

No. 777,937.

PATENTED DEC. 20, 1904.

G. H. BRABROOK.
TUBULAR RIVET OR STUD.
APPLICATION FILED JULY 5, 1904.

NO MODEL.

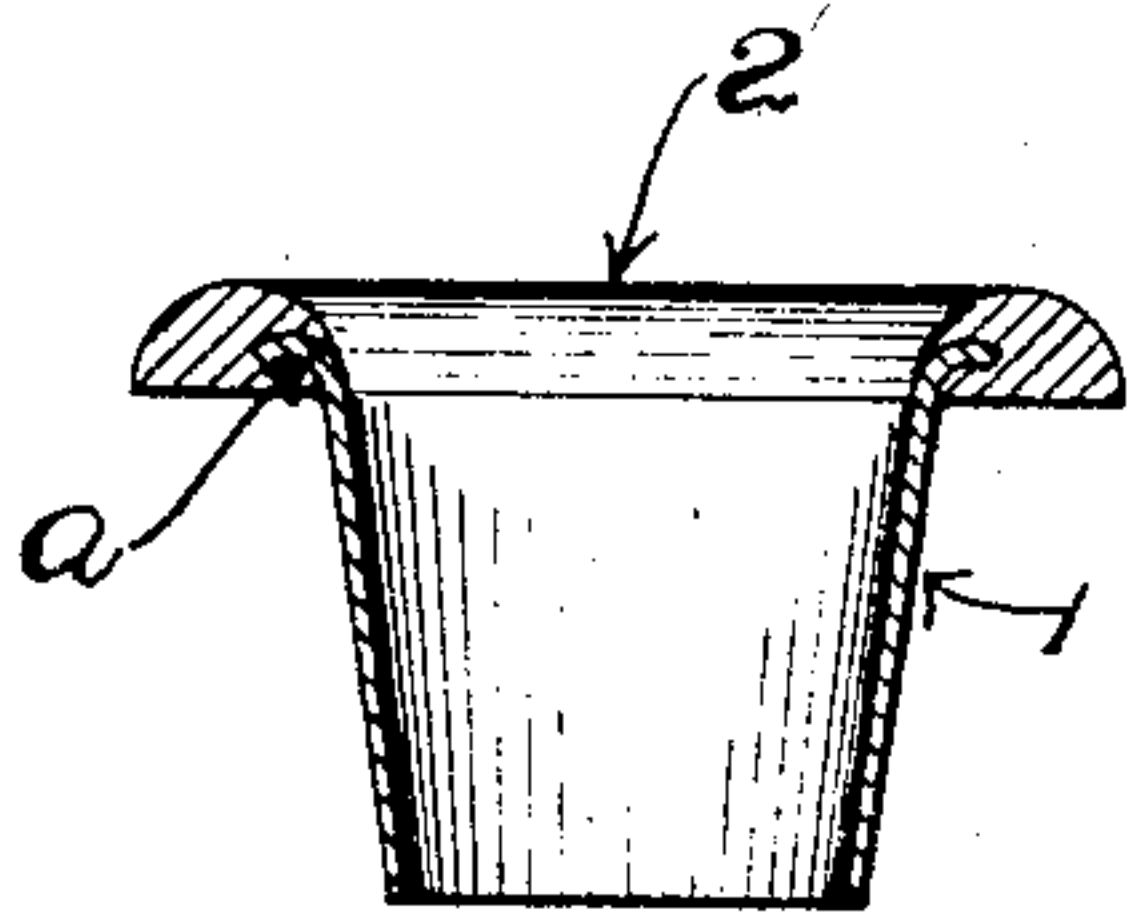


Fig. 1.

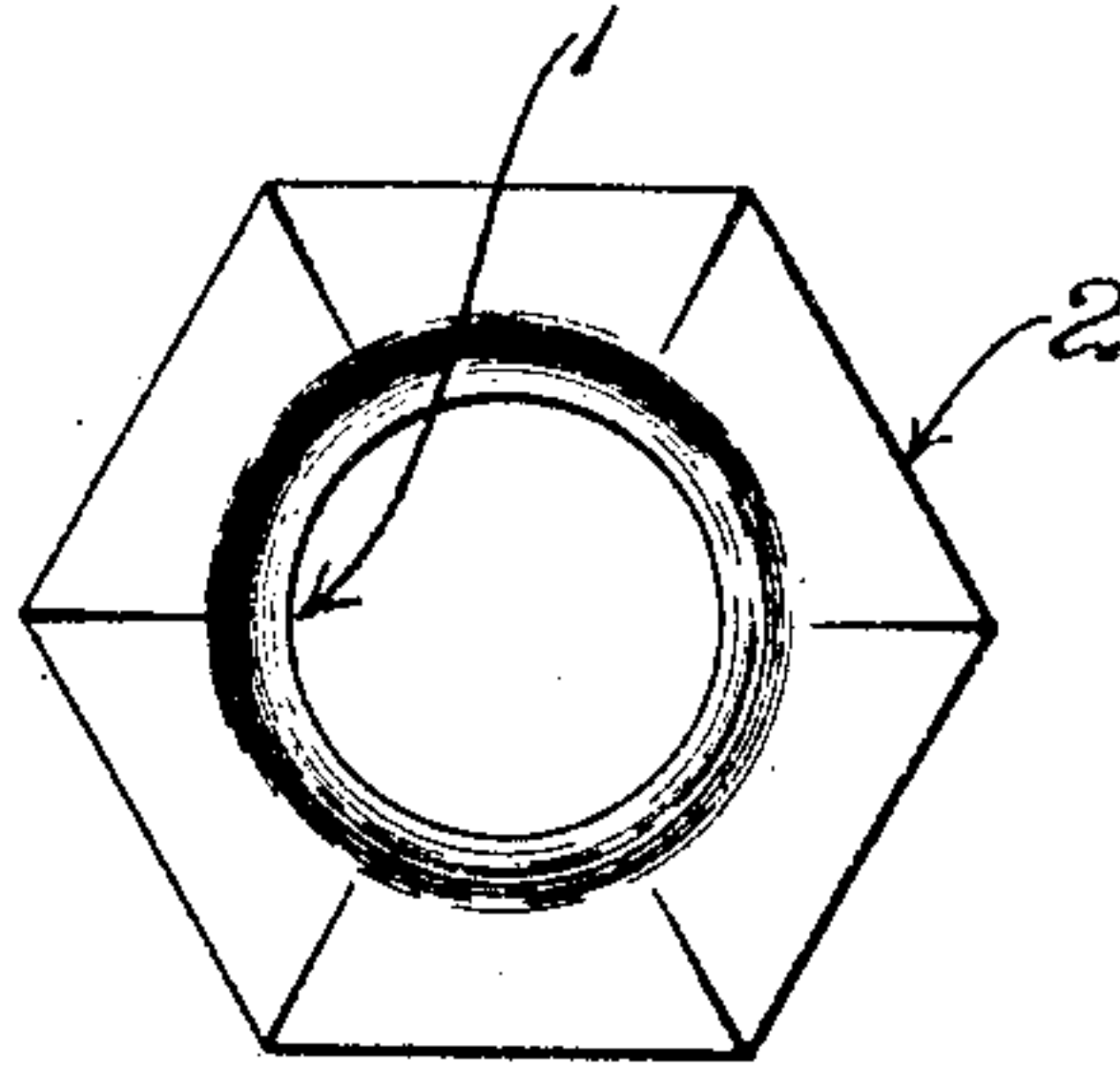


Fig. 2.

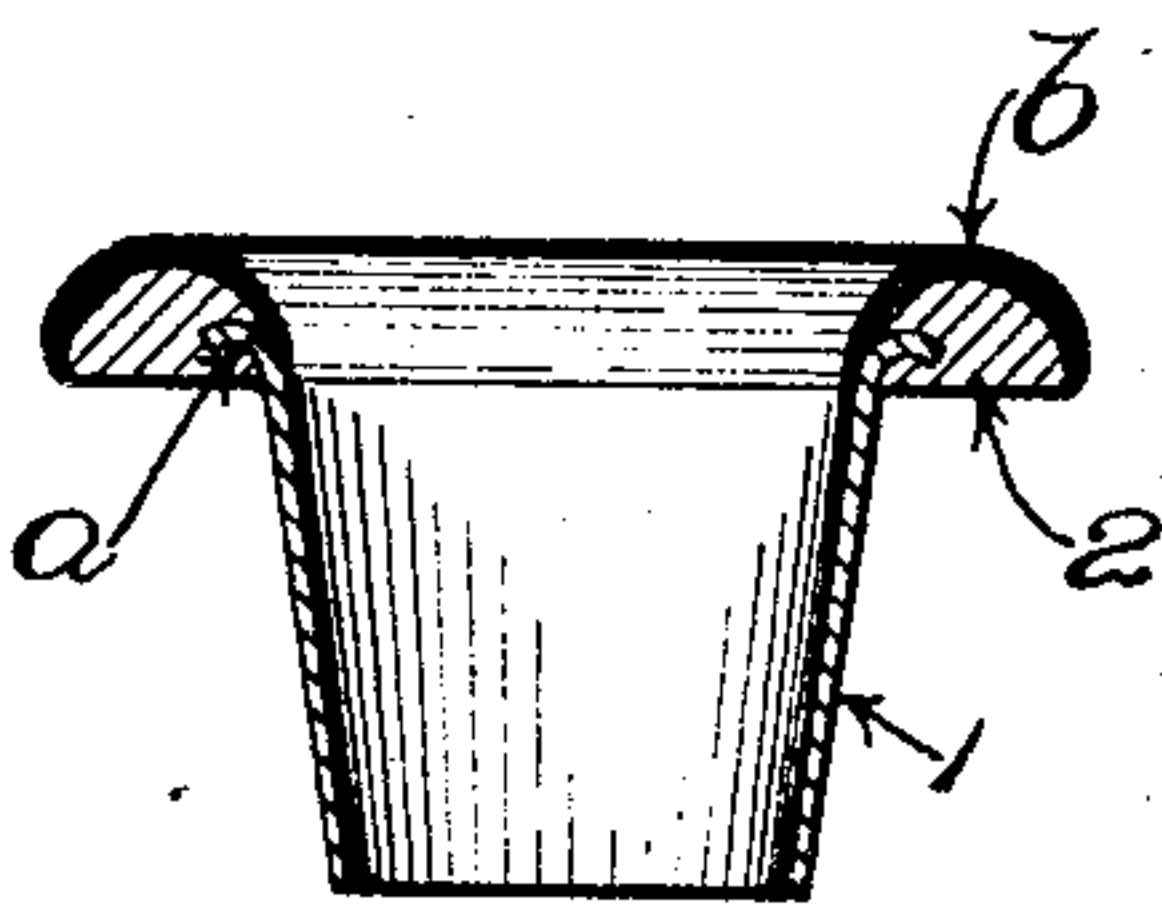


Fig. 3.

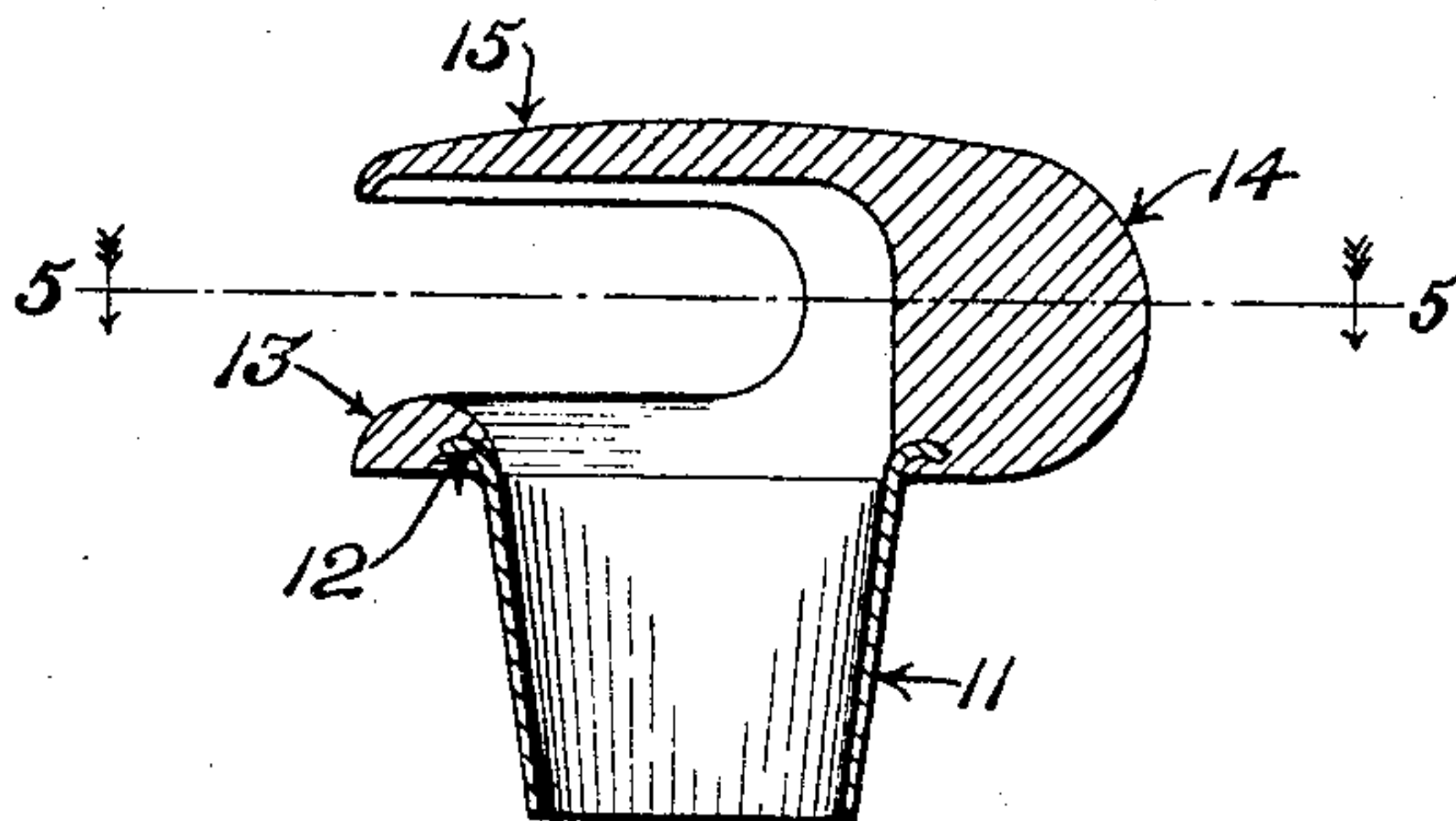


Fig. 4.

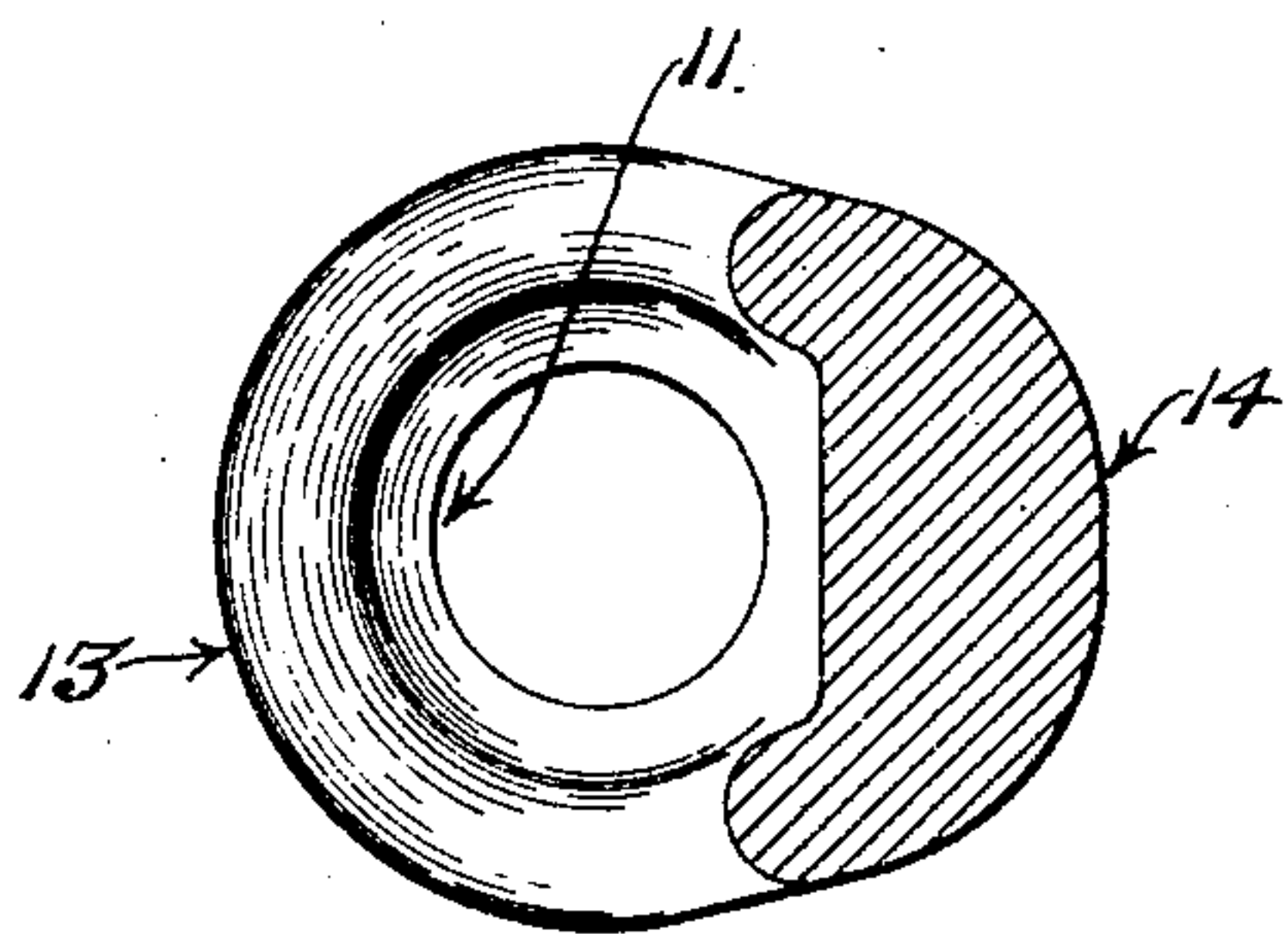


Fig. 5.

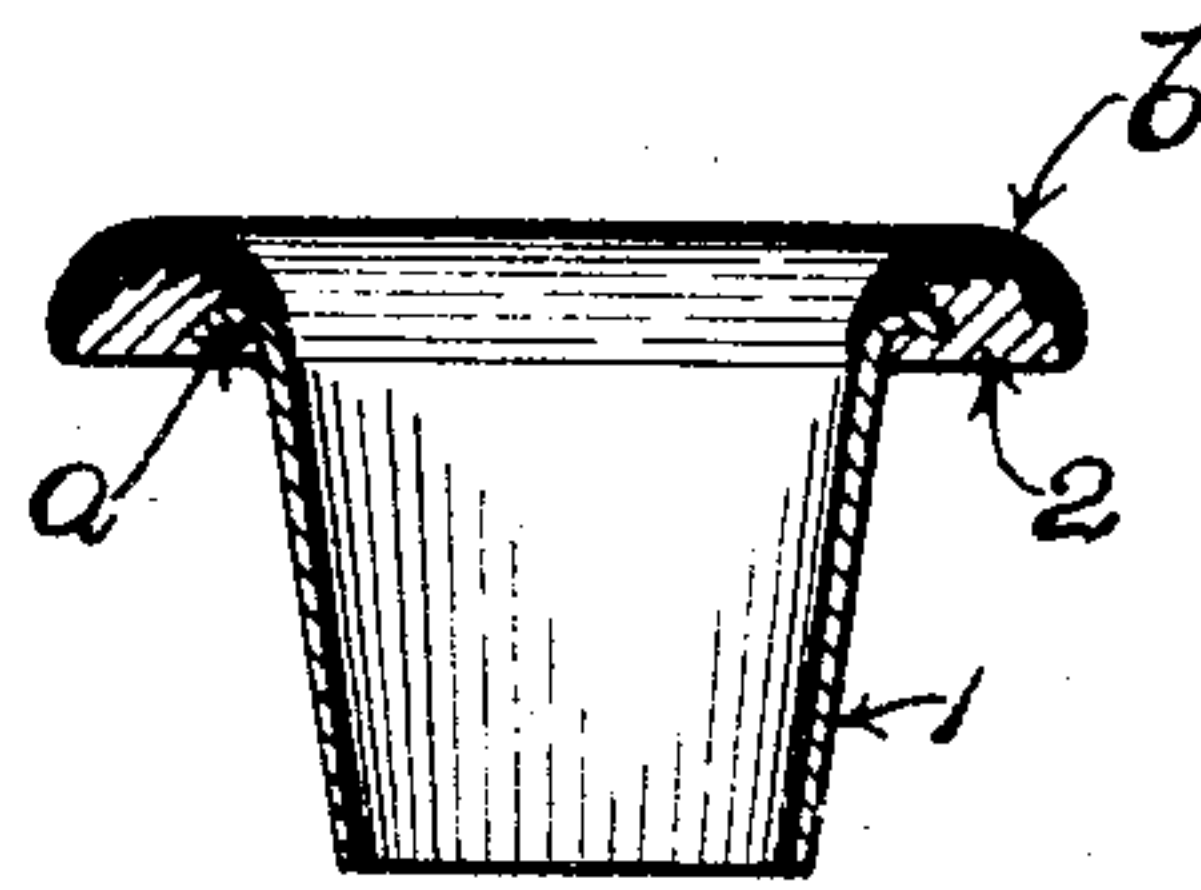


Fig. 6.

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UNITED STATES PATENT OFFICE.

GEORGE HALE BRABROOK, OF TAUNTON, MASSACHUSETTS.

TUBULAR RIVET OR STUD.

SPECIFICATION forming part of Letters Patent No. 777,937, dated December 20, 1904.

Application filed July 5, 1904. Serial No. 215,212.

To all whom it may concern:

Be it known that I, GEORGE HALE BRABROOK, a citizen of the United States, residing at Taunton, in the county of Bristol, State of Massachusetts, have invented a certain new and useful Improvement in Tubular Rivets or Studs, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has for its object to provide a new and improved tubular rivet or stud, more especially designed to be employed as an eyelet or lacing-hook, although also capable of other uses.

It consists in the novel features of construction, as well as the employment of certain materials of which the parts of the tubular rivet or stud are composed, all as will be clearly understood from the following description, taken in connection with the accompanying drawings, which form a part of this specification. The novel features thereof are clearly pointed out in the claims at the close of this specification.

In the drawings, Figure 1 is a vertical section of an eyelet embodying my invention. Fig. 2 is a top view of an eyelet embodying my invention to illustrate a modification of the top thereof. Fig. 3 is a vertical section of an eyelet embodying my invention and showing a thin layer or finishing covering extending over those portions of the surface of the eyelet which show when the eyelet is set. Fig. 4 is a vertical section of a lacing-hook embodying my invention. Fig. 5 is a section of a lacing-hook, taken on line 5 5 of Fig. 4 and looking in the direction indicated by the arrows. Fig. 6 is a vertical section of an eyelet embodying my invention and showing the solid head portion as being roughened to afford an anchorage for the finishing or covering material.

Having reference to the drawings, and particularly to Figs. 1, 2, and 3, the barrel of the eyelet is shown at 1, and the top is shown at 2. The barrel 1 is formed, preferably, from a hard alloy of metal, because the hard alloys have, so far as I am informed, the characteristics which I desire in the metal of which the barrel of my eyelet is composed. These characteristics are

a certain amount of resiliency and of stiffness, so that the barrel of the eyelet will keep its shape well in handling or packing or transportation and will permit of the eyelets being set in a setting-machine of usual construction operated by hand or by power and when set by turning back the lower end of the barrel against the under side of the material will operate to firmly secure the eyelet in place. If a soft alloy were used in the barrel of the eyelet, it would be obvious that the advantages above enumerated would not be gained, since if the metal were very soft the barrels of the eyelets would lose their shape, even in being thrown against each other in the packages in which they are put up for sale, and could not, therefore, be used to advantage in a machine employed for setting them, and when they were set the outturned flange, which is forced against the under side of the material, would not be sufficiently stiff to firmly secure the eyelet in place. For these reasons, therefore, I employ, preferably, a metal or alloy which is characterized in the trade and to those skilled in the metal art as "hard." This hard alloy has the characteristics and qualities of ordinary brass; but other alloys having the same characteristics are also suitable for use. The upper end of the barrel is preferably provided with the slight outwardly-projecting flange, as shown at *a*. The object of this flange is to afford a secure anchorage for the top 2. As will be clear, any well-known formation of the top of the barrel which will afford this anchorage may be employed, and I do not, therefore, wish to limit myself to any particular shape or form of the top of the barrel. In actual practice I have found the slight outwardly-projecting flange *a* to be a convenient and desirable form for the top of the barrel. The top 2 of the eyelet is composed, preferably, of a "soft" alloy of metal—such, for example, as stereotype metal or any other similar composition which fuses at a relatively low temperature and which may be cast in metal molds. Any metal not strictly an alloy, but which has these qualities—a relatively low fusing-point and which may be cast in metal molds—might be employed. The soft alloys usually contain lead or tin, or both, as the major in-

gredients; but I do not wish to be limited to these metals or their alloys, as any alloy having the requisite qualities may be used. The top or flange 2 is formed by molding or casting the metal composing the same upon and around the upper edge of the barrel 1, which I have shown in the accompanying drawings as having a circular outwardly-projecting lip, which I have designated *a*. In casting the top 2 of soft metal or alloy upon the upper end of the barrel 1 of harder metal or alloy the upper end or anchoring-lip *a* of the barrel is embedded, as shown, in the material of the top, and the said top and barrel will thereby be firmly secured together. The precise method of casting the top 2 upon and around the upper edge of the barrel 1 is not material. Any well-known method for accomplishing this may be employed, and the same is true of the precise means employed, such as molds or the like. It is my present intention to embody the special means and process for producing the barrels and heads or tops of eyelets embodying my invention in other applications for Letters Patent.

At Fig. 2 I have shown the capacity of my eyelet for ornamentation or for the reception of a designating-design, by means of which eyelets of a given manufacture may be easily and readily detected at a glance. In the figure I have illustrated a hexagonal-shaped head which is secured by simply forming the interior of the mold to a corresponding shape. As will be clear, the design or shape or pattern or designating-marks of the top may be varied indefinitely and without additional cost in the manufacture other than whatever additional first cost might be incidental to the production of the mold.

Eyelets embodying my invention are adapted for use either with or without a layer or finishing covering of composition, as celluloid or the like. In Figs. 3 and 6 I have shown at *b* a layer or coating which may be of composition or celluloid and which may be applied to the eyelet in any well-known manner. In this figure I have shown this covering or finishing layer applied to those portions of the eyelet which are exposed after the eyelet has been set. I do not, however, wish to limit myself to the application of this coating or covering layer to any specific portion of the eyelet, since the eyelet may, as will be clear, be covered in whole or in part by such layer. If, however, a layer of thin covering material—as, for example, celluloid—be used for this finishing or covering, my eyelet may be cast with a top having certain roughnesses or indentations therein, (see Fig. 6,) which will very materially increase the firm union of the layer or covering with the top of the eyelet. As will be obvious, such roughnesses increase the anchorage of the covering material to the eyelet and are therefore very advantageous, since when a thin layer of celluloid is applied

to a smooth surface it is liable to become separated therefrom and must be anchored for best results by carrying it around or over the edges of the top or flange of the eyelet. This means of anchorage, as will be clear, necessitates the employment of a greater quantity of the covering material than would otherwise be necessary and adds materially to the expense of the finished product. In the covering of eyelets embodying my invention, the tops of which are roughened or otherwise formed to afford an anchorage, this additional material which overflows the edges does not require to be used, and a considerable saving is effected.

Referring now to Figs. 4 and 5, which represent a lacing-hook made in the same manner as the eyelet previously described, 11 is the barrel of the hook made from a hard alloy of metal and having its upper edge terminating in a flange 12, about which the rim 13 of the hook is cast. The shank 14 of the hook is made very thick and heavy, as seen in section in Fig. 5, and the hook is provided with the usual top 15. The whole or a portion of the hook may be covered with a layer of celluloid or other suitable covering material, if desired, in the same manner as heretofore described in connection with the eyelet. The portions of the hook to be covered may be roughened, thus affording a certain anchorage for the covering material, and this roughening may be very cheaply produced, since no dies are required to be used in the manufacture of these eyelets or hooks, but only molds which do not wear out. When made in accordance with the construction herein described, the shank 14 of the hook affords such strength that the hook may be set in an ordinary eyelet-setting machine, as it is unnecessary to interpose any supporting member between the top 15 and the rim 13 to keep the hook from crippling during the setting operation. The parts of my improved lacing-hook are composed of metals having the same characteristics as the eyelets before described—that is, the barrel is composed of a hard alloy, and the rim 13, the shank 14, and the top are made from some soft alloy cast in one piece about the top of the barrel.

A tubular rivet or stud embodying my invention may be cheaply and easily made. It has the advantages of a solid top, which may be given any desired shape or may be provided with any desired pattern which can be formed by casting without additional cost. As the top is of solid metal throughout, it will not change its color or appearance by wear, since the metal is the same color and quality throughout, and wear has no tendency to roughen the throat by exposing the sharp edges, as is the case where the part upon which the lacing plays is composed of layers of material, since wear rather tends to increase the smoothness of my improved rivet or stud.

What I claim is--

1. A tubular rivet or stud having a hollow barrel portion composed of a relatively hard metal or alloy, and a solid top composed of a relatively soft metal or alloy anchored to said barrel portion.
2. A tubular rivet or stud consisting of a hard-metal hollow barrel portion provided with an outwardly-projecting anchoring-lip, and a solid top portion of relatively soft metal or alloy secured to said barrel portion by said lip.
3. A tubular rivet or stud having a hard-metal hollow barrel portion, and a top portion composed of a relatively soft metal or alloy fused upon and about the upper end of said barrel portion.
4. A rivet or stud having a tubular barrel portion composed of a relatively hard metal

or alloy, a solid head portion composed of a relatively soft metal or alloy, and a surface layer of finishing material applied to the said head portion and constituting a covering therefor.

5. A rivet or stud having a tubular barrel portion composed of a relatively hard metal or alloy, a head portion composed of a relatively soft metal or alloy cast upon said barrel portion and having a roughened outer surface, and a layer of finishing material applied to the said outer surface and anchored by the roughness thereof.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE HALE BRABROOK.

Witnesses:

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