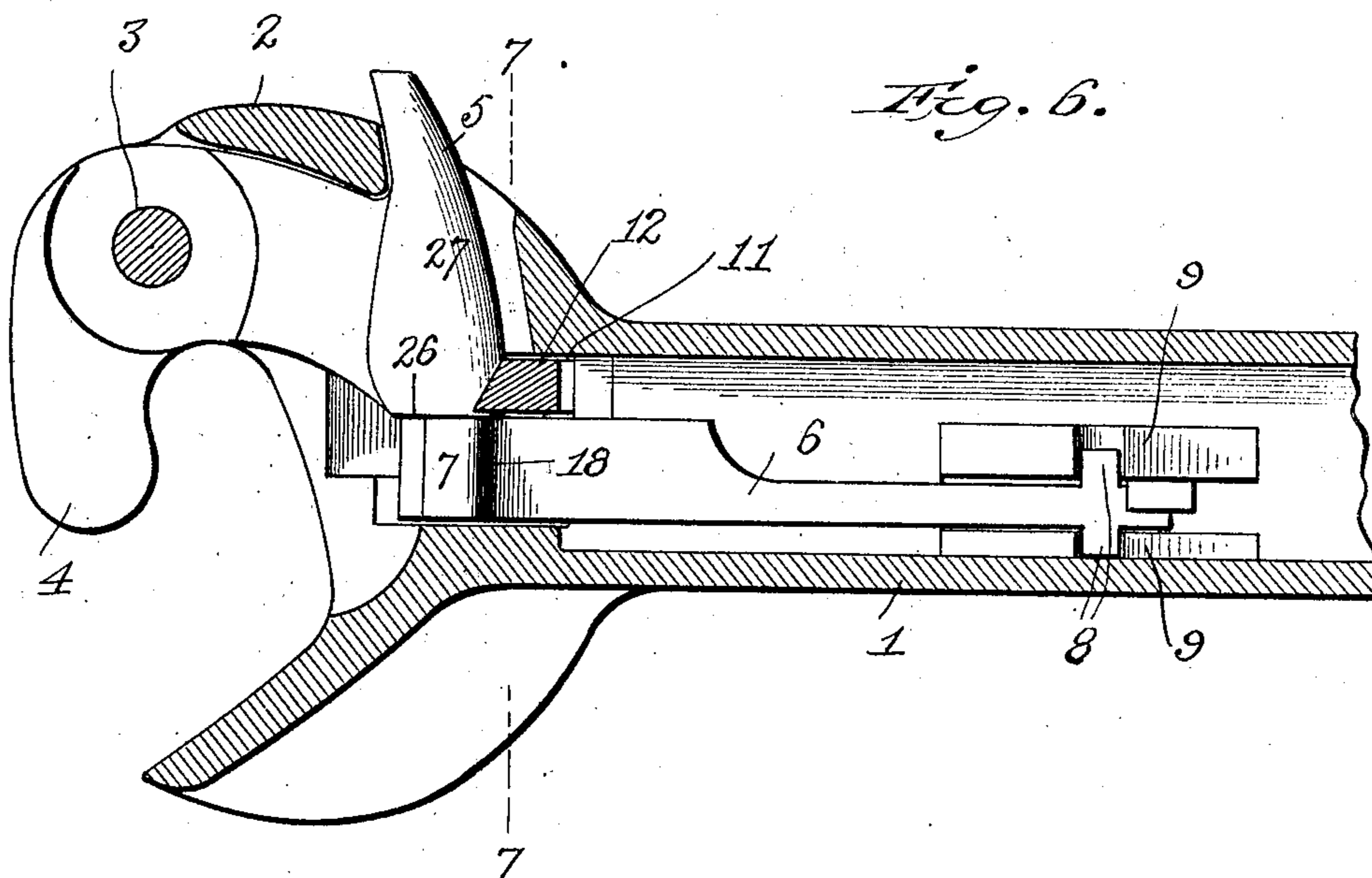
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4 SHEETS—SHEET 4.



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UNITED STATES PATENT OFFICE.

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CAR-COUPLING.

No. 862,204.

Specification of Letters Patent.

Patented Aug. 6, 1907.

Application filed February 4, 1907. Serial No. 355,707.

To all whom it may concern:

Be it known that I, WILLIAM S. SCHROEDER, a citizen of the United States, and a resident of the city of Chicago, county of Cook, and State of Illinois, have
5 invented certain new and useful Improvements in Car-Couplings, of which the following is a specification.

My invention relates to car couplings of the Janney type, wherein a horizontally disposed locking bar is operated by a vertically movable lifting pin, and has
10 for its objects to provide, first, means whereby the lifting pin, when raised to lift the locking bar to the unlocked position, will be automatically forced either to engage on the lock-set when released or to follow to
15 some degree the coupling hook tail in its opening movement when said lifting pin is operated as a coupling hook opener; and, secondly, means whereby said lifting pin will, when the coupling hook moves towards the closed position, be automatically shifted so as to drop
20 free from the lockset when the parts are released by the coupling hook as the latter reaches its closed position. These objects I accomplish in the manner and by the means hereinafter described and claimed, reference being had to the accompanying drawings, in which:

Figure 1 is a longitudinal sectional view, showing
25 the parts in the locked position. Fig. 2 is a similar view, showing the parts in the lock-set position. Fig. 2^a shows the parts at the end of the opening movement, the lifting chain taut. Fig. 3 is a similar view, showing the coupling hook in the open position, and the
30 locking means supported thereby. Fig. 4 is a perspective view of the locking means detached, in the position shown in Fig. 1, looking from the opposite side. Fig. 5 is a bottom plan view of the locking bar. Fig. 6 is a horizontal section taken through the draw-head and
35 draw-bar, the coupling hook and locking bar being shown in full lines. Fig. 7 is a vertical transverse section on the line 7-7, Fig. 6, the lifting pin being shown in full lines.

Similar numerals of reference denote corresponding
40 parts in the several views.

In the said drawings the reference numeral 1 denotes the draw-bar of the coupling, and 2 the draw-head of the Janney type, having pivoted therein at 3 the usual coupling hook 4, said coupling hook having
45 its tail portion extended at 5 to form a support for the locking means during the entire opening movement of the coupling hook, a construction well known in the art.

Extending longitudinally in the draw-bar 1 is the
50 locking bar 6, the same having its enlarged forward end or head 7 disposed in the path of travel of the coupling hook tail to lock the latter. Said locking pin may be

pivotaly connected to the draw-bar at its rear end in any suitable manner, the preferred means shown consisting of pintles 8 formed on the rear end of said locking bar that detachably engage in a bearing 9 formed
55 in the draw-bar, said connection permitting a free vertical movement to the head 7 of said locking bar.

Located and vertically movable in the upper and lower apertures 10 and 11 in the draw-head 2 is the
60 lifting pin 12, the same being operated in the usual manner by means of a chain 13 connecting it with a lever 14 pivoted to the car body. Said lifting pin is recessed on one side at 15 to loosely receive the front end of the locking bar 6, the upper and lower surfaces
65 of said recess being formed with substantially parallel inclines 16 and 17 that cooperate, respectively, with similar inclines 18 and 19 formed on the locking bar 6 in a manner hereinafter to be described, the incline
70 18 being formed on top of the head 7 of said locking bar, while the incline 19 is formed on the underside of said locking bar. The lower end of said lifting pin 12 is curved forward into a lip 20 provided with a cam 21 that serves the double function of acting as a coupling
75 hook opener, as will be hereinafter described, and, in connection with a seat 22 formed in the draw-head, as a lock-set for said lifting pin. The lower incline 17 on said lifting pin is extended into a forwardly projecting finger 23, which is provided with a beveled or inclined side face 24 adapted to be engaged by the coupling
80 hook tail under the opening movement of the latter which tends to force said lifting pin from engagement with the lock-set seat 21.

The tail of the coupling hook 4 is extended at 5 to form a support for the locking means during the entire
85 opening movement of said coupling hook, and has a vertical face 26, that abuts against the locking bar 6 when in the locked position, adapted to lie parallel with the side face of the head 7 of said locking bar 6. The upper surface of said coupling hook tail is inclined upwardly
90 at 27 from the face 26 thereof towards its rear end, and its lower surface is similarly inclined at 28, as best seen in Fig. 3.

From the above description the operation of my improved construction will be understood as follows:
95 With the parts in the position shown in Fig. 1, the coupling hook is shown locked by the engagement with the face 26 thereof of the head 7 of the locking bar 6, the lifting pin 12 being shown in its lowermost position. Now, when it is desired to unlock the coupling hook,
100 the lifting pin 12 is raised by means of the lever 14, the incline 17 thereon engaging with incline 19 on the underside of the locking bar 6 to lift the latter to the unlocking position, shown in Fig. 2, said inclines cooperating

ating to force the lower end of the lifting pin forward so that, when released, its lower forwardly curved lip 20 will drop onto the seat 22 in the draw-head and thus retain the parts in the lock-set position. Should it be desired to throw the coupling hook open, the lifting pin 12 is raised further, and as the cam 21 on its lip 20 engages the incline 28 on the underside of the coupling hook tail said coupling hook will be forced towards the open position, the cooperating inclines 17 and 19 on the lifting pin and locking bar, respectively, causing the lower end of said lifting pin to move still further forward, thus following said coupling hook tail in its opening movement and insuring a more complete opening of the same. With the parts in the lock-set position, the opening of the coupling hook raises the locking bar through the engagement of the upper incline 27 on the coupling hook tail with the front end of the locking bar, which causes the inclines 16 and 18 on the lifting pin and locking bar, respectively, to engage, which in turn shifts the lower end of said lifting pin 12 to the rear. Now, as the coupling hook tail moves towards the closed position, the front end of the locking bar 6 will slide down said incline 27, and the cooperating inclines 16 and 18 on the lifting pin 12 and locking bar 6 will cause the lower end of said lifting pin to move still further to the rear, so that, when said locking bar and lifting pin are released to drop to the locking position, which occurs when the coupling hook tail reaches its closed position, all danger of said lifting pin engaging with the lock-set seat 22 is obviated.

It will be observed that while the forwardly projecting finger 23 will lie in the path of travel of the coupling hook tail when the parts are in the lock-set position, so that the coupling hook tail, when moving towards the open position, will kick said lifting pin off the lock-set; still I prefer to employ the cooperating inclines 16 and 18 for this purpose.

By referring more particularly to Fig. 3 it will be observed that the underside or incline 28 of the coupling hook tail is somewhat convexed, so that, when contacted with by the lip 20 of the lifting pin 12 in throwing open the coupling hook, the angle of contact between said incline 28 and said lip 20 will increase gradually as the coupling hook opens, thereby more surely effecting the complete opening of said coupling hook.

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

1. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining said coupling hook in the closed position, and a lifting pin for said locking bar, of cooperating means on said locking bar and lifting pin for forcing said lifting pin to the lock-set position as it is lifted to raise said locking bar to the unlocking position.

2. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining said coupling hook in the closed position, and a lifting pin for said locking bar, of cooperating inclines on said locking bar and lifting pin for forcing said lifting pin to the lock-set position as it is lifted to raise said locking bar to the unlocking position.

3. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining said coupling hook in the closed position, and a lifting pin for said locking bar, of a seat formed in the front of the draw-head, and cooperating inclines on said locking bar and lifting pin for forcing said lifting pin forward to engage said seat in the lock-set position as said

pin is lifted to raise said locking bar to the unlocking position. 70

4. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, and a lifting pin for said locking bar, of a coupling hook opening lip on said lifting pin, and cooperating means on said locking bar and lifting pin for causing said lip to follow said coupling hook as the latter is opened by said lip. 75

5. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, and a lifting pin for said locking bar, of a coupling hook opening lip on said lifting pin, and cooperating inclines on said locking bar and lifting pin for causing said lip to follow said coupling hook as the latter is opened by said lip through the raising of said lifting pin. 80 85

6. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein and having an incline on the underside of its tail, a locking bar for retaining the coupling hook in the closed position, and a lifting pin for said locking bar, of a coupling hook opening lip on said lifting pin adapted to engage the incline on the underside of the coupling hook tail to throw the latter open, and cooperating inclines on said locking bar and lifting pin for causing said lip to follow said coupling hook as the latter is opened by said lip through the raising of said lifting pin. 90 95

7. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of cooperating means on said locking bar and lifting pin for forcing said lifting pin away from the path of said seat under the movement of the coupling hook. 100

8. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of cooperating inclines on said locking bar and lifting pin for forcing said lifting pin away from the path of said seat under the movement of the coupling hook. 105 110

9. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of cooperating inclines on said locking bar and lifting pin for forcing said lifting pin away from the path of said seat under the movement of the coupling hook to the open position. 115 120

10. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of cooperating inclines on said locking bar and lifting pin for forcing said lifting pin away from the path of said seat under the movement of the coupling hook to the open position, and for retaining said lifting pin away from said path under the closing movement of said coupling hook. 125 130

11. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of an incline on the coupling hook tail for lifting and supporting said locking bar and lifting pin under the opening and closing movement of said coupling hook, and cooperating means on said locking bar and lifting pin for forcing and maintaining said lifting pin away from the path of said seat under the lifting movement of said incline on the coupling hook tail. 135 140

12. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining the coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head for engaging said lifting pin, of an incline on the 145

coupling hook tail for lifting and supporting said locking bar and lifting pin under the opening and closing movement of said coupling hook, and cooperating inclines on said locking bar and lifting pin for forcing and maintaining said lifting pin away from the path of said seat under the lifting movement of said incline on the coupling hook tail.

13. In a car coupling, the combination with the draw-head, the coupling hook pivoted therein, a locking bar for retaining said coupling hook in the closed position, a lifting pin for said locking bar, and a lock-set seat in the draw-head, of cooperating inclines on said locking bar and lifting pin for forcing said lifting pin into engagement with said lock-set seat, and a finger on said lifting pin adapted to be struck by the coupling hook in its

opening movement to force said lifting pin off said lock-set seat.

14. A coupling hook for car couplings, embodying a tail having an incline on its under surface, said incline being convexed.

15. A coupler hook having an elongated tail, the upper surface of said tail being upwardly and rearwardly inclined and the lower surface thereof being correspondingly inclined and provided with a convex face.

In testimony whereof, I have hereunto set my hand in the presence of two subscribing witnesses.

WILLIAM S. SCHROEDER.

Witnesses:

EDMUND ADCOCK,
H. M. MUNDAY.