No. 769,777. PATENTED SEPT. 13, 1904.

J. D. STIRCKLER.

FASTENER.

APPLICATION FILED FEB. 9, 1901.

NO MODEL.

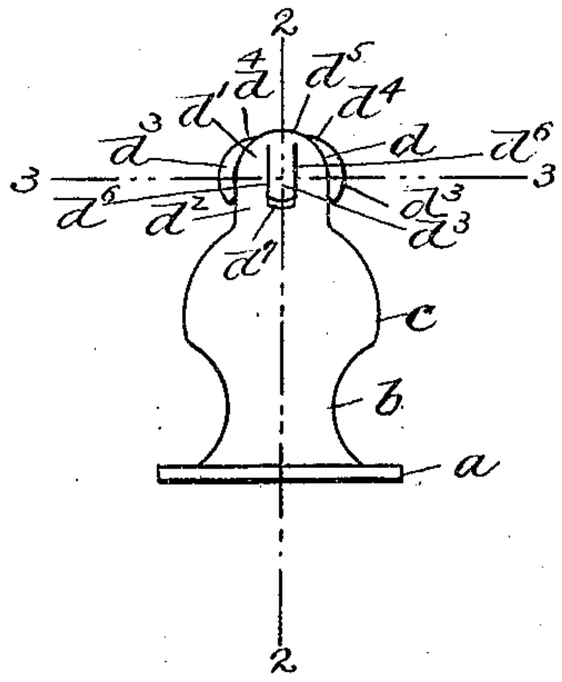

Fig. 1.

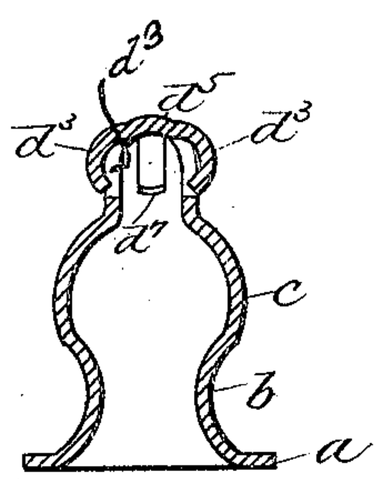

Fig. 2.

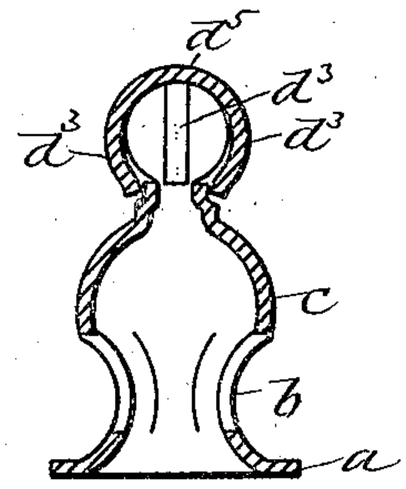

Fig. 6.

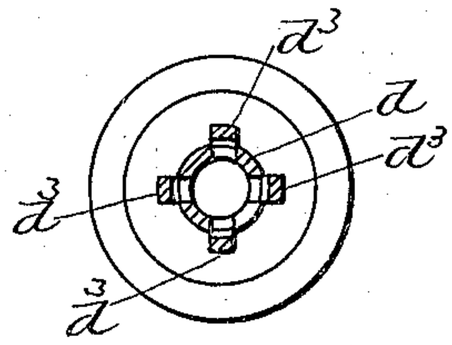

Fig. 3.

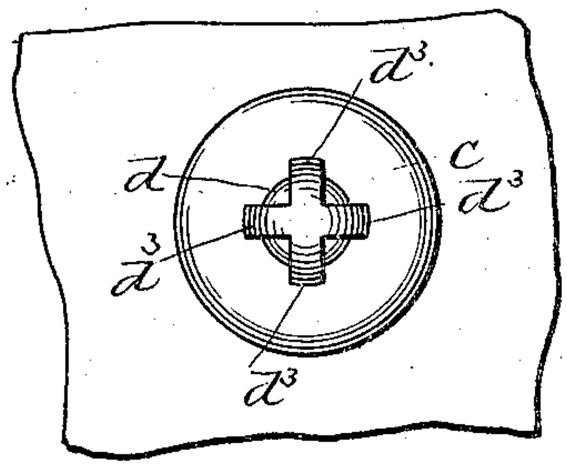

Fig. 4.

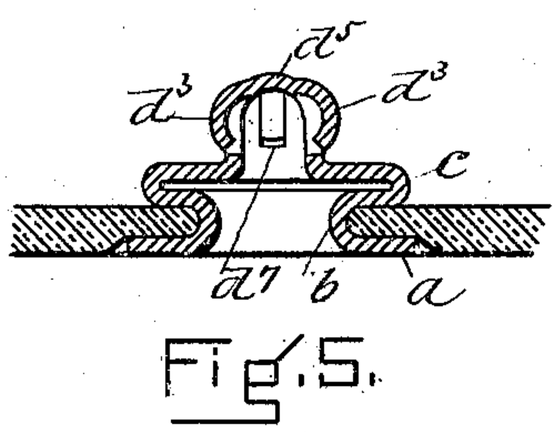

Fig. 5.

WITNESSES:
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No. 769,777. Patented September 13, 1904.

UNITED STATES PATENT OFFICE.

JOHN D. STIRCKLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO BALL & SOCKET MANUFACTURING COMPANY, OF CHESHIRE, CONNECTICUT, A CORPORATION OF CONNECTICUT.

FASTENER.

SPECIFICATION forming part of Letters Patent No. 769,777, dated September 13, 1904.

Application filed February 9, 1901. Serial No. 46,647. (No model.)

To all whom it may concern:

Be it known that I, JOHN D. STIRCKLER, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Improvement in Fasteners, 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 a yielding ball member of a ball-and-socket fastener; and it consists in a ball member provided with expansibility or resiliency by means of one or more tongues or sections on the side of the ball which are separated from the remainder of the ball at their inner ends and also upon their sides, are integral at their outer ends with the remainder of the ball, and are caused to be bowed out slightly beyond the remainder of the ball, their free ends preferably being within the surface of the remainder of the ball.

In the drawings, Figure 1 is a view in elevation of the improved ball member. Fig. 2 is a view in section thereof upon the dotted line 2 2 of Fig. 1. Fig. 3 is a sectional view upon the dotted line 3 3 of Fig. 1. Fig. 4 is a view of the member set to material. Fig. 5 is a view in section of the material and set member. Fig. 6 is a view in vertical section of a modification.

The invention is represented as applied to a structure having some of the features of the patented structure described in my Patent No. 647,889, dated April 17, 1900, in that it has the preformed flange a, the neck-forming section b, and the integral outer flange-forming part c. These sections of the member are like similar sections of the patented device and operate as they do.

From the flange c there rises or extends the yielding ball or head d. This has the portion d', which is not necessarily resilient, although it may be more or less so because of its structure, and it may be of the shape represented in Fig. 1—not enlarging from the neck d^2—or it may be rounded outward slightly with respect thereto. (See Fig. 6.) It acts as a base or support for the yielding tongues d^3, which at their outer ends d^4 are integral with the top d^5 of the ball and with each other. From their outer ends they are separated from the ball or head by the longitudinal slits d^6, preferably parallel with each other, and the cross-slit d^7 connecting the inner ends of the longitudinal slits. These tongues are bowed outward between their ends, so that portions project beyond the outer edge of the remainder of the ball, and their free ends preferably extend within the said outer surface or as shown in Fig. 2. The structure represented in the drawings has four of these yielding tongues. I would say, however, that the invention would be practiced if one or any other number should be employed. The tongues being cut from the head portion lie in slots therein and are preferably supported laterally by engagement with the opposing walls d^8 of the slits, which separate their sides from the head.

In use upon the application of the socket member to the ball member the tongues will be caused to yield inwardly while the socket-entrance is passing them, and after it has passed they will expand to their normal position, and thus serve to hold the socket member in place.

In Fig. 6 a modified form of the structure is shown. In this modified form the rigid part of the head is spherical, and the lower or inner ends of the yielding tongues or arms upon said head abut upon a depressed section of the neck below the head.

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

1. A yielding ball member of a ball-and-socket fastener having a continuous, cylindrical neck and a tongue-holding section above said neck having a recess, and a tongue registering with said recess, integral at its upper end only with the upper end of the tongue-holding section, said tongue bowed outward, downward, and inward with respect to said section to form a resilient engaging device,

the lower end of which is free to move in and out without contact with other elements of the member and is restrained from lateral movement by the walls of the recess with which it registers.

2. A yielding ball member of a ball-and-socket fastener having a continuous, cylindrical neck and a tongue-holding section above said neck having recesses therein and tongues integral, at their upper ends only, with the upper end of the tongue-holding section and registering with the recesses therein, said tongues bowed outward, downward and inward with respect to said section to form resilient engaging devices, the lower ends of which are free to move in and out without contacting with each other, and are restrained from lateral movement by the walls of the recesses with which they register.

3. A resilient ball member of a ball-and-socket fastener made from a single piece of metal having a preformed inner flange, an integral neck, an outer flange formed in the act of setting the fastener to material, a continuous, cylindrical neck and a yielding end extending from said neck comprising a section integral with the neck having one or more recesses and one or more resilient tongues therein integral only with the outer end of said section and bowed outward, downward and inward with respect to the said neck, the side walls of each recess in which a tongue is formed serving to prevent substantial lateral movement of such tongue, as and for the purposes described.

JOHN D. STIRCKLER

In presence of—
M. D. NEWMAN,
P. K. DUMARSY.