No. 776,957. PATENTED DEC. 6, 1904.

J. D. STIRCKLER.

FASTENER.

APPLICATION FILED FEB. 9, 1901.

NO MODEL.

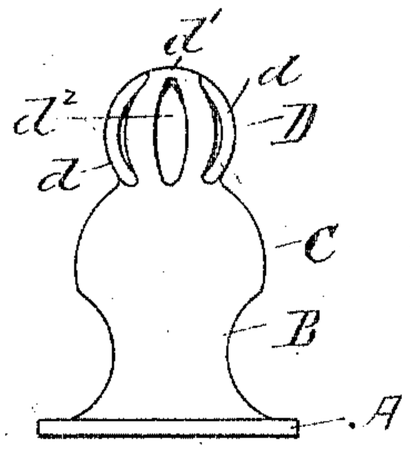

Fig. 1.

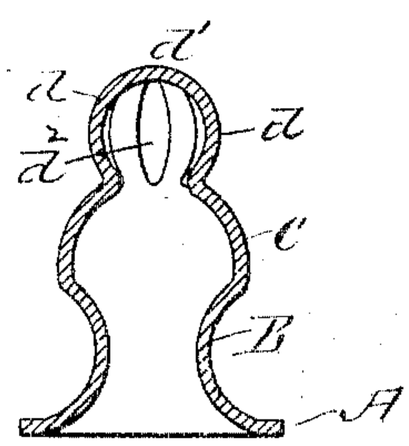

Fig. 2.

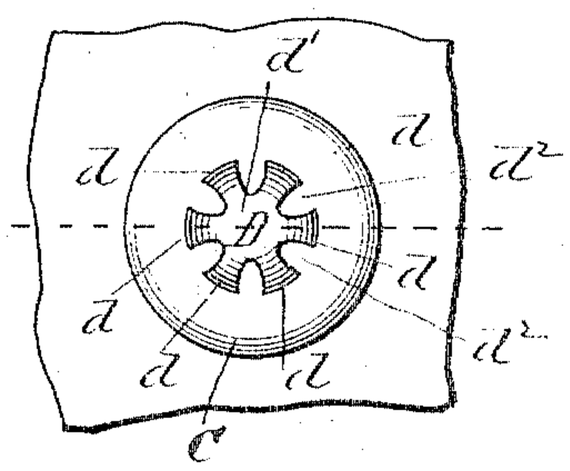

Fig. 3

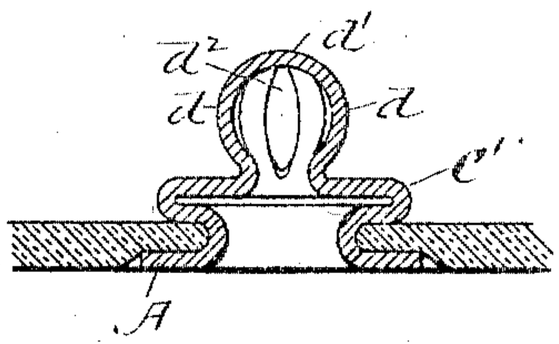

Fig. 4.

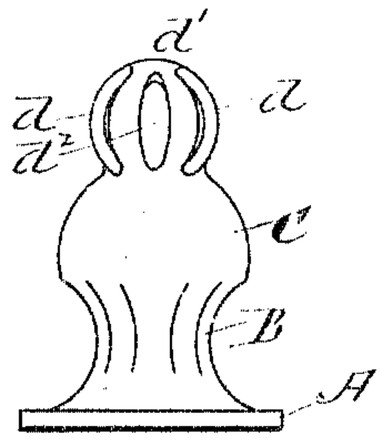

Fig. 5.

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No. 776,957. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

JOHN D. STIRCKLER, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO UNITED STATES FASTENER COMPANY OF PORTLAND, MAINE, A CORPORATION OF MAINE.

FASTENER.

SPECIFICATION forming part of Letters Patent No. 776,957, dated December 6, 1904.

Application filed February 9, 1901. Serial No. 46,645. (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 is an improvement upon that described in my Letters Patent No. 647,889, dated April 17, 1900; and it comprises a one-piece ball member of a separable fastener of the ball-and-socket order, having for its distinguishing characteristics a preformed inner flange, an integral neck, a formative outer flange reduced to finished shape in the act of setting the member, and an integral yielding ball or engaging section consisting of a number of outwardly-bowed yielding sides integral at their inner ends with the formative flange and at their outer ends with the top or outer end of the ball.

Referring to the drawings, Figure 1 is a plan of the ball member before it is set. Fig. 2 is a longitudinal section thereof. Fig. 3 is a view in plan of the member in its set shape secured to material. Fig. 4 is a view in section of said set member and material upon the dotted line of Fig. 3. Fig. 5 is a view in elevation of a modification in which the neck is represented as having vertical slits.

Referring to the drawings, A is the preformed complete inner flange. B is the neck-forming portion of the set member. C is the part which is converted into the outer finished flange in the act of setting the member, and D is the integral yielding head or ball. The parts A B C are like similar parts of my said patent and serve to provide means for setting the member to the finished shape represented in Fig. 4 in the manner described in said patent.

The head or ball D comprises the outwardly-yielding bowed divisions or sections *d*, which are integral at their inner ends with the flange-forming part C and at their outer ends with the ball end *d'*. (See Fig. 3.) The divisions or sections *d* are separated from each other by spaces d^2, which increase in width from each end. The yielding ball-section is preferably of its finished form before the member is set—that is, the act of forming the outer finishing-flange in the setting of the member to the material does not necessarily modify the shape or action of the yielding ball-section of the fastener—although, of course, if desired, the ball-section may be more or less formed in the act of setting the member.

It will be noticed that the unset member comprises a hollow single-piece yielding ball-forming member of a fastener, which has, before setting, at one end a finished or complete flange, at the other end a yielding engaging section or means for forming it, and integral intermediate sections consisting of the neck and an incipient flange-forming section, which is converted into a complete flange in the act of setting the fastener. This insures the securing of the yielding ball member to the material by simply transforming the outer or incipient flange-forming section into a complete or finished flange in the act of setting the member to the material or to the shape shown in Figs. 3 and 4, where the flange-forming section C of Fig. 1 is represented as transformed to the finished flange C'. The outer edge of the flange C' being doubled back on itself will have a certain amount of go and come during any manipulation of the ball and will coöperate with the slitted ball to allow additional freedom of movement to its yielding sections.

While I have represented the engaging section as formed of a number of yielding outwardly-bowed sections or divisions, I would say that I do not limit myself to the number of these sections or to their width with respect to each other and that my invention would be practiced if the engaging section had but one of the said yielding bowed divisions, while the remainder of the engaging section was integral or in one piece. The engaging section, however, is substantially spherical in shape at the point where it engages the neck,

and this is of advantage because it enables the engaging section as it enters the mouth of the socket to center itself, and thus where the arms are symmetrically disposed about it distribute the yielding strain upon all the arms with substantial evenness, and, moreover, the arms being joined together at the entering end of the engaging portion, as well as at its base, the structure is strong and durable.

Fig. 5 is a view in elevation of a modification which represents the employment of slits in the neck for the purpose of accomplishing the same end as the corresponding structure of my said patent, No. 647,889.

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

1. As an improved article of manufacture, a single-piece structure for a complete yielding ball member of a ball-and-socket fastener, said structure having an engaging section, a neck, a partially-formed continuous outer flange and a preformed continuous inner flange, said engaging section being substantially spherical in shape and comprising one or more outwardly-bowed yielding arms integral with each other at their outer ends and with said neck at their inner ends, whereby when engaging a socket-mouth the said engaging section may center itself and the yielding strain may be distributed substantially evenly about the surface of said engaging section, as described.

2. The single-piece hollow complete yielding ball member of a fastener having a continuous inner flange, a folded continuous outer flange, a neck, and a spherical engaging section comprising one or more yielding outwardly-bowed arms or divisions integral with each other at their outer or engaging ends and with said neck at their inner ends, whereby the said ball member will center itself in the mouth of the socket member and the strain in passing through said mouth will be distributed evenly about said engaging section, as described.

3. The single-piece, hollow yielding ball member of a fastener having a continuous outer flange folded inwardly, a spherical engaging section at the inner end of said folded flange, said engaging section comprising one or more yielding outwardly-bowed arms or divisions appreciably spaced from one another but integral with each other at their outer or engaging ends and at the neck formed by the inner circumference of the inwardly-folded flange, and an inner attaching means.

JOHN D. STIRCKLER.

In presence of—
M. D. NEWMAN,
P. Q. DUMARESE.