

No. 663,710.

Patented Dec. 11, 1900.

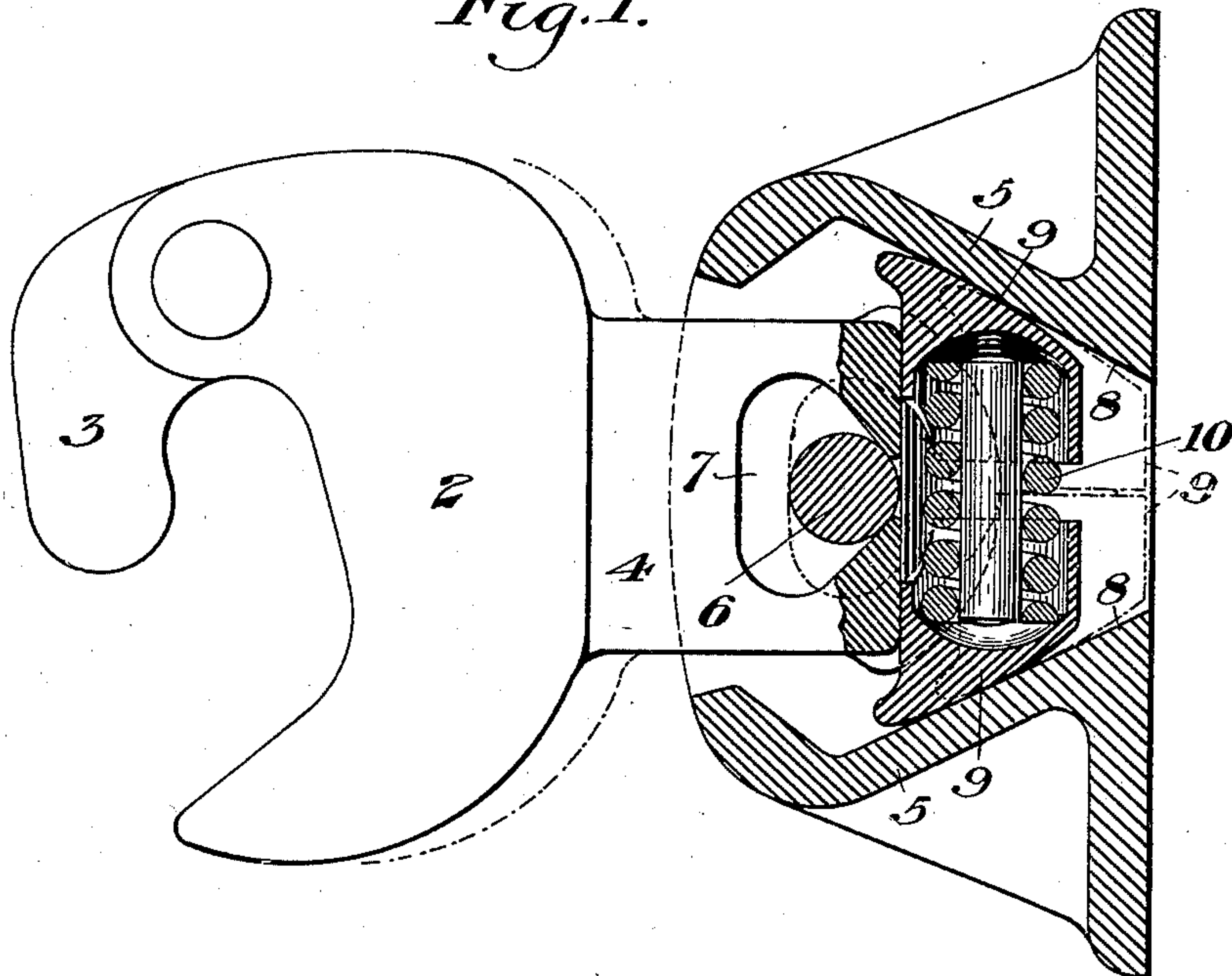
J. WILLISON.  
COUPLING.

(Application filed Mar. 8, 1900.)

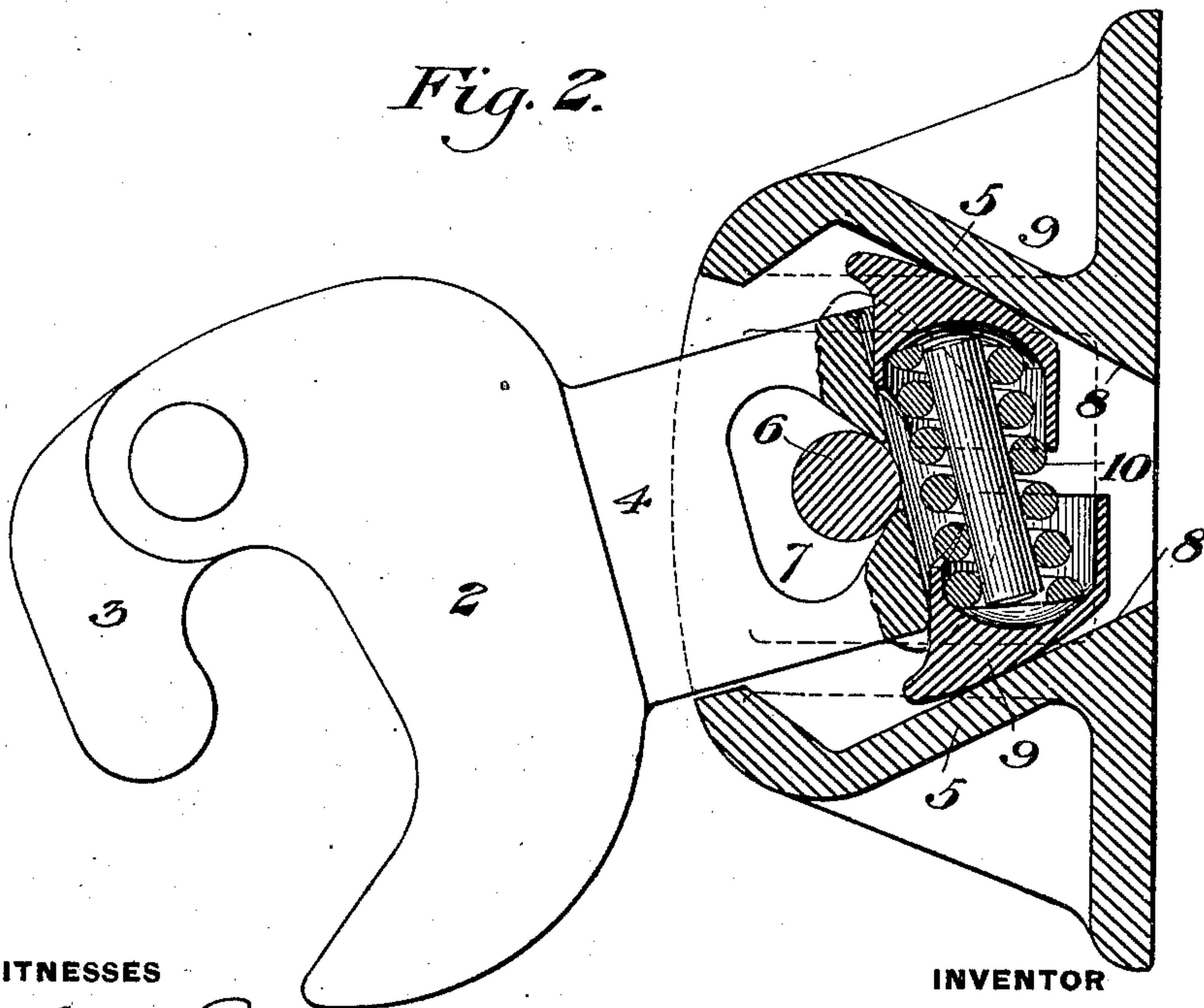
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4 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 2.*



WITNESSES

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Fig. 3.

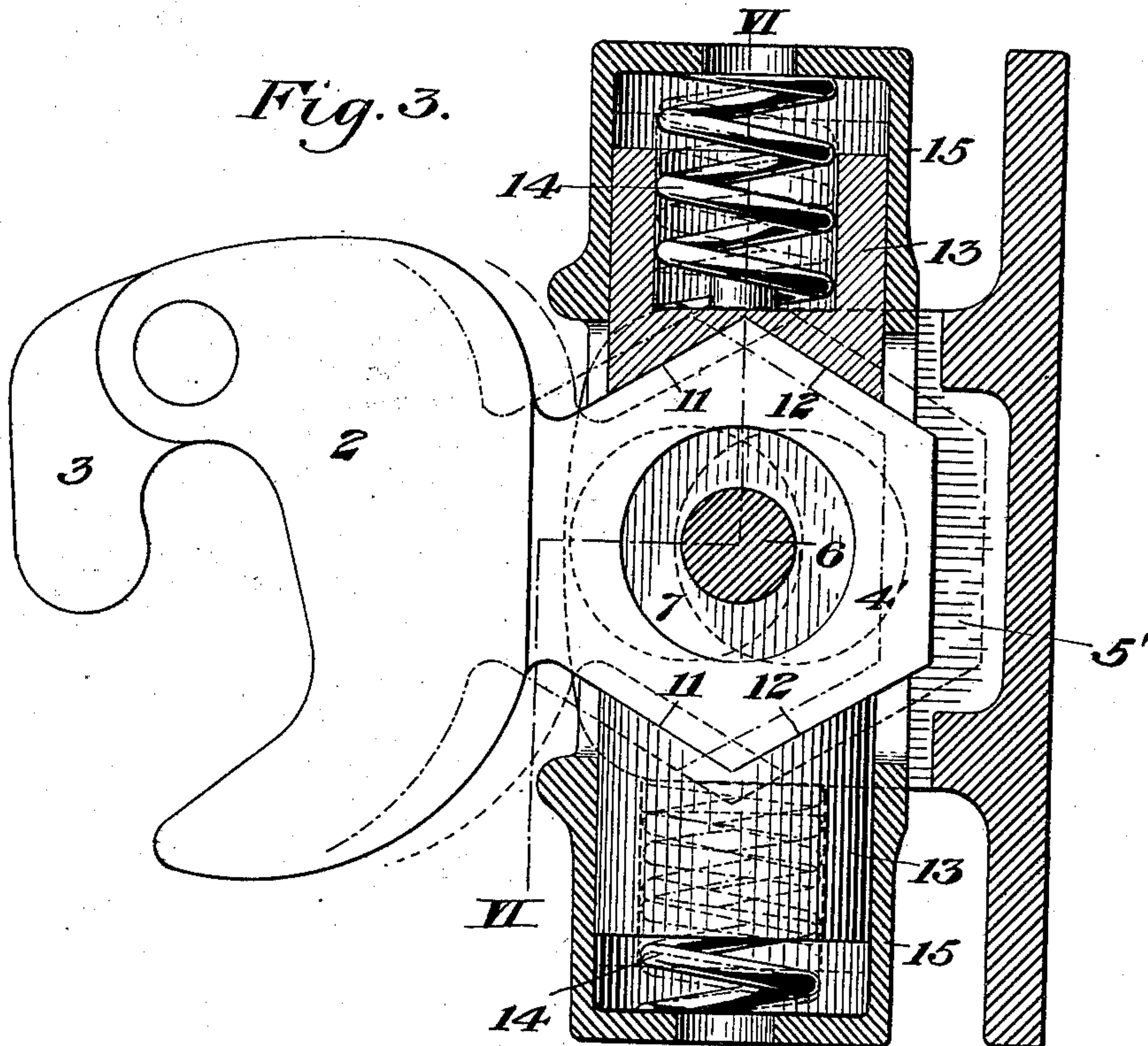
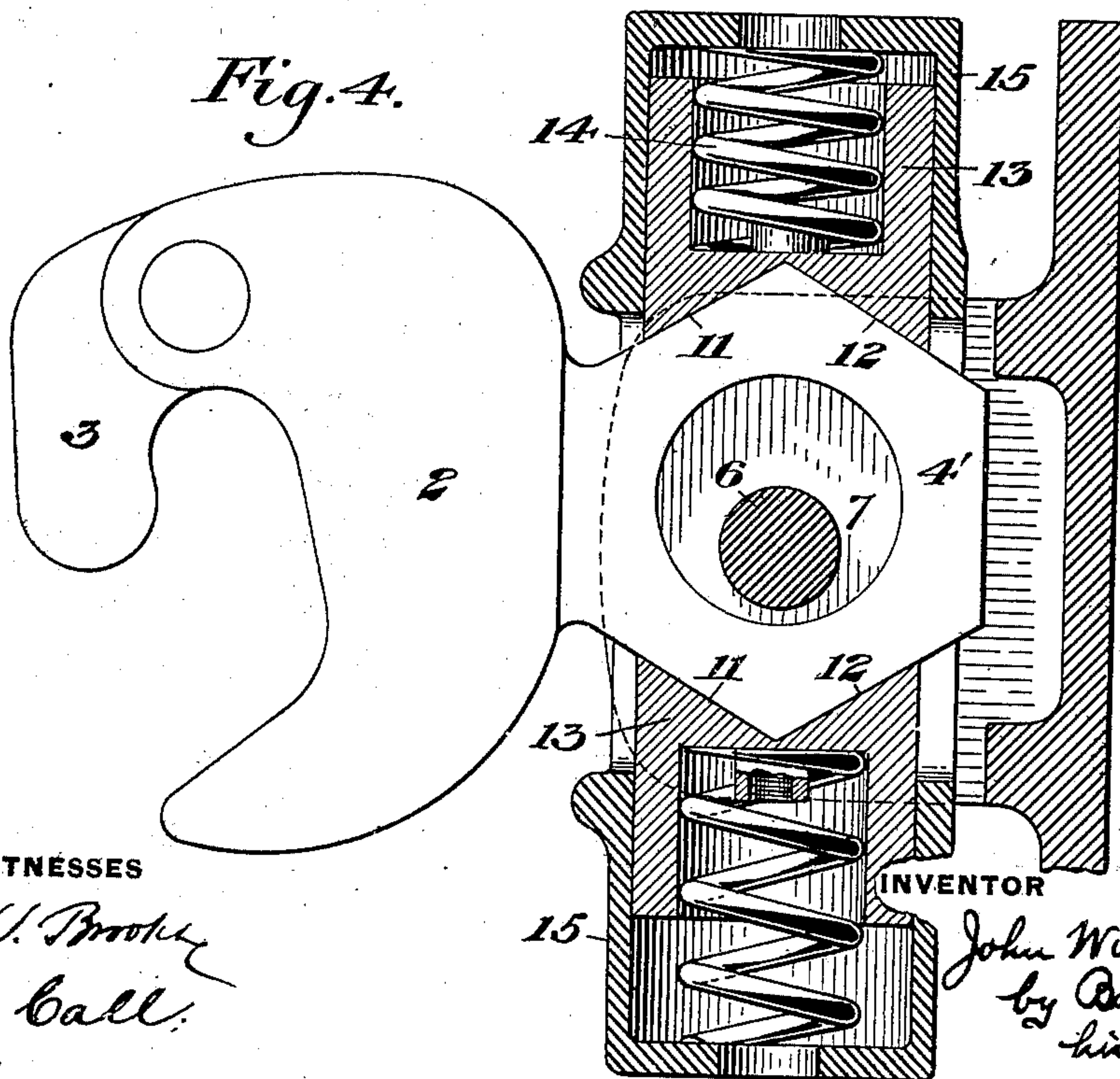


Fig. 4.



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Fig. 5.

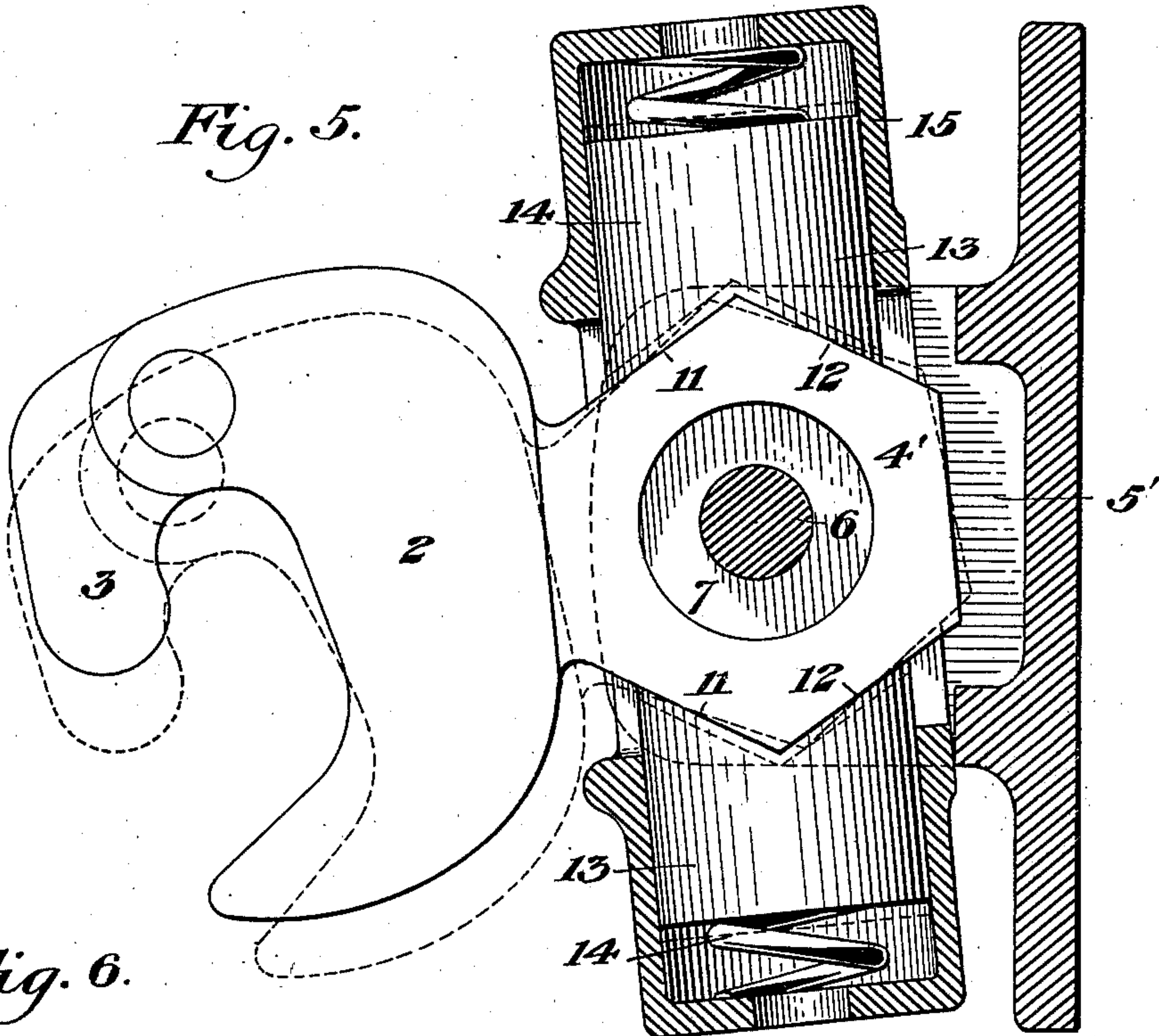
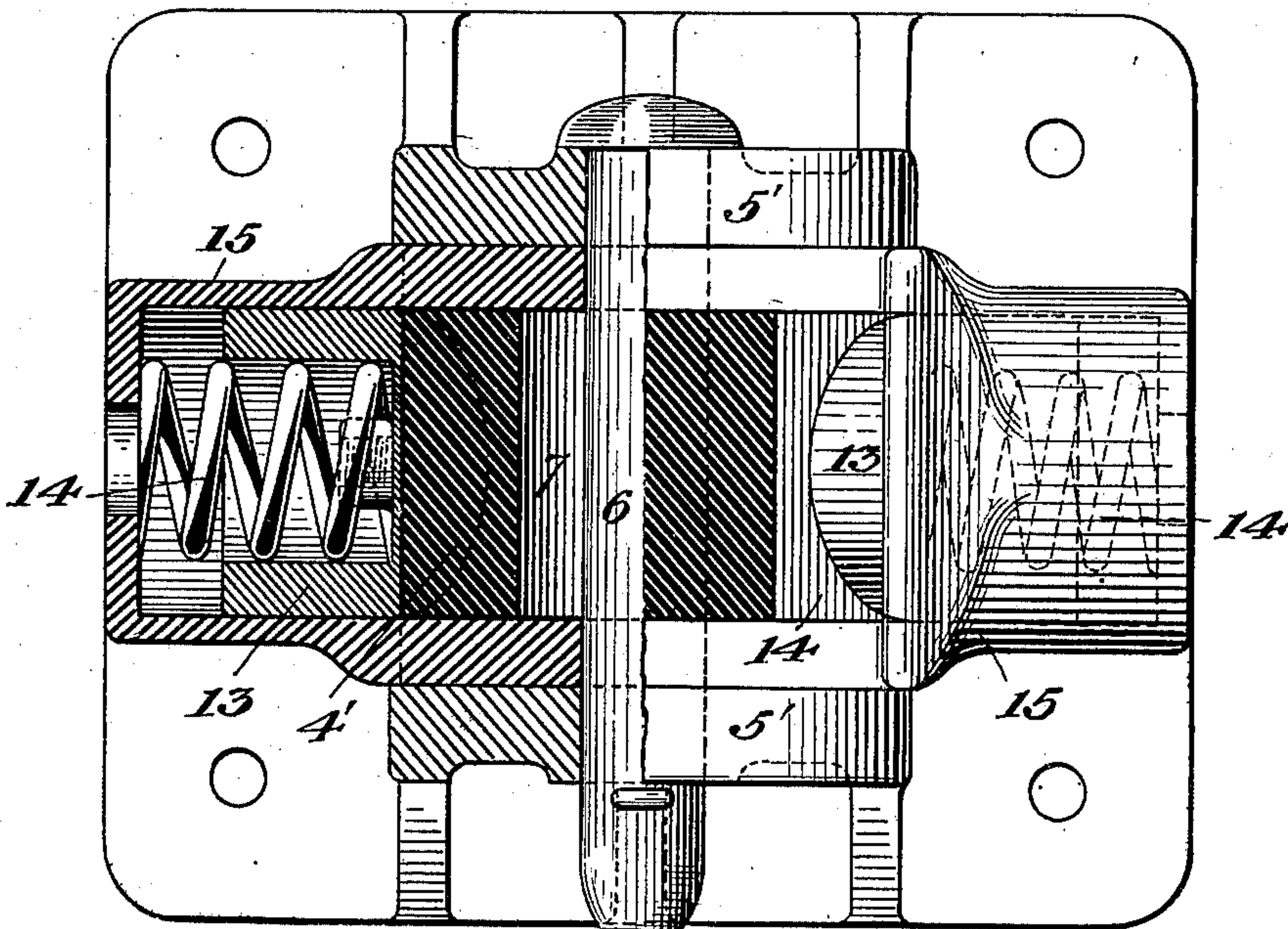


Fig. 6.



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(Application filed Mar. 8, 1900.)

(No Model.)

4 Sheets—Sheet 4.

Fig. 7.

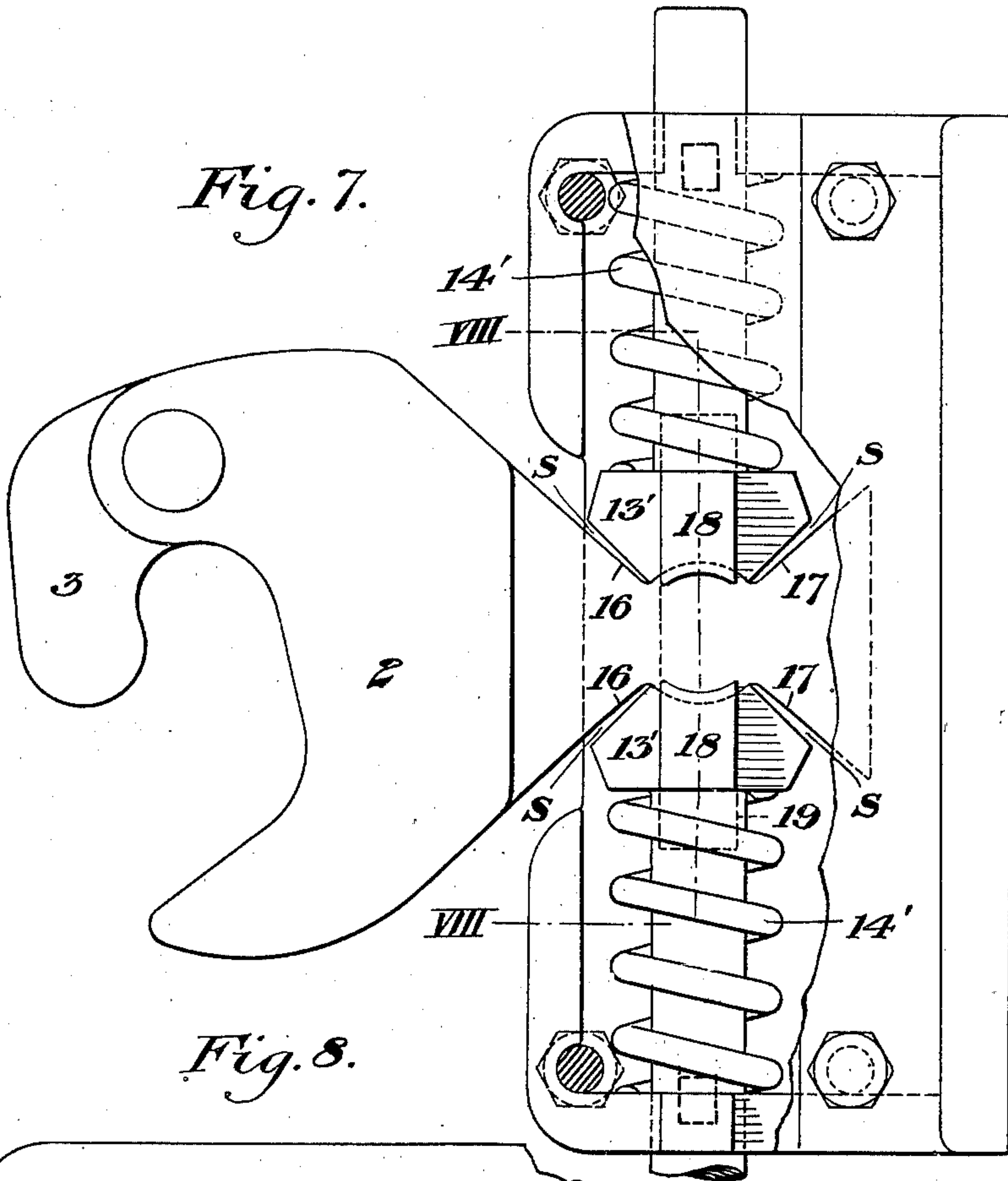
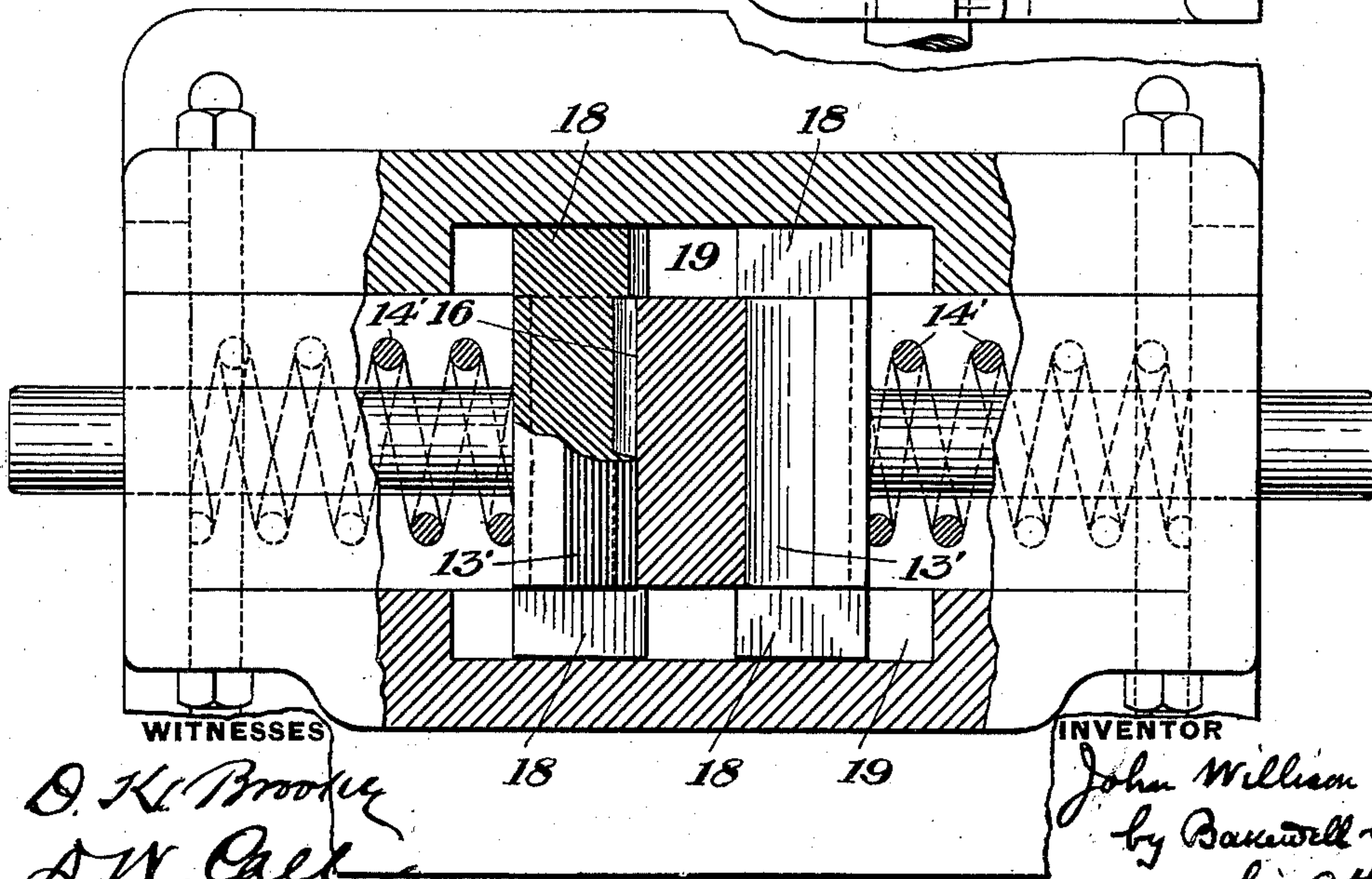


Fig. 8.



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# UNITED STATES PATENT OFFICE.

JOHN WILLISON, OF CLEVELAND, OHIO, ASSIGNOR TO THE NATIONAL MALLEABLE CASTINGS COMPANY, OF SAME PLACE.

## COUPLING.

SPECIFICATION forming part of Letters Patent No. 663,710, dated December 11, 1900.

Application filed March 8, 1900. Serial No. 7,906. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN WILLISON, of No. 7 Berghoff street, Cleveland, in the county of Cuyahoga and State of Ohio, have invented  
5 a new and useful Improvement in Couplers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, in which—

10 Figure 1 shows a sectional plan view of a car-coupler constructed in accordance with my invention. Fig. 2 is a like view showing the parts in a different position. Figs. 3, 4, and 5 are sectional plan views of another  
15 form of my improvement, showing three different positions thereof. Fig. 6 is a vertical section on the line VI VI of Fig. 3. Fig. 7 is a sectional plan view of a third form of my invention. Fig. 8 is an irregular vertical section  
20 on the line VIII VIII of Fig. 7.

The principal object of my invention is to provide a coupler which shall have an efficient buffing spring action within the limits of space afforded by present pilot and tender  
25 couplers which are made without springs. The restricted space afforded by such couplers imposes many difficulties upon their construction; but I believe that all have been satisfactorily met by my invention.

30 In Figs. 1 and 2, 2 represents the coupler-head, which may be of any suitable construction, having a locking-knuckle 3 and a shank 4. 5 is a socket within which the shank is set and to which it is connected by a pin 6, the vertical hole 7 in the shank being made,  
35 preferably, three-sided and larger in its lateral and longitudinal dimensions than the pin, so as to permit loose motion of the coupler-head, such as is required in buffing, and also permitting lateral motion and oscillation thereof.  
40 The inner walls 8 8 of the socket 5 converge toward the rear, and I set between them blocks 9 9, which are socketed to receive an interposed spring 10 and are set in a groove  
45 at the rear end of the coupler-shank. The ends of the blocks are inclined or rounded to match the converging walls 8 8, and their action is such that if a buffing force be applied to the coupler the walls 8 8 will cause the  
50 blocks as they are moved back along the walls to be forced together, compressing the

spring and affording a yielding resistance to the buffing motion. The spring then exerts its pressure to force the blocks toward the inclined walls 8 8. This is shown clearly by  
55 dotted lines in Fig. 1. If the coupler is rocked to one side or the other, the blocks will shift within the cavity of the socket, as shown in Fig. 2, and will afford all the flexibility necessary for this purpose. The rocking motion  
60 of the springs will not be substantially compressed. The coupler head and shank will also move bodily sidewise within the limits afforded by the large hole 7. This is desirable to permit the couplers to accommodate  
65 themselves to motions of the cars in passing over switch-points, &c. These motions are effected with entire facility, and although, as shown in the drawings, the device has a very small compass it will meet all the conditions  
70 of uses of pilot or tender couplers. As the springs are transverse and are assisted by the frictional resistance of the inclined surfaces, comparatively light springs may be employed with success.

75 In Figs. 3, 4, 5, and 6 I show another form of my invention specifically claimed herein, in which the coupler has not only a spring buffing action and a spring rocking action, but also has a lateral spring motion in a  
80 straight line and a spring pulling or draft action. For these purposes the shank 4' of the coupler is formed at each side with oppositely-inclined faces 11 12, against which fit opposite blocks 13 13, having inclined ends which  
85 match and fit against the faces 11 12 and provided with springs 14, interposed between the blocks and the ends of a case 15, in which the blocks are set. The case 15 is pivoted to the  
90 socket 5' by a pin 6, which also passes through the large hole 7 in the shank of the coupler. The construction is such that if the coupler is pushed back in buffing the faces 12 12 will  
95 push the blocks 13 13 against the springs 14, which thus give a spring buffing resistance, and if it is pulled forward under draft the inclined faces 11 11 will act in a similar manner, both of said actions being illustrated by  
100 dotted lines in Fig. 3. When passing over switch-points or when for any other reason a lateral force is applied to the coupler-head, it will move laterally against the block 13 at



one side or the other, compressing the spring back of such block, as shown in Fig. 4, where the coupler is pushed to the right, the spring at the right being compressed and the other spring correspondingly extended. The coupler-head may also be rocked by hand to one side or the other without compressing the springs in order to facilitate coupling on curves and the like, and this purpose is effected by rocking the case 15 on the pin 6.

In Figs. 7 and 8 I show another form of my invention, in which the coupler-head has a spring buffing and draft and also a spring side motion and a rocking motion. In this case the coupler-head has at the shank on each side inwardly-converging sides 16 17, opposite to which are blocks 13' 13', backed by springs 14' and having guide-stems 16' fitting within the springs. The blocks fit against the shank at the middle portion and have guiding projections 18, fitting in grooves 19 in the sides of the socket or case 5', in which the parts are contained. If the coupler is pulled forward under draft, the inclined faces 17 will move the blocks 13' 13' against the springs, and if the coupler is pushed back under buffing the inclined faces 16 will move the blocks and compress the springs. The coupler may also be moved bodily to one side or the other against the springs, and by forming spaces S between the inclined faces of the blocks and the shank the coupler can be made to rock without compressing the springs.

Within the scope of my invention as defined in the claims many other changes in the construction may be made by the skilled mechanic, since

What I claim is—

1. A coupler having blocks, oppositely-inclined bearing-surfaces at the outer ends of the blocks, and an interposed spring arranged to press the blocks outwardly; substantially as described.

2. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler and shank being movable bodily in a lateral direction against the springs; substantially as described.

3. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler being pivoted to the case and mounted to rock laterally

without compressing the spring; substantially as described.

4. A coupler having applied to its shank spring buffing mechanism, a pin, and a vertical hole, larger in its lateral and longitudinal dimensions than the pin, whereby the shank is adapted to move lengthwise and laterally, substantially as described.

5. The combination of a longitudinally-movable coupler having a lateral movement, transverse coiled-spring mechanism, inclined surfaces adapted to coact with the coiled-spring mechanism and to resist longitudinal motion of the coupler, and blocks interposed between the spring mechanism and the inclined surfaces; substantially as described.

6. A coupler having applied to its shank blocks with an interposed spring, oppositely-inclined surfaces against which the blocks bear, and a pin on which the shank is mounted; substantially as described.

7. A coupler having applied to its shank spring buffing mechanism and a socket or case containing the same, said coupler and shank being movable bodily in a lateral direction against the springs, said shank having an enlarged hole or slot through which the pin passes; substantially as described.

8. The combination of a longitudinally-movable coupler having a lateral swinging movement, transversely-acting coiled-spring mechanism, and inclined surfaces adapted to coact with said spring mechanism and to resist longitudinal motion and rocking motion of the coupler; substantially as described.

9. The combination of a coupler, blocks at the end of the coupler-shank, inclined surfaces, and an interposed spring carried by the blocks and moving therewith, said coupler being movable laterally and longitudinally; substantially as described.

10. A coupler-case adapted to support the coupler, having means for pivoting the same, and having vertical converging walls and blocks engaging said walls and having an interposed spring; substantially as described.

In testimony whereof I have hereunto set my hand.

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Witnesses:

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