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R. F. SALISBURY
EXPANDING ROLLER TOOL

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FIG. 1.

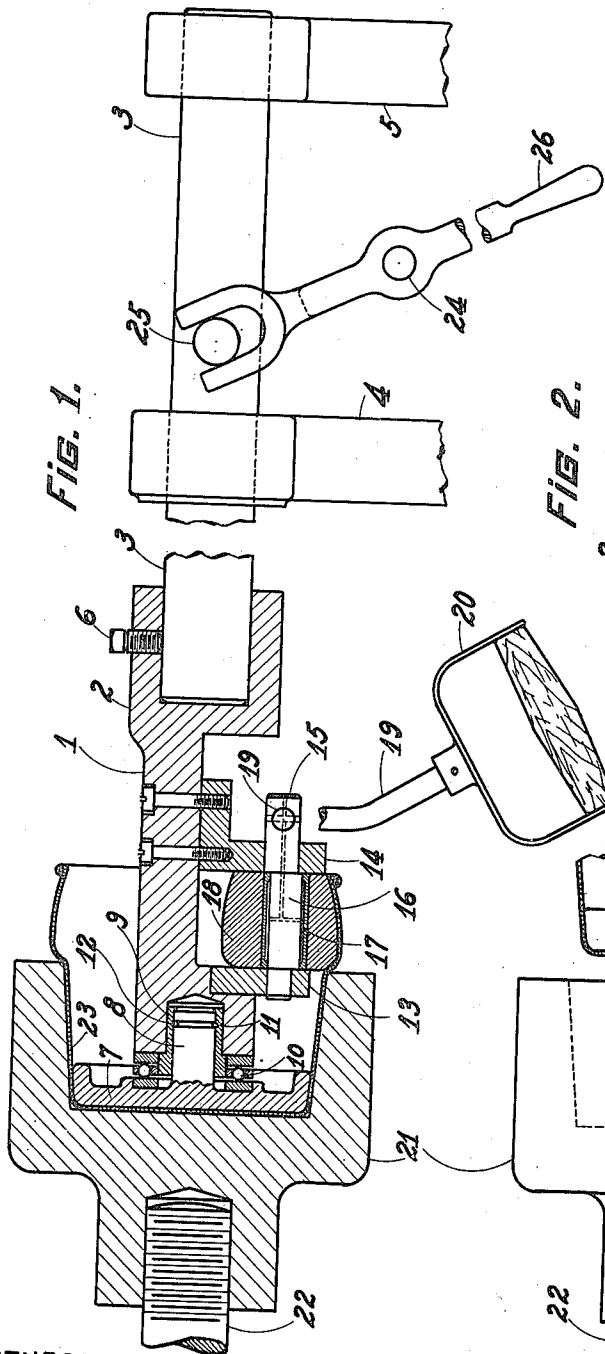
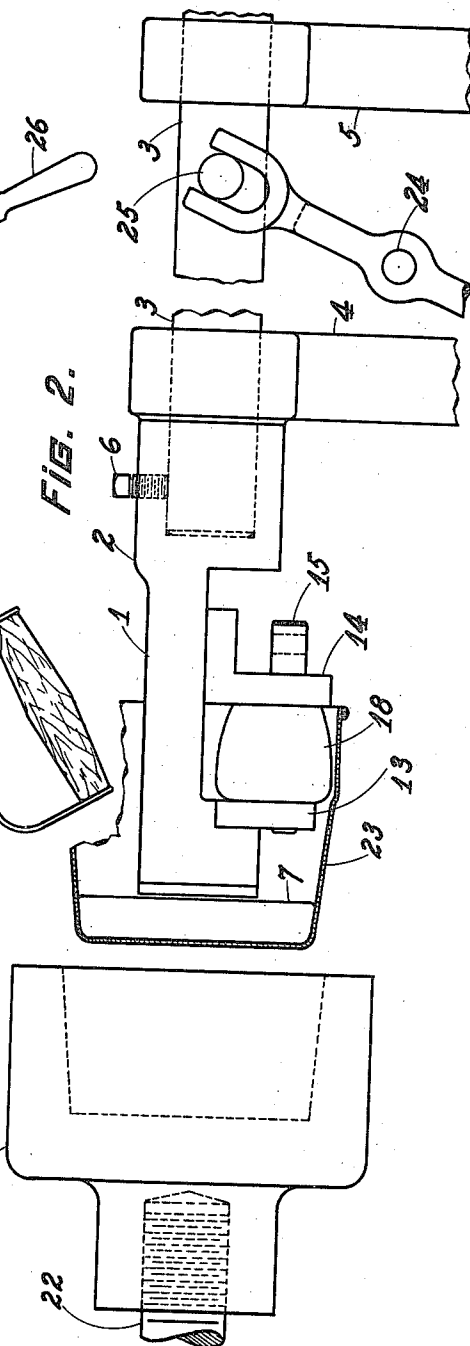


FIG. 2.



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ROBERT FLOYD SALISBURY, OF NEW KENSINGTON, PENNSYLVANIA, ASSIGNOR TO ALUMINUM COMPANY OF AMERICA, OF PITTSBURGH, PENNSYLVANIA, A CORPORATION OF PENNSYLVANIA.

EXPANDING ROLLER TOOL.

Application filed March 4, 1922. Serial No. 541,240.

To all whom it may concern:

Be it known that I, ROBERT F. SALISBURY, a citizen of the United States, and a resident of New Kensington, in the county of Westmoreland and State of Pennsylvania, have invented a new and useful Improvement in Expanding Roller Tools, of which the following is a specification.

This invention relates to expanding tools, and particularly to expanding tools of the roller type, and has for an object the provision of such a tool which is simple, durable, efficient in operation, cheap to manufacture, which is easily manipulated and repaired, and which consists of a minimum number of parts.

It is also an object to provide a tool in which the article operated upon will be positively held in position during the expanding operation, and in which expansion is quickly performed by a simple manipulation of the operative attending the machine.

These and other objects of the invention will more readily appear when taken in connection with the following description and the appended claims.

In the accompanying drawings Fig. 1 is a longitudinal sectional view with parts in elevation of the preferred embodiment of the machine showing the parts in position to firmly grip the article operated upon; and Fig. 2 is an elevational view showing the body and the expanding element in contracted position together with the blank form of the article operated upon before it is expanded.

The preferred embodiment consists of a body 1, having the recessed boss formed at one end by which it is attached to shaft 3, mounted for longitudinal sliding movement in the standards 4 and 5.

The body is locked to the shaft 3 by any suitable means as by set screw 6. The shaft 3 is prevented from turning, yet permitted to move freely in a longitudinal direction by employing any of the well known arrangements for such purposes, the details of which are not shown.

A center plate 7 having a central stem 8, is journaled in a bushing 9, fixed in a recess in the end of body 1 and a thrust bearing 10 is interposed between the extremity thereof and the said plate, the stem 8 being held against longitudinal movement by a

transverse pin 11 which cooperates with a groove 12 formed in the periphery of the stem.

A pair of spaced brackets 13 and 14 is attached to the body by any suitable means, the former being shown as welded and the latter as bolted thereto. Journaled in these brackets is a stub shaft 15 provided with a central portion 16, which is off-set or eccentric to the axis of the shaft. A bushing 17 encircles this central portion on which is rotatably mounted the expanding tool 18, whose periphery is shaped to produce the desired configuration in the article operated upon in a manner to be presently described.

In order to rotate the shaft 15 to move the central portion 16 and roller 18 towards and away from the axis of the body, a handle 19 is provided having a hand grip 20 at its outer end.

21 indicates a rotary chuck fixed to shaft 22 which is supported for rotary movement in any desired manner, not shown. In order to move the shaft 3 with its attached parts into cooperative relation with the chuck 21 so as to effectively grip the article 23 while being operated upon, and to operate the parts to release the article after being expanded, a lever fulcrumed at 24 is provided. One end of this lever is bifurcated so as to straddle the pin 25 projecting from the shaft 3, and its opposite end is equipped with the handle 26.

In the drawings the article operated upon is illustrated as a cup-shaped metallic cooking utensil 23, its form before expansion being shown by the dotted lines in Fig. 2 and its final form after expansion by the full lines in Fig. 1.

In operation the handle 19 is moved to rotate the shaft 15 to cause the central eccentric portion 16 and consequently the roller 18 to approach as near as possible the axis of the body 1. With the parts in such position the article 23 is clamped or gripped between the chuck 21 and center plate 7 by sliding the shaft 3 and body 1 longitudinally to the position indicated in Fig. 1. Rotation of chuck 21 causes rotation of the articles 23, the center plate being free to turn due to its mounting in the body. The handle 19 is then moved to force the expanding roller 18 into contact with the inner marginal surface of the article causing it to conform to

the outline of the periphery thereof, and assume the shape illustrated in Fig. 1. After the expanding operation has been completed, the roller is moved to its initial position and the finished article removed for the reception of another blank such as shown in dotted lines in Fig. 2 to be operated upon.

The device has been found particularly effective in expanding vessels of the shape illustrated and made of aluminum, such vessels being completely and finally shaped during a single revolution thereof.

Although the device shown and described is particularly designed for use in connection with the vessels of the shape illustrated, it is obvious that articles of various shapes may be expanded in a similar manner by making slight changes in the details of construction without departing from the spirit of the invention, and it is, therefore, not intended to limit the invention beyond that defined in the appended claims.

I claim:

1. An expanding tool comprising a chuck, a body provided with a center plate mounted in the body and adapted to cooperate with the chuck to hold an article operated upon, a stub shaft journaled in the body having an eccentric portion, an expanding roller rotatably mounted on the said eccentric portion, and means for rotating the shaft to move the roller towards and from the axis of said body.

2. An expanding tool comprising a chuck, a body capable of relative longitudinal movement with respect to said chuck, a center plate rotatably mounted in the end of the body and adapted to cooperate with the chuck to hold an article operated upon, a stub shaft journaled on the body and pro-

vided with an eccentric portion, and means for rotating the shaft to move the roller towards and from the axis of the body to make and break contact between the roller and said article.

3. An expanding tool comprising a rotatable chuck, a body mounted for longitudinal sliding movement, a rotatable center plate mounted at one end of the body and adapted to cooperate with the chuck to hold an article operated upon, a stub shaft journaled in the body and having an eccentric portion, an expanding roller rotatably mounted on the eccentric portion, means for rotating the shaft to move the roller into and out of contact with the said article, and means for longitudinally moving the body towards and from the chuck.

4. An expanding tool comprising a hollow rotatable chuck open at one end and adapted to partially embrace the exterior of the blank to be operated upon, a body mounted for longitudinal sliding movement, a rotatable center plate mounted at one end of the body and adapted to cooperate with the chuck to hold the blank operated upon, a stub shaft journaled in the body and having an eccentric portion disposed immediately adjacent the open end of the chuck, an expanding roller rotatably mounted on the eccentric portion, means for rotating the shaft to move the roller into and out of contact with the said article, and means for longitudinally moving the body towards and from the chuck.

In testimony whereof, I sign my name.

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Witnesses:

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