

No. 624,150.

Patented May 2, 1899.

B. L. ANDRUS.  
GROMET.

(Application filed Mar. 21, 1898.)

(No Model.)

FIG. 1.

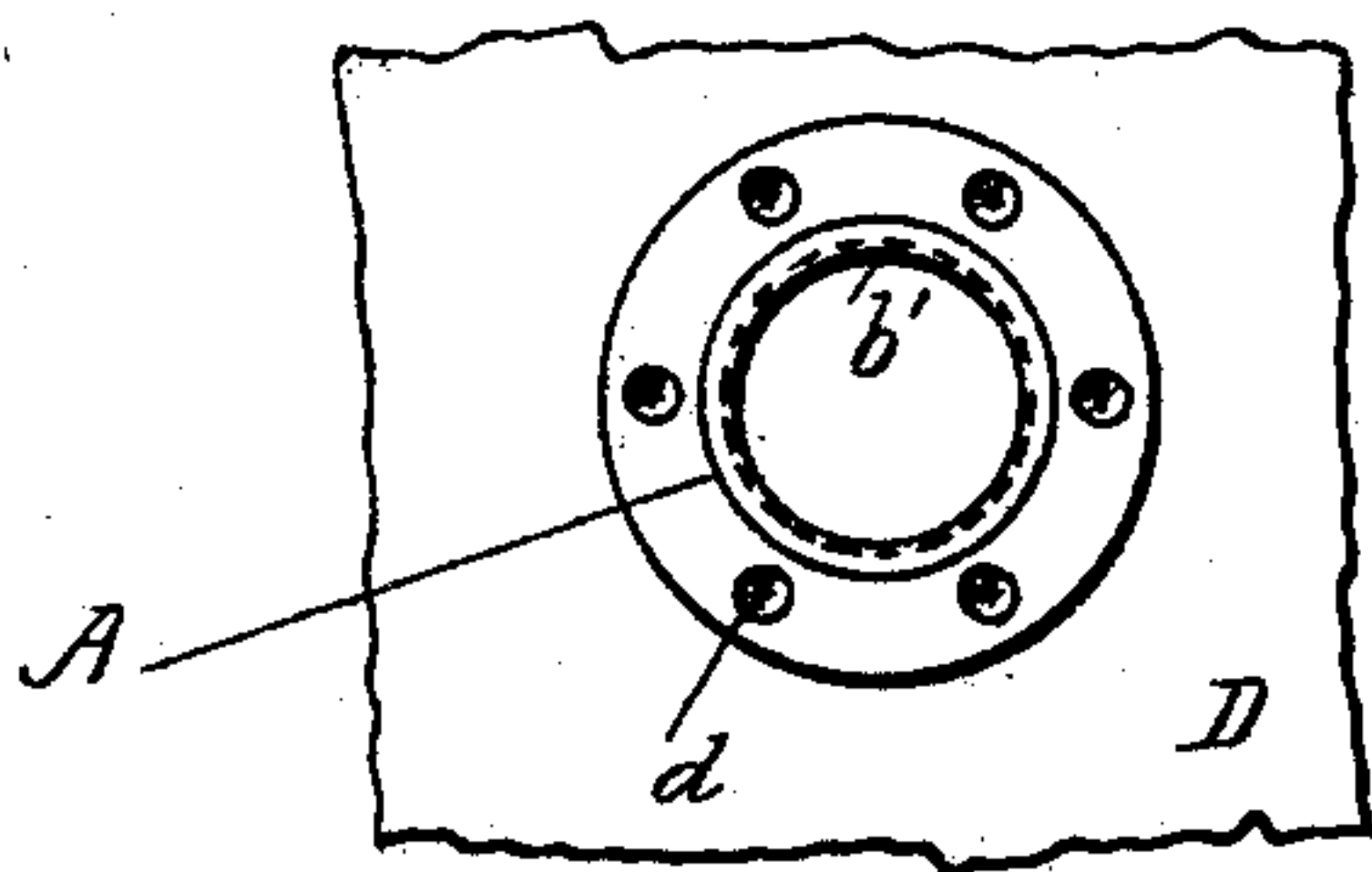


FIG. 2.

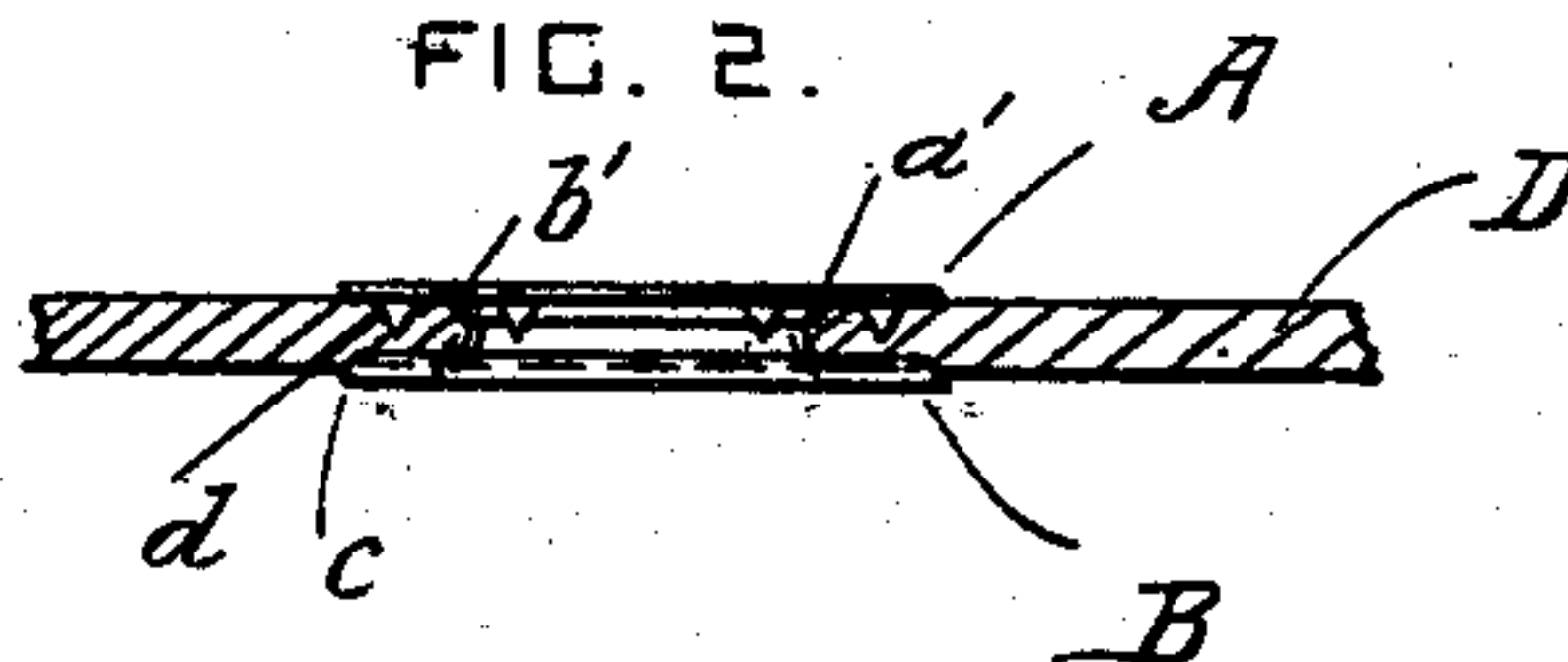


FIG. 3.

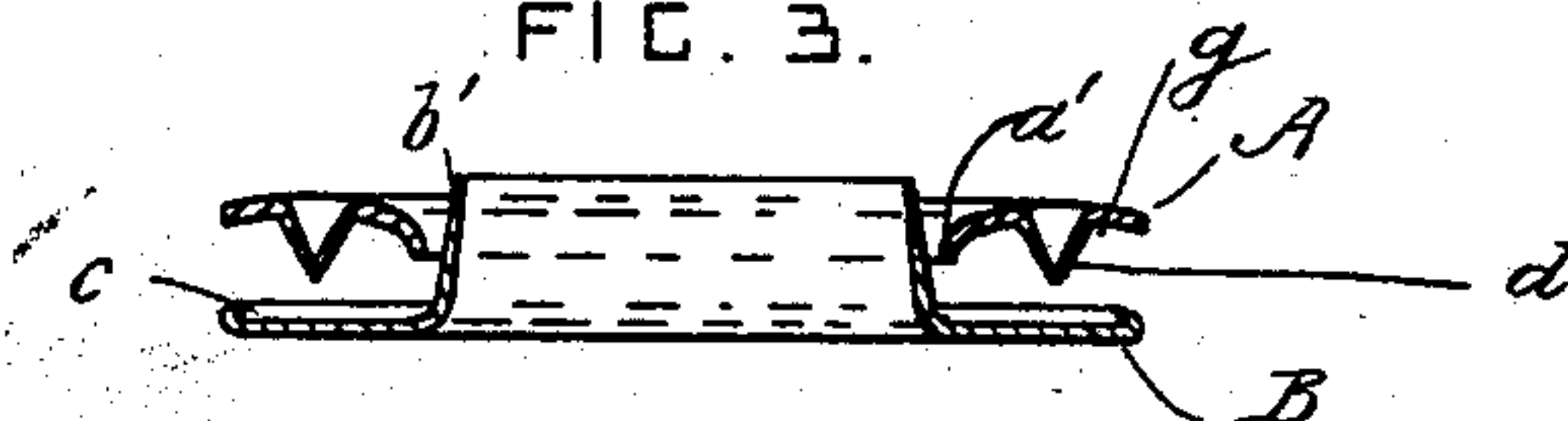


FIG. 4.

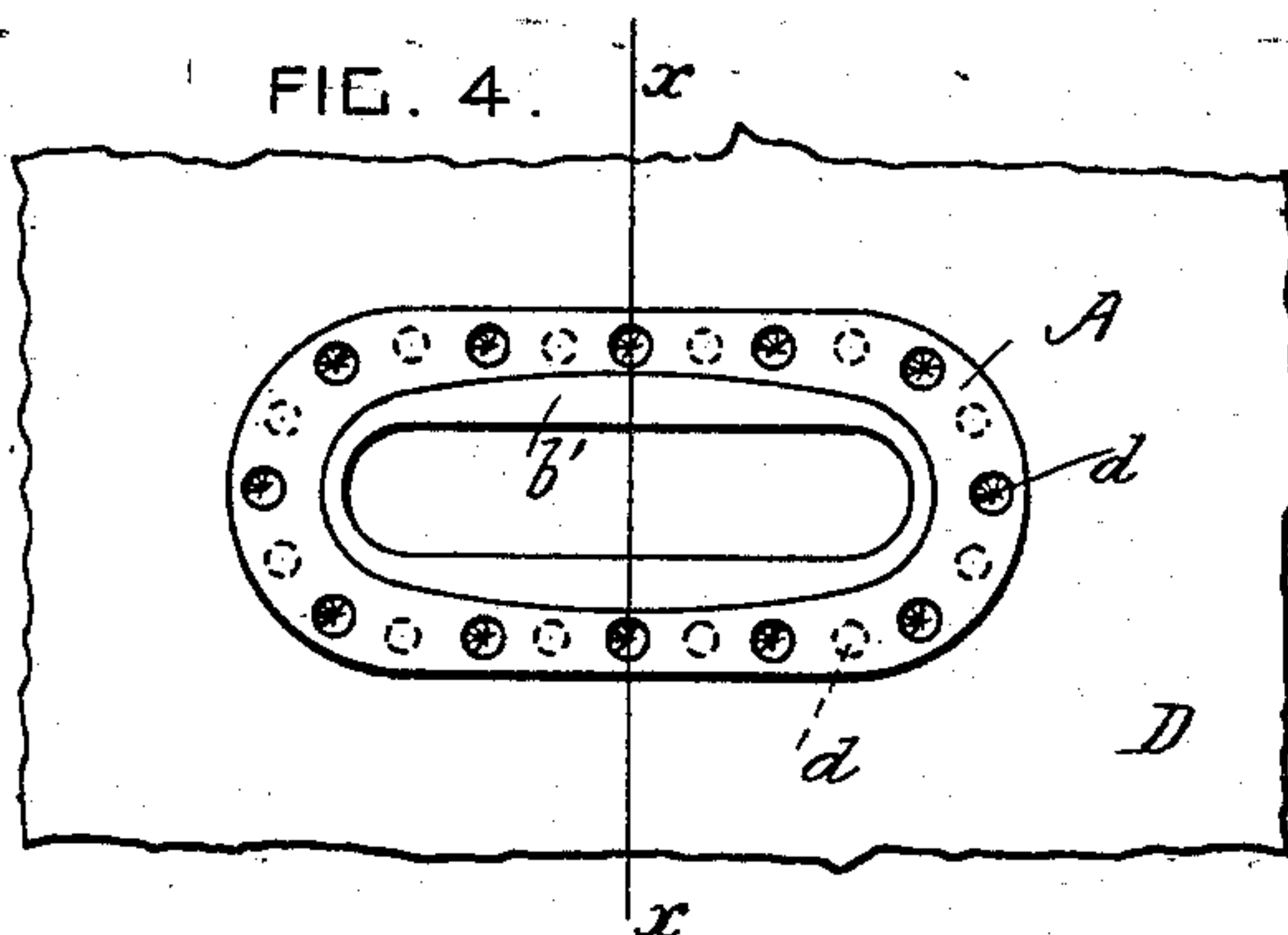


FIG. 5.

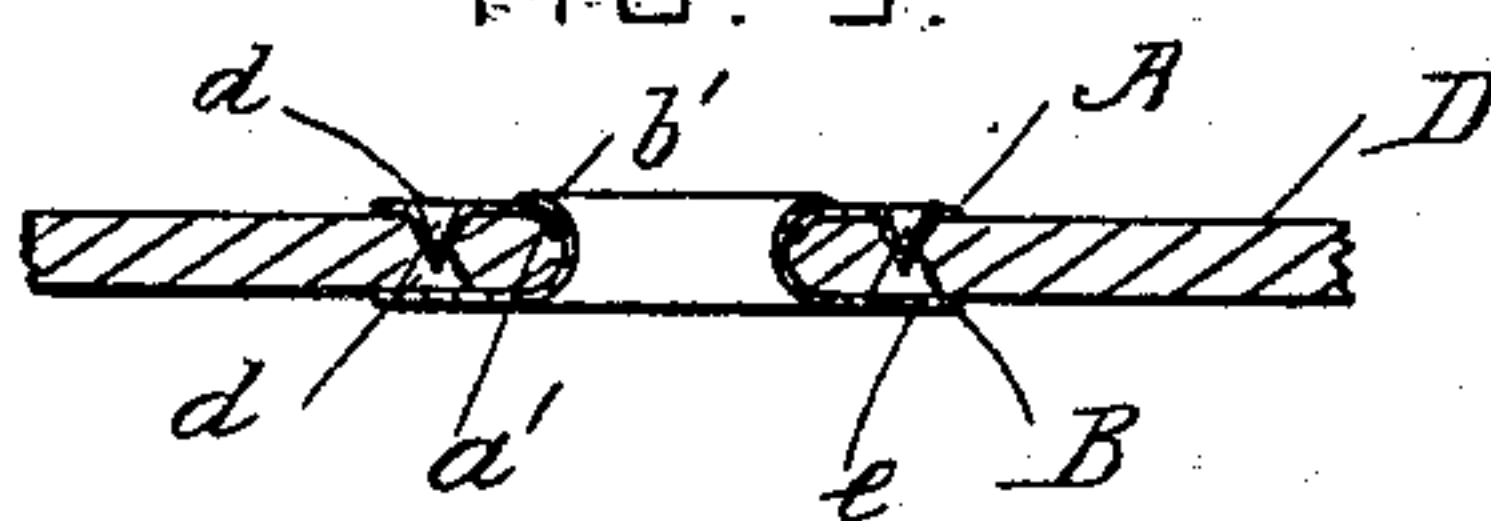
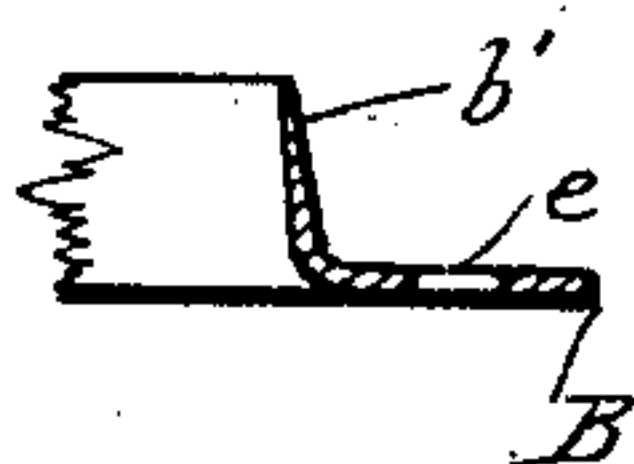


FIG. 6.



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# UNITED STATES PATENT OFFICE.

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## GROMET.

SPECIFICATION forming part of Letters Patent No. 624,150, dated May 2, 1899.

Application filed March 21, 1898. Serial No. 674,636. (No model.)

*To all whom it may concern:*

Be it known that I, BURTON L. ANDRUS, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Gromets; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to gromets; and it consists in the novel construction and combination of the parts hereinafter fully described and claimed.

In the drawings, Figure 1 is a plan view of a round gromet. Fig. 2 is a side view of the same. Fig. 3 is a cross-section showing the two parts of the gromet before being secured together and drawn to a greatly-enlarged size. Fig. 4 is a plan view of an oval gromet. Fig. 5 is a cross-section taken on the line  $xx$  in Fig. 4. Fig. 6 is a cross-section through a part of a gromet drawn to a greatly-enlarged size and showing a hole in its flange.

The gromet is made of two opposed parts or members A and B, which are stamped or pressed out of thin sheet metal. One part, A, has a bell-mouthed flange  $a'$  around its hole, and the other part, B, has a conical tubular portion  $b'$ , which projects through the hole in the part A. The two parts A and B are secured together and to the material D of the article to be protected by turning over the smaller end of the tubular portion  $b'$ , as shown in Figs. 1 and 2. In order to prevent the material from being pulled from between the two opposed parts of the gromet, it has been customary to provide one or both parts of the gromet with projections which enter the material. Such projections have mostly been flat points struck up from the sheet metal of the gromet and have been wanting in lateral rigidity. Pins have also been secured to the gromet; but these make the gromets very expensive. Spikes have also been cast integral with a gromet member when formed of cast metal.

In order that the parts of the gromet may

be made wholly of very thin sheet metal and may have rigid projections which will not bend laterally and which will easily penetrate the material of the article to which the gromet is subsequently attached, hollow conical projections  $d$  are pressed up from the surface of one or both parts of the gromet. These projections  $d$  are easily pressed up, so as to have sharp points which will penetrate the material. These hollow projections are made between specially-formed dies operated by any approved form of press, and when gromets are made in large quantities the cost of forming these hollow projections is very small, as they are pressed up to their finished form by a single stroke of the die-press. Each hollow conical projection or spike  $b$  converges to a point sharp enough to penetrate the material and has a sharp angular corner  $g$  around its base where it joins onto the gromet member. These peculiar hollow spikes are formed by pressing the sheet metal between two opposed dies of appropriate form in the process of making the gromet member, and they cannot be formed by driving a punch into the gromet member after it is attached to the material. The spikes are pressed into the material by turning over the part  $b'$  in the act of securing the gromet members together.

When only one part of the gromet is provided with hollow and pointed projections, the other part is preferably provided with a continuous peripheral flange  $c$ . When both parts of the gromet are provided with hollow and pointed projections, as shown in Figs. 4 and 5, the projections on one part are arranged between the projections on the other part. If desired, holes  $e$  can be punched in one part opposite the points of the projections on the other part, as shown in Figs. 5 and 6. The surfaces from which the projections are struck up can be flat or concavo-convex, as desired.

What I claim is—

1. A gromet formed of sheet metal, one member of which is provided with hollow pressed-up cones each of which has a sharp corner at its base and an apex sharp enough



to penetrate the material used, and adapted for use in connection with another member also of sheet metal, substantially as set forth.

2. A gromet formed of two parts, one of the  
5 said parts being formed of sheet metal and provided with hollow pressed-up cones each of which has a sharp angular corner at its base and converges to a point sharp enough to penetrate the material to which the gromet

is subsequently to be attached, and the other to said part having holes spaced to correspond with the said cones, substantially as set forth.

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

BURTON L. ANDRUS.

Witnesses:

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BERTHA L. DANA.