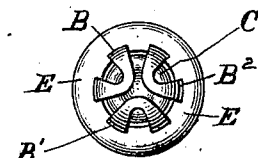
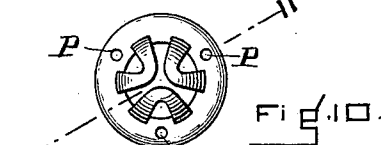
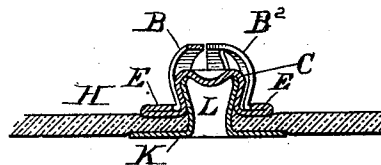
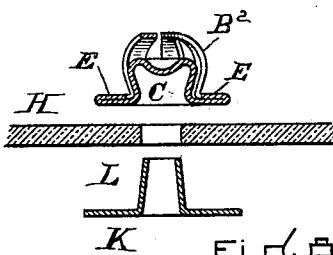
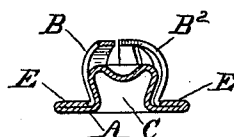
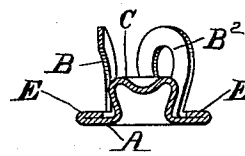
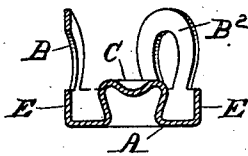
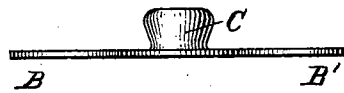
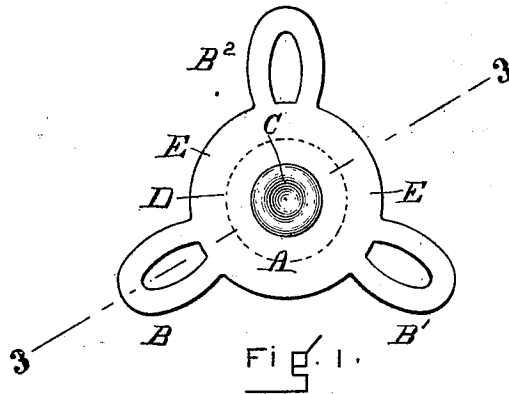


No. 680,373.

Patented Aug. 13, 1901.

W. P. DEVINE.
STUD FOR FASTENERS.
(Application filed Nov. 6, 1899.)

(No Model.)



WITNESSES:
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att'y

UNITED STATES PATENT OFFICE.

WILLIAM P. DEVINE, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE
CONSOLIDATED FASTENER COMPANY, OF PORTLAND, MAINE.

STUD FOR FASTENERS.

SPECIFICATION forming part of Letters Patent No. 680,373, dated August 13, 1901.

Application filed November 6, 1899. Serial No. 735,907. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM P. DEVINE, of Boston, in the county of Suffolk and Commonwealth of Massachusetts, have invented a new and useful Improvement in Studs for Fasteners, of which the following, taken in connection with the accompanying drawings, is a specification.

My invention consists in the peculiar construction of the ball member of a ball-and-socket fastener by which I am enabled to make this member of a single piece—that is, all its parts are integral.

The object is to produce a superior article in a simple, cheap, and expeditious manner. This object I attain by the mechanism shown in the accompanying drawings, in which—

Figure 1 shows in plan a partially-stamped blank which when completed constitutes the ball member of my fastener. Fig. 2 is an elevation of the same. Figs. 3, 4, and 5 show in vertical section different stages of the die-work. Fig. 6 shows the completed ball member in elevation. Fig. 7 shows the same in plan. Figs. 8 and 9 show in vertical section the method of connecting the ball member to the garment. Fig. 10 is a plan of a modification of my fastener. Fig. 11 is a vertical section taken on line 11 11 of Fig. 10.

The first step in the construction of my device consists in forming from a plate of suitable metal a blank, as shown in Figs. 1 and 2, which has radial pieces $B B' B^2$ and a central hollow boss C. The number of the radial pieces, as well as their shape, may be varied as desired, and the central boss C may in some cases be omitted. Having the blank as shown in Figs. 1 and 2, it is placed in a die, and all of that part that is exterior to the dotted line D, Fig. 1, is bent upward, as shown in Fig. 3, thus forming an annular cup, of which A is the annular flange constituting the base, extending vertically. The next step is to compress or bend the upright walls E upon the base portion A, thereby forming an inturned rim, leaving the radial pieces $B B' B^2$ standing, as clearly shown in Fig. 4. Now the upper ends of the radial pieces $B B' B^2$ are curved inward and constitute spring holding-pieces, as shown in Fig. 5. This action completes the device, and it appears in eleva-

tion as illustrated in Fig. 6. It will be perceived that the walls of the boss aline when the member is completed with the walls of the fingers which rest against the boss, the member being thus made strong, and thus may be made out of thinner metal, more easily formed, and yet be sufficiently rigid to meet all of the demands of its uses.

The method of attaching the ball member to the fabric H is illustrated in Figs. 8 and 9. The fastening is effected by using a hollow rivet, (see K L, Fig. 8,) the stem part L of which is passed through a hole made in the fabric and up into the hollow boss C and there “upset” by any of the well-known means. It constitutes a firm fastening, as shown in Fig. 9.

A modification of my invention is shown in Figs. 10 and 11. This modification consists in making the ball without the central boss C and in causing perforations P P to be made in the flange. The object of the perforations P P is to furnish a convenient means for attaching the ball to the fabric by sewing.

I claim—

1. In a ball-and-socket fastener, a ball member made of a single piece having a central boss, as c, said boss having flaring sides and depressed top and annular base, an annular inturned rim, as E, and a series of curved spring holding-pieces.

2. In a ball-and-socket fastener, a ball member made of a single piece of metal, comprising a base-plate consisting of a solid disk having a centrally-located boss, an annular inturned flange pressed down on said base-plate, a series of curved spring-fingers struck upward and having their upper free ends curved inward, and perforations passing through both the flange and base-plate.

3. In a ball-and-socket fastening, a ball member formed of a single piece of metal comprising a base-plate having a central boss, said base-plate having its outer edge turned in and downward on the body portion thereof and forming an annular flange, and a series of upwardly-extending spring-fingers having their base portions in contact with the periphery of the boss, the upper ends of said fingers being curved inwardly over said boss, substantially as specified.

4. In a ball-and-socket fastening, a ball

member formed of a single piece of die-formed metal provided with a central boss C having flaring sides, an inturned flange E, and a series of upwardly-extending perforated spring-fingers, each of said fingers having its base pressed closely against the periphery of the boss and having its upper free end bent inwardly over said boss, substantially as specified.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, on this 10th day of October, A. D. 1899.

WM. P. DEVINE.

Witnesses:

BELLE TAYLOR,
G. A. HOLMES.