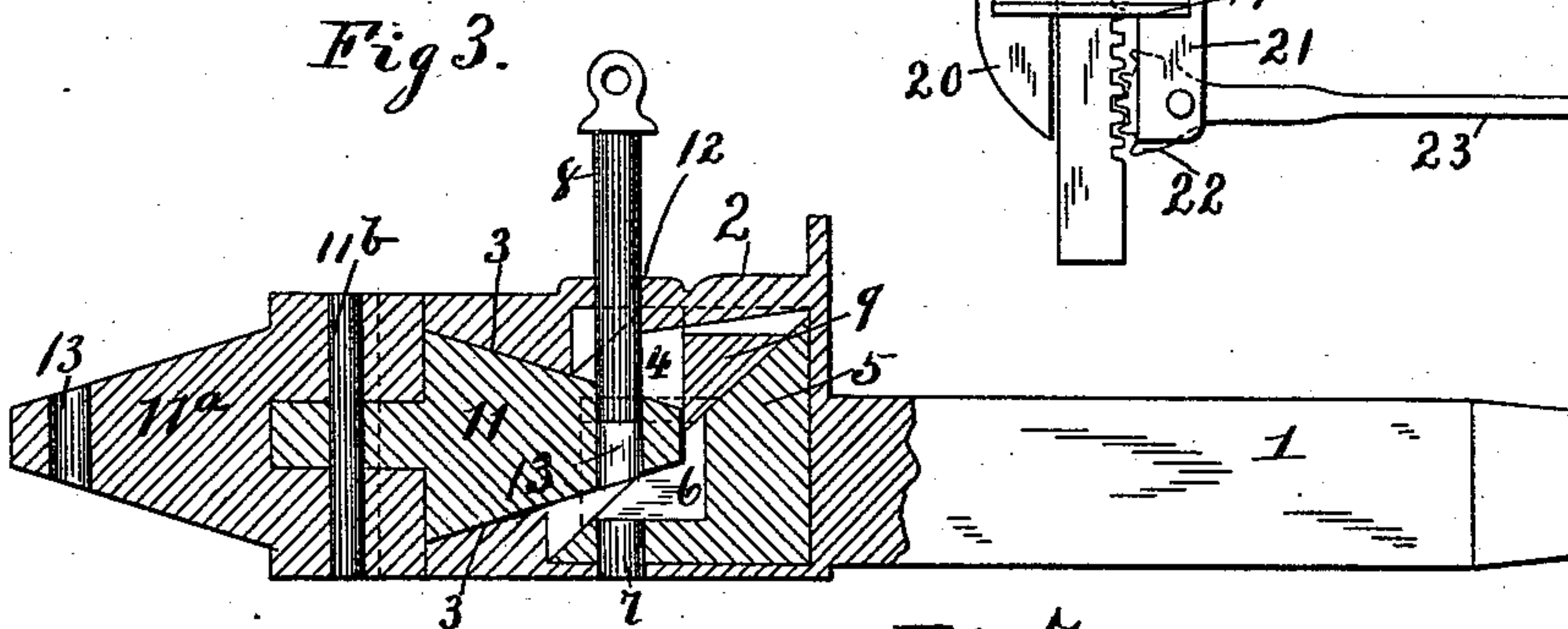
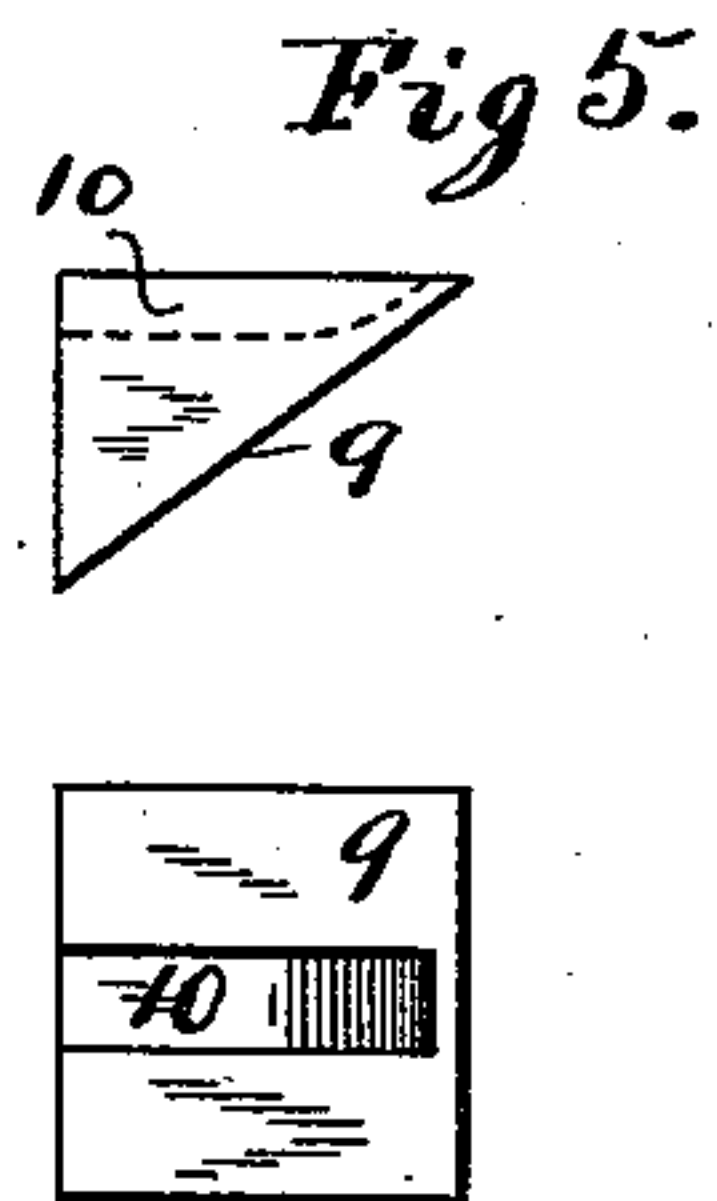
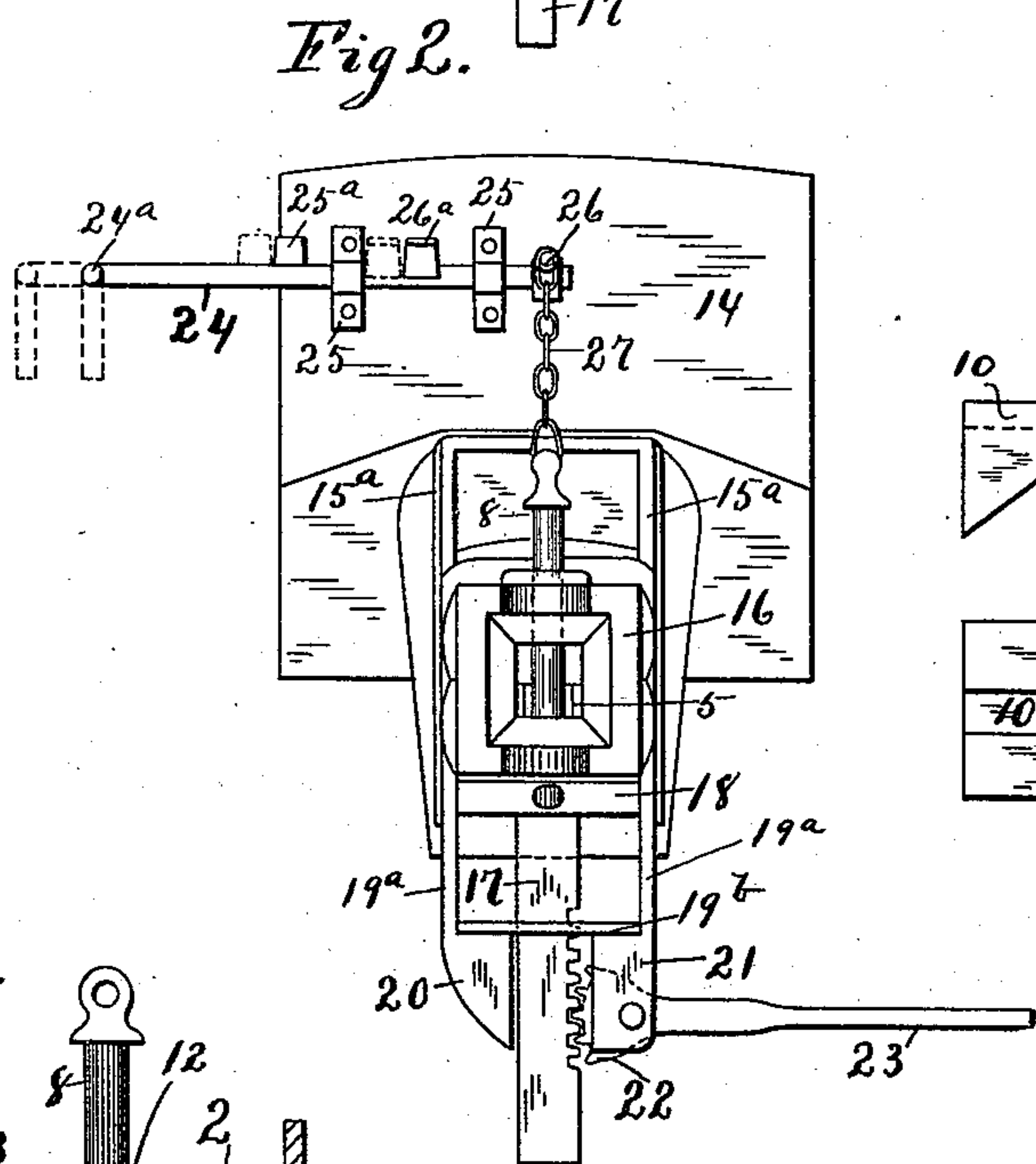
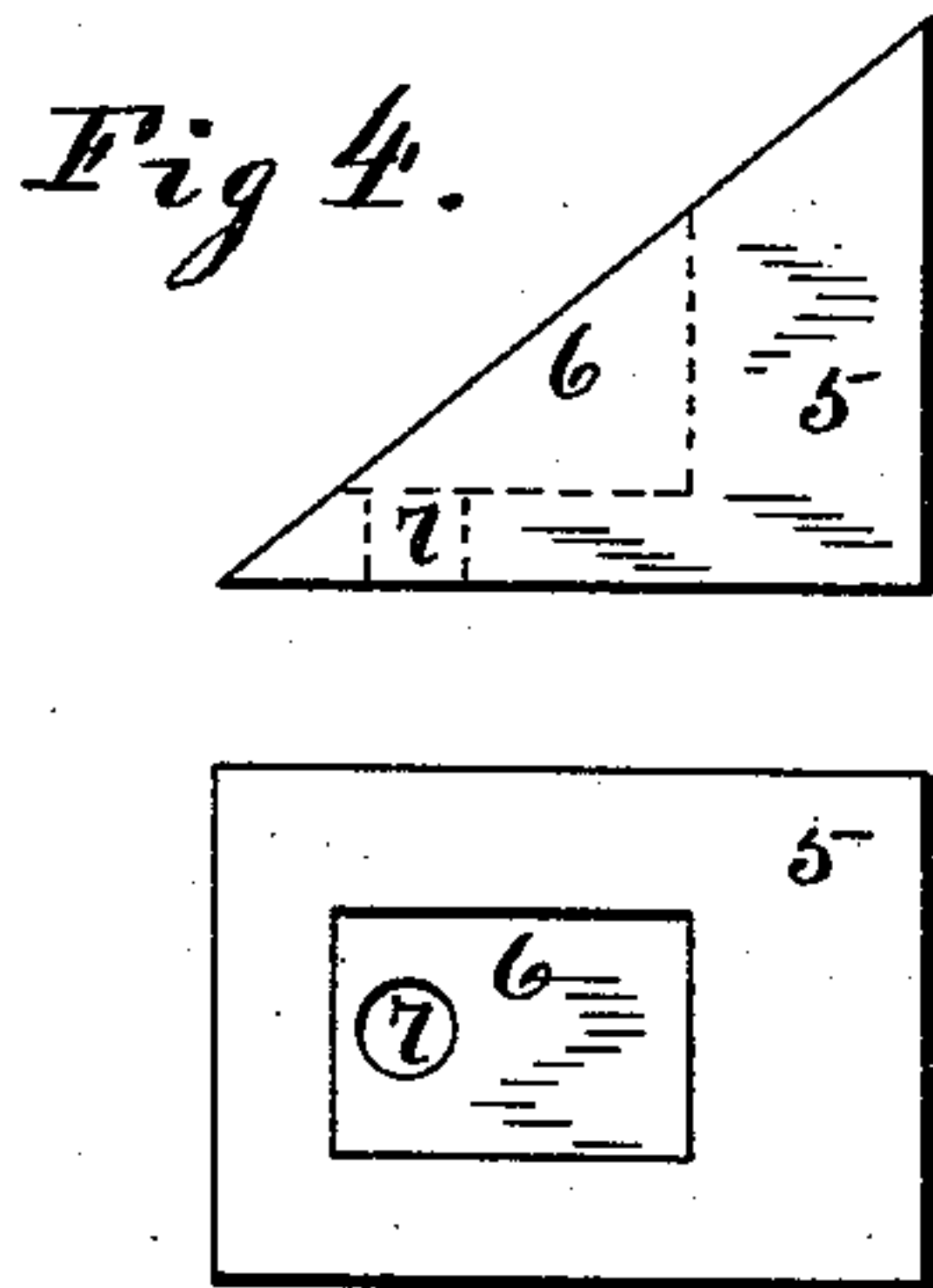
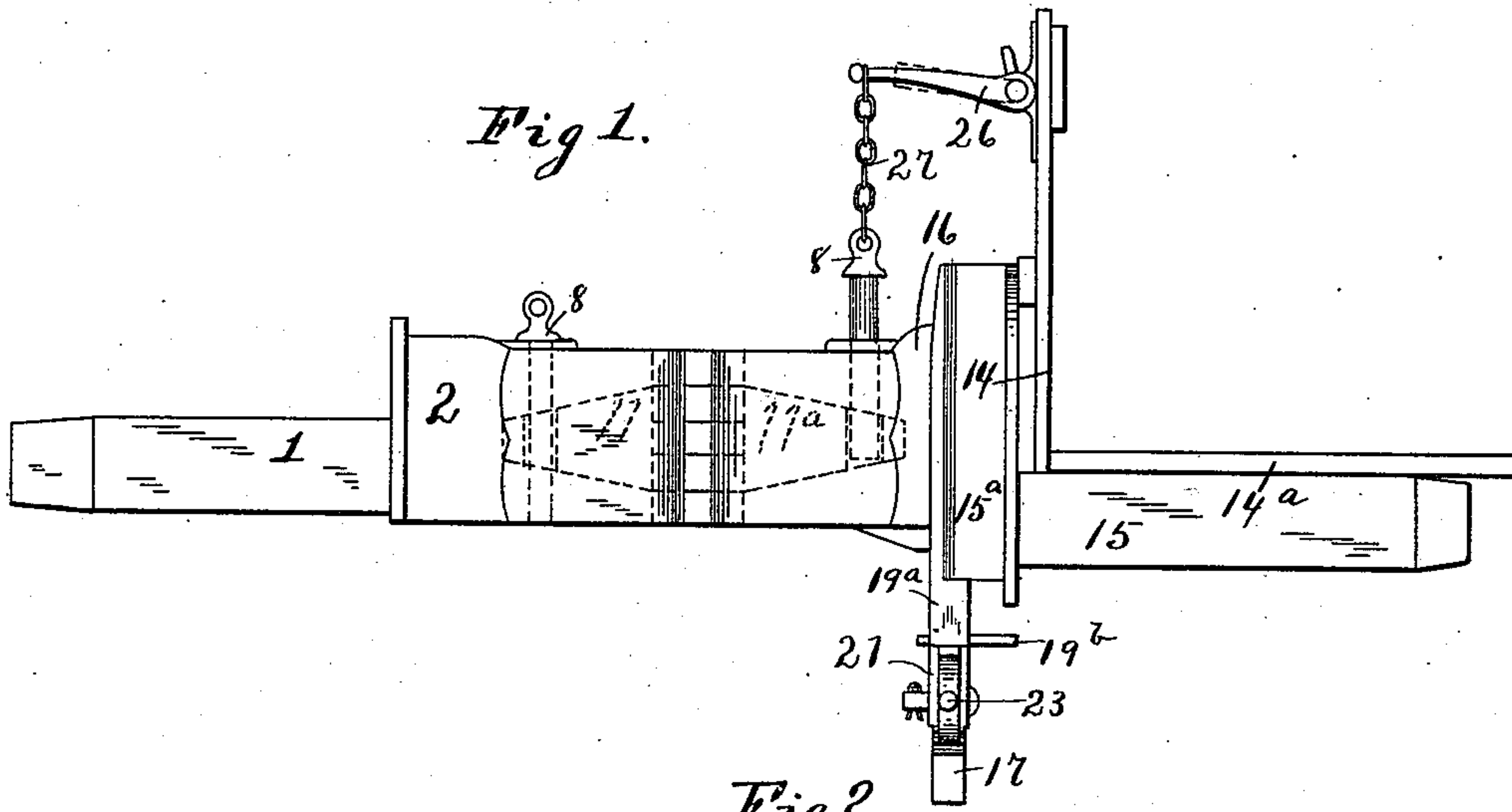


(No Model.)

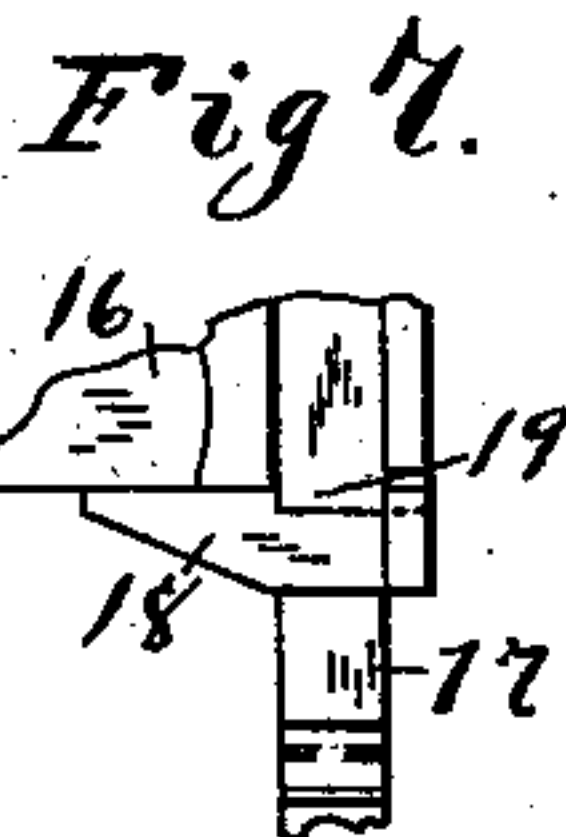
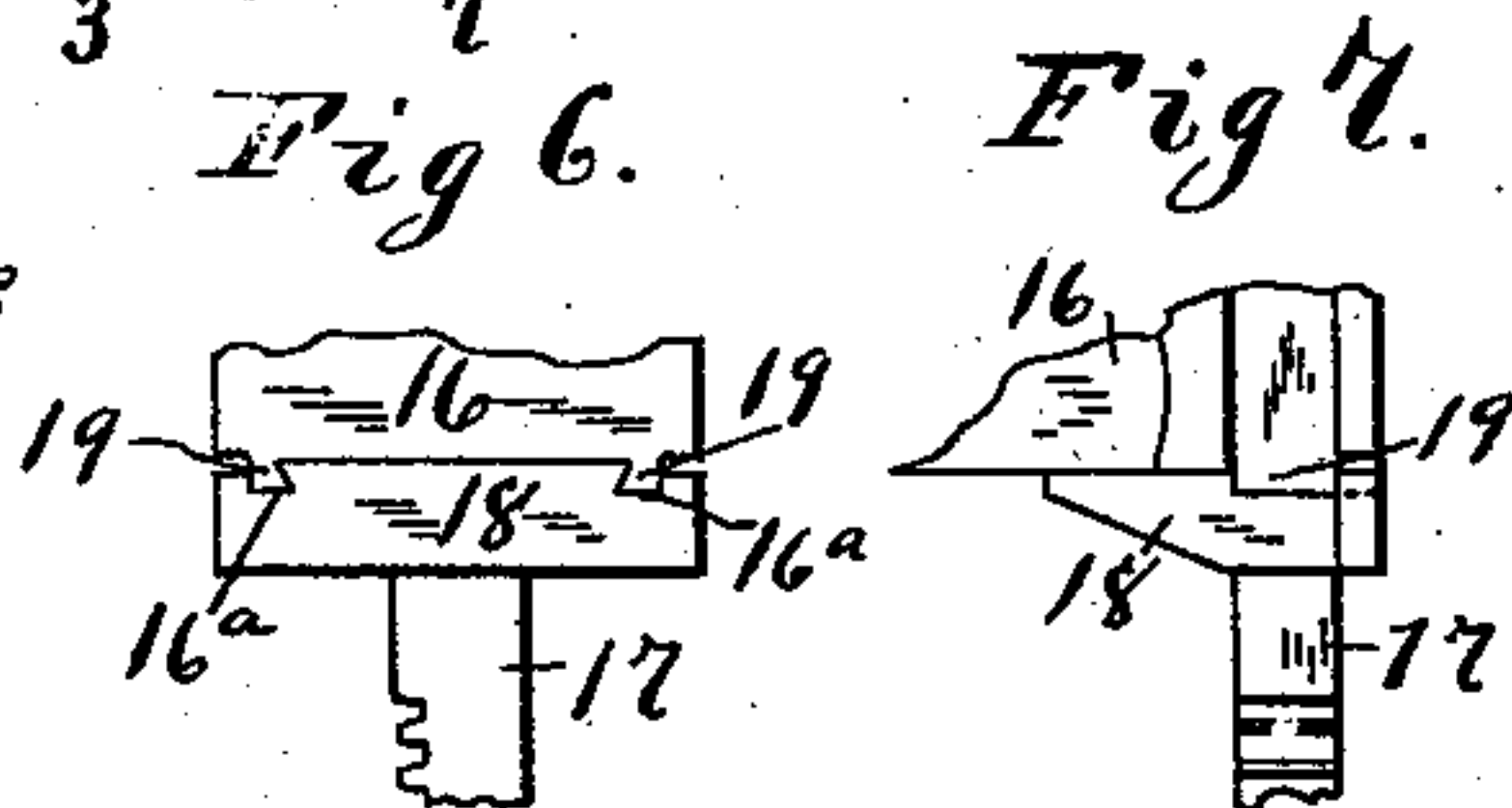
A. E. SINGER.  
AUTOMATIC CAR COUPLING.

No. 546,601.

Patented Sept. 17, 1895.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

ALBERT E. SINGER, OF DAYTON, ASSIGNOR OF ONE-HALF TO J. M. SINGER, OF LEWISBURG, OHIO.

## AUTOMATIC CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 546,601, dated September 17, 1895.

Application filed July 19, 1895. Serial No. 556,447. (No model.)

*To all whom it may concern:*

Be it known that I, ALBERT E. SINGER, of Dayton, county of Montgomery, State of Ohio, have invented a new and useful Improvement in Automatic Car-Couplers; and I do 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 it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in automatic car-couplers.

The object of the invention is to provide car-coupling mechanism that is capable of being brought to a higher or lower position on the car, to accommodate cars of different sizes, or that may have a fixed attachment.

A further object is to provide a car-coupler that is positive in its operation.

To these ends the invention consists of parts and their arrangement, as is detailed in the following specification, taken in connection with the accompanying drawings, upon which similar reference-characters indicate corresponding parts.

Of said drawings, Figure 1 designates a side elevation of my improved car-coupler. Fig. 2 is an end elevation of the coupler with means for adjusting it to accommodate cars of varying sizes. Fig. 3 is a sectional view with part of the draw-bar appearing in side elevation. Fig. 4 designates a side elevation and top view, respectively, of the stationary incline. Fig. 5 designates similar views of the triangular slide. Fig. 6 is a detached view of portions of the draw-head and adjunctive devices. Fig. 7 is a side view of the same.

The invention, as illustrated in Fig. 1, shows my improved coupler in two aspects—to wit, adapted to fixed and adjustable attachments.

The numeral 1 designates a draw-bar, the head 2 of which is an integral part of said bar. This bar may be rigidly attached to the car in any suitable manner. The head 2 is provided with an opening, the sides and top of which are on an incline, as at 3 3. This opening terminates rearwardly in a larger square opening 4, in which a stationary incline 5 is placed, as shown in Fig. 3. This incline

is provided with a cavity 6 and an opening 7 leading therefrom, into which the coupling-pin 8 drops, of which further mention will be hereinafter made.

9 designates a triangular gravity slide, the inclined side of which normally rests upon the similar side of the stationary incline 5. This slide, as shown in Fig. 5, has a curved recess 10 in its upper surface, in which the lower end of the coupling-pin 8 rests. In Fig. 3 the slide 9 is shown in full lines in a raised position, having been moved to that position from the position shown in broken lines by member 11 of the coupling-link.

The coupling-pin 8 is shown in the act of falling by gravity through the opening 12 in the draw-head, opening 7 in the incline 5, and opening 13 in part 11 of the coupling-link, which openings are in vertical alignment. The coupling-link is composed of two members 11 and 11<sup>a</sup>, which have a hinge-joint at 11<sup>b</sup>. The mechanism described in the foregoing is common to both forms of coupling—to wit, the stationary and adjustable forms. Therefore, in the description of the adjustable features of my invention, it will not be necessary to describe said mechanism. As hereinbefore stated, when a coupling is not effected, the slide 9 occupies the lower position on the incline 5 and the end of the coupling-pins rests in the groove or recess 10. As either member of the coupling-link enters the opening in the draw-head it pushes the slide 9 upwardly, as shown in full lines, Fig. 3, at which time the pin 8 drops into the openings and effects the coupling.

Referring to Fig. 2, which illustrates my invention adapted to an adjustment to higher or lower positions, 14 and 14<sup>a</sup> designate, respectively, the end of the car and the floor adjacent thereto. 15 designates a draw-bar, and 15<sup>a</sup> is a guide-plate, an integral part of said bar. This plate extends at a right angle to said bar and is rigidly secured to the end 14 of said car in any suitable manner. 16 designates a draw-bar head similar in all essential respects to the head 2, but which has no attachment with the bar 15. This head 16 is mounted to slide vertically in the guide-plate 15<sup>a</sup>, and may therefore be moved to a higher or lower position, to the extent of the



length of said plate, by means of a rack-bar 17, which is rigidly attached to a plate 18, upon which the head 16 has a bearing. The connection between the draw-head 16 and the plate 18 is such that injury cannot occur to the latter by severe contact of the draw-heads. This connection is shown in Figs. 6 and 7, where 19 designates lugs that project from the bottom of the draw-head 16 and are adapted to dovetail in slots 16<sup>a</sup> 16<sup>a</sup> in the plate 18. 19<sup>b</sup> designates a guide-plate, through which the rack-bar 17 moves. This plate 19<sup>b</sup> is rigidly mounted on the downwardly-projecting arms 19<sup>a</sup> of the guide-plate 15<sup>a</sup>. These arms 19<sup>a</sup> terminate in guide-pieces 20 21, to the latter of which a segment-gear 22 is pivoted and adapted to mesh with the rack-bar 17. The segment-gear 22 has a handle 23, by which it is operated to raise or lower the position of the draw-head. The uncoupling is effected by means of a crank-shaft 24, which is loosely mounted on the end of the car by means of staples 25. The inner end of this shaft has attached thereto an arm 26, to which a chain 27 is secured, said chain being also attached to the coupling-pin 8. The outer end of said shaft has a handle portion 24<sup>a</sup>, by which it is turned to elevate the coupling-pin. 25<sup>a</sup> and 26<sup>a</sup> designate rigid stops on said shaft, which are adapted to regulate the movement of said shaft by coming in contact with the end of the car. These lugs occupy different positions on the shaft—that is to say, the shaft is turned a less distance to bring the stop 25<sup>a</sup> in contact with the car than is necessary to bring the stop 26<sup>a</sup> in contact. This is an essential feature of my invention. For example, when a car having the adjustable head is coupled to a lower car, the coupling-pin will have to be drawn upwardly a greater distance in effecting an uncoupling. The stop 26<sup>a</sup> is used in this event by drawing the crank-shaft 24 out to the position shown in dotted lines, Fig. 2, which brings the lug 25<sup>a</sup> away from the car and permits lug 26<sup>a</sup> to limit the movement of said shaft. When the uncoupling is effected from a car of similar height, the lug 25<sup>a</sup> regulates the movement of the crank-shaft.

When the coupling-pin has been drawn to enable a separation of the cars, the slide 9 drops downwardly to its lower position and the coupling-pin immediately follows and returns to its normal position on said slide.

Having fully described my invention, I claim—

1. In a car coupler, the combination with a draw bar, the head of which is provided with a tapering opening terminating rearwardly in a square opening, and openings in said head adapted to receive a coupling pin, of a stationary incline —5— mounted in the square

opening in said head, said incline being provided with a recess —6— and an opening —7—, a triangular slide —9— normally resting upon said incline, said slide provided with a groove —10— in which the coupling pin may rest, and a coupling link composed of members —11— and —11<sup>a</sup>— flexibly connected, either one of said members being adapted to enter the opening in the draw head, and thereby shift the triangular slide —9— upwardly on the incline —5— and raise the pin to effect a coupling, substantially as described.

2. In a car coupler, the combination with a draw bar provided with a guide plate projecting at a right angle and adapted to be secured to a car, of a draw head —16— mounted and adapted to slide vertically in said guide plate, a stationary incline in said head, a slide normally resting on said incline and adapted to support a coupling pin when the mechanism is not coupled, a hinged coupling link adapted to move said slide to effect a coupling, and means for adjusting said head —16— to enable a coupling with cars of different sizes, substantially as described.

3. In a car coupler, the combination with a draw bar provided with an integral guide plate as described, of a draw head adapted to slide in said guide, a stationary incline —5— in said head provided with a recess and an opening extending therefrom, through which a coupling pin may pass, a slide normally resting on said incline and provided with a recess or groove in its upper surface adapted to receive the end of the coupling pin, a coupling link composed of two tapering members either one of which is adapted to enter the draw head and shift the slide —9— upwardly to raise the coupling pin to enable it to drop therefrom, a rack bar and a segmental gear for adjusting said draw head, substantially as described.

4. In a car coupler, the combination with a guide plate —18—, of a draw head —16— slidably mounted in said plate, a stationary incline, and a slide in said draw head, a rack and segmental gear for adjusting said draw head, and a coupling link provided with a hinge joint in its center, and a crank shaft —24— provided with lugs —25— and —26— adapted to regulate the movement thereof, and an arm —26— projecting from said shaft, adapted to an attachment with the chain of the coupling pin, substantially as herein described.

In testimony whereof I have hereunto set my hand this 13th day of July, 1895.

ALBERT E. SINGER.

Witnesses:

CHARLES W. DALE,  
R. J. MCCARTY.