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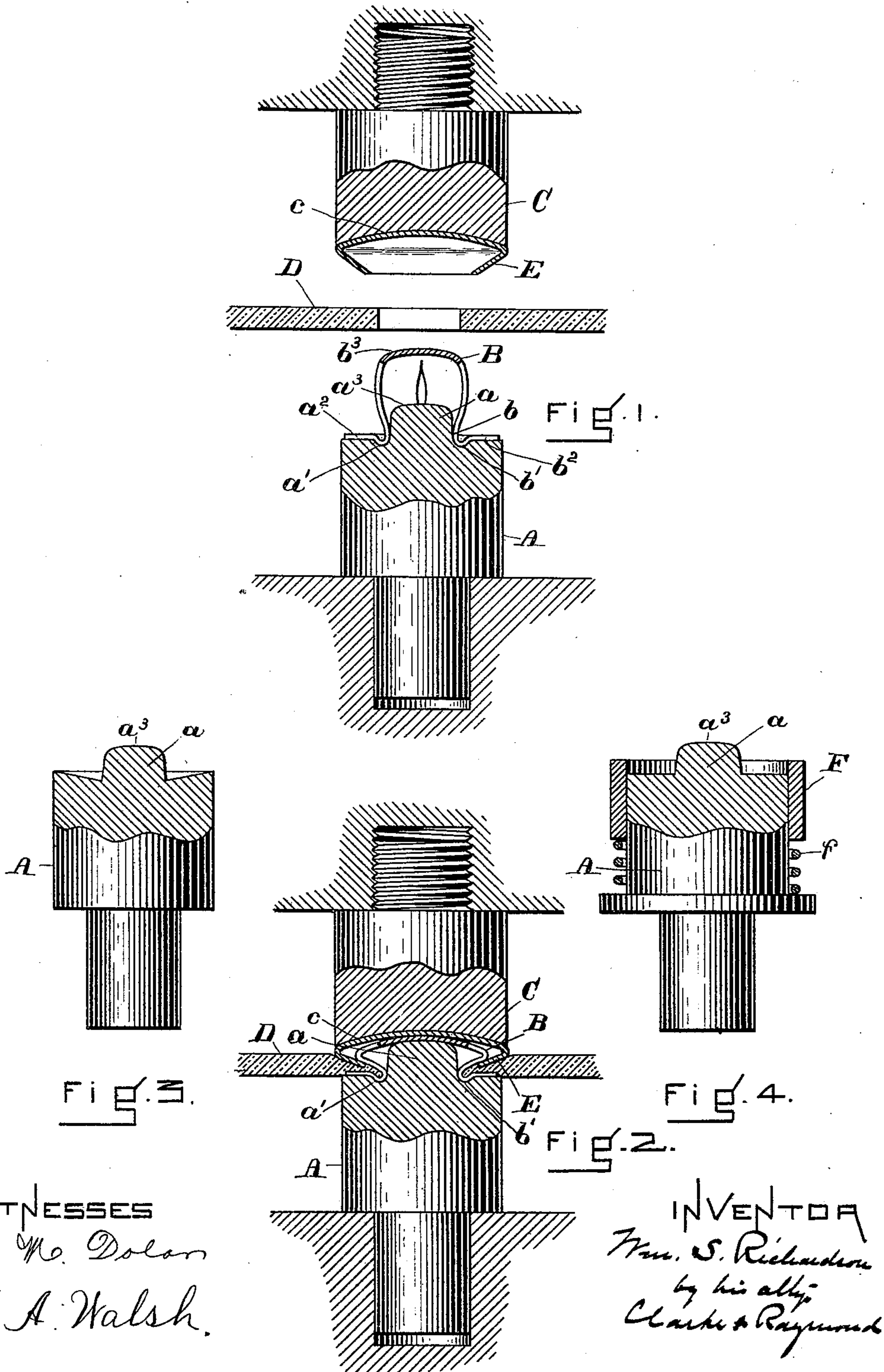
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W. S. RICHARDSON.

DIES FOR SHAPING AND ATTACHING SOCKET MEMBERS OF FASTENERS FOR  
GLOVES, &c.

(Application filed Mar. 15, 1897.)

(No Model.)



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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DIE FOR SHAPING AND ATTACHING SOCKET MEMBERS OF FASTENERS FOR GLOVES, &c.

SPECIFICATION forming part of Letters Patent No. 635,188, dated October 17, 1899.

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*To all whom it may concern:*

Be it known that I, WILLIAM S. RICHARDSON, a citizen of the United States, residing at Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Dies for Shaping and Attaching Socket Members of Fasteners for Gloves and other Articles, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates to an improvement in dies for shaping and attaching the socket members of a fastener for gloves and other articles. It is especially adapted to shape and attach a socket member having arms cylindrically arranged in relation to each other, connected at one end and having at the other end a socket-entrance and a flange formed by integral extensions from the arms, in which there may be formed a circular bead or projection to form a shoulder upon the under surface of the flange. A socket-piece of this character requires to have the shape of its socket-entrance preserved during attachment, and this necessitates that the arms be not separated from each other at the socket-entrance. It also requires that the dies be so constructed as to upset it above the socket-entrance during the setting or attaching operation in order that a ball-holding cavity may be formed, the socket-entrance properly defined, and a fastening or attaching flange established upon the side of the material opposite that against or upon which the finished flange bears.

In the drawings, Figure 1 represents, partly in section and partly in elevation, the dies with a socket-piece upon one of them, a cap-piece upon the other, and the material to which the socket member is to be attached between them, the material having been previously prepared by being provided with a hole to receive the socket-piece. Fig. 2 represents the position of the dies, material, socket-piece, and cap at the completion of the setting operation. Fig. 3 is a view of a slightly-modified form of the die for holding

and setting the socket-piece, which will hereinafter be referred to. Fig. 4 shows a slight modification in the construction and form of the die for holding the socket-piece, to which reference will hereinafter be made.

A represents the principal die. C represents the die which is used in conjunction therewith, and one of them is movable in relation to the other. The die A has a central pin or upward extension  $a$ , surrounded at its base by a groove or channel  $a'$ , from the outer edge of which extends a flat surface  $a^2$ . The pin  $a$  at its base is of the diameter of the socket-entrance  $b$  of the socket-piece B, and its height determines the extent to which the socket-piece shall be shortened in the act of setting and the depth of the socket-cavity. The channel  $a'$  is of a size to receive the bead  $b'$  in the flange  $b^2$  of the socket-piece about the socket-entrance, and the flange  $b^2$  bears upon the flat surface  $a^2$ . The socket-piece as therein formed extends above the upper surface  $a^3$  of the pin, as represented in Fig. 1. The other die C has the concave or other shaped under surface  $c$ , and it may be used in attaching the socket-piece to the material D, either in connection with or without the cap-piece E. In the drawings it is represented as arranged to attach the cap E to the socket-piece and to the material in the act of setting the socket-piece.

Upon placing the perforated material between the dies with the hole in line with the socket-piece and then moving one die toward the other the end  $b^3$  of the socket-piece comes into contact with the inner surface of the cap held thereby and upon the upper surface of the material D and is by a continued movement of one die toward the other caused to be shortened and extended laterally above the socket-entrance and until the upper surface of the pin  $a^3$  shall be brought into contact with said top  $b^3$ , and this causes the said socket-piece to be shortened and its sides to be extended laterally and combined with its top, or to the shape represented in Fig. 2, and this without changing the diameter of its socket-entrance or the shape of its flange. This causes the socket-entrance to be com-



pleted, within it a ball-holding cavity to be established, and a flange to be formed which serves, with the previously-developed flange, to fasten the socket-piece to the material, and  
 5 which also may serve by lapping upon the surface of a cap-flange to also at the same time fasten a cap to the socket-piece and to the material.

In Fig. 4 I have shown a form of die that  
 10 does not require means for the formation of a bead in the flange of the socket member, the diameter of the socket-entrance and the shape of the flange being maintained during the setting operation by the wall F, against  
 15 the inner edge of which the outer edge of the flange is adapted to rest, and this wall F in the act of setting the socket-piece preferably has a downward-yielding movement upon the outer surface of the die, and in opposition to  
 20 the stress of the spring, which tends upon the removal of pressure to return the wall to its original position, the wall being in the form of a sleeve surrounding the die. Of course this wall F is merely an equivalent for  
 25 the outer side of the groove  $a'$  already described, which by contact with the outer surface of the bead prevents the pressure to which the socket-piece is subjected in its transformation and setting from changing  
 30 the gage of the socket-entrance and the shape of the finished flange.

In Fig. 3 there is shown a die for holding the socket-piece which has a support for the flange inclined upwardly from the base of the  
 35 pin, and this shaped support upon the application of pressure to the socket-piece will also tend to prevent enlargement of the socket-entrance in setting and the holding of the flange during the setting operation in its pre-  
 40 formed shape.

When the socket member of the fastening is provided with a bead, the outer wall of the groove  $a'$  forms a shoulder which engages said bead and prevents the socket member from  
 45 becoming enlarged at the opening. When the sleeve F is used, it forms a shoulder with which the outer edge of the flange engages and by which the enlargement of the opening of the socket member is prevented.

50 Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. The dies for setting and shaping the

socket-piece of a ball-and-socket fastener having a pin or projection  $a$  for maintaining the  
 55 gage of the socket-entrance, the upper surface of which is of substantially the diameter of its base, a shoulder or equivalent means with which a portion of the flange of the socket-piece is brought into contact and held against  
 60 spreading during the shaping and setting operation, and a second die having a face against which the end of said socket-piece is brought into contact and between which and the die A it is shortened and extended laterally without  
 65 disturbing the gage of the socket-entrance or the shape of the finished flange.

2. A die having a gaging-pin for determining the extent of transformation of a socket-piece in the act of setting, and means for  
 70 pressing against the end of the socket-piece held by said die to bring the end into contact with the outer surface of said pin and simultaneously fold its sides outwardly said pin being of substantially the same diameter from  
 75 its base to its top, whereby the upper surface of said pin will form a broad bearing for the interior of said socket-piece.

3. A die for setting the socket-piece of a ball-and-socket fastener having a spacing-pin  
 80  $a$ , having substantially the same diameter from its base to its top, whereby the upper surface of said pin will form a broad bearing for the material of said socket-piece, a shoulder surrounding the same and a support for  
 85 the flange of said socket-piece.

4. The combination of the die C having a face  $c$  the reverse of the cap, the die A having the spacing-pin  $a$  having substantially  
 90 the same diameter from its base to its top and a support for the flange of the socket-piece, the said die being adapted to support the flanged socket-piece B shaped substantially as specified, and means for moving one die  
 95 toward the other, whereby the outer end of the socket-piece is closed into the cap and by continued pressure shortened and its sides caused to be folded outward to bear upon the flange of the cap and thereby form a union  
 100 between the cap and the socket-piece, and a ball-holding cavity in the socket-piece.

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Witnesses:

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