

No. 685,632.

Patented Oct. 29, 1901.

J. J. O'BRIEN.  
COMPENSATING EMERGENCY KNUCKLE.

(Application filed Feb. 4, 1901.)

(No Model.)

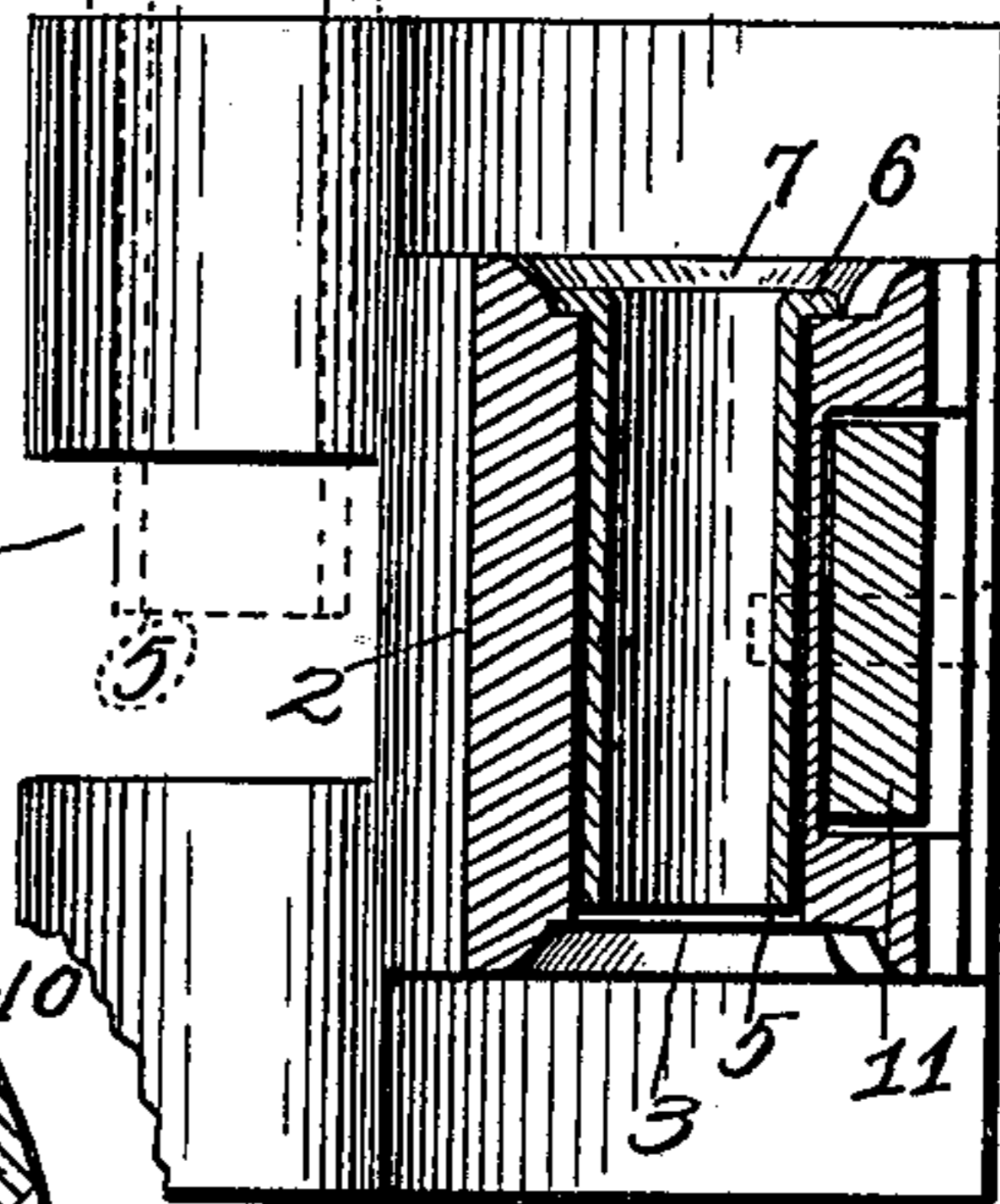
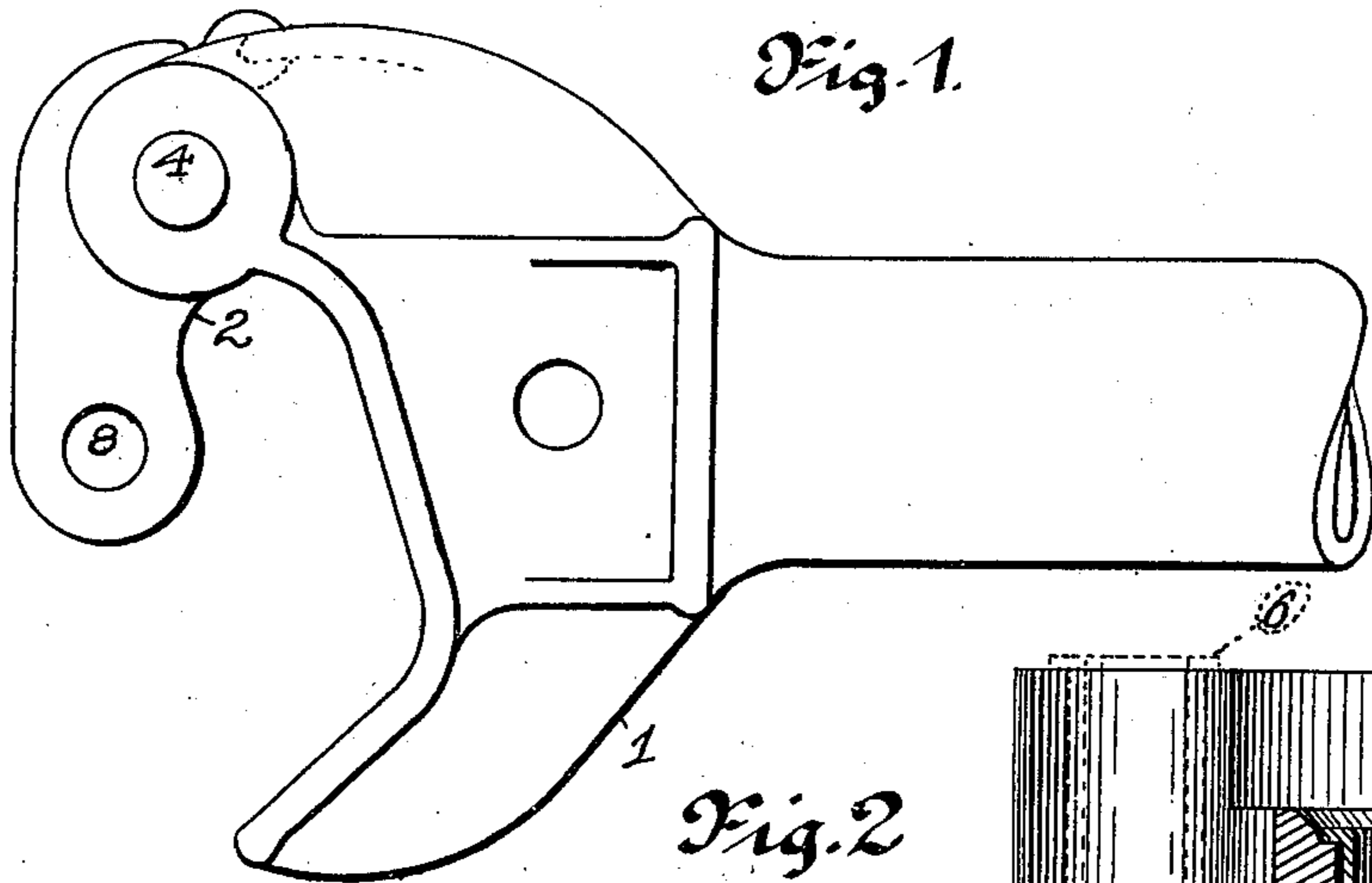


Fig. 3.

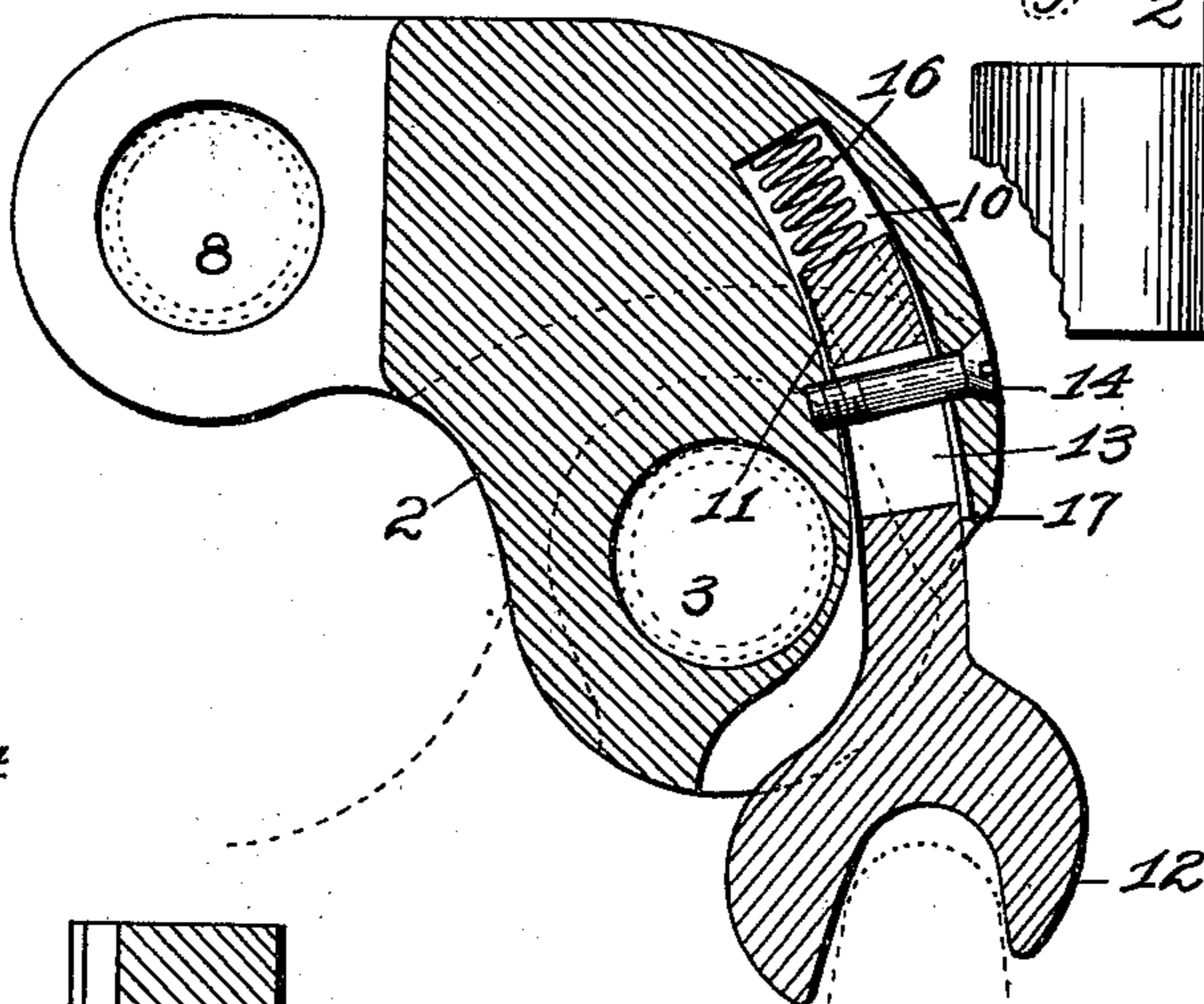


Fig. 4.

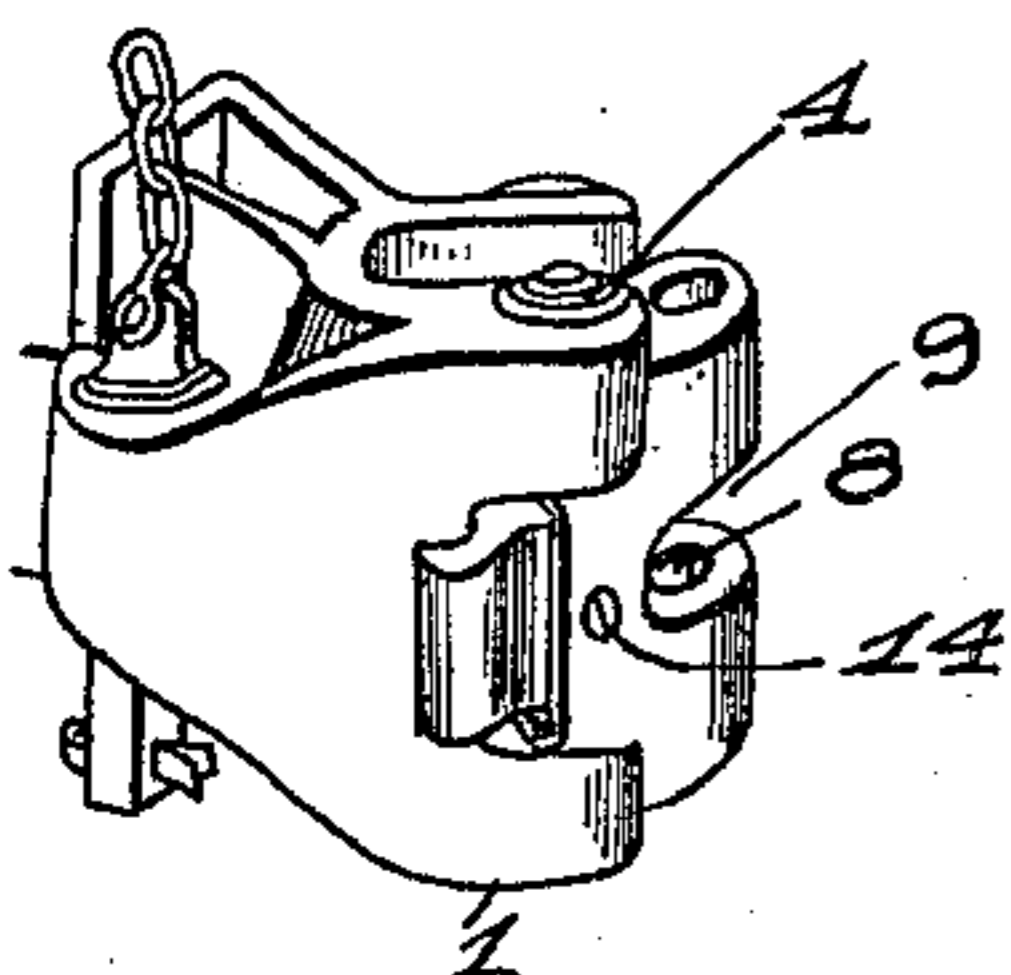


Fig. 5.

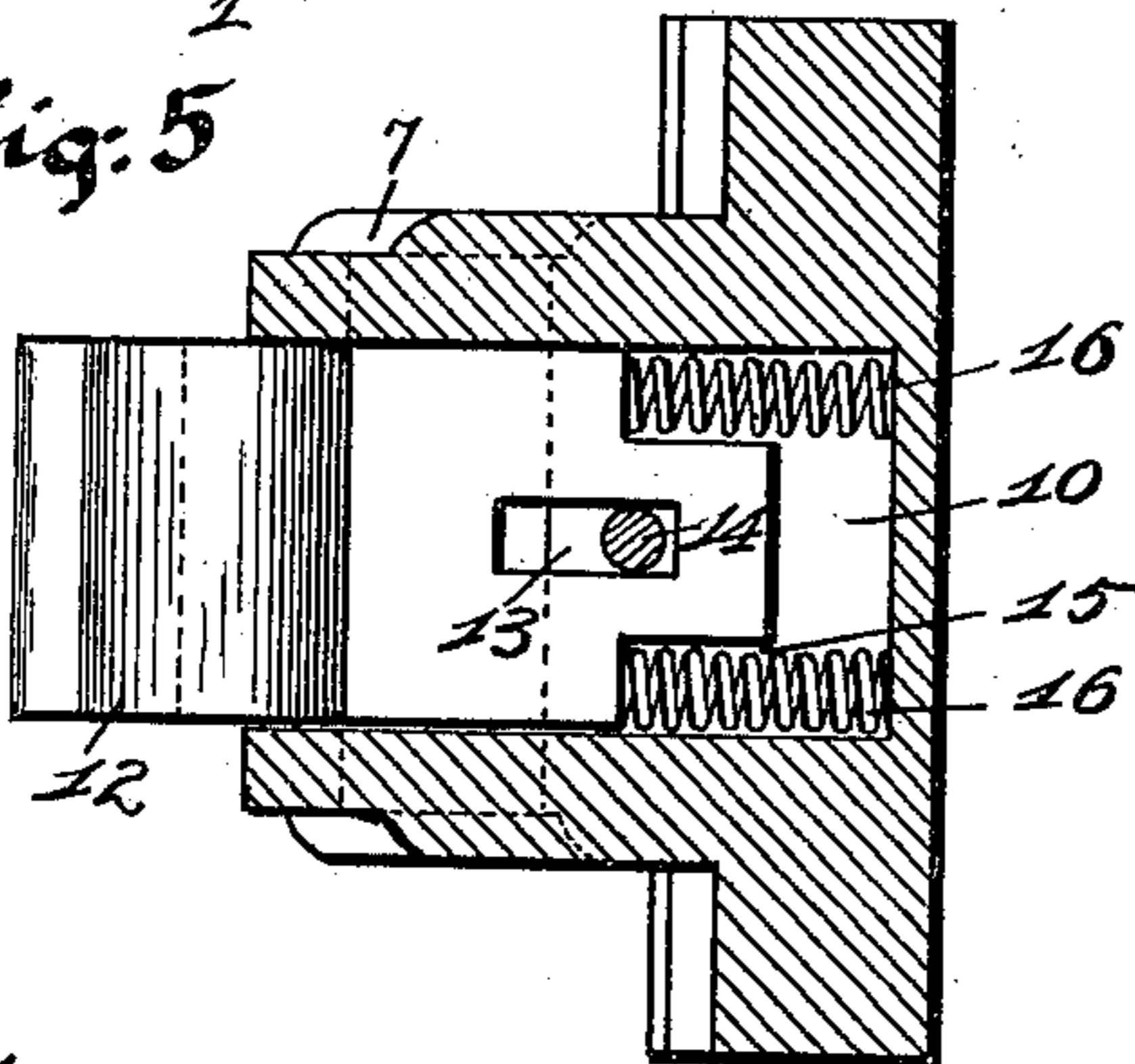
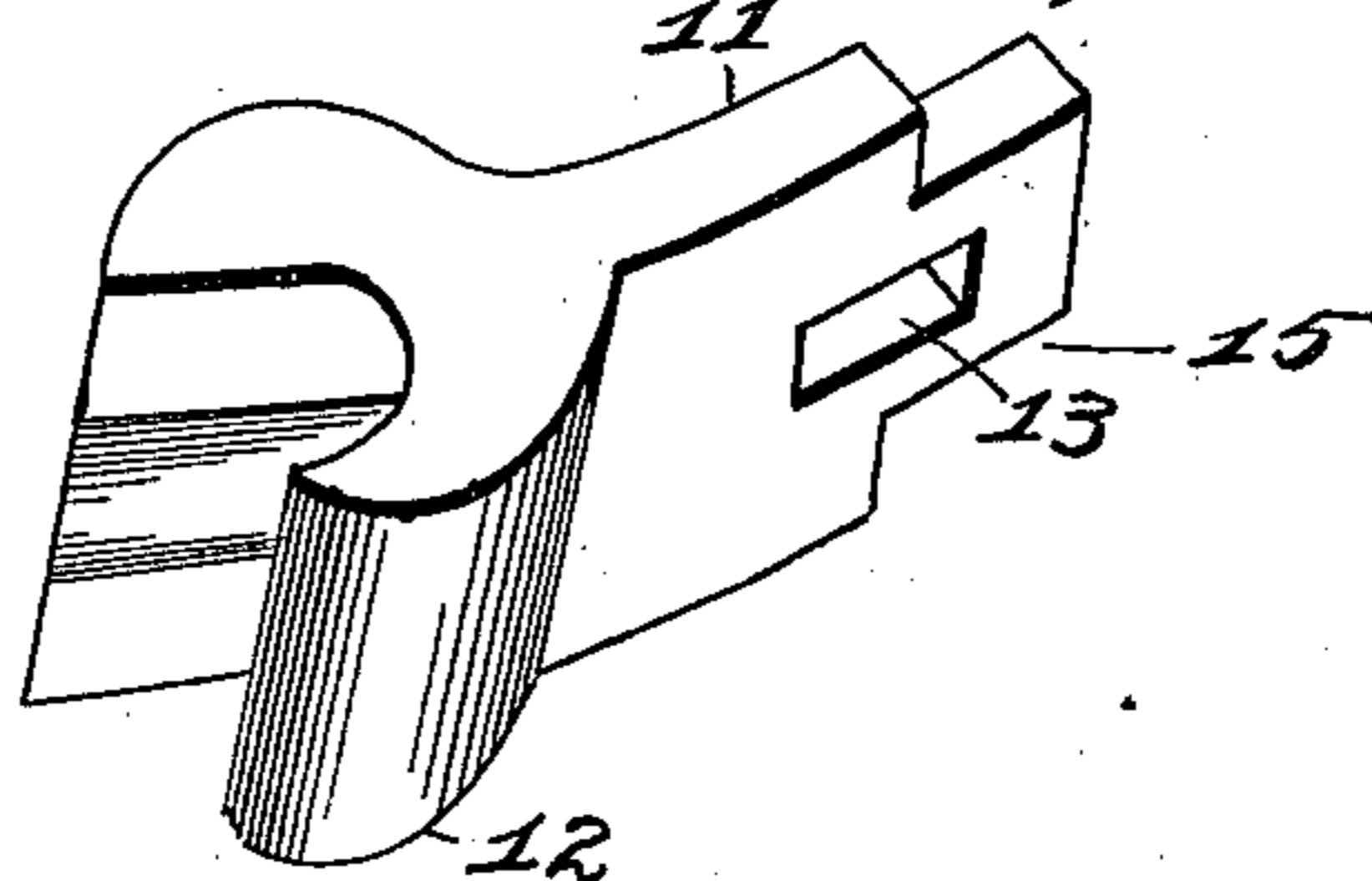


Fig. 6.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JOHN J. O'BRIEN, OF ST. LOUIS, MISSOURI.

## COMPENSATING EMERGENCY-KNUCKLE.

SPECIFICATION forming part of Letters Patent No. 685,632, dated October 29, 1901.

Application filed February 4, 1901. Serial No. 45,962. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN J. O'BRIEN, of the city of St. Louis, State of Missouri, have invented certain new and useful Improvements  
5 in Compensating Emergency-Knuckles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to compensating  
10 emergency-knuckles; and it consists of the novel construction, combination, and arrangement of parts hereinafter shown, described, and claimed.

The object of this invention is to provide  
15 an emergency-knuckle for car-couplers and which may be easily attached to the draw-head in case the regular knuckle becomes broken or inoperative from any cause and which is provided with a compensating attachment whereby it will be automatically  
20 adjusted in the required operative position.

Figure 1 is a plan view showing my invention attached to the draw-head. Fig. 2 is a vertical sectional view showing the parts attached together. Fig. 3 is a horizontal sectional view and shows the manner in which the compensating attachment is held in position. Fig. 4 is a perspective view of the draw-head, showing my invention applied thereto.  
25 Fig. 5 is a vertical sectional view showing the pocket in the knuckle within which the compensating attachment operates. Fig. 6 is a perspective view showing the compensating attachment removed from the knuckle.

Emergency-knuckles have heretofore been  
35 constructed with more or less beneficial result; but they have uniformly been without any means for compensating for the various positions and constructions of the horns or  
40 projections of the draw-head.

My invention consists, essentially, of a knuckle adapted to be attached to the draw-head by means of the usual pin and a compensating attachment carried by the knuckle  
45 and which operates against the end of one of the projections of the draw-head and holds the knuckle in the required operative position relative to the draw-head.

Referring more particularly to the drawings, 1 denotes the usual bifurcated draw-

head, to one of the horns of which the knuckle is attached, which forms a part of the coupler.

My improved knuckle consists, essentially, of the body 2, which is provided with an opening 3 adjacent to its rear end adapted  
55 to receive the pin 4, whereby the knuckle is attached to the draw-head. This opening 3 is of a size sufficient to receive the adjusting-pins 4, which are made use of in connecting the knuckles to the draw-head, since it is frequently desired to use the knuckle in combination with draw-heads constructed to use the largest pins. On other occasions it may be desired to use the knuckle in combination with draw-heads using small pins, and to compensate or fill up the said opening 3 and render it of the required size I have provided the ferrule or thimble 5, the internal diameter of which is equal to the diameter of the small pins, and the said ferrule is of such size as to  
65 fit snugly within the opening 3. The upper end of the ferrule 5 is provided with an annular flange 6, whereby it is supported within the opening 3, and in the upper side of the body of the knuckle around the opening 3 is  
70 formed a depression 7, within which the flange 6 rests, so that the knuckle may be readily attached to the draw-head without being obstructed by the said flange 6. The inner end of the knuckle is provided with a vertical  
80 opening 8, within which the ferrule 5 may be carried when it is not required to be used in the opening 3, and the inner end of the knuckle is further provided with a notch 9, whereby all unnecessary weight is removed. 85

Formed in the rear end of the knuckle 2, adjacent to the outer side thereof and substantially parallel with the curved outer end of the knuckle, is a curved pocket or recess  
90 10, within which the forward end of the compensating attachment is carried. As shown in Fig. 3, the said pocket 10 is curved, and the purpose thereof will presently appear. The said compensating attachment consists of the curved arm 11, which is adapted to operate  
95 within the pocket 10 and which is provided on its rear end with the bifurcated head 12, the outer fork of which rests against the outer side of the draw-head, thereby preventing the knuckle from being moved away from the  
100

draw-head without removing the pin 4. The inner jaw rests against the inner portion of the draw-head and serves to prevent the knuckle from being forced inwardly. An elongated opening 13 is formed in the arm 11 and is adapted to receive the screw 14, which passes through an opening in the wall outside the pocket 10, through the said opening 13, and into the threaded opening in the body of the knuckle 2. (See Fig. 3.) Notches 15 are formed at the end of the arm 11, one at the upper and one at the lower side thereof, and a spring 16 rests within each of said notches and serves to normally force the compensating attachment outwardly.

In use the compensating attachment is secured within the pocket 10 and in the manner described, and the screw 14 prevents its removal therefrom. The springs 16 serve to actuate the attachment rearwardly and hold it against the end of the draw-head. The knuckle is secured in position by means of the usual pin 4, with or without the ferrule 5, as above described. The outer part of the horn or projection of the draw-head to which the knuckle is secured is received between the forks 12, as shown by dotted lines in Fig. 3. When in this position, the line of force does not pass parallel with the arm 11 nor with the sides of the pocket 10, and hence if the inner end of the knuckle is drawn forwardly the outer end thereof is pressed rearwardly and the compensating attachment abuts against the end of the horn or projection of the draw-head to which the knuckle is secured. This will form two contact-points for the arm 11, one of them being at the point indicated by 17 on the outer side of the said arm 11 and the other adjacent to its inner end and on the inner side thereof. Hence the springs 16 will not be compressed, owing to the friction between the parts when in the positions described, and the outer fork 12, as stated above, will prevent the inner end of the knuckle from being drawn forwardly. In case the tendency is to force the inner end of the knuckle rearwardly the contact-points are on the sides of the arm 11 opposite from the contact-points above described, and the inner fork on the rear end of the said arm 11 prevents the inward movement of the knuckle. It is apparent that by this construction the knuckle may be attached to draw-heads of various constructions and that by use of the compensating attachment the knuckle will be equally effective and useful on the different draw-heads. By use of the ferrule 5 the size of the opening 3 may be regulated to accord with the size of the opening in the draw-head in which the pin 4 is carried. By such construction I provide for all variations both as to size of the pins to be used and as to the length of the outer side of the horn or projection of the draw-head to which the knuckle is secured. It also appears that the jaws 12 cooperate with the side of the draw-head to

prevent the knuckle from lateral movement relative to the draw-head and, further, that this is accomplished independent of any of the locking mechanism, so that in case any portion of the locking mechanism becomes disarranged or inoperative the emergency-knuckle may be applied with equal effectiveness and perform all the functions of a regular knuckle. In such respects and on account of its thorough operativeness the invention possesses superior qualities over those heretofore constructed with similar ends in view.

I claim—

1. A compensating emergency-knuckle for car-couplers, consisting of a knuckle, means for attaching it to the draw-head independent of the locking mechanism, and a spring-actuated compensating arm carried thereby and adapted to abut against the horn or projection of the draw-head to which the knuckle is secured, substantially as specified.

2. A compensating emergency-knuckle for car-couplers, consisting of a knuckle, means for attaching it to the draw-head, a spring-actuated compensating attachment carried by the knuckle and means for preventing displacement of the compensating attachment to permit the dislocation of the knuckle, substantially as specified.

3. A compensating emergency-knuckle for car-couplers, consisting of a knuckle having a curved pocket formed therein, a compensating attachment operating with said pocket, means for retaining it in position therein, and means for attaching the knuckle to the draw-head, substantially as specified.

4. A compensating emergency-knuckle consisting of a casting having a large opening for the reception of the pin whereby it is attached to the draw-head, a ferrule 5 for regulating the size of the opening 3, and means for upholding the said ferrule within the opening 3, in combination with a sliding compensating attachment carried by said casting and adapted to bear against the end of the draw-head to assist in retaining the casting in position, substantially as specified.

5. A compensating emergency-knuckle for car-couplers, consisting of the body 2 having the curved pocket 10 formed therein, in combination with a compensating attachment consisting of the curved arm 11 adapted to operate within the said pocket 10 and provided on its rear ends with forks adapted to receive the outer side of the horn of the draw-head to which the knuckle is attached, means for actuating the said attachment outwardly, and means for preventing its removal from the pocket 10, substantially as specified.

6. A compensating emergency - knuckle, consisting of a knuckle adapted to be secured to the draw-head, and a spring-actuated compensating attachment carried thereby and adapted to bear against the draw-head, substantially as specified.

7. A compensating emergency-knuckle con-

sisting of a knuckle adapted to be attached to the draw-head and a bifurcated spring-actuated compensating attachment carried thereby and adapted to bear against the end of the  
5 draw-head, substantially as specified.

8. A compensating emergency - knuckle, consisting of a casting adapted to be secured to the draw-head, and an outwardly-impelled compensating attachment carried thereby

and adapted to bear against the end of the draw-head to determine the position of the knuckle.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN J. O'BRIEN.

Witnesses:

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