

No. 695,920.

Patented Mar. 25, 1902.

G. H. FERNALD.
THILL COUPLING.

(Application filed Mar. 9, 1901.)

(No Model.)

Fig. 1

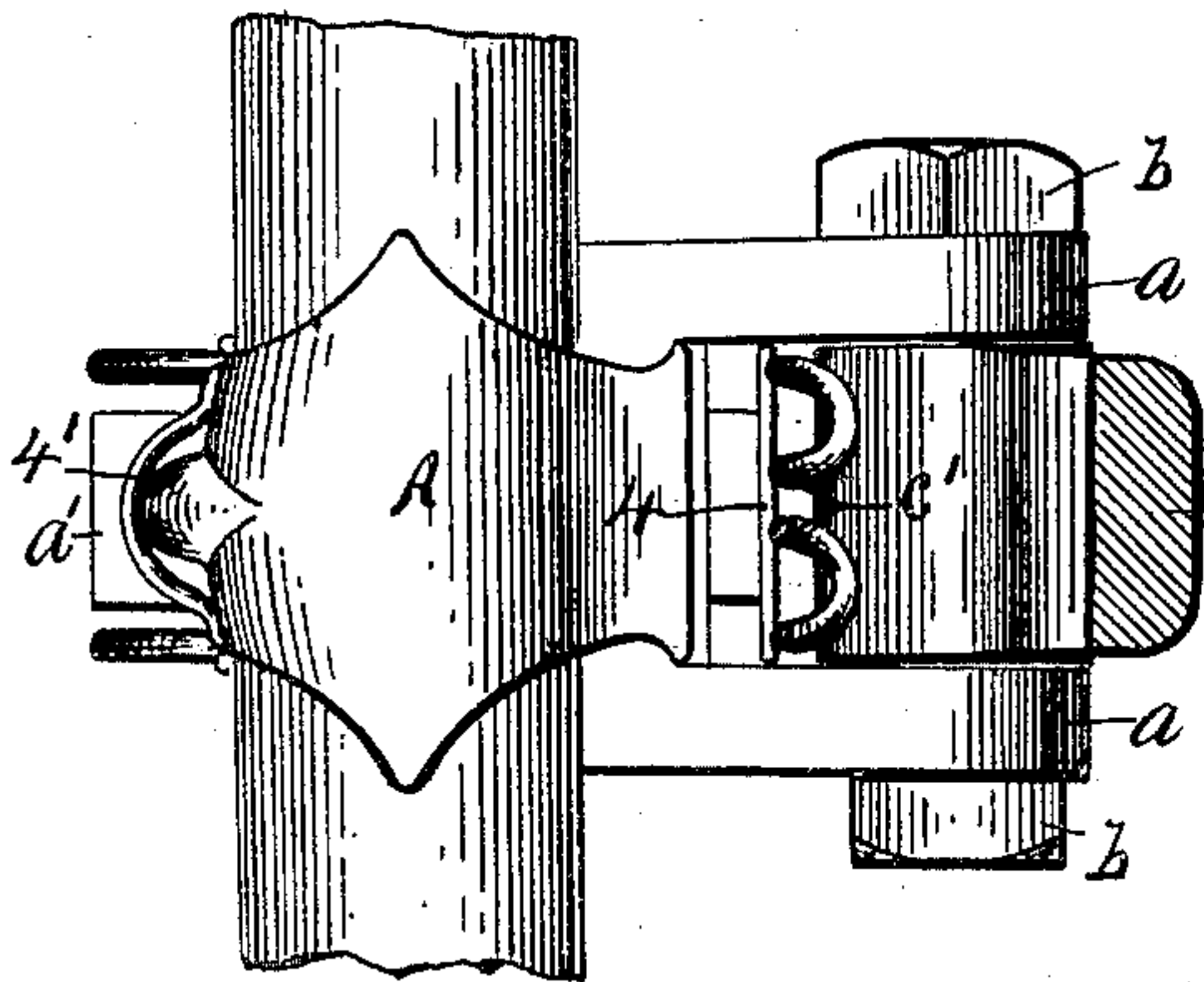


Fig. 2.

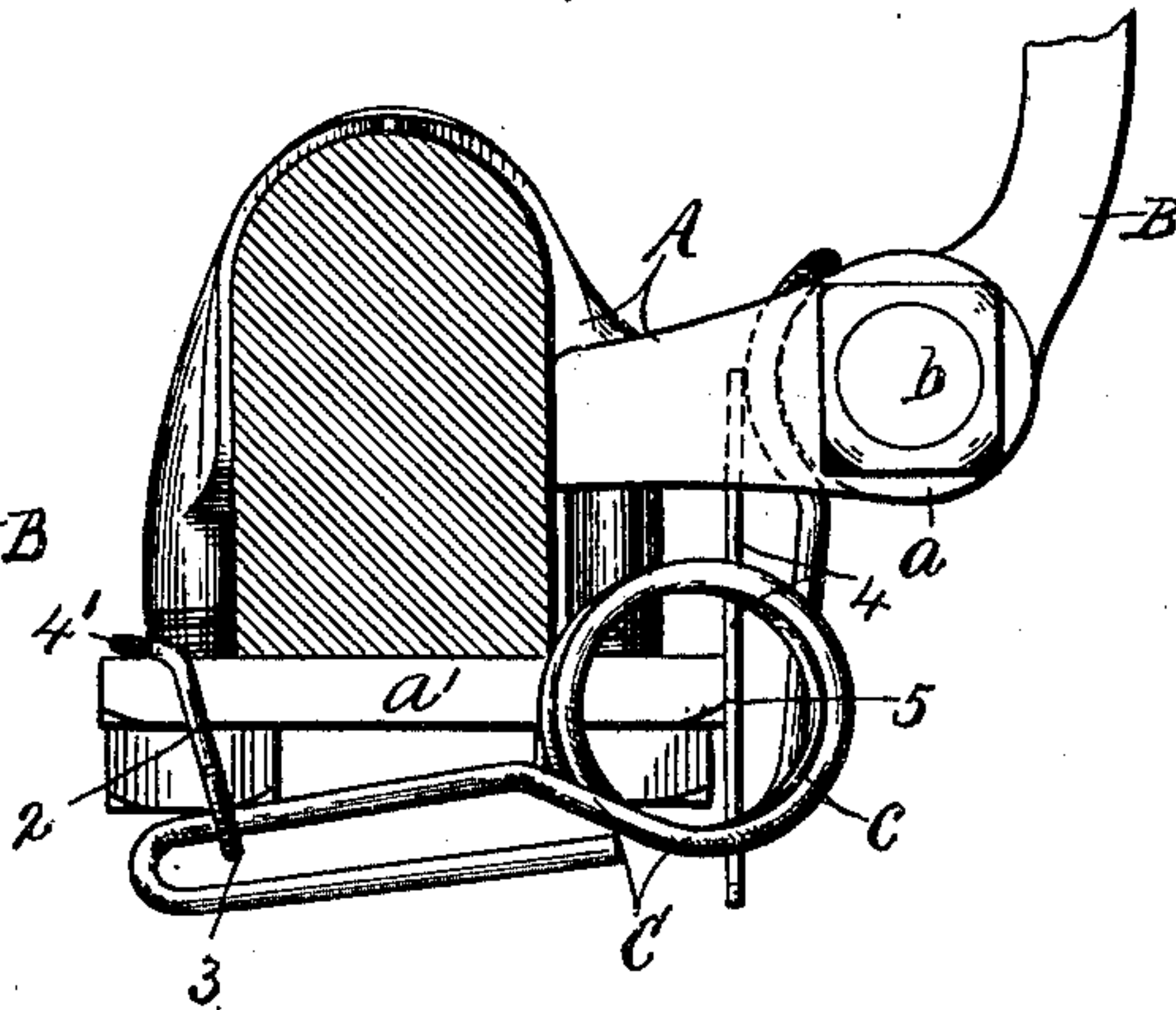


Fig. 3.

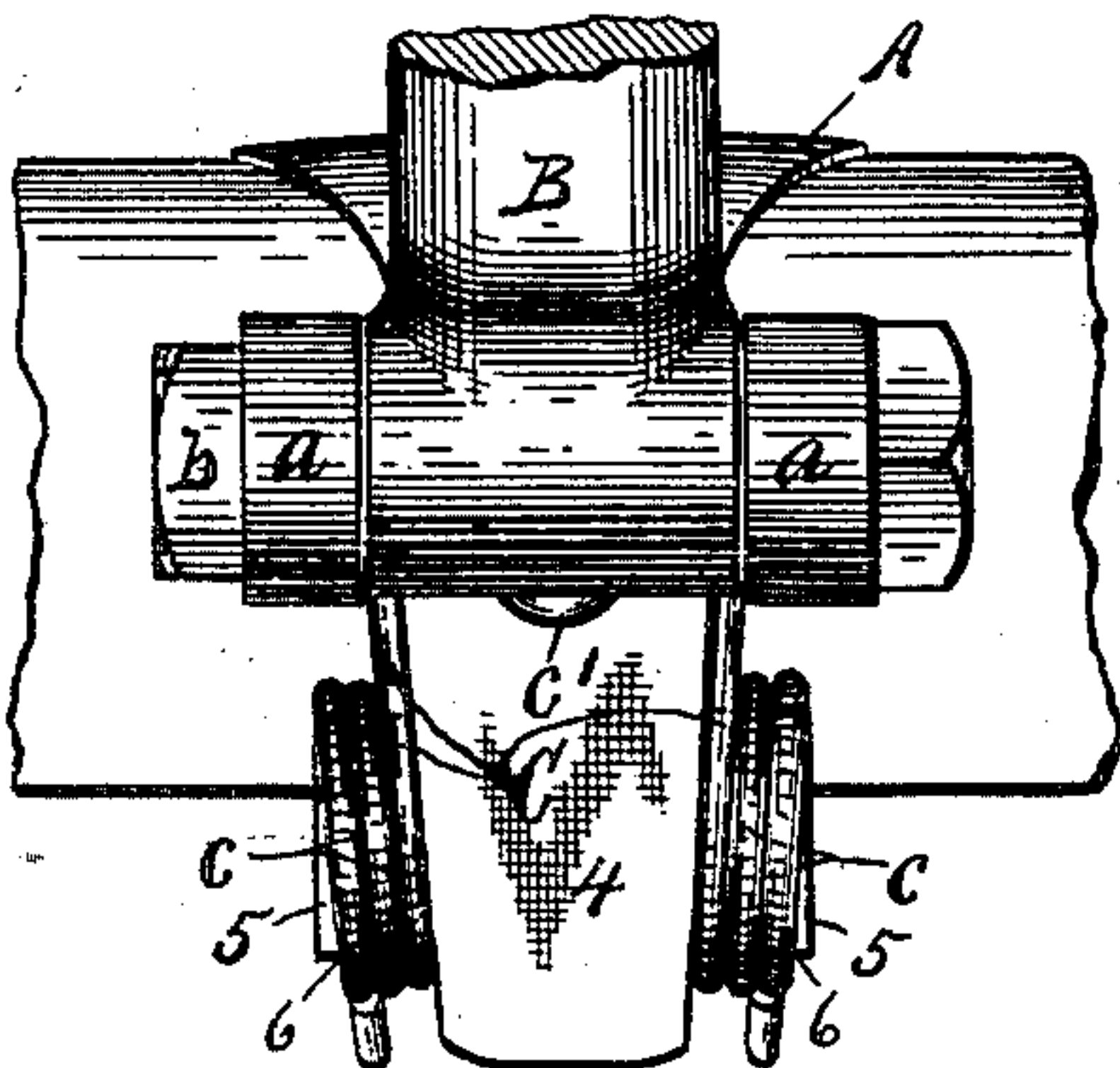


Fig. 4.

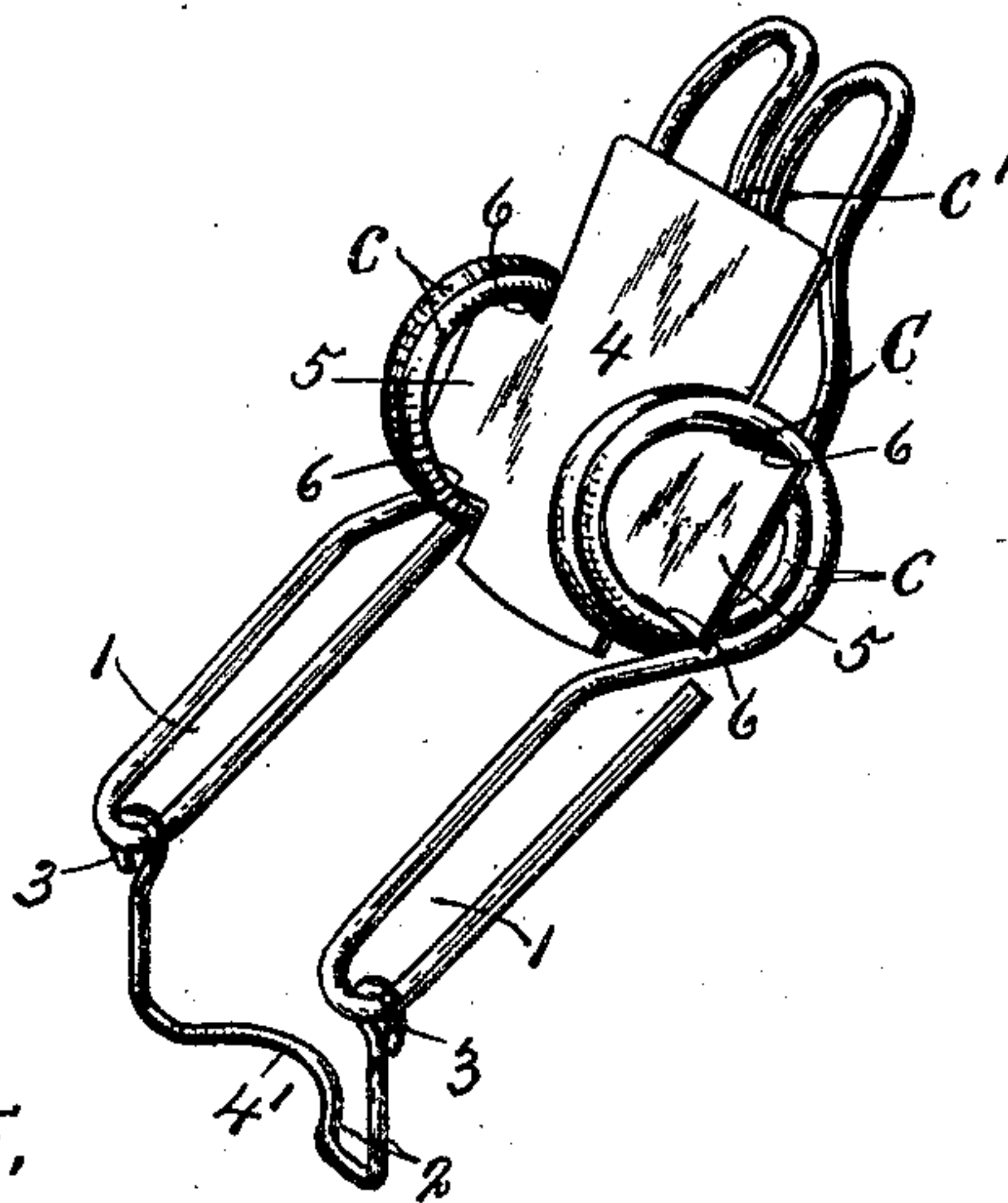
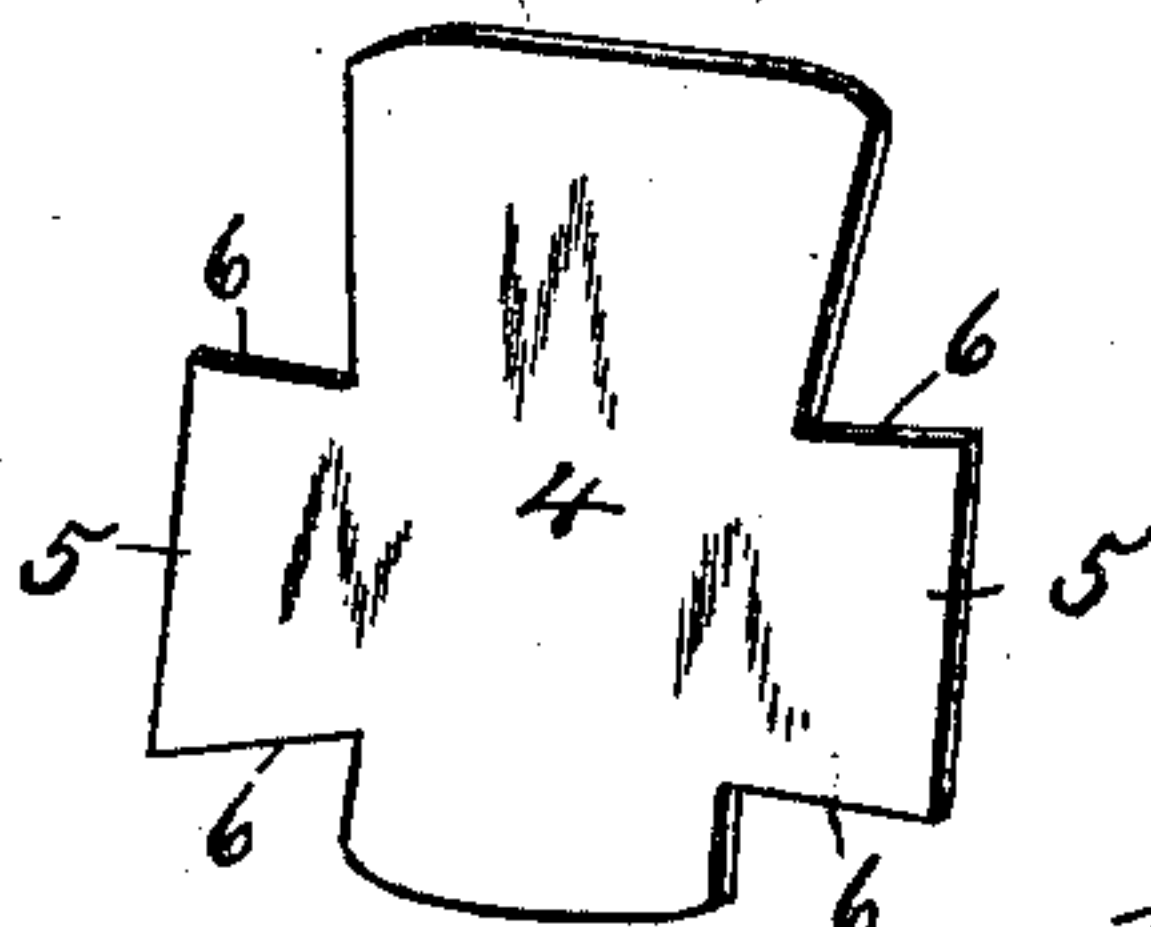


Fig. 5.



WITNESSES:

J. C. Arthur,
W. B. Chace.

INVENTOR
George H. Fernald
BY
Smith & Driscoll
ATTORNEYS.

UNITED STATES PATENT OFFICE.

GEORGE H. FERNALD, OF NORTHEAST, PENNSYLVANIA.

THILL-COUPPLING.

SPECIFICATION forming part of Letters Patent No. 695,920, dated March 25, 1902.

Application filed March 9, 1901. Serial No. 50,443. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. FERNALD, of Northeast, in the county of Erie, in the State of Pennsylvania, have invented new and
5 useful Improvements in Thill-Couplings, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to improvements in
10 thill-couplings, and particularly to an anti-rattler for taking up the lost motion or wear in the hinge connection between the thill-strap and clip.

The object of this invention is to provide a
15 simple and efficient means coacting with a suitable spring, whereby the spring for preventing the lost motion or rattle between the thill-strap and clip may be adapted for any form or size of thill-couplings.

To this end the invention consists in the
20 construction and combination of the parts of an antirattler, as hereinafter fully described and pointed out in the claims.

Referring to the drawings, Figures 1, 2, and
25 3 are respectively top plan, side elevation, and front face views of a thill-coupling embodying my invention. Fig. 4 is a perspective view of the detached spring and the bearing-plate used in connection therewith. Fig.
30 5 is an isometric view of the detached bearing-plate.

Similar reference characters indicate corresponding parts in all the views.

A represents a clip provided with separated
35 ears or lugs *a* and a clip-plate *a'*.

B represents a thill-strap pivotally connected to the said lugs by a suitable hinge-bolt *b*.

C is a suitable spring consisting of a single
40 piece of wire having portions thereof bent or formed into oppositely-arranged coils *c*, corresponding ends of which extend outwardly from said coils and are united to each other, the intermediate portions of said united ends
45 being bent in the form of a loop *c'*, and the opposite ends of said coil extend outwardly in a diverging direction from the former ends and are then bent backwardly upon themselves for forming suitable loops 1, said loops
50 being adapted to receive a link 2, having eyes 3, engaged with the arms of the loops 1, the intermediate portion of said link being

formed with a depressed portion 4', adapted to engage one of the threaded bolts of the clip and also the upper face of the clip-plate *a'*. 55

The united ends of the spring-coils *c* are arranged to engage the rear face of the eye of the thill-strap, and the opposite ends of said coil are arranged to be moved toward and away from the clip-plate *a'* for tensioning the
60 united ends of the coils against said rear face of the thill-strap eye, the link 2 being adapted to engage the upper face of the clip-plate *a'* for holding the spring in its tensioned position. 65

As seen in the drawings, the eyes *c* are arranged at opposite sides of the clip-plate *a'* and are free to move vertically when the spring is being placed in operative position, the upper portion of the united ends of the
70 coil and also the loop *c* being curved for receiving the adjacent face of the eye of the thill-strap, and thereby serving to additionally hold the spring in its operative position.

The bearing-plate 4 forms the essential fea- 75
ture of my invention and consists of a substantially flat metal plate having lateral projecting arms 5, the opposite edges of each of which are preferably arranged in inclined planes tapering toward each other. The arms 80
5 are formed of substantially the same width or slightly less width than the inner diameters of the coils *c* and are adapted to be inserted in said coils before the spring is placed in operative position, said coils serving to re- 85
tain the plate in position, the plate being of sufficient length or rather extended upwardly a sufficient distance to engage the inner convex face of the united ends of the spring and also the loop *c'*, and the intermediate portion 90
of this plate is arranged to engage the adjacent end face of the clip-plate *a'* when the spring is placed in operative position, as seen in Figs. 1, 2, and 3.

As the opposite or free ends of the spring- 95
coils *c* are tensioned upwardly the inner faces of the helices of said coils firmly engage the inclined edges 6 of the arms 5, thereby serving to additionally lock the plate in position, and owing to the fact that the plate engages 100
the adjacent end face of the clip plate or bar *a'* it is evident that as the free ends of the coils *c* are moved to their operative position for tensioning the spring against the rear

face of the thill-strap said plate serves to prevent the rearward displacement of the spring and also permits the curved closed end of said spring to readily adjust itself to the eye of the thill-strap. It is further evident that owing to the tendency of the link 2 to draw the spring rearwardly when being tensioned that the plate 4 engages the forward end face of the clip-bar a' , which in turn forces the upper end of the plate 4 against the rear face of the united ends of the coil, thereby firmly holding the portion of the spring engaged with the thill-strap from accidental displacement, and that no matter what the separation may be between the clip-bar a' and the eye of the thill-strap this plate 4 is free to slide or move along the front end face of the clip-bar a' , and thereby automatically adjusts the concave surface of the united ends of the spring to the eye of the thill-strap.

In the operation of my invention the plate 4 is inserted between the coils c , the arms 5 being inserted into the coils. The united ends of the coils are then engaged with the rear face of the eye of the thill-strap, and the free ends of the coils are then forced upwardly and the link 2 engaged with the upper face of the clip-bar a' . This movement of the spring forces the plate 4 against the front end face of the clip-bar a' and also against the rear face of the portion of the spring engaging the thill-strap.

The operation of this invention will now be readily understood upon reference to the foregoing description and the accompanying drawings, and it will be noted that the form of the clip-plate may be somewhat modified without departing from the spirit of this invention, the essential feature being to pro-

vide a plate detachably mounted on the spring and adapted to engage the front end face of the clip-bar or other portion of the clip and also the rear face of the portion of the spring which engages the eye of the thill-strap.

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

1. The combination with a clip, a thill-strap hinged thereto, and a slip-plate, of a spring formed from a single piece of wire bent to form loop-arms at one end and a loop at its other end which bears against the thill-strap, with coils intermediate the loop-arms and the loop, and a bearing-plate having laterally-projecting arms the opposite edges of which are arranged in inclined planes tapering toward each other whereby said arms when inserted in the coils hold the bearing-plate in position, the upper end of the bearing-plate impinging on the outer face of the loop, substantially as described.

2. An antirattler for thill-couplings comprising a spring-coil terminating in outwardly-extending arms and an upwardly-extending loop, and a bearing-plate having laterally-projecting arms the opposite edges of which are arranged in inclined planes tapering toward each other and project into the coil, the upper end of the bearing-plate impinging against the outer face of the loop, as and for the purpose described.

In witness whereof I have hereunto set my hand this 26th day of February, 1901.

GEO. H. FERNALD.

Witnesses:

H. E. CHASE,
HOWARD P. DENISON.