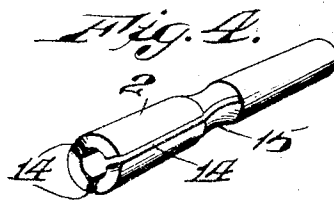
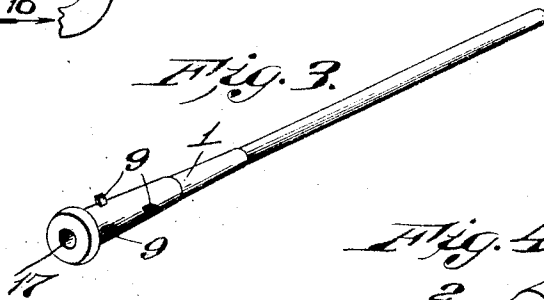
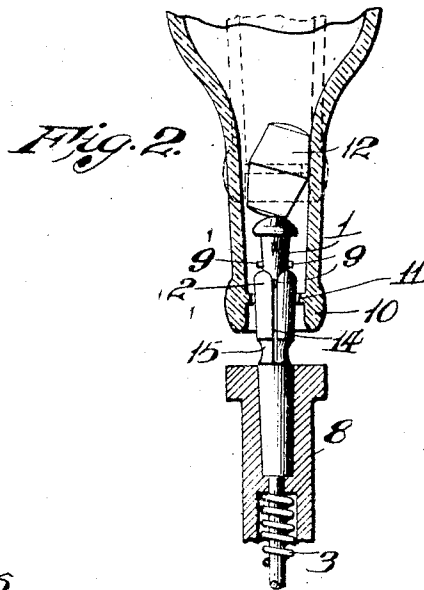
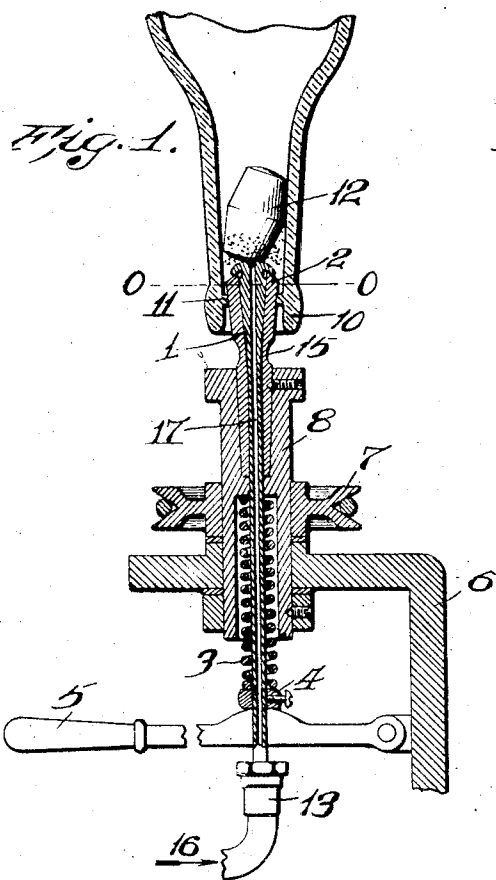


L. J. CRECELIUS.
BOTTLE GRINDING DEVICE.
APPLICATION FILED APR. 19, 1909.

989,124.

Patented Apr. 11, 1911.



Witnesses.
Peter Veldow
Bruno Nitsch

Inventor.
Louis J. Crecelius
By Edward C. Knight
Attorney

UNITED STATES PATENT OFFICE.

LOUIS J. CRECELIUS, OF ST. LOUIS, MISSOURI, ASSIGNOR OF ONE-HALF TO CHARLES A. THOMPSON AND ONE-HALF TO ERNEST C. JANSSEN, BOTH OF ST. LOUIS, MISSOURI.

BOTTLE-GRINDING DEVICE.

989,124.

Specification of Letters Patent.

Patented Apr. 11, 1911.

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To all whom it may concern:

Be it known that I, LOUIS J. CRECELIUS, a citizen of the United States of America, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Bottle-Grinding Devices, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention relates to a device for grinding stopper seats in bottles that contain imprisoned stoppers, conical in shape, and in connection with which it is necessary to provide a tapering seat within the mouth of the bottle neck in order that the stopper may fit perfectly tight within the mouth of the bottle when it is moved to the seat provided for it.

Figure 1 is a longitudinal or vertical section through my grinding device with a bottle applied thereto and the device shown as it appears in grinding operation. Fig. 2 is in part a section and in part an elevation of the grinding tool and its support, the tool being shown as it appears when it is entered into the mouth of the bottle. Fig. 3 is a perspective view of the mandrel. Fig. 4 is a perspective view of the grinding tool. Fig. 5 is an enlarged cross section taken on line C-C, Fig. 1.

In the accompanying drawings: 10 designates the neck of a bottle within which, adjacent to the mouth of the neck, is a stopper seat rib 11 upon which the grinding tool of my device is adapted to operate for the purpose of providing such rib with a ground and perfectly accurate stopper seat that is of less diameter at the outer edge of the rib than the diameter at the inner edge of the rib in order that the imprisoned stopper 12 in the bottle may, after the rib is ground to provide for the desired seat, fit snugly in the rib with such degree of precision as to produce a water and air tight joint between these members.

Referring now to my grinding device, 6 designates a part of a frame that serves as a support for a hollow spindle 8 that is revolvably mounted in the frame and upon which is a pulley 7 to which power may be applied for the operation of the spindle.

2 designates a tubular grinding tool having a shank that is seated in a socket in the spindle 8 and is secured to said spindle in

any suitable manner in order that it will rotate with the spindle, the means shown in the drawings Fig. 1 for holding the shank of the tool to the spindle being a set screw. The grinding tool is provided with a tapered expansible head, the expansibility of the head being acquired by the provision of longitudinal slots 14 therein and the weakening of the tool at the junction of its head and shank, as seen at 15. The end of the head of the grinding tool is beveled, as most clearly seen in Fig. 1.

1 designates an expanding rod extending longitudinally through the spindle 8 and the grinding tool 2, this expanding rod being provided with a tapering head that is of greatest diameter near its end and which is operable in the expansible head of the grinding tool. The head of the expanding rod is provided with spurs 9 which seat in the slots 14 in the grinding tool head and therefore serve to connect the expanding rod and the grinding tool so that they will rotate together upon rotation being imparted to the spindle 8 to which the grinding tool is attached. At the termination of the head of the expanding rod is an annular flange having a beveled lower or rear face that is adapted to be drawn to the beveled end of the head of the grinding tool for the purpose of holding the sections of the expansible head of this tool in accurate adjustment to provide for the external faces of these sections all being present in a true circle. The expanding rod is provided with a duct 17 extending longitudinally therethrough and which is connected at its lower end, through the medium of a coupling 13, to a pipe 16 through which the grinding or abrasive substance that is to be used in the grinding operation is conducted to the expanding rod to pass therethrough into the bottle that is to be operated upon.

3 designates a draw spring surrounding the expanding rod 1 and preferably partially seated in the spindle 8 against which one of its ends rests. The other end of the spring rests against a collar 4 fixed to the expanding rod. 5 is a lever for imparting longitudinal movement to the expanding rod 1, the lever being preferably pivoted to the frame 6 and bearing against the collar 4.

In the practical use of my grinding device, a bottle that is to be operated upon is applied to the device, as seen in Fig. 2,

while the head of the grinding tool 2 is in a contracted condition that is acquired due to longitudinal or upward movement of the expanding rod 1 so that its tapered head is withdrawn from, or partially withdrawn from, the expanding head of the grinding tool, thereby permitting movement of the sections of the grinding tool head toward each other. The movement of the expanding rod just referred to is obtained by the actuation of the lever 5 so that it, by pressing against the collar 4, will move the expanding rod from the position seen in Fig. 1 to the position seen in Fig. 2. After this movement of the expanding rod, the spring 3 is compressed and power stored therein. Then, when the lever 5 is released, the spring 3 expands and by pressure against the collar 4 acts to return the expanding rod to its normal position; with the result that the head of this rod performs the service of expanding the head of the grinding tool and the annular flange at the end of the head of the rod becomes so fitted to the beveled end of the head of the grinding tool as to draw the sections of the last mentioned head into true adjustment relative to each other. The parts of the device are now in condition for service and a supply of grinding or abrading material is delivered into the bottle through the pipe 16 and the duct in the expanding rod, the grinding material used being preferably in liquid form and consisting, for instance, of carborundum, or other suitable grinding substance mixed with water, and which by constant entrance into the bottle serves to supply grinding material to the working face of the grinding tool head in order that the rib 11 may be provided with the desired stopper seat, due to the action of the grinding substance thereon. After the stopper seat has been ground, the expanding rod 1 is again moved to the position seen in Fig. 2, thereby permitting contraction of the head of the grinding tool in order that the bottle may be withdrawn from the tool.

The grinding tool of my device may be made of any suitable material, but is preferably of steel. While this part of the device is herein termed a grinding tool, it is to be understood that it does not of itself, strictly speaking, perform abrading action upon the surface to be ground, as the office of causing the grinding material that is delivered into the bottle through the grinding device to perform its function in grinding the bottle in the manner similar to that in which such function would be performed if the grinding or abrading substance was integral with the grinding tool.

I claim:—

1. The combination of a rotatable expandible grinding member, a member for expanding said grinding member, and means providing for the delivery of grinding material through said device.
2. A device of the character described, comprising a rotatable expandible grinding member, and a member for expanding said grinding member, provided with a duct through which grinding material may be conducted.
3. In a device of the character described, a spindle, a grinding tool carried by said spindle and having an expansible head, an expanding rod operable in the head of said grinding tool to expand said grinding tool head, one of said parts being provided with means whereby said parts are prevented from rotation relative to each other.
4. In a device of the character described, a spindle, a grinding tool carried by said spindle and having an expansible head, an expanding rod operable in the head of said grinding tool to expand said grinding tool head, and said expanding rod being provided with means whereby it is connected to said grinding tool.
5. In a device of the character described, a spindle, a grinding tool carried by said spindle and having an expansible head, an expanding rod extending through said spindle and operable in the head of said grinding tool, a lever for moving said expanding rod in one direction, and a spring for moving the expanding rod in the opposite direction.
6. In a device of the character described, a spindle, a grinding tool carried by said spindle and having an expansible head, and means for conducting grinding material through said expansible head.
7. In a device of the character described, a spindle, a grinding tool carried by said spindle and having an expansible head, a hollow expansion rod operable in the head of said grinding tool, and means for conducting grinding material to and through said expansion rod.
8. In a device of the character described, a spindle, a grinding tool carried by said spindle, and having an expansible head, an expansion rod operable in said grinding tool to expand its head, and spurs carried by said expansion rod for connecting it to said grinding tool.

LOUIS J. CRECELIUS.

Witnesses:

PETER VELDON,
BRUNO FRITSCH.