No. 793,213. PATENTED JUNE 27, 1905.

C. E. McMANUS.

GLASS BLOWER'S IMPLEMENT.

APPLICATION FILED JUNE 25, 1904.

Fig. 1.

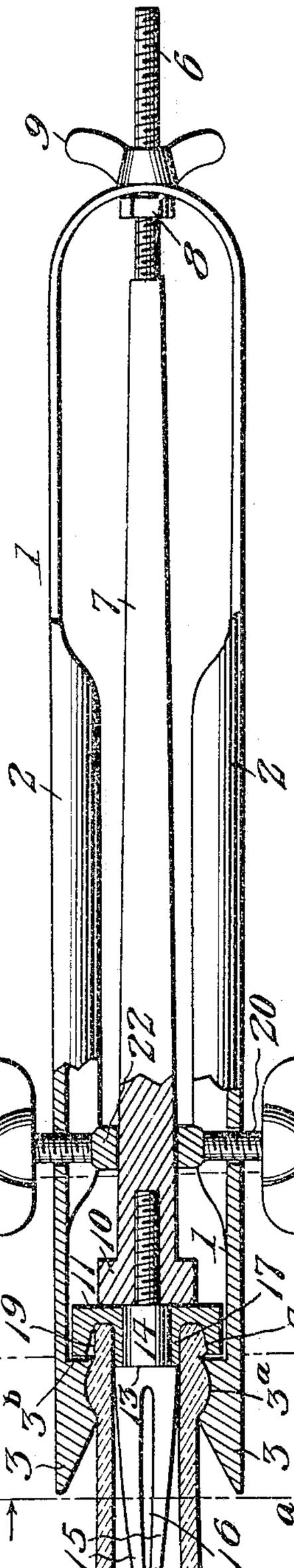


Fig. 8.

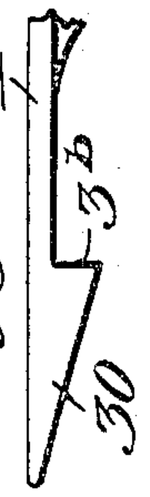


Fig. 7.

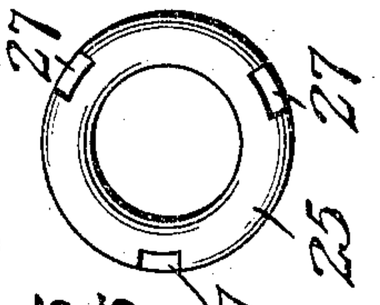


Fig. 6.

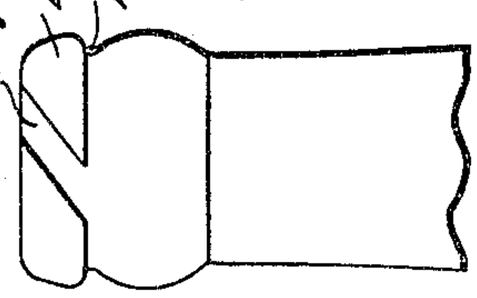


Fig. 4.

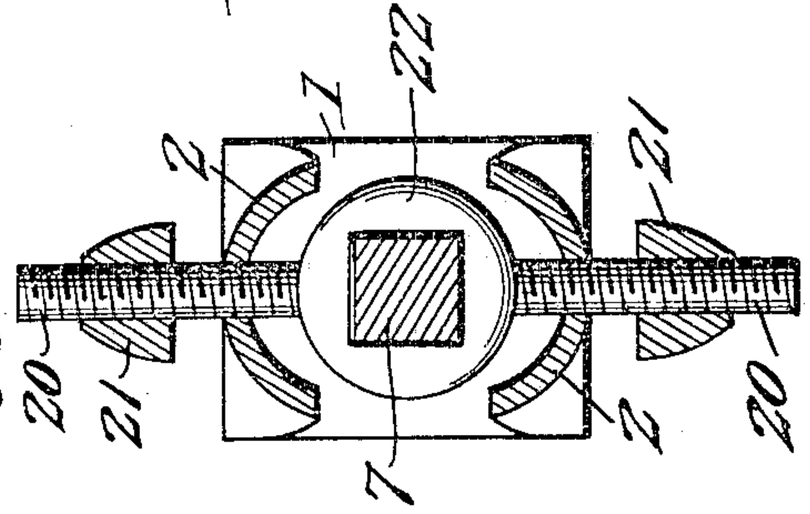


Fig. 3.

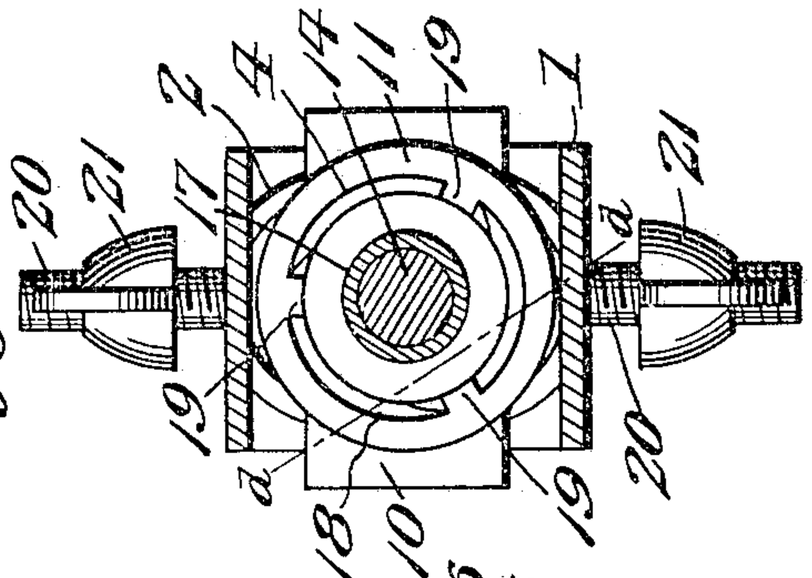


Fig. 2.

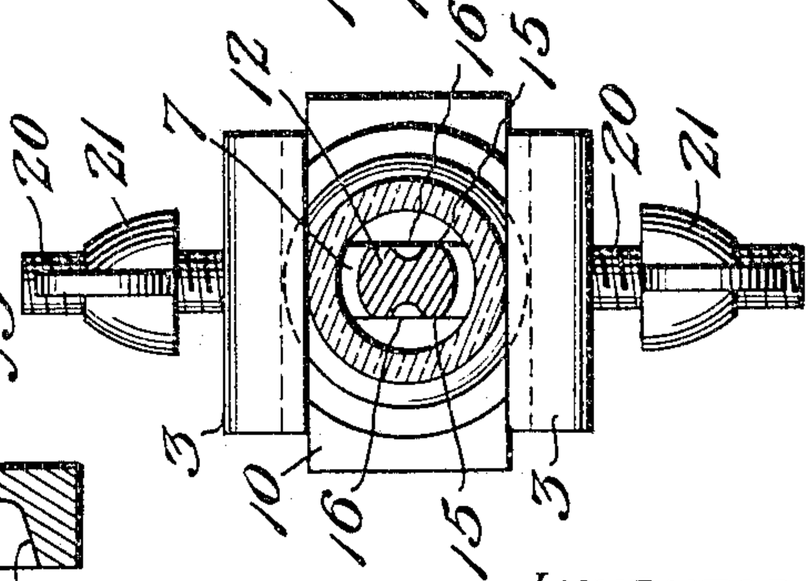
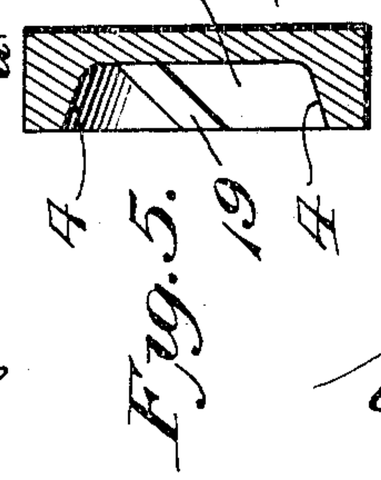


Fig. 5.



WITNESSES:

E. L. McKee

S. D. Hollingsworth

INVENTOR

Charles E. McManus

BY

Victor J. Evans

Attorney

No. 793,213. Patented June 27, 1905.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF FORTY-NINE PER CENT. TO FREDERICK WURTZ, OF NEW YORK, N. Y., AND JOSEPH T. STILES, OF PHILADELPHIA, PENNSYLVANIA.

GLASS-BLOWER'S IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 793,213, dated June 27, 1905.

Application filed June 25, 1904. Serial No. 214,167.

To all whom it may concern:

Be it known that I, CHARLES E. MCMANUS, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and useful Improvements in Glass-Blowers' Implements, of which the following is a specification.

This invention relates to a glass-blower's tool, commonly called a "grafter," for finishing the mouths of bottles, jars, and similar receptacles and molding beads thereon and grooves therein to receive a suitable closure for said receptacles.

This invention is also designed to form inclined grooves in one of the beads to receive a special form of cap, for which Letters Patent have been granted to me, dated June 14, 1904, No. 762,745.

The invention consists of the construction and arrangement of parts hereinafter described and claimed, and illustrated in the drawings, in which—

Figure 1 represents a view of the improved grafting-tool, partly in longitudinal section, with the neck of the bottle in place therein. Fig. 2 is a sectional view on the line *a a*, Fig. 1. Fig. 3 is a sectional view on the line *b b*, Fig. 1, with the bottle removed. Fig. 4 represents a sectional view on the line *c c*, Fig. 1. Fig. 5 is a cross-section on the line *d d*, Fig. 3. Fig. 6 is a view of the upper end of the bottle, illustrating the beads and grooves formed by the improved tool. Fig. 7 is a plan view of the same. Fig. 8 illustrates a modification of one of the forming-fingers.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 indicates a U-shaped plate of steel of suitable width for the purpose required and having its edges bent downward at 2 to form grasping-surfaces for the hand of the operator. The ends 3 of the U-shaped plate are enlarged to produce forming-fingers, having one or more grooves 3^a thereon, to bead the neck of a receptacle below its mouth and a sharp edge 3^b to form a groove below the uppermost bead. When beads other than the one at the mouth of a receptacle are not desired, the modified forming-finger 30 (illustrated in Fig. 8) will be used.

Projecting longitudinally through the center of the tool is a bar 7, threaded at its lower end and provided with a nut 8 on the inside of the bowed end of the tool and a thumb-nut 9 on its outer side, by means of which nuts the bar can be adjusted longitudinally. At the upper end of the bar near the forming-fingers 3 is an enlargement 10, against which a roller 11 rests and rotates.

The numeral 12 indicates a finger fastened to the bar 7 in the axial line thereof and tapered from its point beyond the forming-fingers 3 inwardly, as shown in Fig. 1, to a shoulder 13, from whence it is reduced in diameter to form a bearing 14 for the roller 11 and further reduced and threaded into the end of the bar 7. The sides 15 of the finger 12 are flattened and provided with a groove 16, the purpose of which will be hereinafter described.

The roller 11, which is formed with a hub 17, fitting the bearing 14, as hereinabove described, projects a short distance beyond the outer face of the roller and bears against the shoulder 13, the latter holding the roller on its bearing. The outer face of the roller 11 is countersunk or depressed at 18, the wall of said countersink having an outwardly-inclined taper, as illustrated in Figs. 1 and 5.

Lugs 19 project inwardly from the inclined surface of the roller 11, as indicated in Figs. 1 and 3, the side faces of each lug being parallel and inclined to the axis of rotation of the lug from its outer face to the bottom of the countersink. The inner faces of the lugs are curved and concentric with the axis of the roller, their bases resting in the angle formed by the bottom of the countersink and its inclined wall, while their outer ends lie in the same plane as the roller 11.

The forming-fingers 3 on the ends of the U-shaped bar 1, which latter, as above stated, is formed of spring metal, would, if not prevented from spreading, separate to such an

extent that it would be difficult to grasp them with the hand. Therefore means are provided for limiting the outward movement of the forming-fingers, which means comprises a cross-bar 20, threaded at each end and provided with thumb-nuts 21. An enlargement 22 is formed on the center of the cross-bar 20, through which the bar 7 passes.

In the operation of this invention, after a bottle has been blown and is still soft, it is picked up by a suitable tool and the finger 12 of the grafting-tool forced into the mouth of the receptacle, the forming-fingers 3 passing to the outside. If the receptacle is a bottle, the opening thereinto is smaller than desired; hence the necessity of the finger 12 to enlarge the opening. The grafting-tool is now compressed until the forming-fingers 3 bear against the outer surface of the neck of the bottle and either the bottle or the tool or both turned. The extreme end or mouth of the bottle enters the countersink in the roller 11, where the bead 25 on the bottle is formed, the groove 26 below the bead being produced by means of the sharp edges 3^b on the forming-fingers. Other beads are produced by the grooves 3^a on the forming-fingers 3. The bottle being in a soft putty-like condition the lugs 19 readily cut through the glass when the end of the receptacle is pushed into the countersink 18, so that when the bottle is rotated the roller 11 turns with it. The amount of rotation must be sufficient to complete the bead or beads and spread the soft glass into the countersink. After a bottle is finished, the forming-fingers are opened and the bottle withdrawn from the grafter by a slight turning movement, which causes the lugs 19 in the countersink to form the angular grooves 27 in the outer bead 28 of the bottle. To prevent the glass from adhering to the fingers 12, its flat sides 15 and grooves 16 are covered with a mixture of rosin and charcoal. A portion of the same mixture is placed on the forming-fingers 3, and, if necessary, the countersink 18 may be so treated.

The roller 11 can without difficulty be applied to bottle-forming machines as well as to a hand-tool and will work with equal facility thereon. While I have shown but three lugs on the roller 11, I do not wish to confine myself to this particular number, as various changes may be made without departing from the spirit of this invention.

Having thus described the invention, what is claimed as new is—

A tool for finishing bottle-necks and forming grooves therein inclined to the axis thereof, the same comprising actuating-handles, forming-fingers carried by said handles, a support also carried by the handles, a fixed tapered finger between said forming-finger, said fixed finger being provided with a shank connected with said support and having a shoulder at the base of its tapered portion and a journal between said shank and shoulder, and a forming-roller mounted on said journal and provided with an annular tapered recess opening through the front thereof, the inner wall of said recess projecting beyond the outer wall and mouth of said recess and forming with the inner rear wall of the roller a hub coextensive in length with the thickness of the body of the roller and arranged for rotation on said journal, said hub having a forward extension therefrom engaging the shoulder of the tapered finger, retaining the tapered finger beyond the recess and forming a shaping-surface and extended bearing, the outer and shorter wall of the recess being formed within the recess with lugs having their sides inclined to the axis of said roller.

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

CHARLES E. McMANUS.

Witnesses:

HUGH M. STERLING,

S. P. HOLLINGSWORTH.