

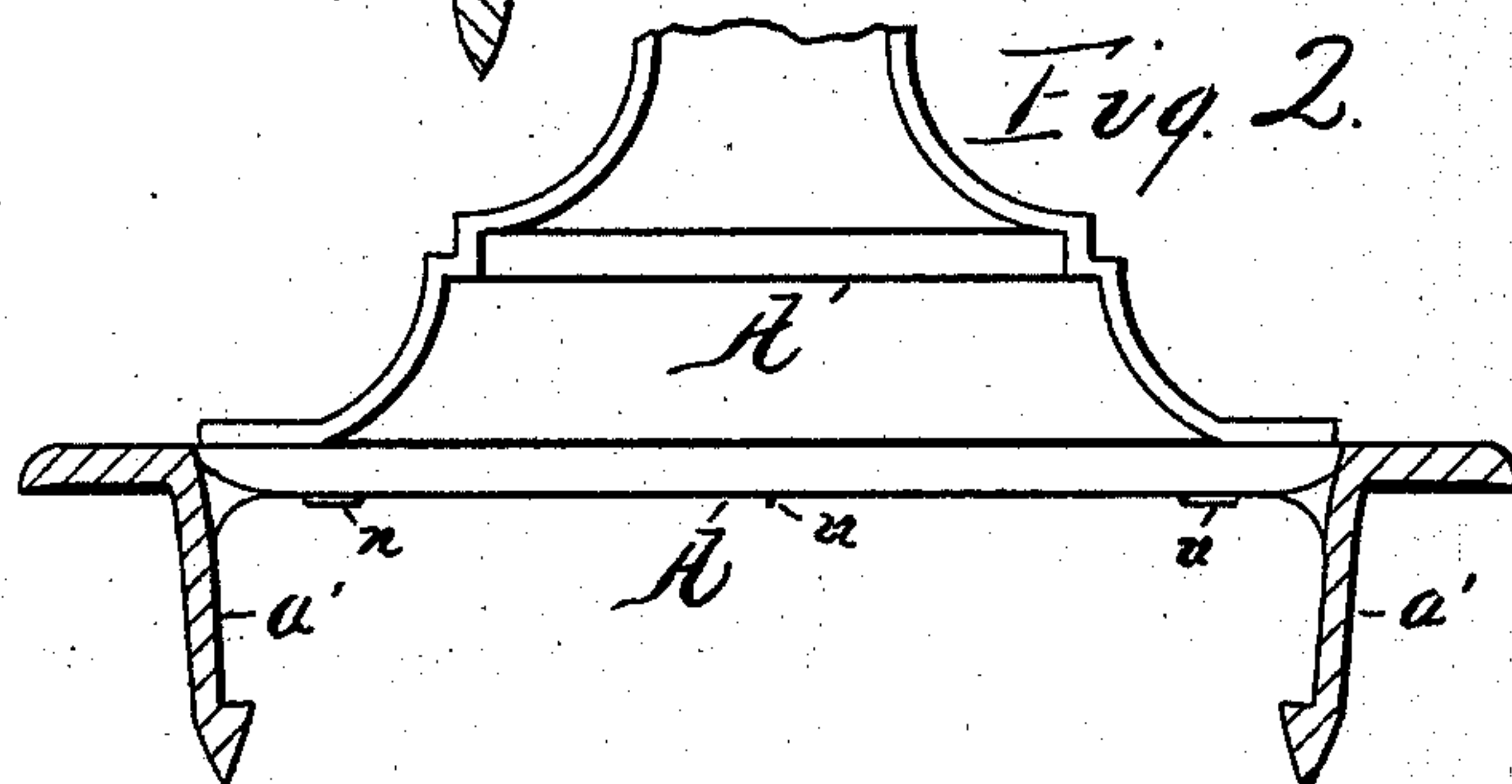
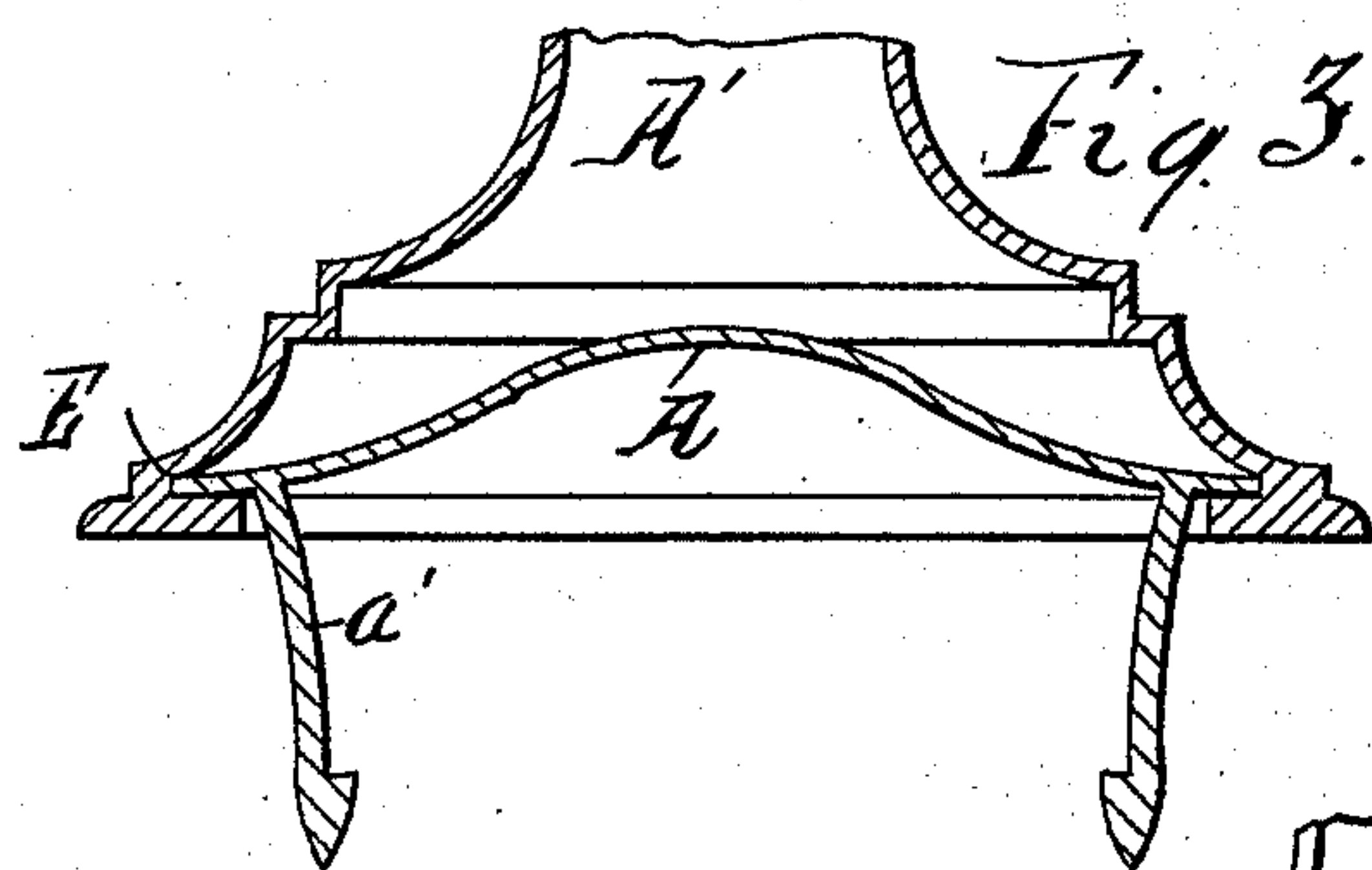
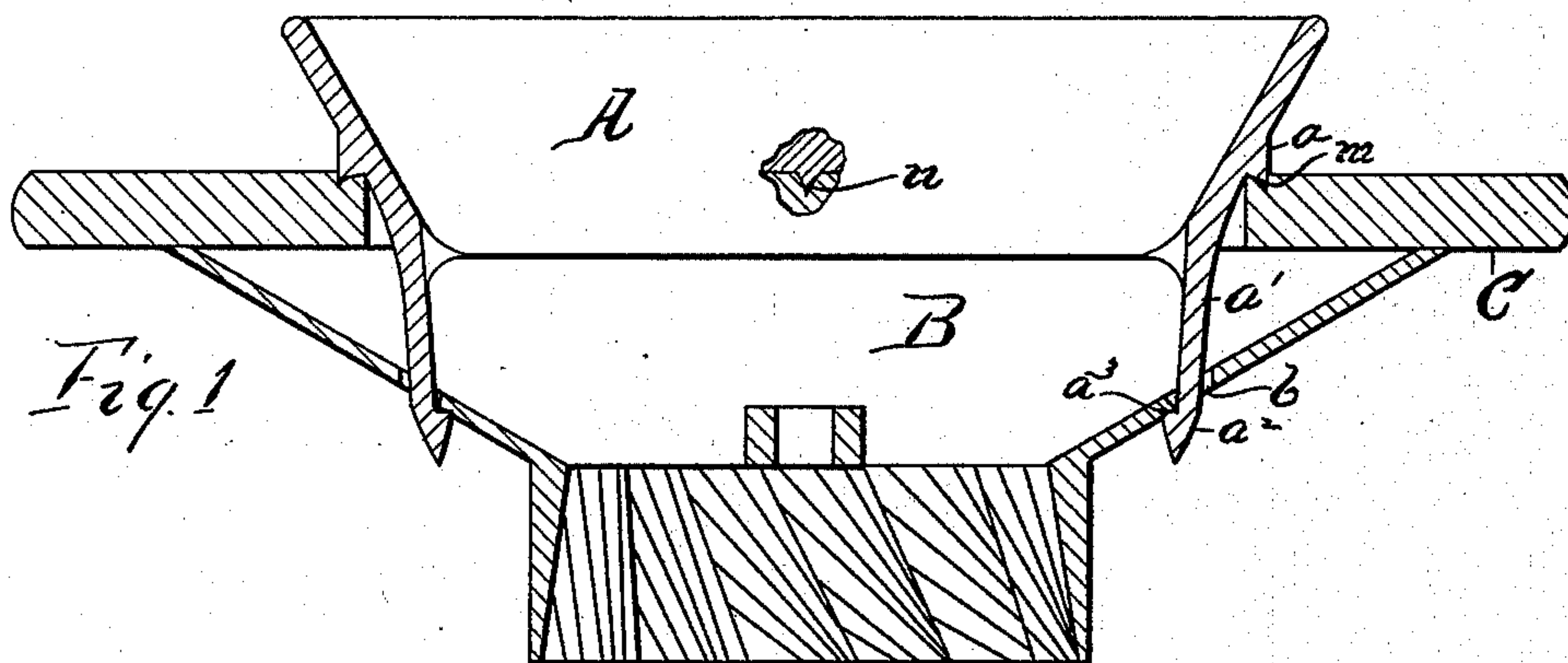
(No Model.)

W. A. HANCE.

COFFEE MILL.

No. 413,321.

Patented Oct. 22, 1889.



Witnesses  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. HANCE, OF FREEPORT, ILLINOIS, ASSIGNOR TO THE WARNER MANUFACTURING COMPANY, OF SAME PLACE.

## COFFEE-MILL.

SPECIFICATION forming part of Letters Patent No. 413,321, dated October 22, 1889.

Application filed June 24, 1889. Serial No. 315,334. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. HANCE, a citizen of the United States of America, residing at Freeport, in the county of Stephenson and State of Illinois, have invented certain Improvements in Coffee-Mills, of which the following is a description.

My invention relates to the cheaper class of coffee-mills, such as are intended for use in the kitchen. In such mills the prime requisite is cheapness, combined with strength and durability; and the object of my invention is to simplify their construction and manufacture, to the end that the above-named qualities may be attained in the highest degree possible.

More particularly, my invention consists in the novel means employed to secure the different parts of the mill together, and in certain minor details of construction, all of which will be hereinafter fully described.

In the drawings, Figure 1 is a vertical diametrical section of the portion of the mill to which my improvements are applied; Fig. 2, a similar section of a different form of mill, and Fig. 3 a modified way of applying my invention to the latter mill.

Referring to the drawings, it will be seen that the body of the mill is composed of two circular castings A and B, the former being annular in shape and fitted into the opening in the cover C of the box or case which supports the mill, the casting having a slight flange or circumferential rib  $a$  resting upon the upper surface of said cover, and the other casting B being funnel-shaped, with its upper rim held against the under surface of the cover. To fasten these two castings rigidly together and clamp the cover firmly between them, I take advantage of the elasticity of the annular casting A. There is a familiar example, of the great degree in which this property is possessed by a casting of substantially the same form, in the vibration of a bell. To apply this elastic force to the clamping of the castings A and B, I prefer to employ upon the upper casting A a pair of downwardly-projecting lugs or arms  $a'$ , bearing hooked heads  $a^2$ , and to cut slots  $b$  in the lower casting properly located to receive the lugs  $a'$  when the two castings are put together. The head

$a^2$  of the lug  $a'$  has an inner surface inclined toward the center of the mill to form the hook  $a^3$ , which is received by a slight depression in the under surface of the casting B.

To put the above-described parts together, the cover C is placed upon the casting B, and the casting A inserted in the hole in the cover, with the points of the lugs  $a'$  resting in the slots  $b$ . The two castings are then forced together by suitable appliances, the annular casting A taking a slightly-elliptical form during the operation to allow the point of the hook  $a^3$  to pass through the slot  $b$ ; but as soon as the hook clears the casting B it snaps into the depression formed to receive it, and the casting A resumes its original form, pressing the hook  $a^3$  strongly against the under surface of the casting B, and clamping the parts A B C of the mill as firmly together as if they were formed integral.

As the covers C are often uneven upon the upper surface, I have made a minor improvement to insure a tight fit between them and the flange  $a$  of casting A. Such improvement consists in forming around the outer rim of said flange a sharp downwardly-projecting edge  $m$ , which is forced into the cover C in putting the parts together.

When properly constructed and assembled, the above-described parts will be held rigidly together against any force that will be applied to them in the use of the mill; but to guard against the evil results of carelessness or bad workmanship, I have added at short intervals along the lower surface of the flange  $a$  sharp points or knife-edges  $n$ , (shown in Fig. 1 by breaking away a small portion of the casting A,) which are also forced into the covers C and effectually prevent any rotation of the casting A thereupon.

In Fig. 2 my improvements are applied to a covered mill. In this case the portion of the cover A' which is cast integral with the ring A is made to extend over less than half of said ring, and the movable or hinged portion of the cover made correspondingly larger, so that the portion A' may interfere as little as possible with the annular elasticity of the ring A. If, however, it should be for any reason undesirable to depart from the old style of covered mill, the same may



be rendered unnecessary by a slight modification. (Shown in Fig. 3.) The lugs  $a'$  are here attached by a connecting bridge-piece of cast metal D, accommodated in shape to the cover of the mill, and extending past the base of the lugs  $a'$  to rest in a groove E, formed in the cover to receive it. I do not look upon this device as varying essentially from the one shown in Fig. 2, inasmuch as the bridge-piece D is here the equivalent of the casting A, and the interposition between it and the cover of a separate casting or top cannot make any difference as far as my invention is concerned.

In all of these forms the lugs  $a'$  may be made of any desired form or number. They may be placed upon the lower casting B, if preferred, and the slots  $b$ , or equivalent stops, provided upon the upper casting. I prefer, however, the construction shown.

The advantages gained by my improved construction are numerous and important, not only to the manufacturer, but also to the person who uses the mill. To the manufacturer it saves the cost of the screws commonly employed to fasten the parts together and the labor necessary to apply them. To the user it saves the constant annoyance caused by the loosening of the various parts of the mill, as well as the expense of repairs. As a minor advantage, it may be also noticed that the

forcing of the castings A and B tightly together "trues up" the cover A of the case, greatly improving the appearance of the mill, as these covers, from being made in large quantities and kept in stock, usually become warped and out of shape.

I claim as new and desire to secure by Letters Patent—

1. In combination with the casting B, a casting A, bearing lugs  $a$ , adapted to be engaged with some portion of the casting B by springing the casting A slightly out of its original form and to hold said castings tightly together by means of the elastic force with which said casting A tends to resume its former shape, as and for the purpose stated.

2. The combination of the casting A, bearing the lugs  $a'$ , and the flange  $a$ , having the sharp rim  $m$ , in combination with the casting B, slotted at  $b$ , as and for the purpose stated.

3. The casting A, provided with lugs  $a'$  and points  $n$ , in combination with the casting B, slotted at  $b$ , as and for the purpose stated.

4. The combination of the casting A, having the lugs  $a'$ , flange  $a$ , sharp-rimmed at  $m$ , and points  $n$ , in combination with the casting B, slotted at  $b$ , as and for the purpose stated.

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Witnesses:

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