

(No Model.)

2 Sheets—Sheet 1.

W. H. BARR.
MACHINE FOR FINISHING TUMBLERS, &c.

No. 527,924.

Patented Oct. 23, 1894.

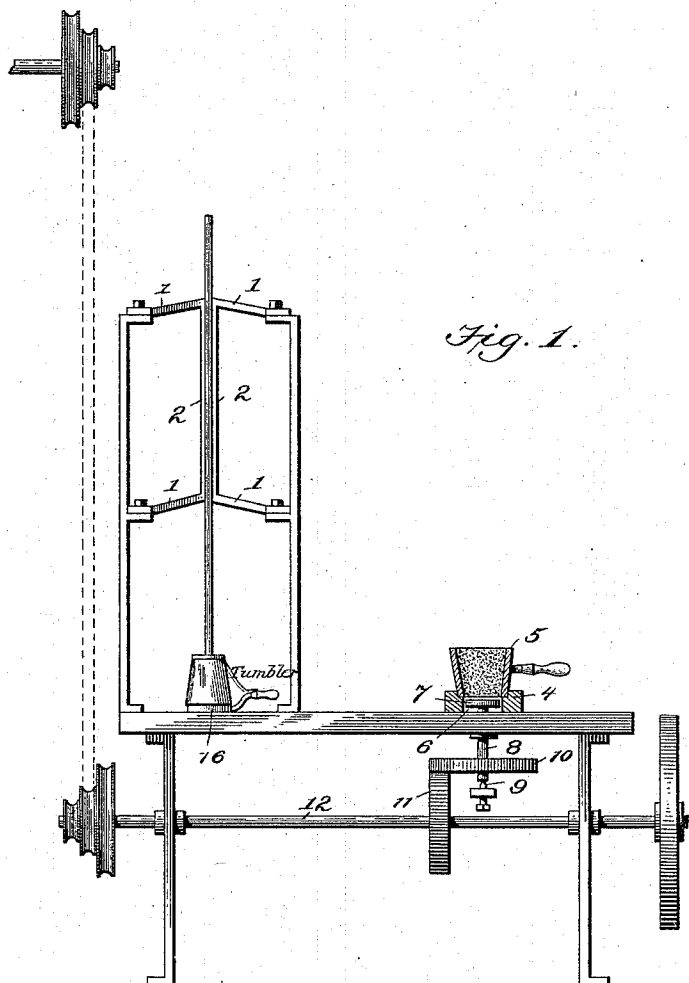


Fig. 1.

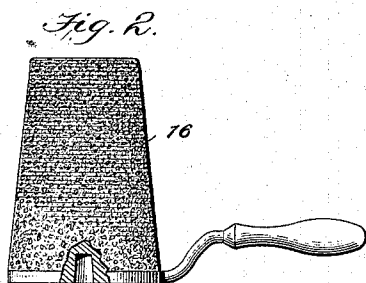


Fig. 2.

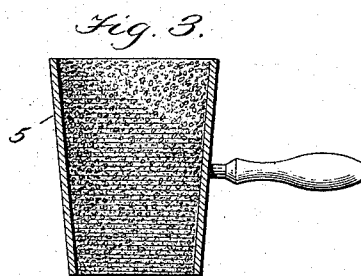


Fig. 3.

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Fig. 5.

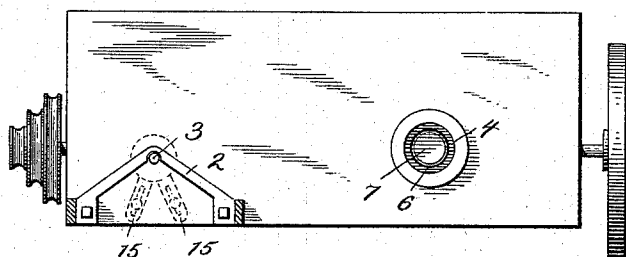


Fig. 4.

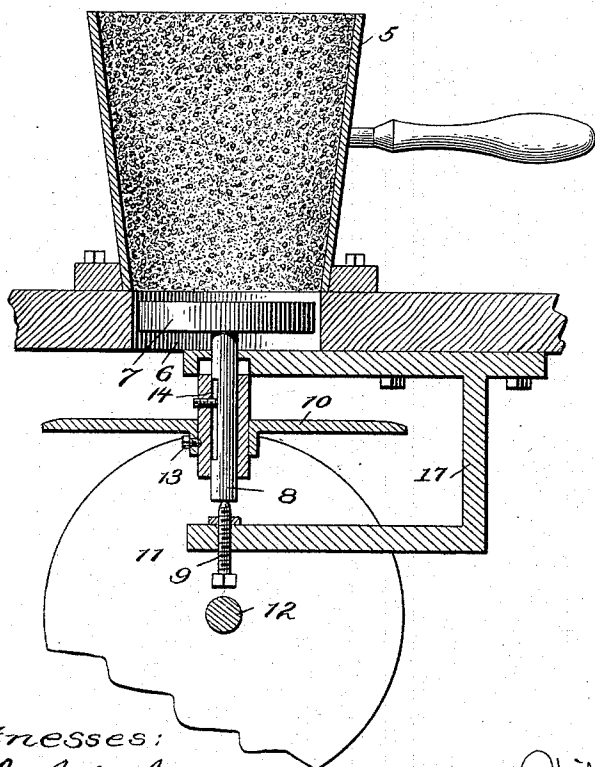
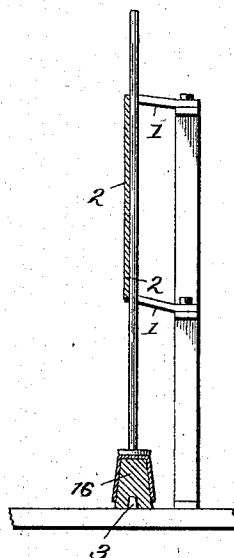


Fig. 6.



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UNITED STATES PATENT OFFICE.

WILLIAM H. BARR, OF TIFFIN, OHIO.

MACHINE FOR FINISHING TUMBLERS, &c.

SPECIFICATION forming part of Letters Patent No. 527,924, dated October 23, 1894.

Application filed June 11, 1894. Serial No. 514,222. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BARR, of Tiffin, in the county of Seneca and State of Ohio, have invented a new and useful Improvement in Machines for Finishing Tumblers, &c., of which the following is a specification.

The object of my improvement is to provide a machine for finishing reheated tumblers by a quick method of operation wherein I use the tools described in a patent granted to me February 9, 1886, but in a different and more advantageous way. These tools I designate as a forming-plug and a forming-cup and I have adapted a machine whereby they are used in successive steps in connection with devices co-related in the machine for the work. It will be understood that this work is the finishing of tumblers after they have been reheated in what is known as a "glory hole" furnace to melt and reduce its edge to a symmetrical form in the usual way. In this reheating operation the tumbler becomes distorted and is made more or less rough on its walls around the mouth and the purpose of my machine is to restore the tumbler to its perfect shape removing the seams and polishing it with rapidity and at comparatively little cost.

The accompanying drawings illustrate such machine, wherein—

Figure 1 is a vertical section, the reheated tumbler being shown in position upon the plug as the first step in the finishing operation. Fig. 2 shows the plug which is used in a fixed relation on the machine to receive the tumbler from the punty. Fig. 3 shows the cup which is used in a fixed relation on the machine and which receives the heated tumbler from the plug and subjects it to the second step in the finishing operation. Fig. 4 shows in enlarged section that part of the machine whereon the cup is used in fixed relation to a rotating disk. Fig. 5 shows a top view of the machine, the plug and the cup being removed therefrom; and Fig. 6 shows the device for centering the plug and the punty, whereby the tumbler is placed upon the plug and held thereon while the punty is knocked free of it.

The tools I use have walls of circular horizontal section, the plug conforming to the

inner walls of the tumbler and the cup to the outer walls of the tumbler and these tools have corresponding tapering walls. A table carries the co-related parts with which these tools are used in successive steps.

On one end of the table is erected a frame having cross-bars 1, 1 which form a vertical guide 2, within which to place the punty-stem carrying the red-hot tumbler to place it upon the plug; and on the table I secure a pin-guide 3 arranged to center the plug with the said frame-guide 2, as seen in Figs. 5 and 6. These guides co-operate with the use of the punty in a way and for the purpose which I shall presently state. On the table at its other end is fixed an annular seat 4 adapted to receive the finishing cup 5 and this seat is formed by a ring on the surface of the table and bounds a central opening 6. Within this opening 6 and free of its walls is mounted a horizontal rotating disk 7 upon the upper end of the shaft 8, supported on a screw-step 9, whereby the disk is made to form the means for supporting and rotating the tumbler within and against the walls of the cup, which is seated with its smallest end within the ring the walls of which are high enough to hold the cup firmly in position to hold the tumbler while being rotated therein against its walls. Beneath the table this shaft has a friction wheel 10, which is driven by a friction wheel 11, on a shaft 12, mounted horizontally and driven by a suitable power. I prefer cone-pulleys for driving this shaft 12 to provide for varying the speed of the disk to suit the work, and I prefer to drive the disk by friction gear because it gives a rapid and smooth speed to the tumbler upon the walls of the cup. I provide the step screw for vertically adjusting the rotating disk to support tumblers of different height in contact with the walls of the cup and I provide for adjusting the friction-wheel on the disk-shaft by means of the screw 13 and spline 14, to maintain the proper engagement of the friction wheels as the disk may be adjusted. This adjustment of the disk is important in order that the tumbler may rest by its weight upon the disk with the outer walls of the tumbler freely in contact with the downward tapering walls of the cup, so that the disk will rotate the tumbler by its weight upon the disk, the

taper of the tumbler allowing it to set down on the disk to bring the tumbler walls in rubbing contact with the cup-walls to give the finishing and polishing action to the tumbler.

- 5 In this operation it is important that the disk has no frictional contact with the walls of the cup or with the walls of the opening within which the disk rotates and that the latter forms no part of the cup, when set to the proper height in relation to the cup-seat and that the disk must have a fixed relation to the seat opening so as to support tumblers of the same size in exactly the same relation to the tapering walls of the cup to give the proper frictional contact of the tumbler upon the cup-walls, while the weight of the tumbler is upon the disk.

- 10 The weight of the article upon the disk, the surface of which is made rasped, and the slight roughness of the bottom of the article as it comes from the mold, gives a sufficient connection and adhesion of the article with the disk to rotate the article in frictional contact with the polishing cup.

- 25 The guide for centering the plug 16 may be a stud 3 placed in the table in vertical line with the frame guide 2 for the punty, or it may be formed by adjustable cleats 15.

- 30 The disk shaft is mounted in a bracket 17 secured to the under side of the table and I prefer to form an opening in the table for the rotating disk, in which case the ring-seat for the cup may be made on the table, as seen in Fig. 4.

- 35 The plug 16 and the cup 5 will be the size of the tumblers being made and each is provided with a handle by which it is used in their respective places on the table and for handling the tumblers as I will now describe. These cup and plug parts I prefer to make of cast iron and as a preliminary preparation for their use they are each on their active surfaces coated with a polishing substance which I prefer to make of fine ground cork dried upon a coating of linseed oil and shoe-makers' wax. The plug is so coated to prevent scratching of the tumbler and to allow it to slide freely upon the plug; while the inner wall of the cup is so coated to allow the tumbler to be freely rotated within the cup and to be polished and perfectly formed thereby without being scratched. The polishing surface is renewed from time to time, and both the plug and the cup are kept cool to prevent sticking to the walls of the article.

- 55 The work on the machine can be done by boys and it will be understood that the plug is placed on the table and centered by the guide 3 with the guide 2 of the vertical frame. The tumbler is removed from the mold by sticking the punty-head upon the bottom of the tumbler and then carried to have its edge melted in the usual way. The punty by its stem is then placed and held vertically in the guide 2, and the hot tumbler is thereby slid centrally down upon the plug so that the tumbler will not strike on its side upon the plug

which would tend to dent or scratch the tumbler. While the tumbler is thus supported upon the plug, the punty is knocked off by a light tap of a hammer upon the punty-stem leaving the tumbler upon the plug. The plug is then carried by its handle and the tumbler turned therefrom into the cup within which it freely fits so that the bottom of the tumbler rests upon the disk, which rotating, instantly and rapidly revolves the tumbler in contact with the inner walls of the cup, thereby giving perfect form and a polished surface to the tumbler, and, for this finishing operation in the cup, only a few revolutions of the tumbler is necessary. Meanwhile the plug is placed upon its centering-pin, the cup is removed from its seat, the tumbler turned out of it and is ready for the tempering oven. The cup is then replaced upon its seat to continue the operation. It will be understood that the punty-head is coated with glass and kept hot to cause it to stick to the bottom of the tumbler, and the object of the guide frame is to render it easy and certain that the tumbler, which is in a red-hot condition, shall be placed straight and centrally, by its holding punty, upon the plug, so that the walls of the tumbler shall not be distorted in placing it upon the plug, as would be liable to occur if the tumbler were not so centrally guided.

The fixed relation of the plug to the table guide and to the guide-frame, also gives the advantages of supporting the tumbler while knocking the punty off. In this way the tumbler is placed and operated upon by the machine to finish the shape and polish the tumbler after its edge has been subjected to the melting heat. In this work of the machine the first step is to truly place the tumbler upon the plug which holds it on the table so that the punty can be knocked off the tumbler; and the second step is to put the tumbler in a fixed cup wherein it is rotated by the operation of a rotating support which makes true and perfect the outer wall of the tumbler. In the first step it is important to notice that in placing the tumbler upon the plug, the weight of the tumbler, supplemented by the weight of the punty, will aid the workman in placing the tumbler truly and holding it to knock it off the punty; and that in the second step the tumbler is rotated automatically upon the tapering walls of the cup to both shape and to polish it, the said steps being in successive order in placing and using the tools on the table, so that while one tumbler is being finished on one part of the machine another tumbler may be operated upon by the other part of the machine and in this way the work is made continuous and rapid. In this work it will be understood that the disk is continuously rotated and that the tumbler is turned into the cup upon the disk so that the tumbler sets fully down into the cup, and being in a more or less malleable condition, its walls will be quickly re-formed,

polished and the seams removed by the action of the hard smooth coating on the walls of the cup.

5 The plug has a center opening 17 in its bottom to fit over the centering-pin 3.

I claim as my improvement—

10 1. In a machine for finishing tumblers the combination of a table having a surface-ring-seat, with a removable cup adapted to be
15 freely seated upon and removed from said seat, a disk rotatively supported within said ring-seat free of the cup and means for rotating said disk to revolve the article supported thereon in contact with the walls of said cup.

20 2. In a machine for finishing tumblers, the combination of a table having a surface stud 3, with a frame having a guide 2 in co-incident relation to the surface stud and a plug for supporting the tumbler whereby to form
25 a centering device for a plug removably placed upon said table stud and for the use

of a punty, in the way and for the purpose described.

3. A machine for finishing tumblers, consisting of a table having thereon a centering 25 device for a removable plug, a vertical frame having a guide in co-incident relation to said centering device, a ring-seat adapted to confine a removable cup upon said table, a disk rotatively supported within said ring-seat, 30 and means for rotating said disk, the article being operated upon in successive steps as stated to finish it in the way described.

4. In the process of finishing glass articles a finishing former having its active surface 35 composed of fine particles of cork and a base or ground composed of linseed oil and shoemakers' wax.

WILLIAM H. BARR.

In presence of—

J. G. WAY,

GEORGE BEATTY.