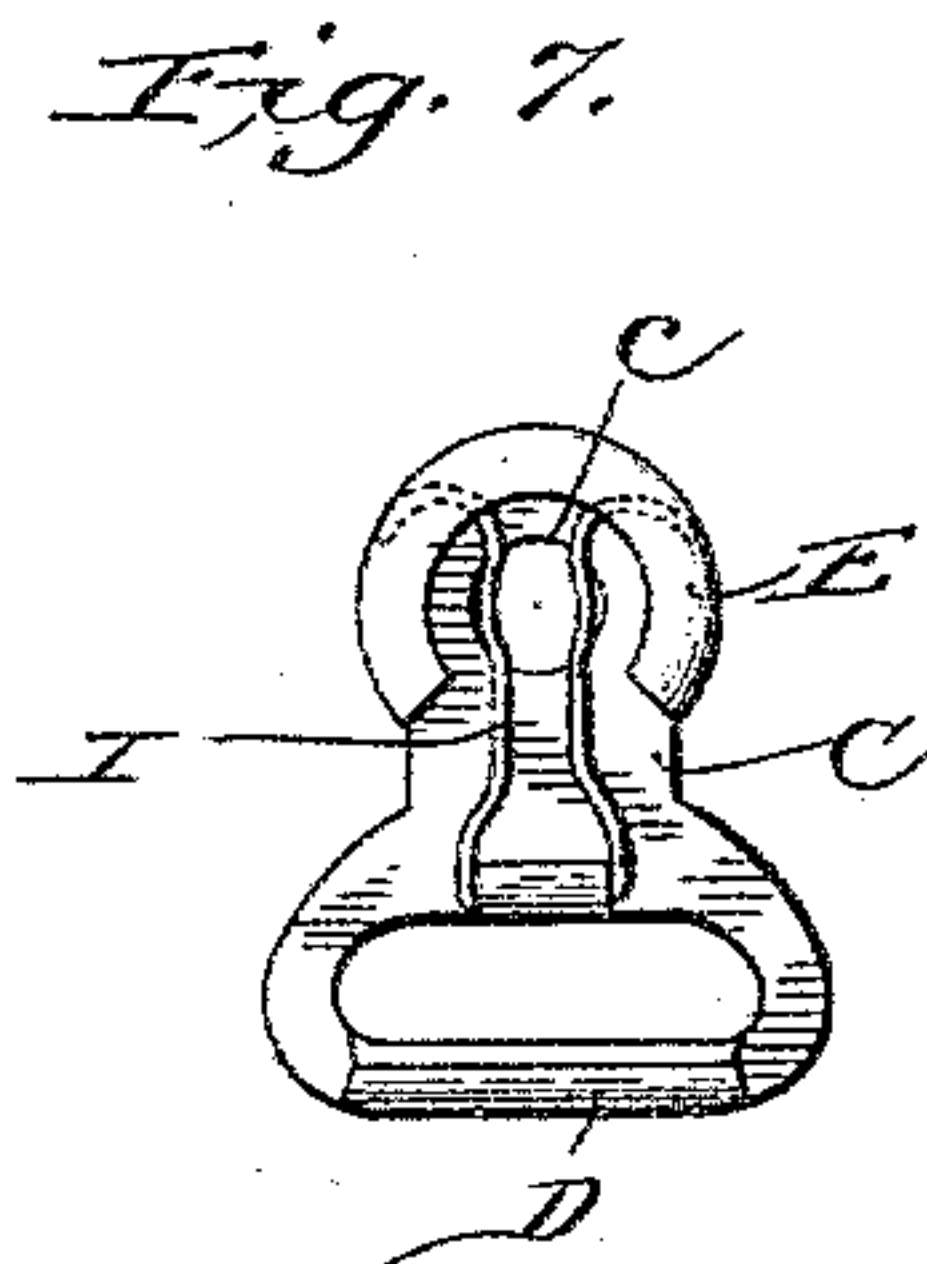
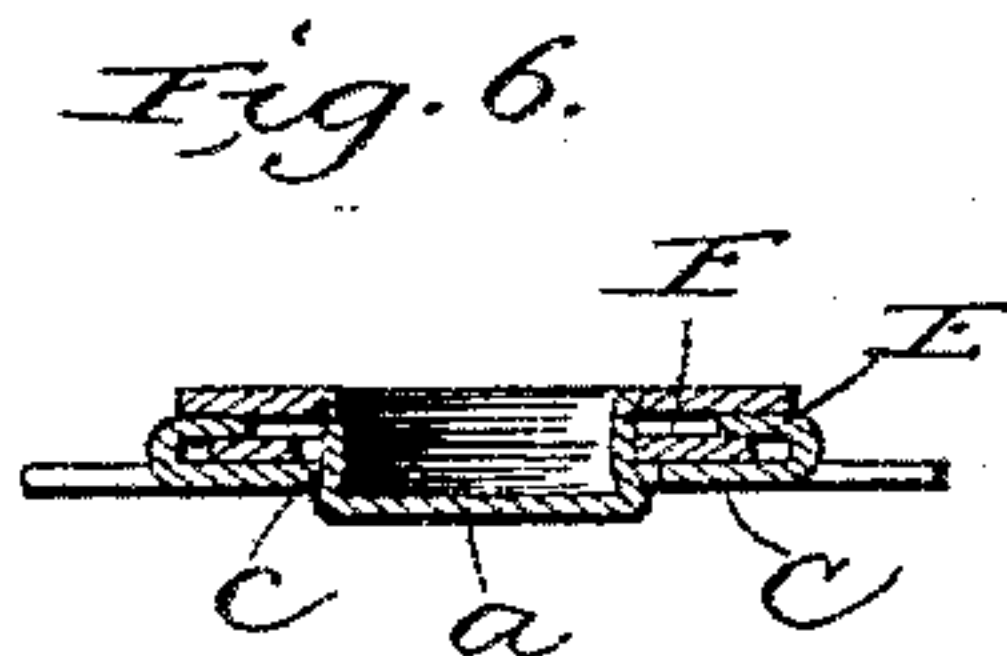
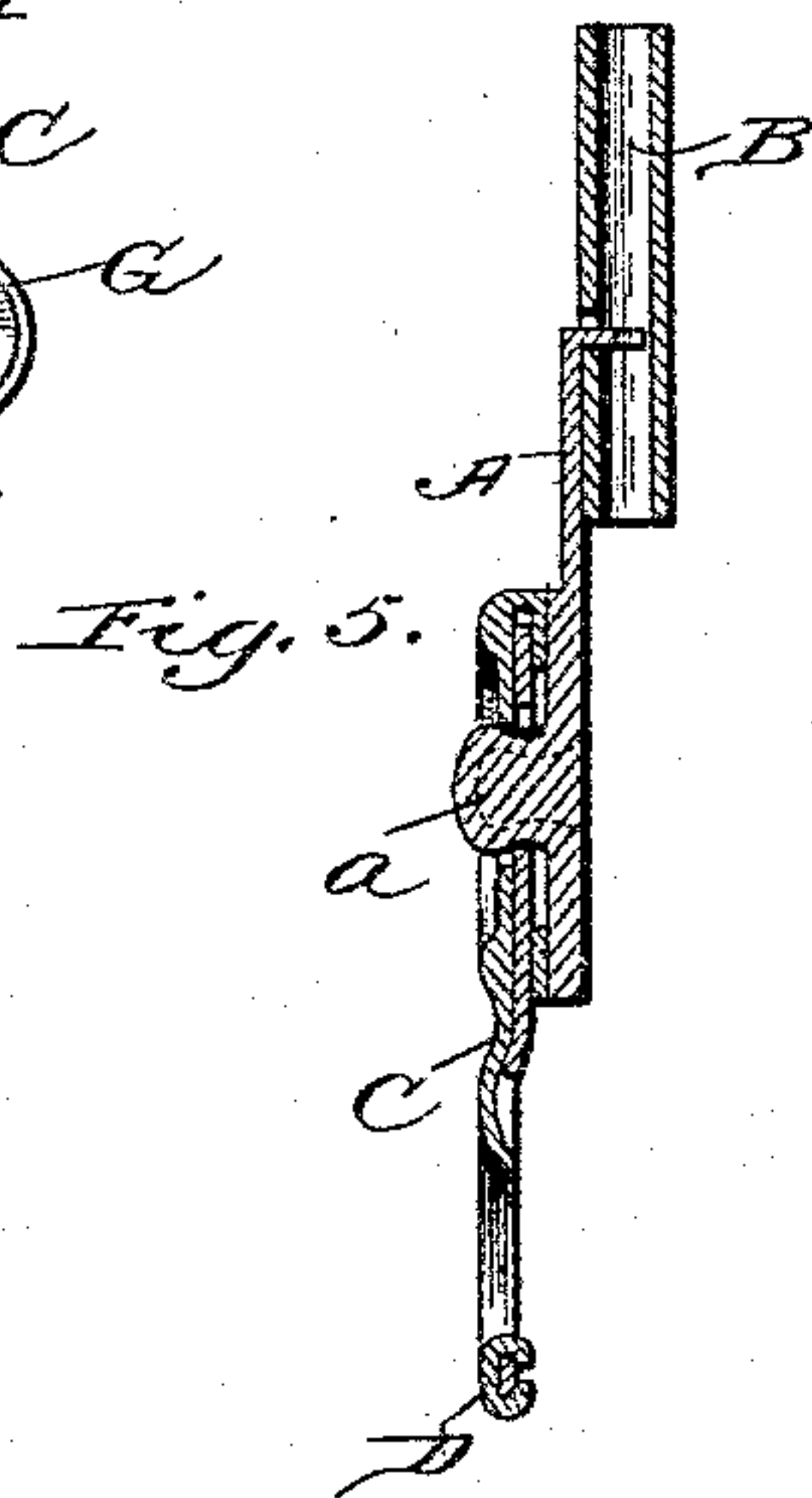
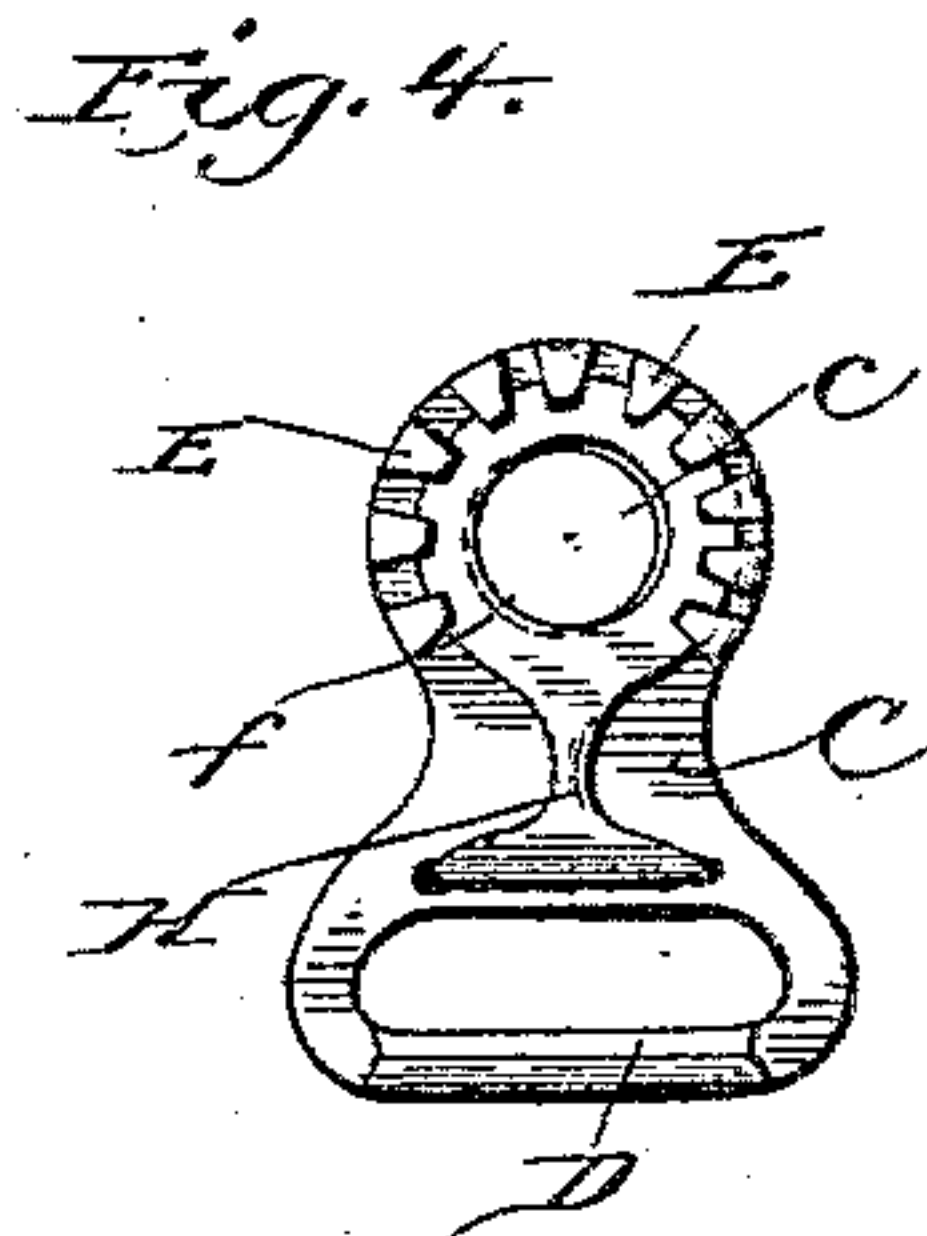
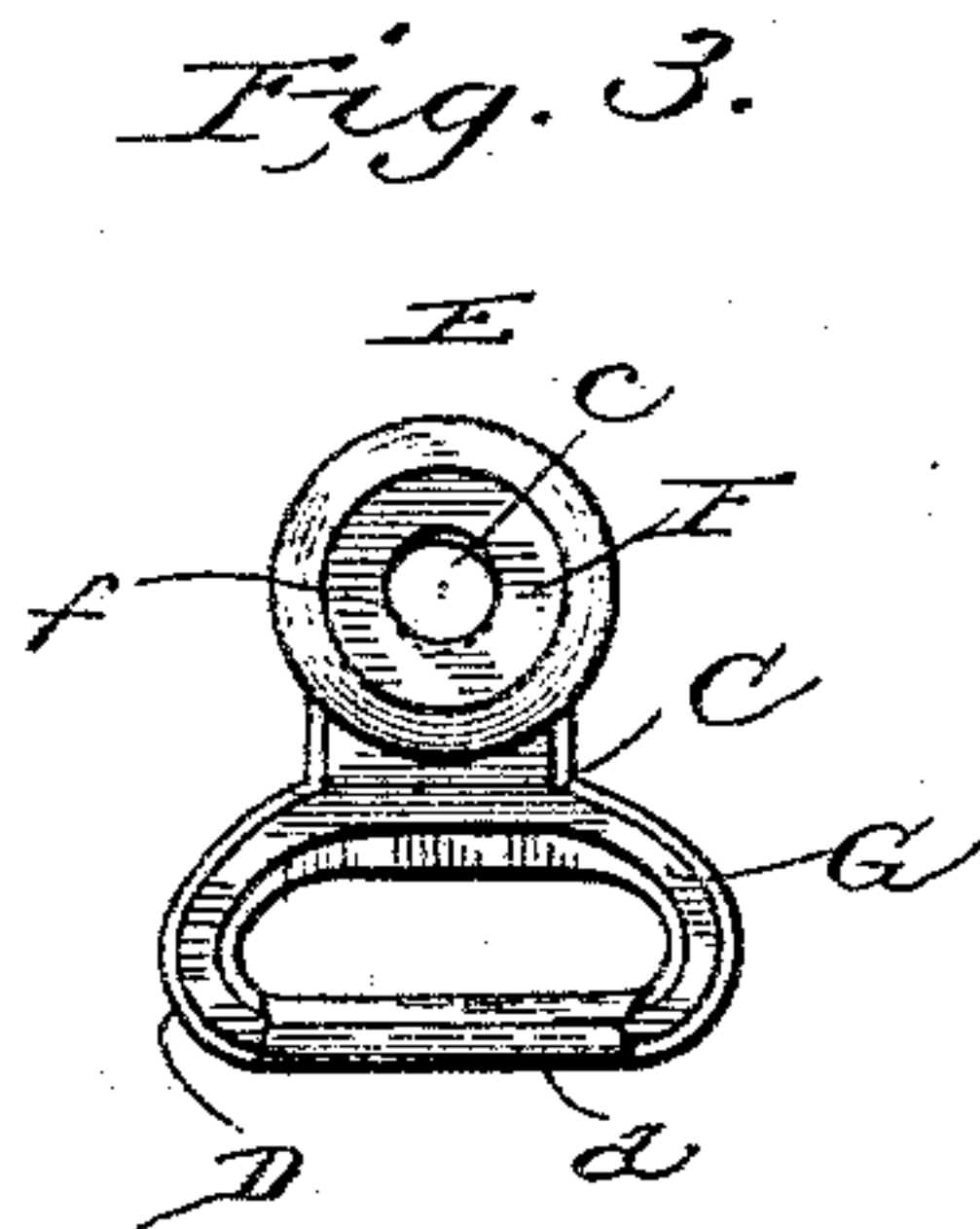
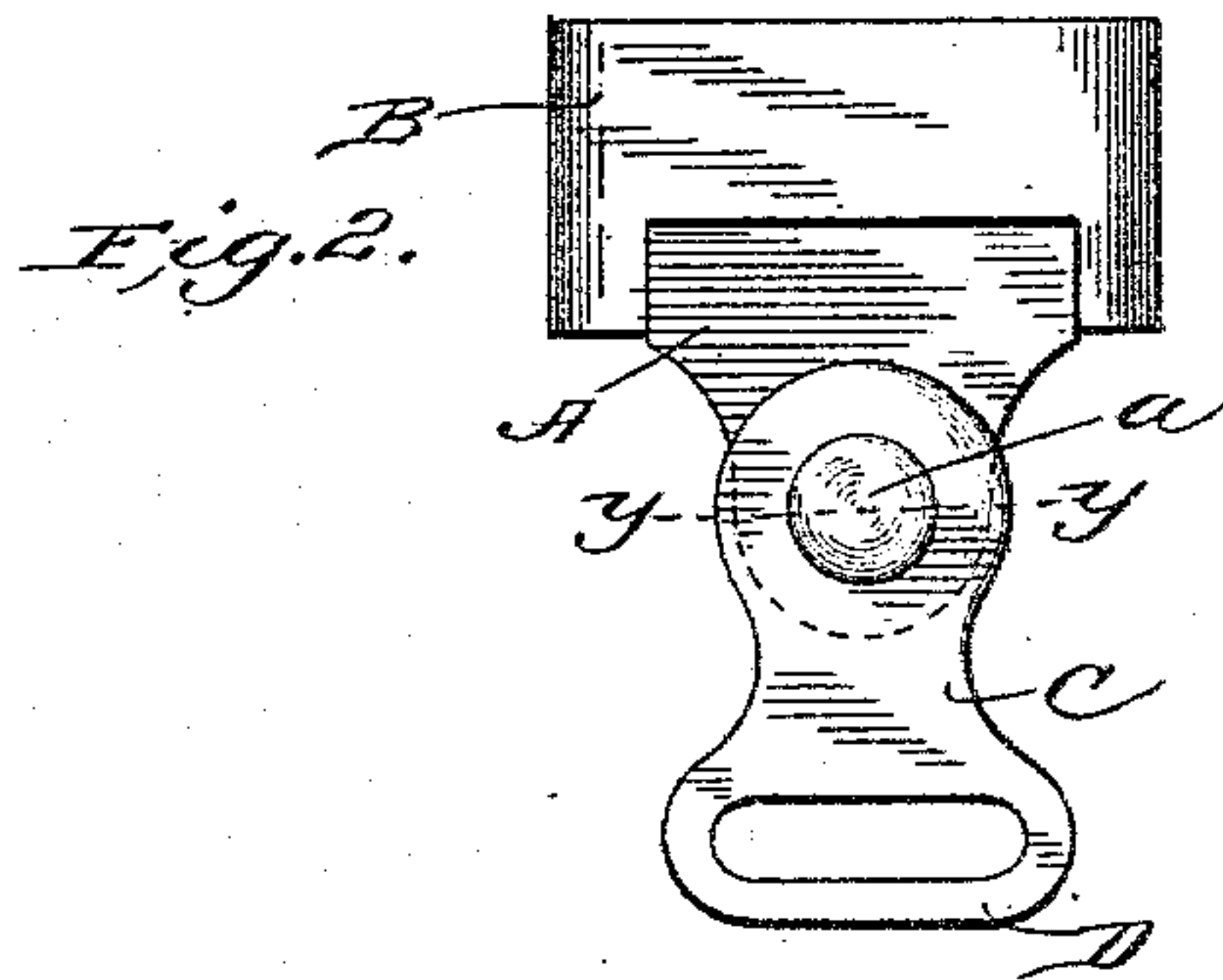
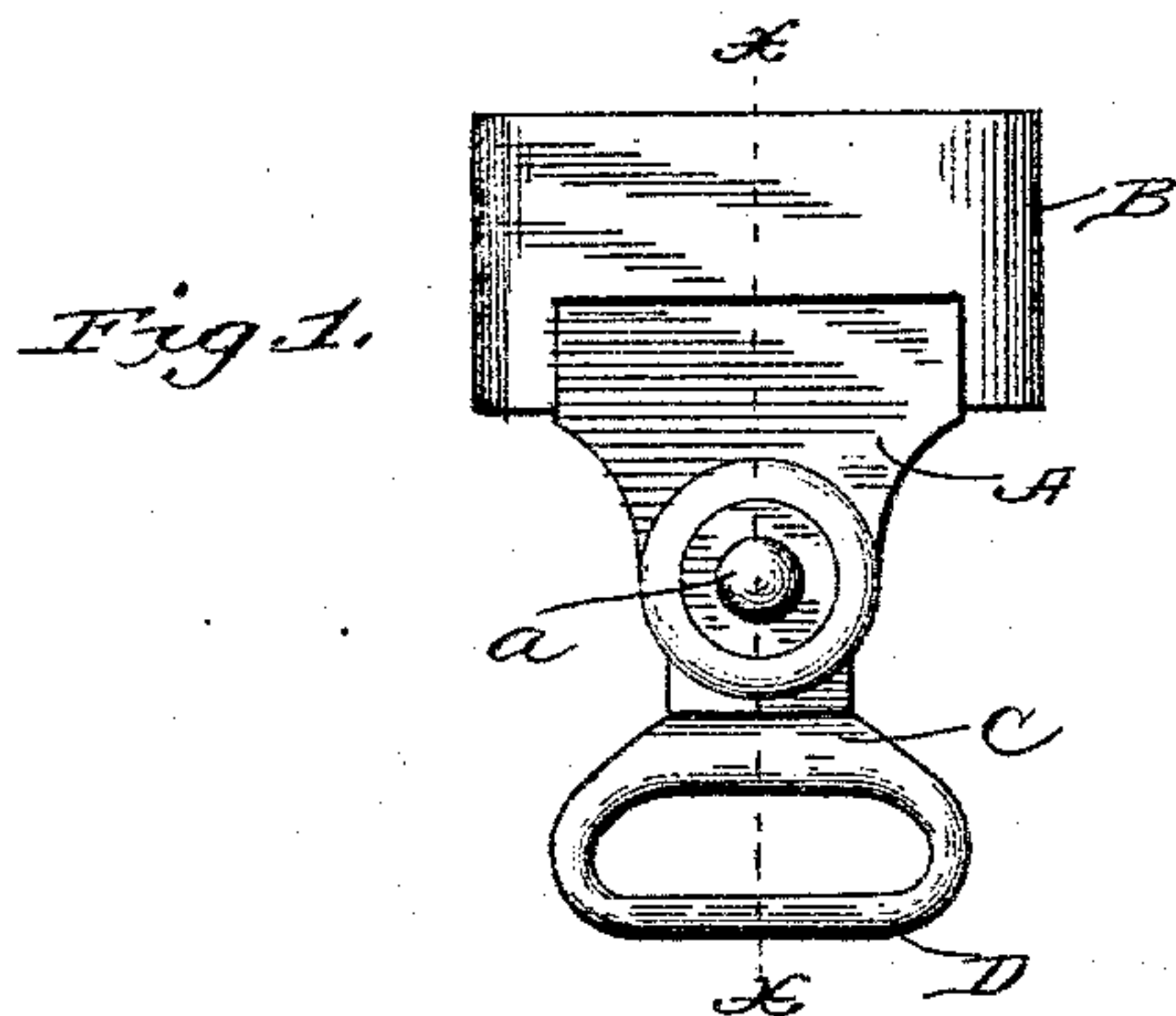


(No Model.)

G. E. ADAMS.  
CAST-OFF FOR SUSPENDER ENDS.

No. 490,058.

Patented Jan. 17, 1893.



witnesses:  
J. M. Fowler Jr.  
A. J. Stewart

Inventor  
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By. Church & Church.

His Attorneys



# UNITED STATES PATENT OFFICE.

GEORGE E. ADAMS, OF PROVIDENCE, RHODE ISLAND, ASSIGNOR TO THE  
TRAUT & HINE MANUFACTURING COMPANY, OF NEW BRITAIN, CON-  
NECTICUT.

## CAST-OFF FOR SUSPENDER-ENDS.

SPECIFICATION forming part of Letters Patent No. 490,058, dated January 17, 1893.

Application filed November 3, 1892. Serial No. 450,842. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE E. ADAMS, of Providence, in the county of Providence and State of Rhode Island, have invented a new and Improved Cast-Off for Suspender-Ends; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the letters of reference marked thereon.

This invention has for its object to provide an improved cast off for suspender ends, capable of being easily engaged or disengaged by the wearer and which shall have the advantage of a swiveling motion to accommodate the suspender to the motions of the wearer, combined with a minimum liability of accidental disengagement.

A further object is to provide a device which shall be as thin as the ordinary suspender webbing or buckle, to which ends the invention consists in certain novel details of construction and combinations and arrangements of parts all as will be now described and pointed out particularly in the appended claims.

Referring to the accompanying drawings: Figures 1 and 2 are front elevations of the preferred form of cast off, shown as forming a part of the suspender buckle. Figs. 3 and 4 are rear elevations of the eye portions alone. Fig. 5 is a section on line  $x-x$ , Fig. 1. Fig. 6 is a section on line  $y-y$ , Fig. 2. Fig. 7 is a rear elevation of a modified form of the eye portion.

Like letters of reference in the several figures denote the same parts.

In the embodiment of the invention illustrated, I have employed a stud portion or plate A attached to or forming part of a suspender buckle or slide such as B, and an eye portion or plate C attached to or forming part of a loop or equivalent D, for the attachment of the suspender end, although it is obvious this arrangement of the co-operating members may be reversed. The stud portion or plate A may be of any desired construction suitable to form a rigid base for the reception of a stud or headed projection  $a$ . This headed projection may be formed integral with

the plate as in Fig. 2, or attached thereto as in Fig. 1, but in any instance the head is but slightly larger than the body, and in practice is formed by constructing the projection with an annular groove or recess in its side wall, thereby producing an enlargement or head with well rounded edges the utility of which will be presently seen.

The co-operating member, or as I have denominated it, eye portion, consists essentially of a plate C having a circular aperture  $c$  formed therein of such size as to just allow of the passage of the head of the projection and to the back of this plate is secured a spring member which is adapted to project slightly over the aperture  $c$  and thereby in effect reduce the size of the same to a diameter less than that of the head of the projection  $a$ , but capable of being enlarged to allow the head to pass, and at once close beneath it to hold it in place.

The plate C is provided with a guard overlying the spring member, which guard may take the form of an annular flange E as in Figs. 3 and 5, or of a series of fingers as in Fig. 4.

In the preferred construction, the spring member just referred to, consists of a plate F having an aperture  $f$  therein of the same or approximately the same size as the aperture  $e$  in the front plate, but set eccentrically there- to as shown, being held in such position by spring pressure. In Figs. 1 and 3 the plate F forms part of a double spring shank G which passes around the loop D and is attached thereto by the fold of metal  $d$  employed to form the round cross bar. The spring pressed plate in this form moves longitudinally of the device, but in Figs. 2 and 4, the plate is mounted on a single spring shank H, which in turn is rigidly attached to the plate D, by solder or otherwise, and tends to move the plate laterally as shown in Fig. 4. When the head of the projection is forced through the aperture, the spring plate enters the annular groove on one side and moving the projection itself to one side with relation to the front plate causes the wall of the aperture  $e$  to enter the groove on the opposite



side, thereby retaining the projection until a positive outward pull releases it. The parts have a perfect swiveling motion upon each other to accommodate the suspender end to the movement of the wearer.

The guard flange may be employed to retain spring arms in place, instead of the apertured plate, as shown for instance in Fig. 7 wherein spring-arms I are rigidly attached to the plate D and cross the edges of the aperture *e* in position to engage the annular groove in the projection, the ends of the arms being turned outward and given a wide bearing beneath the guard flange, whereby the necessary strength is imparted to the parts to resist ordinary pressure without injury.

The size of the aperture *e* prevents any straining of the spring, as the stud or projection can only move a limited distance and in use the strain of the direct pull is all borne by the plate C—the spring pressed plate being either advanced from the side or back of the aperture.

Having thus described my invention what I claim as new is:—

1. In a cast off for suspender ends, the combination with the member having the headed projection, of the co-operating member formed by the superposed plates lying in contact with each other one having a limited bodily lateral movement relative to the other and both having apertures therein of approximately the size of the head of the projection said aper-

tures being arranged slightly eccentric to each other; substantially as described.

2. In a cast-off for suspender ends, the combination with the member having the headed projection, of the plate C having an aperture therein for the admission of the headed projection, a spring pressed plate F mounted on said plate C and having an aperture therein eccentric to the aperture in plate C, with a guard for holding said plates together; substantially as described.

3. In a cast off for suspender ends, the combination with the member having the headed projection of the plate C having the aperture therein, the plate F having a corresponding aperture therein arranged eccentrically to the aperture in the plate C and a spring shank carrying said plate F connected rigidly to the plate C, substantially as described.

4. In a cast off for suspender ends the combinations with members having the headed projection, of the plate C having the aperture therein and guard flange on the rear side, and the apertured plate F confined beneath said guard flange and connected to the plate C by a spring shank the apertures in said plates being arranged eccentrically to each other; substantially as described.

GEORGE E. ADAMS.

Witnesses:

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H. W. EDDY.