

(No Model.)

G. W. KNAPP.

Method of Attaching Bottoms to Cylindrical Metal Bodies.

No. 232,405.

Patented Sept. 21, 1880.

Fig.1.

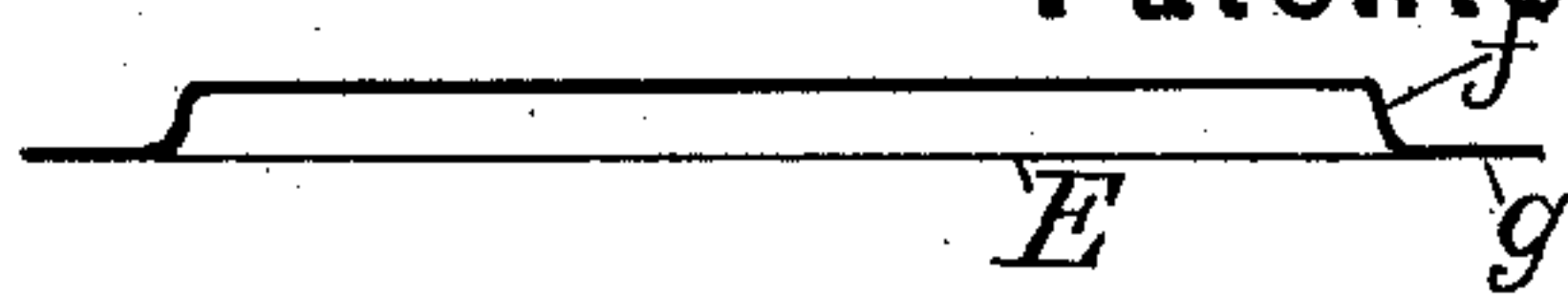


Fig.2.

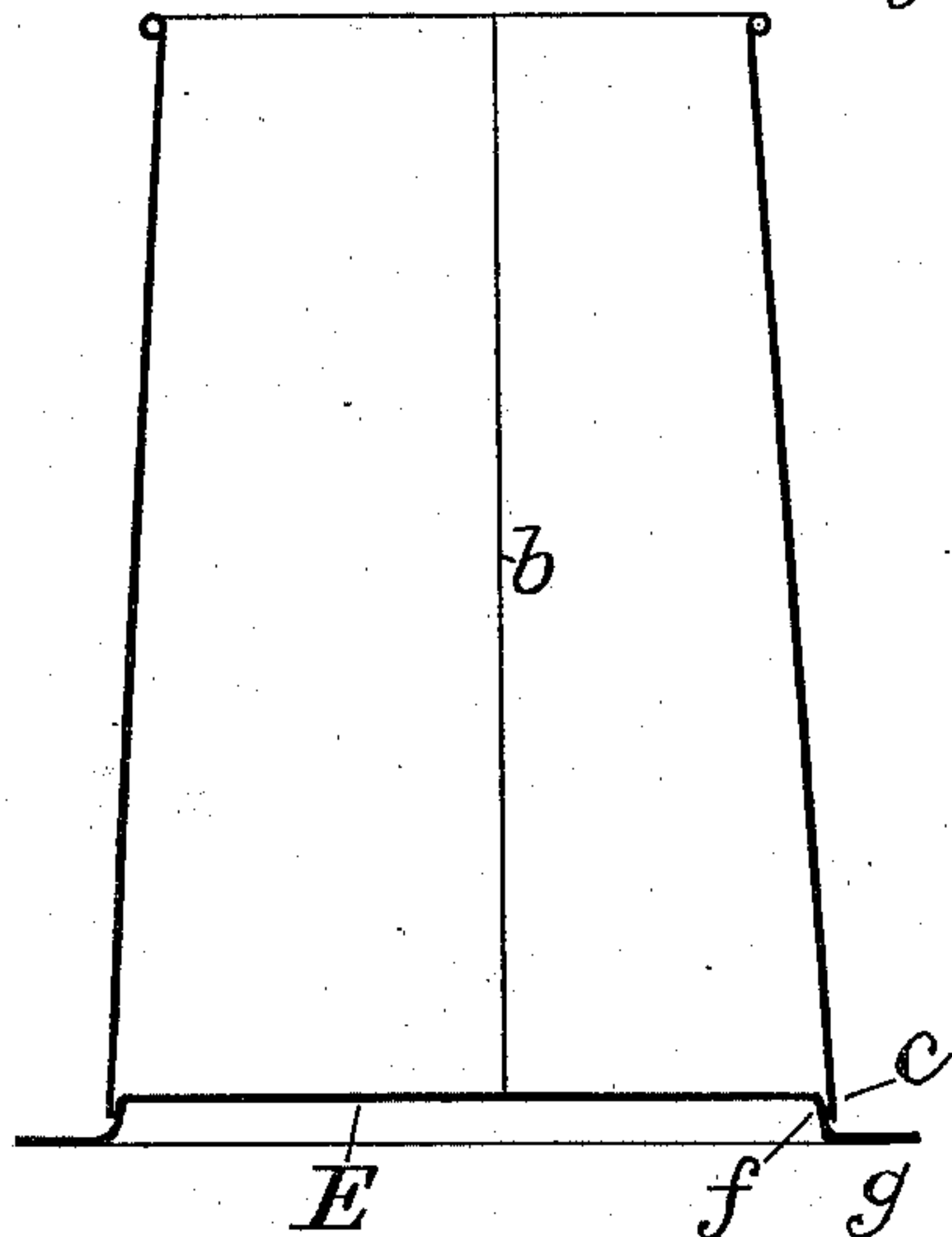


Fig.3.

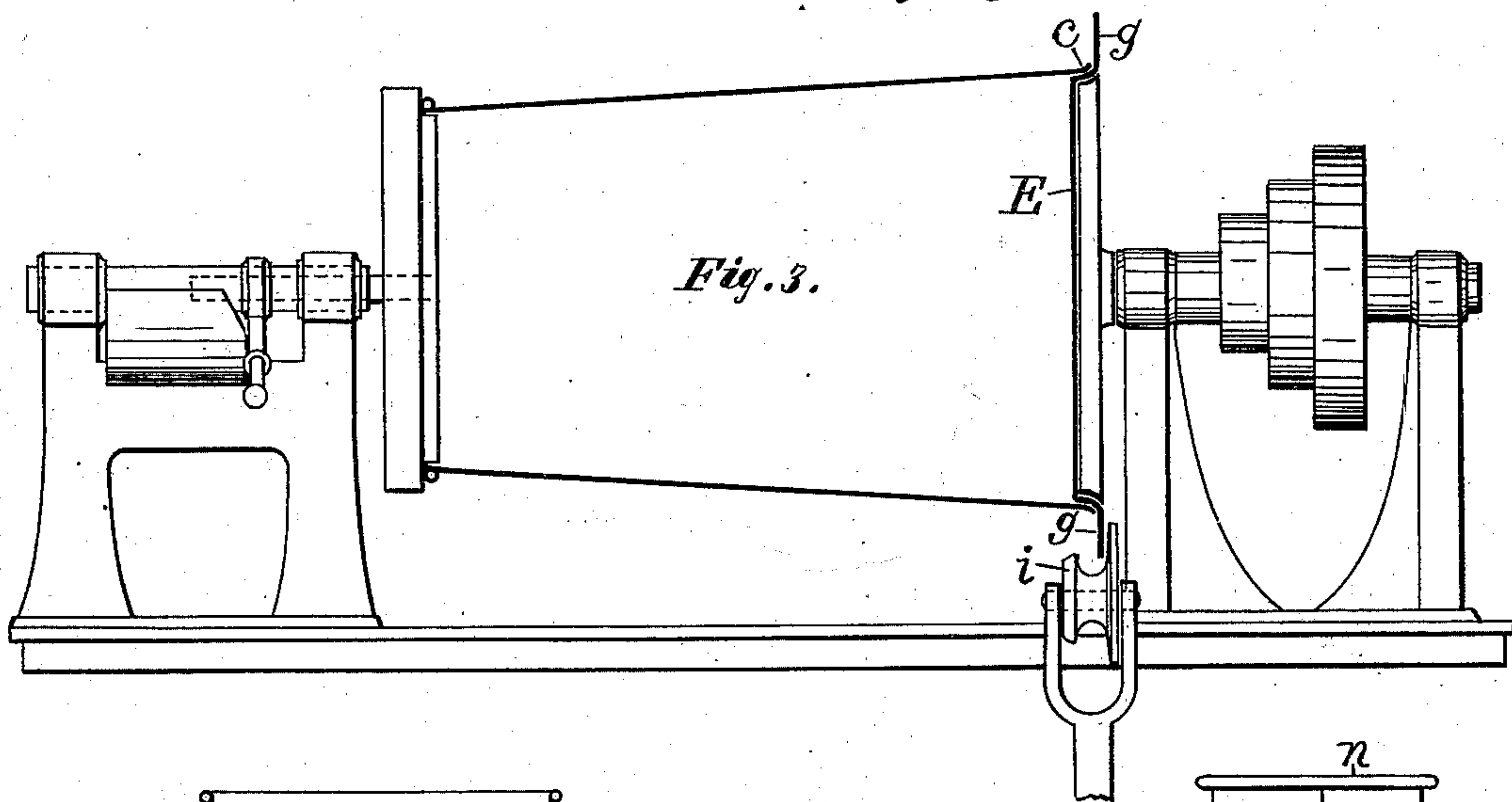


Fig.4.

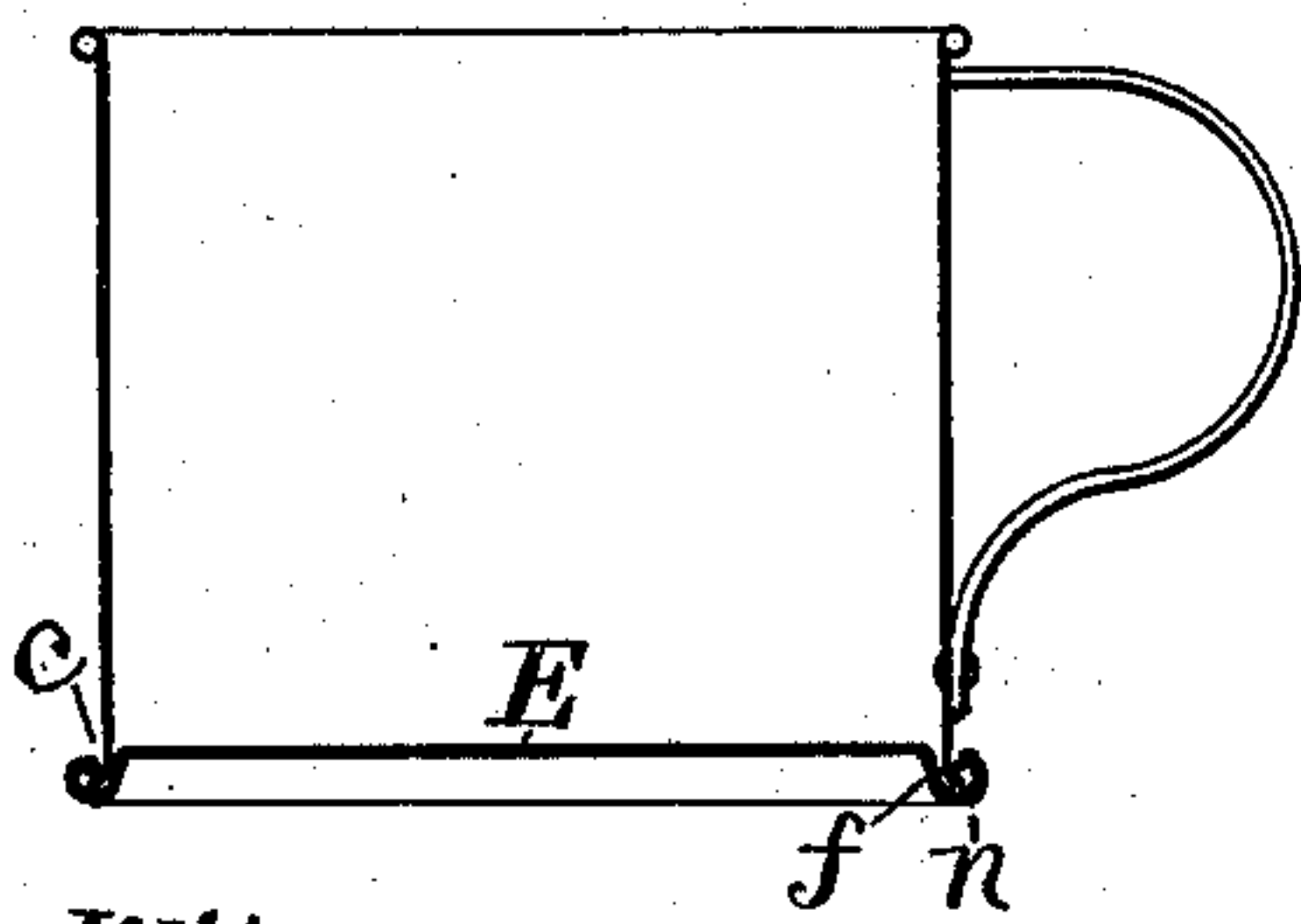
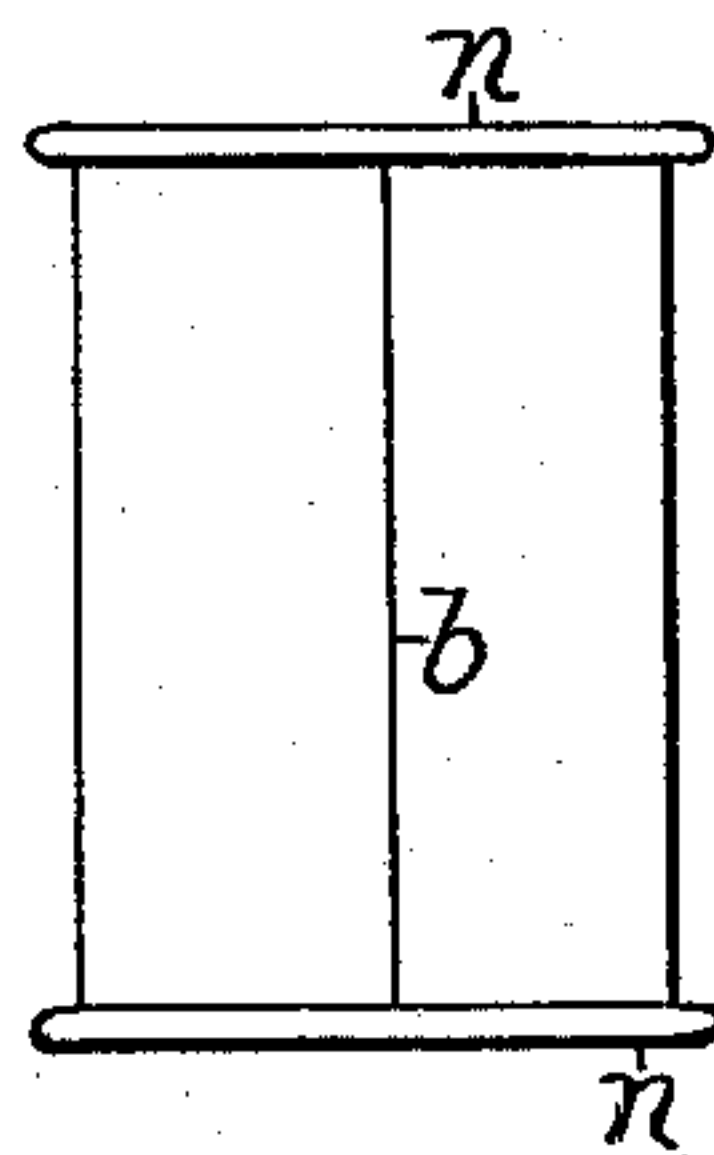


Fig.5.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE W. KNAPP, OF BALTIMORE, MARYLAND.

METHOD OF ATTACHING BOTTOMS TO CYLINDRICAL METAL BODIES.

SPECIFICATION forming part of Letters Patent No. 232,405, dated September 21, 1880.

Application filed August 6, 1880. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. KNAPP, a citizen of the United States, residing at Baltimore, in the county of Baltimore and State of Maryland, have invented certain new and useful Improvements in Attaching Bottoms to Cylindrical Sheet-Metal Bodies; 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, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to an improvement in the art of attaching bottoms and tops to cylindrical sheet-metal vessels, such as coffee-pots, saucepans, fruit-cans, and the like, and will first be described, and then designated in the claim.

In the accompanying drawings, Figure 1 is a section of the bottom, showing its form previous to attachment to the body. Fig. 2 is a section of a tapering body and bottom placed together preparatory to their attachment. Fig. 3 shows the manner of attaching the bottom to the body, and illustrates the second stage of the operation. Fig. 4 is a section of a straight-sided body and bottom finished. Fig. 5 is a view of a straight-sided cylindrical vessel having both a top and bottom attached.

The letter A designates the cylindrical body of the vessel, which may be tapering or straight-sided. The body is seamed at *b* in the ordinary manner, and the lower edge, *c*, is left straight, as shown in Fig. 2. The circular bottom E is blanked out and pressed in one operation to form around the edge an inclined part, *f*, having an outward-curved portion, which spreads into a horizontal flange, *g*.

The bottom may be stiffened, if desired, by slightly convexing it.

The lower edge, *c*, of the body of the vessel, which, as seen in Fig. 2, is straight, sets around the tapering part *f* of the bottom, with which it comes in close contact (see Fig. 2) before it is fully down to the horizontal flange. In this position the body and the bottom are placed in the chuck of a spinning-lathe, as shown in Fig. 3, and the pressure of the chucks, bearing endwise on the body, brings the edge *c* fully

down on the flange of the bottom, so that the operation of locking the body in the lathe spreads or flares the edge *c* of the body, as seen in Fig. 3, as it is made to conform to the outward-curved portion of the tapering part *f* and flange *g* of the bottom.

Any suitable tool may be used to turn by the spinning process the flange *g* of the bottom. This tool consists, preferably, of a grooved roller, *i*, having the flange on one side of the groove projecting to a greater extent than the flange on the other side, and suitably mounted. This grooved roller is now brought to bear on the flange *g* of the bottom, (see Fig. 3,) which is thereby turned over so as to inclose the flared edge of the body, and is made to bear against the surface of the latter. Thereby the flared edge of the body is tightly clasped between the tapering part *f* of the bottom and its turned-over edge, as seen in Fig. 4. By this construction a base-rim, *n*, is formed, which supports the vessel, keeping the bottom from contact with any surface on which the vessel may be set, and is for this reason especially adapted for saucepans, kettles, and the like.

Both the construction shown and the several described steps which comprise the method are applicable to vessels which have two heads secured, such as fruit and oyster cans, as shown in Fig. 5. In such the flange of the two heads, by the use of a twin tool, like roller *i*, may be spun or turned up at one and the same time.

I am aware that in attaching bottoms to cylindrical sheet-metal bodies the bottom has had an angular flange formed around the rim, the outer edge of which is turned up at an angle to the plane of the bottom, and that the body has, by a separate operation, had a flange turned outward, which rests upon or against the flange of the bottom, while the edge of the body-flange abuts against the outer part of the bottom rim, which is turned up at an angle to the plane of the bottom, and that parts thus formed have both been turned or beaded over inward against the body. As compared with this my method has the advantage in that I save the operation of forming the outward-turned flange on the body, and also save the metal required for said flange and the opera-

tion of crimping in the outer edge of the bottom rim, which is turned up at angle to the plane of the bottom. Mine is therefore more expeditious and cheaper.

5 I am also aware that in other cases the circular bottom has been provided with a downwardly-projecting flange which is in contact with the inner side of the straight end of the cylinder-body, and that the flange of the bottom and edge of the body have been shown as
10 if both were turned outward, up, and over inward against the body, forming a double hollow bead. As compared with this my method has the advantage of not injuring the metal of
15 the bottom flange, as is done in the process just referred to, where the forming of the downwardly-projecting flange crimps in the edge of the metal, and then the turning of said flange outward, up, and over inward first
20 stretches and then crimps it—an operation of such severity that a low grade of tin will not stand it. Besides, by my method I save the metal required in the body to admit of turning its lower edge; and, further, by my method
25 a bottom can be attached to bodies which are either straight, tapering from bottom to top, or flaring from bottom to top; and, furthermore, both a top and bottom can be attached at once.

It will thus be seen that by my process quite an economy is effected where the manufacture is conducted on a large scale. 30

Having described my invention, I claim and desire to secure by Letters Patent of the United States— 35

The improvement in the art of attaching bottoms and tops to cylindrical sheet-metal vessels, consisting in stamping or pressing the circular bottom to form around the edge an inclined part having an outward-curved portion, which spreads into a flange, placing the end of the cylinder whose edge is straight or in line with the body around the inclined part of the bottom, with which it comes in close contact when only part way down, subjecting
40 the parts to a pressure which bears endwise on the body, thereby flaring its edge and conforming it to the shape of the bottom, and turning the flange of the bottom by the spinning process over inward against the body and so
45 as to inclose its flared edge, as set forth. 50

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

GEORGE W. KNAPP.

Witnesses:

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CHAS. B. MANN.