

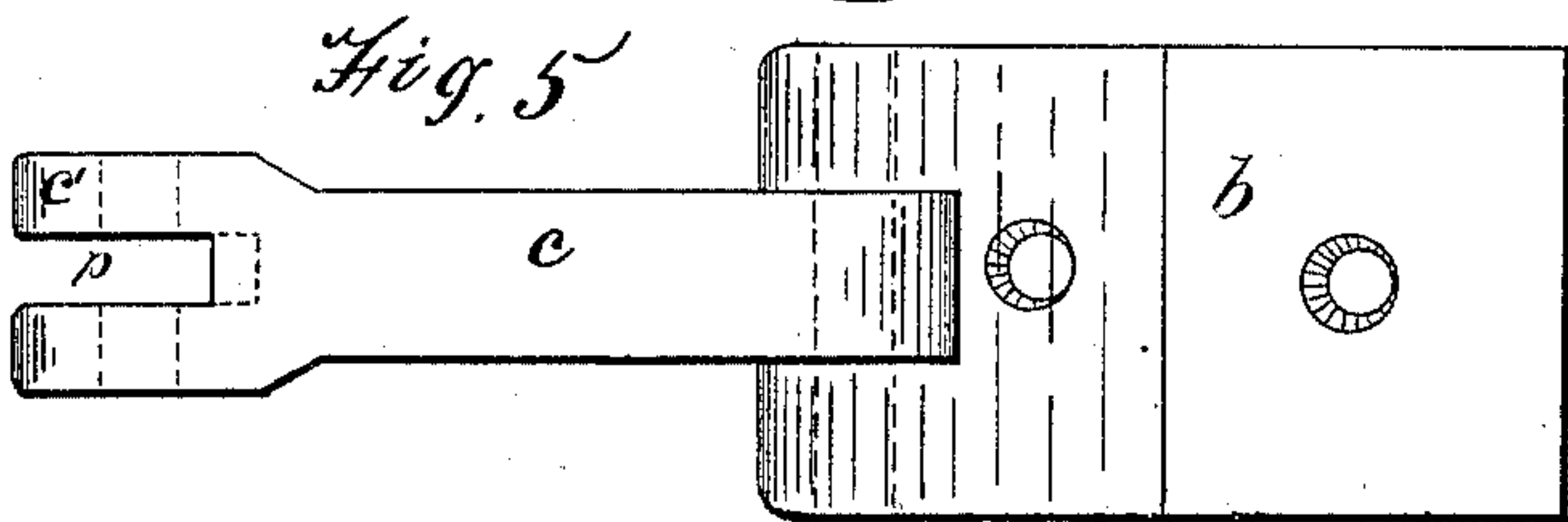
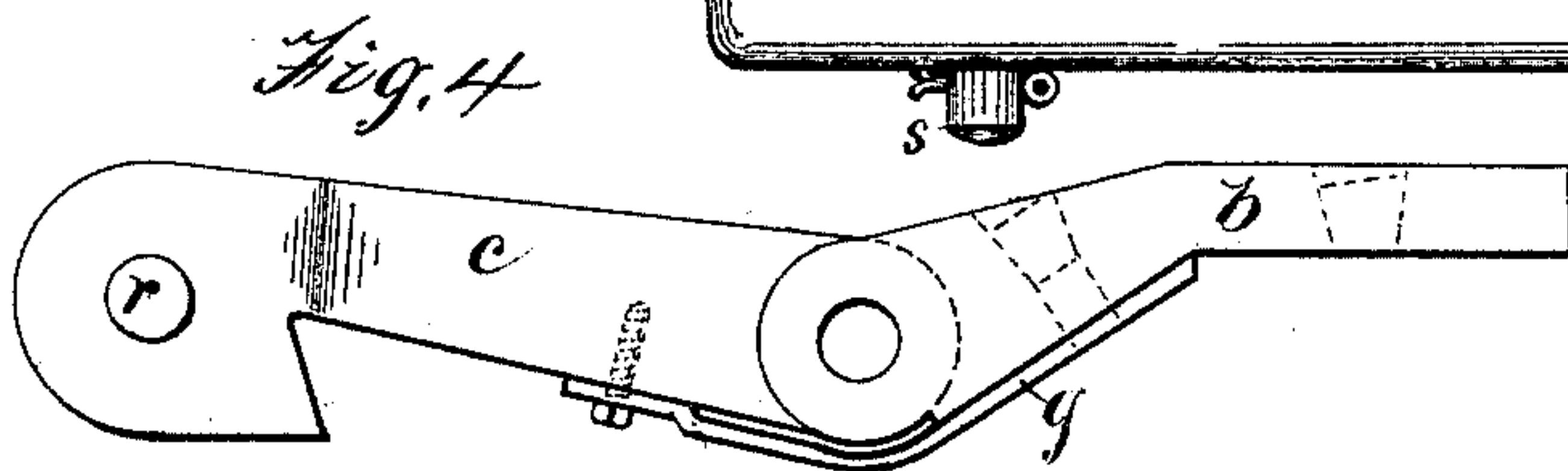
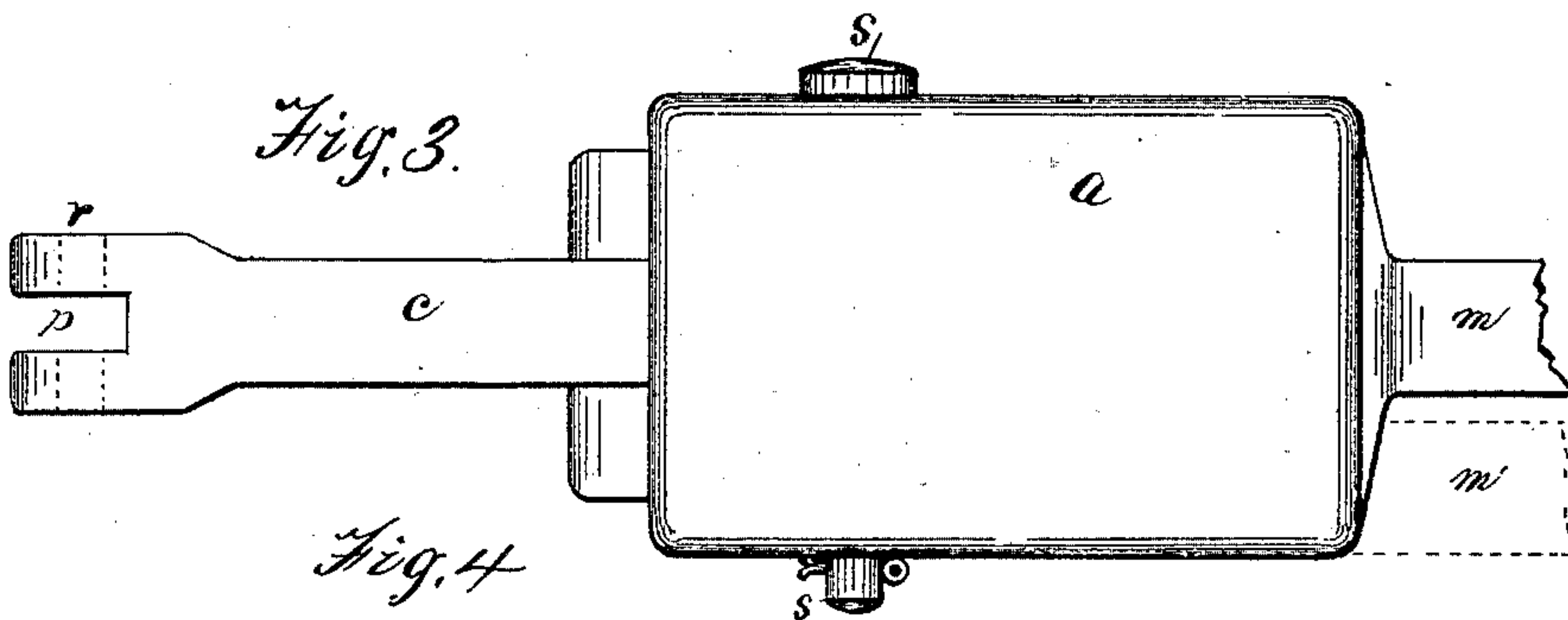
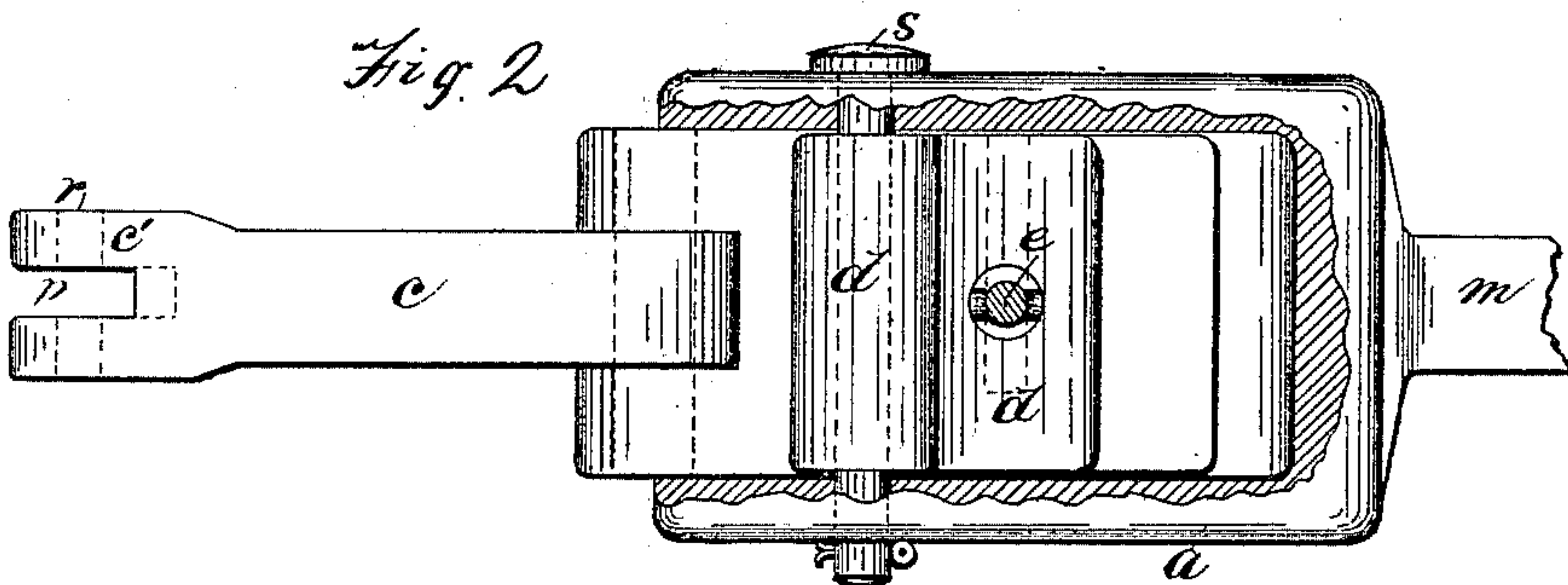
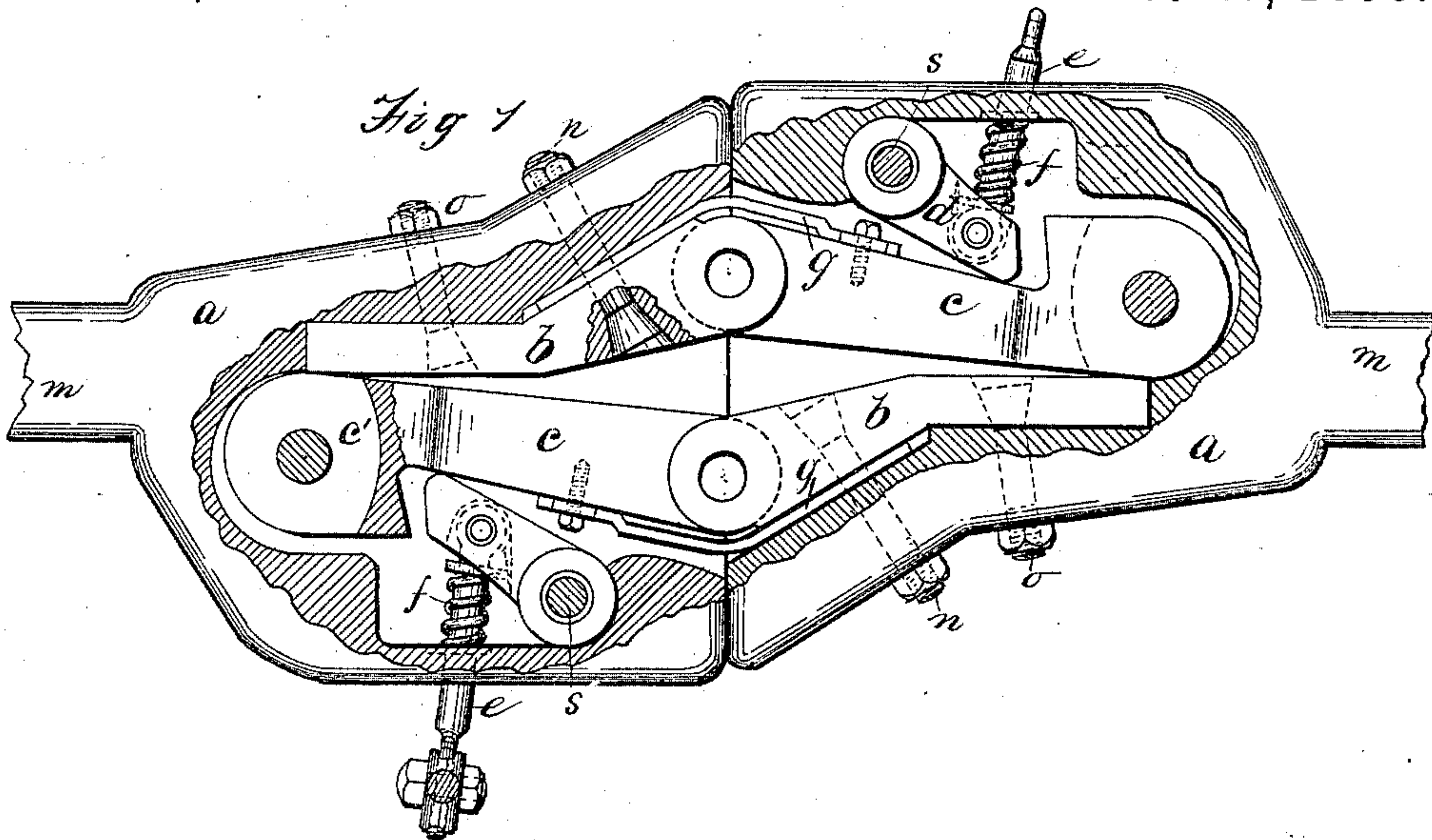
(No Model.)

2 Sheets—Sheet 1.

A. G. TUPPER.  
CAR COUPLING.

No. 509,779.

Patented Nov. 28, 1893.



Witnesses  
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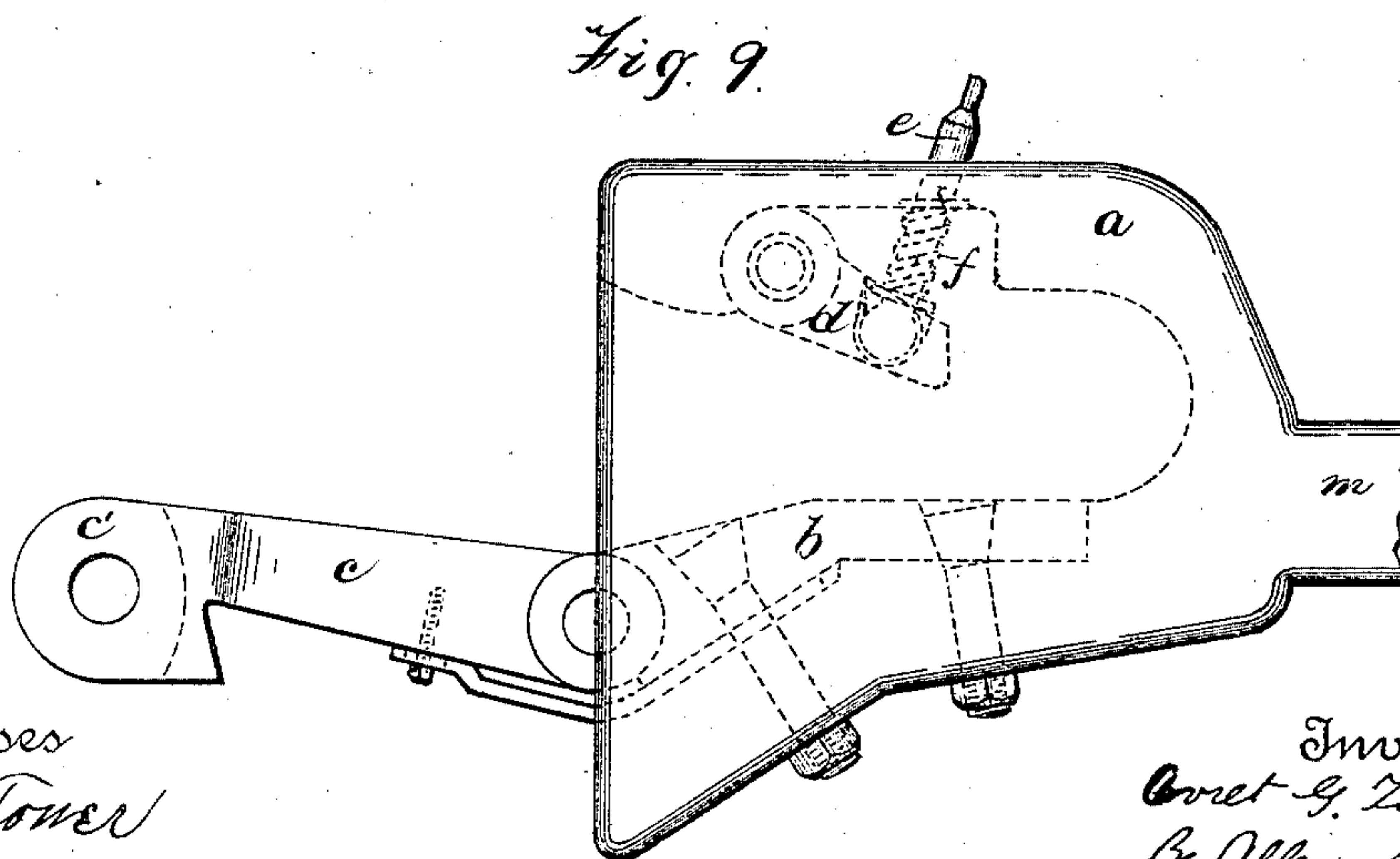
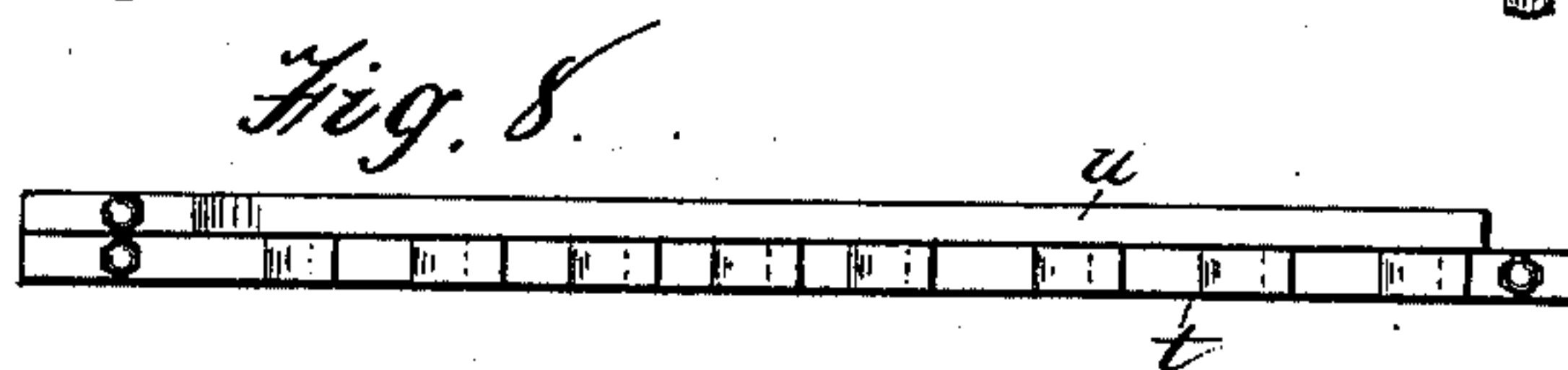
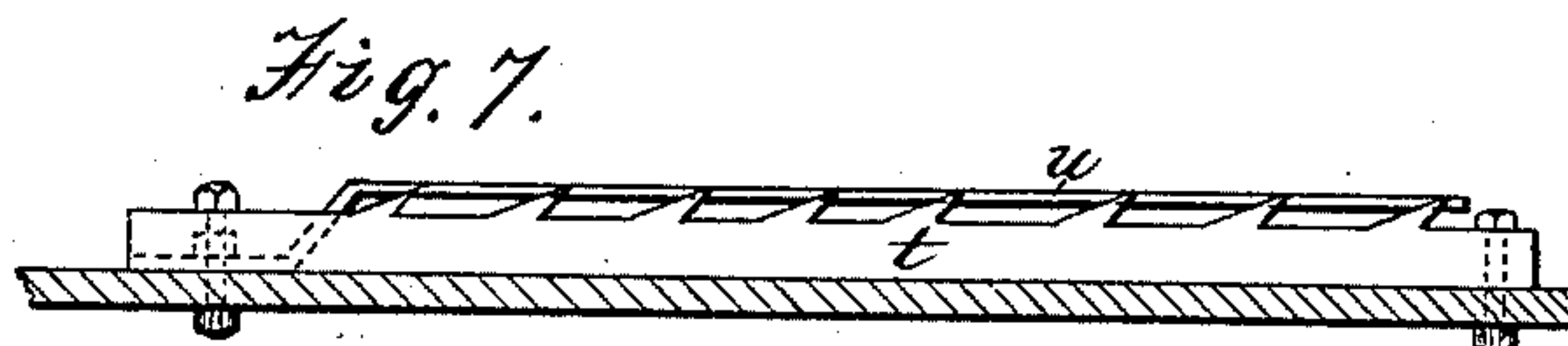
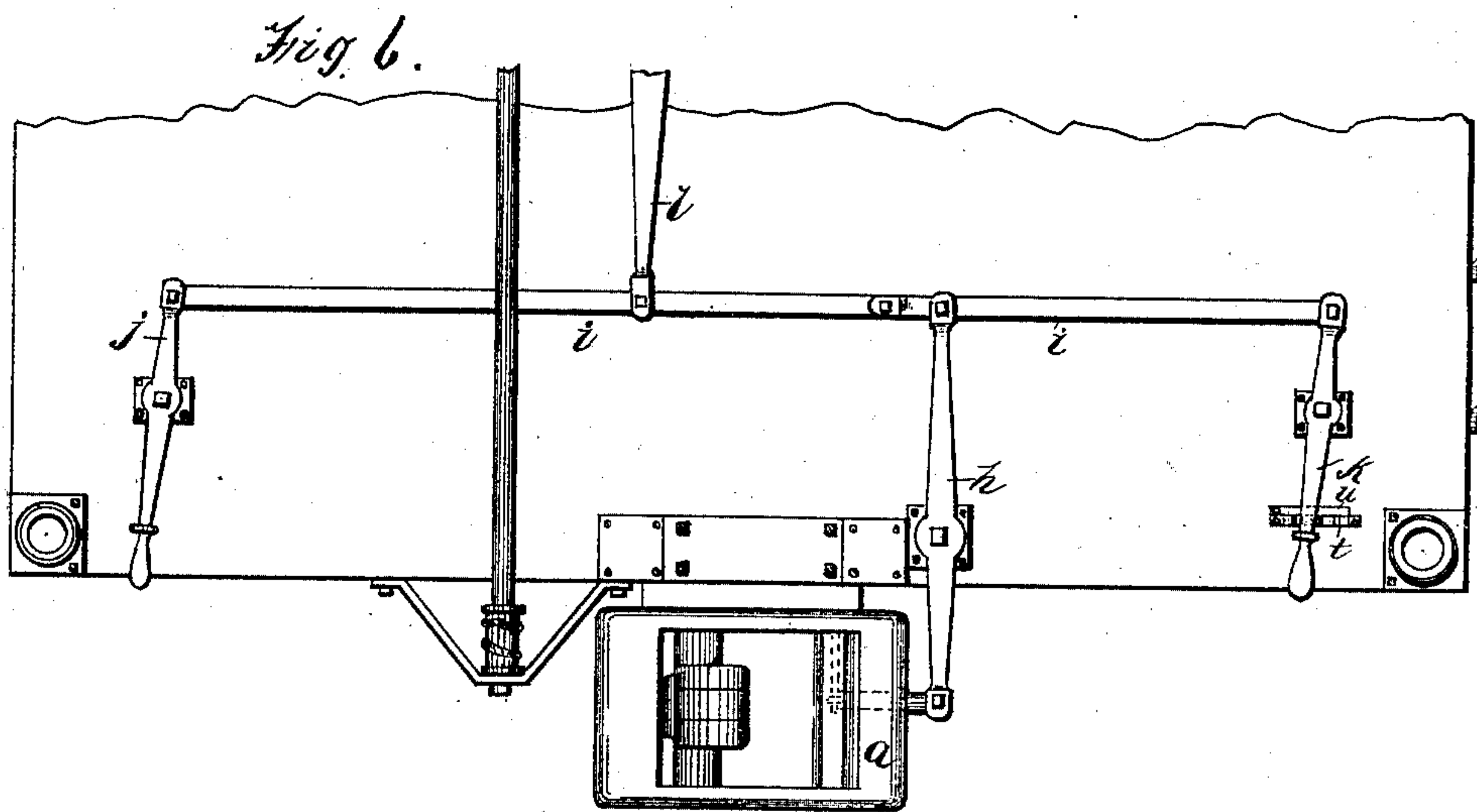
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2 Sheets—Sheet 2.

A. G. TUPPER.  
CAR COUPLING.

No. 509,779.

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# UNITED STATES PATENT OFFICE.

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## CAR-COUPLING.

SPECIFICATION forming part of Letters Patent No. 509,779, dated November 28, 1893.

Application filed March 2, 1893. Serial No. 464,351. (No model.)

*To all whom it may concern:*

Be it known that I, AVRET GUY TUPPER, a citizen of the Dominion of Canada, residing in Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Car-Couplers, of which the following is a specification, reference being had to the accompanying drawings and letters of reference marked thereon.

In the drawings like letters of reference indicate like parts.

Figure 1 is a plan view of two of my improved couplers in locking position, and with one side of the coupler body broken away, disclosing the interior arrangement. Fig. 2 is a side elevation of one of the couplers, a portion of the coupler body being broken away. Fig. 3 is a side elevation of one coupler in full lines. Figs. 4 and 5 are views of one of the coupler hooks and portion to which the hook is hinged, detached from the body of the device. Fig. 6 is a view of a section of a car end with a coupler in position, and illustrating the arrangement of levers for operating the coupling. Figs. 7 and 8 are side and edge views of a lock rack detached from the car and on an enlarged scale, and Fig. 9 is a plan view in full lines of a coupler body with its hook mounted therein, and with the recess and dog indicated in dotted lines.

In detail *a* indicates the coupler body, *b* the fixed portion of the hinge mounted therein, *c* the movable hook portion of the hinge, *d* the engaging dog, *e* dog operating pins, *f* dog springs, *g* hook springs, *h* and *i* connecting levers, *j*, *k* and *l* operating levers, and *m* draw-bar.

In the drawings in Fig. 1 I show two of the couplers in their locked position, and in this figure I show one face of the coupler body broken away, disclosing the interior arrangement of the parts when in the locked position. Within each coupler body I mount the fixed portion *b* of the hinge, the same being held in position in the body by bolts *n* and *o*. The body is formed with a dog receiving recess, and the dog *d* is pivotally mounted therein, and attached to the dog adjacent to its free end is the rod *e* extending through the body, and to the end of this rod are attached levers or other operative devices for operating the dog. A spiral spring *f* is mounted

upon the dog rod and arranged between the dog and the inner face of the dog receiving recess in the body, the tendency of which spring is to at all times force the dog away from its recess and toward the open chamber in the body.

Although I deem the arrangement of a spiral spring, as above described, the best, it will be readily seen that other forms of spring may be substituted with a like result. To the fixed portion *b* is hinged the part *c* having a head *c'* with a hook formed upon one side thereof, as illustrated in the drawings, and formed also with a slot for the reception of a link of the ordinary construction, so that the device may be coupled by the employment of the old form of link coupler if it becomes necessary. The link enters the slotted recess in the hooked end of the part *c*, the coupling pin passing through the pin opening *r* arranged at right angles to said link receiving opening *p*. A flat spring *g* is mounted upon the fixed portion *b* and is loosely attached to the hook portion *c*, the tendency of which spring is to at all times maintain the hook portion in a position nearly at right angles with the front face of the coupler body, as shown in Fig. 9, thus insuring its ready entrance into the opening in the opposite coupler adapted to receive it. It will now be seen that when two cars are brought together, each being provided with one of these couplers the hook portion *c* will enter the recess in the opposite coupler body and will force the dogs *d* out of line therewith until the hook has passed the dog, at which time the springs *f* will operate to force the dogs inwardly, and thus prevent the hook being drawn outwardly until the dogs are retracted out of the way of the hooks. The dogs *d* preferably extend across the whole width of the interior opening of the coupler body and are pivotally mounted in position by the employment of bolts *s*.

The coupler is attached to the car in any convenient manner. I prefer that the attachment be made by the employment of the draw-bar *m* which is formed integral with the body of the coupler. In some instances where it is desirable to attach a coupler to a car of either greater or less height than the ordinary car, I may form the draw-bar and coupler body with the draw-bar arranged in a position in



reference to the body as indicated in dotted lines at *m* in Fig. 3, and it will be seen that as the hook body *c* is of less width than the opening in the coupler body and less width than the dog, a considerable degree of variation in height will be allowed for, as the engagement of the dog with the hook will be insured whether the hook enters the body in the center or above or below the center.

When the device is attached to passenger cars a lever may be arranged to project vertically adjacent to the platform, and this lever being attached to the dog retracting rod *e*, will operate to move the dog whenever desired.

If the device be attached to a freight car I prefer to arrange a system of rods and levers similar to that illustrated in Fig. 6, wherein a vertical projecting lever *h* is pivotally mounted upon the car body with its lower end arranged to engage the dog rod *e*, and with its upper end in engagement with a connecting rod *i*, and upon the car body adjacent to the sides and within convenient reach of the sides of the car body, I prefer to arrange the levers *j* and *k*, the same being pivotally mounted upon the car body with one end free to be grasped by the hand and the opposite end pivotally connected with the connecting rod *i*. Thus it will be seen that the dog may readily be operated from either side of the car and with either one of said levers, and for operating the coupling from the top of the car I mount a lever *l* pivotally upon the car body, the same being projected vertically to a convenient position to be grasped from the top of the car, with its opposite end in pivotal engagement with the connecting rod *i*.

To enable me to retract the dog and maintain the same permanently in its retracted position, I employ a rack *s* having teeth arranged to overhang slightly, and arrange a spring *u* adjacent to said teeth with the surface of the spring flush with the end of the teeth, and I arrange this rack so that its teeth are substantially in the same plane with the inner face of the hand levers *j* and *k*. The spring *u* serves to prevent the engagement of the hand levers with the teeth unless the levers be forced toward the car body and into engagement with the teeth, thus overcoming the force of the spring *u*, and when the lever is once in engagement with the teeth upon the rack the dog spring *f* will operate to maintain it in that position, as the power of the dog spring will be greater than the power required by the spring *u* to force the lever out from the overhanging portion of the rack, within which it is in engagement, so that when it is desired to lock the coupling in such position that it will not become automatically coupled to a car brought against it, the hand levers or one of them will be in engagement with one of the teeth upon the rack *t*, and it will readily be seen that both levers may be

thrown out of engagement from either side of the car by operating the lever in such direction as to force it out from under the overhanging portion of the rack teeth, and, as before stated, when the levers are not forced into the rack, as above described, they will move parallel with the face of the same without becoming engaged therewith.

Having, therefore, described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a car coupler the body *a* provided with the part *b* fixed therein, a coupling hook *c* pivotally attached to the part *b*, a dog *d* pivotally mounted within the body and arranged to engage the hook portion of the part *c*, and to be retracted away therefrom, a dog operating rod *e* engaging the dog and projecting from the body, and means to operate said rod, substantially as and for the purposes stated.

2. The combination with a car coupler of the body *a*, with the hinged portion *b*, *c*, the part *b* being secured within the coupler body and the part *c* being provided with a hook *c* and projecting from the coupler body, a dog *d* pivotally mounted within said body and adapted to be moved into position to engage said hook and to be moved out of such position, a dog rod *e* pivotally attached to the dog and provided with a spring *f* to maintain the dog normally in position for engagement, and a spring *g* arranged to maintain the hook portion *c* normally in the desired position, substantially as and for the purposes stated.

3. The combination of the coupling body *a*, the part *b* mounted therein, and having the spring *g* secured in position between the part *b* and the inner face of the coupling body, the hook portion *c* pivotally mounted upon the part *b* and projecting therefrom, and attached to the spring *g*, a dog pivotally mounted within said body, a dog rod *e* connected with said dog and projecting through the body, and a spring arranged to maintain the dog normally in position to engage the hook, substantially as and for the purposes stated.

4. The combination in a car coupler of the coupler body *a*, provided with a dog *d* of a width to substantially fill the opening in the coupler body, a hooked portion *c* pivotally mounted upon a part *b*, the latter being fixed to said coupler body, and with the part *c* of less width than the opening in the coupler body, and a spring to maintain the part *c* normally in position to enter the opposite coupling substantially as and for the purposes stated.

5. The combination in a car coupler of the body *a*, a part *b* fixed therein, a hook part *c* pivotally mounted upon the part *b*, said hook part being provided with a slot *p* in its end, and with a pin receiving opening *r* arranged at right angles with said slot, and a dog *d* pivotally mounted in the body *a*, means to



maintain said dog in the track of the hook, and means to retract the same, substantially as and for the purposes stated.

5 6. The combination with a car of a coupler having a dog *d* pivotally mounted therein, adapted to engage a hook part *c*, a rod *e* connected with said dog and projected through said body, a spring to maintain the dog normally in the track of said hook, and a lever  
10 pivotally mounted upon said car with one end connected to said rod, *e*, and its opposite end in position to be operated from the car, whereby the dog may be retracted and the car uncoupled by the operation of said lever, substantially as and for the purposes stated.

15 7. The combination with a car, of a coupler provided with a dog-spring operating to maintain the dog normally in a position to engage a coupling link or hook, one or more levers  
20 arranged to operate said dog, a hand-lever connected by suitable mechanism with said dog, and a rack arranged adjacent to said

hand-lever said rack being provided with overhanging teeth adapted to receive a portion of the lever and be held therein by the  
25 action of the dog-spring, substantially as and for the purposes stated.

8. The combination with a car of a coupler provided with a spring operating to maintain the coupler normally in a position to engage  
30 a coupling hook, one or more levers arranged to operate said dog, a rack arranged adjacent to the lever, said rack being provided with overhanging teeth adapted to receive a portion of the lever and be held therein by the  
35 action of the dog spring, and a spring as *u* arranged to maintain the lever out of engagement with the teeth unless the same be forced therein against the tension of the spring *u*,  
40 substantially as and for the purposes stated.

AVRET GUY TUPPER.

Witnesses:

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