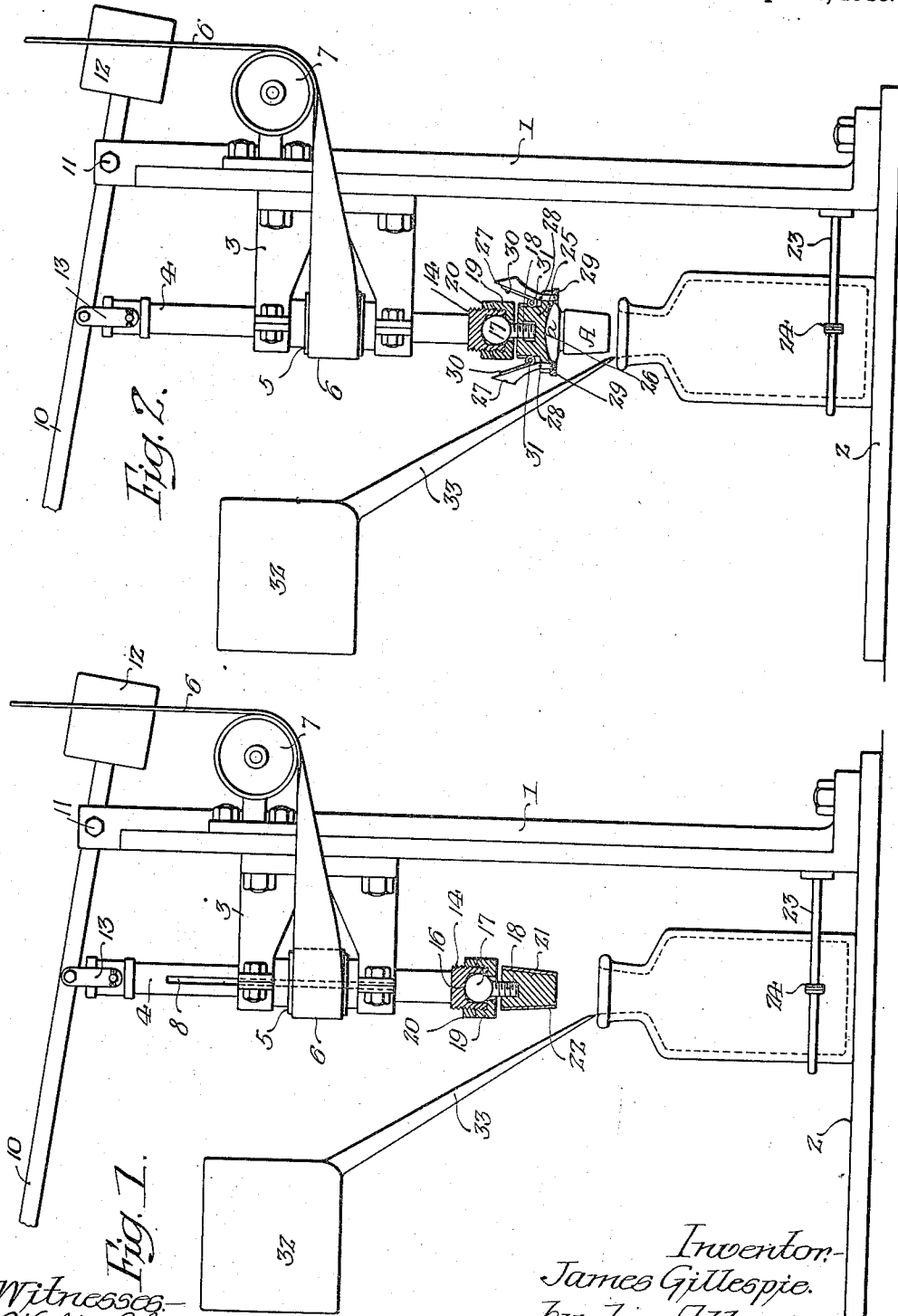


J. GILLESPIE.
GRINDING APPARATUS.
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1,059,862.

Patented Apr. 22, 1913.



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UNITED STATES PATENT OFFICE.

JAMES GILLESPIE, OF BRIDGETON, NEW JERSEY.

GRINDING APPARATUS.

1,059,862.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES GILLESPIE, a citizen of the United States, and a resident of Bridgeton, Cumberland county, New Jersey, have invented certain Improvements in Grinding Apparatus, of which the following is a specification.

My invention relates to grinding apparatus, and consists of an improved device designed to grind the necks of glass bottles, which structure is also available for grinding into their seat the glass stoppers to fit such bottles. These and other features of my invention are more fully described hereinafter, reference being had to the accompanying drawings, in which:

Figure 1, is a side elevation of the apparatus arranged to grind the necks of glass bottles, and Fig. 2, is a similar elevation of the same apparatus, showing the same arranged to effect the fitting or grinding of stoppers to fit their respective bottles.

The machine comprises a main standard 1, secured to a suitable base 2, and carrying a bracket 3 having suitable bearings for the support of a shaft 4. The shaft carries a pulley 5 whereby it may be driven by a belt 6 from some suitable source of power; such belt passing around an idler 7. The pulley may be provided with a suitable spline, key or feather engaging a groove 8 in the shaft whereby the latter may be raised or lowered at will, while turning, by means of a lever 10, pivoted to the standard at 11, having a counter-balance 12, and suitably connected to said shaft by means of links 13.

The lower end of the shaft may be enlarged and threaded as indicated at 14, and the bottom of the same may be bored to form a socket 16 for the reception of the head 17 of a stud 18, held in place by a cup-shaped collar 19, which may be retained against movement by a suitable lock nut 20. The stud is preferably keyed in place, which may be readily accomplished by flattening one side of the head 17 of the same so that it only rotates when the shaft is driven, but is substantially free to rock to afford the necessary and desired universality of the connection. The stud carries a plug 21, preferably tapered in shape which is designed to enter the neck of the bottle, and when the shaft is rotated, such plug effects the grinding and smoothing of such neck.

The stud may be covered by a sleeve 22 of a harder metal to constitute the actual wearing part.

The bottle may be supported in a suitable chuck or frame, comprising arms 23 with leather contacts 24; such chuck being provided with suitable fastening means whereby it may be firmly secured to the bottle to hold the latter in a fixed position with respect to the grinding device.

In Fig. 2, I have shown a form of chuck for holding a stopper A. This member is attached to the stud 18 and consists of a body element 25, socketed at 26 to receive the stud, with a pair of levers 27 pivoted to said body at 28, and carrying jaws 29 adapted to engage the head *a* of the stopper. Springs 30 pivoted to the body element at 31 are provided to hold said jaws inwardly so as to grip the head of the stopper and insure that such stopper is held against movement independently of the shaft. It will be understood, of course, that a grinding tool or element of the character illustrated at 21, in Fig. 1, might be held by said jaws 29 in the same manner as the stopper is held.

In each instance, an abrading agent is fed to the tool or stopper, as the case may be, and for this purpose, I provide a suitable receptacle such as 32, having a spout 33 leading to the open mouth of the bottle.

In the operation of grinding the bottle necks, the bottle is set in place, and then the grinding element is rotated and lowered into the grinding position with respect to the bottle neck, while sand or other abradant and water are simultaneously directed thereto from the tank 32. The lever 10 is then lowered by the operator, and the plug enters and grinds the neck of the bottle.

By the use of a ball and socket or universal joint, the grinding plug is self-centering, and much time and expense is saved over the old style of lathe grinding formerly practised. Downward pressure applied by the lever effects a more uniform and effective action of the grinding tool than the old forms of lathe devices.

It will be understood, of course, that the bottles are roughly shaped before the grinding operation is commenced, and that the stoppers are semi- or completely finished to substantially the same taper as the

ground bottle neck; the grinding in of said stoppers insuring that they will fit the bottle.

Sand and water may be employed in the grinding of the bottle necks, but in the grinding of the stoppers into place, it is preferable to employ emery or other suitably fine abrasive material to obtain a close fitting joint between the stopper and bottle neck.

I claim:

1. The combination of a standard forming a support for a bottle, a vertical shaft, a grinding tool, a ball and socket joint between said shaft and the grinding tool, means for driving said shaft, and means for introducing said grinding tool into the neck of the bottle.

2. The combination of a bottle support, a vertical shaft, a support for the same, means for driving said shaft, a ball and socket joint carried by said shaft, a grinding element secured to said ball and socket joint, a lever for lowering the shaft to bring the grinding element into contact with the bottle, a weight carried by said lever to automatically raise the shaft and grinding element after the grinding operation is completed, and means for introducing an abradant to the point of grinding.

3. The combination of a standard, a bot-

tle support carried thereby, a vertically movable shaft, means for driving the same, means for raising and lowering said shaft, a universally jointed stud carried by said shaft, a grinding element, a plurality of pivoted jaws carried by said stud for engaging said grinding element, a lever for lowering the shaft to operate the grinding tool, a weight carried by said lever to automatically raise the shaft and grinding element after the grinding operation is completed, and means for introducing an abradant at the point of grinding.

4. The combination of a standard, a bottle support carried thereby, a vertically movable shaft, means for driving the same, means for raising and lowering said shaft, a universally jointed stud carried by said shaft, a grinding element, a plurality of pivoted jaws carried by said stud for engaging said grinding element, springs carried by said stud for operating said jaws, and means for introducing an abradant at the point of grinding.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses.

JAMES GILLESPIE.

Witnesses:

L. L. STOKES,

J. L. SHOEMAKER.