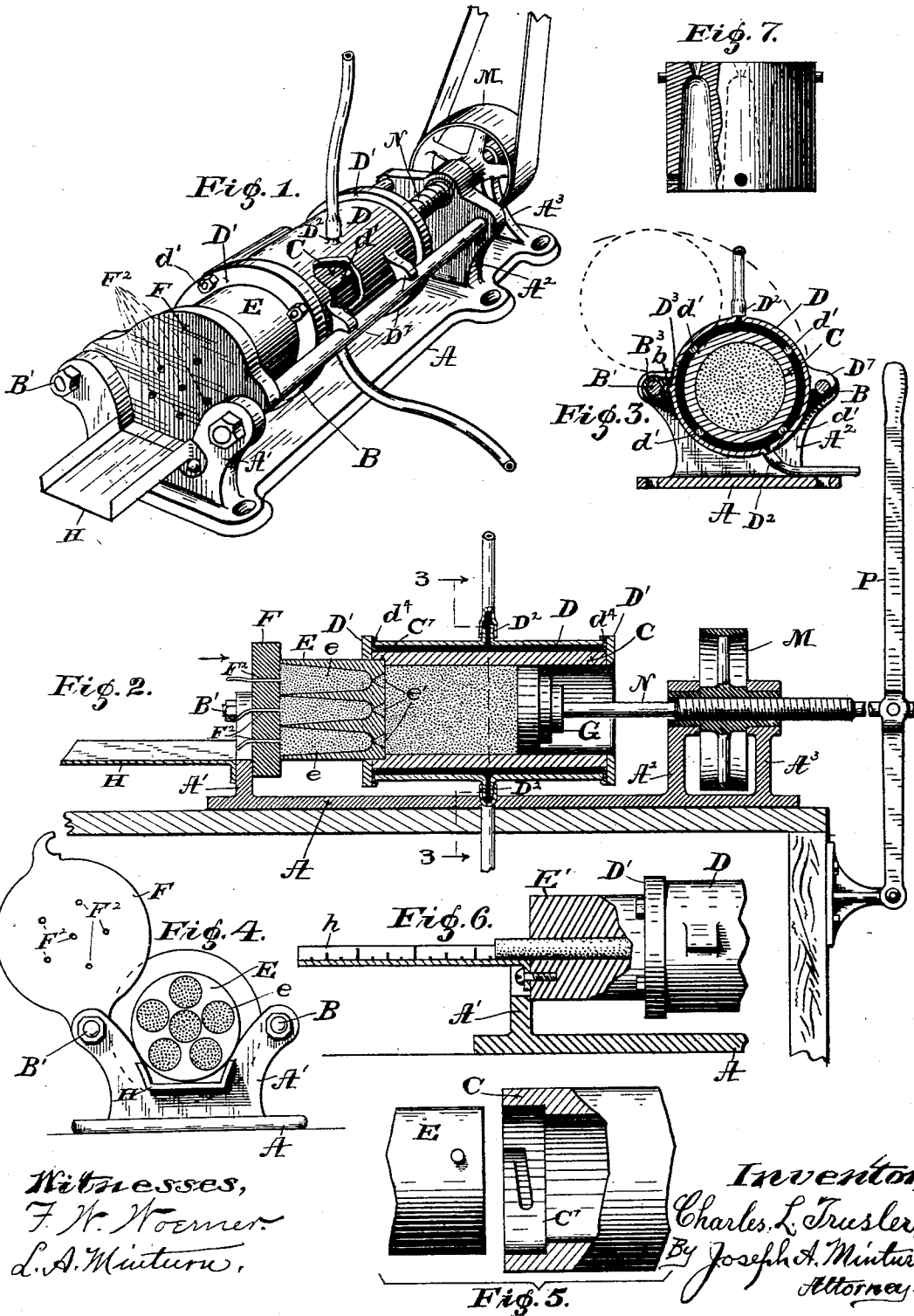


(No Model.)

C. L. TRUSLER.
SUPPOSITORY MACHINE.

No. 580,021.

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UNITED STATES PATENT OFFICE.

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SUPPOSITORY-MACHINE.

SPECIFICATION forming part of Letters Patent No. 580,021, dated April 6, 1897.

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To all whom it may concern:

Be it known that I, CHARLES L. TRUSLER, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Suppository-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in that class of machines for making suppositories and bougies in which the cacao-butter containing the medicament is placed in a cylinder and is forced thence into proper molds at the end of the cylinder by screwing a plunger into the cylinder.

The objects of the invention are, first, to provide means for lowering the temperature of the mass from which the suppositories and bougies are made in order that the process of manufacture can be carried on during hot weather. This is important in view of the fact that the cacao-butter, which enters largely into the composition, melts at about the temperature of the human body, and in consequence is too warm to work during a large portion of the year.

A second object of the invention is to provide means whereby the person operating the machine in the manufacture of suppositories can know when the suppositories are finished and stop the inward progress of the plunger before the undue pressure breaks the machine.

A third object of the invention is to provide means whereby the plunger can be screwed into the cylinder by steam or other than hand power without danger of breaking the machine.

The object also is to improve the various details of the mechanism in a manner such as will be described in the specification and pointed out in the claims.

I accomplish the objects of the invention by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of my suppository-machine and shows a portion of the outer cylinder forming the water-jacket broken away to show the interior. The hand-

lever is omitted in this view. Fig. 2 is a view in longitudinal vertical section of the machine with dies inserted for making suppositories. Fig. 3 is a transverse section on the line 3 3 of Fig. 2 and in dotted lines shows the cylinder raised out of its operating position. Fig. 4 is an end view of the machine as shown in Fig. 2, looking in the direction of the arrow. The figure shows the cut-off plate in its raised position preparatory to the discharge of the finished suppositories from the molds onto the tray. Fig. 5 is a detail showing the bayonet-joint fastening of the mold to the cylinder. Fig. 6 is a detail, partially in vertical longitudinal section, of the machine as adapted for making bougies; and Fig. 7 shows a modified construction of mold for molding suppositories in which the openings to indicate when the molds are full and the suppositories complete are formed through the walls of the mold instead of being made through the cut-off plate.

Similar letters of reference indicate like parts throughout the several views of the drawings.

A is the base upon which the mechanism of the machine rests. It is provided with the vertical standards A' and A², which are preferably cast integral with the base, though not necessarily so. These standards are connected together by means of the parallel bars B and B', and mounted on the bar B' is the tubular casting B³, having a longitudinal groove b, as shown in Fig. 3.

C is the cylinder of the machine within which the ingredients from which the suppositories are to be made are placed.

D is a second cylinder surrounding the cylinder C and separated from it so as to leave a space between the two cylinders for the circulation of water and forming a water-jacket around the cylinder C.

The two cylinders C and D are connected by means of the rings D', which are held together and drawn tightly against the ends of the two cylinders by means of the bolts d'. To make a water-tight joint, the gaskets d², of rubber or other good packing material, will be interposed between the ends of the cylinders and the rings.

The cylinder D will have the two nozzles D², to the upper one of which a flexible tube

will be fastened and will be connected with an elevated tank of ice-water or with some other supply, and to the lower nozzle a flexible tube will be fastened and will carry off
 5 the water into the waste-pipe of a sewer, or into a vessel, to be collected and used over again. A constant circulation is thus produced and the inside cylinder kept at a low temperature. The outside cylinder D will
 10 also be provided with the longitudinal outside flange D³ and the diametrically opposite ears D⁷. The flange D³ will fit into the groove b in the casting B³ and will support one side of the cylinder when the latter is in its working
 15 position between the two bars B and B', as shown in Figs. 3, and the opposite side of the cylinder will be supported by the ears D⁷.

The above construction will enable the cylinders to be removed from the frame of the
 20 machine by first elevating them into the position as shown by the dotted lines in Fig. 3. This is desirable for convenience in filling the cylinder with the cacao-butter containing the medicament from which the suppositories are to be made, as it enables the
 25 cylinder to be placed in a vertical position during the filling process.

E is a cylinder within which cavities or molds e, of a size and shape conforming to
 30 the size and shape of the desired suppositories, are formed. These molds are conical in shape, and leading into the apex of the cones are the perforations e'. The cylinder E is inserted into the end of the cylinder C,
 35 the smaller ends of the cones being toward the inside, and the contents of the cylinder C are forced through the perforations e' until the molds are filled. The outer ends of the molds e are closed by means of the cut-off
 40 base-plate F. This base-plate F is hinged to the bar B', whereby it can be turned back, so as to uncover the ends of the molds, as shown in Fig. 4. The cylinders E and C are fastened together by means of a bayonet-
 45 joint, as fully illustrated in Fig. 5. A shoulder C⁷ provides an offset that keeps the soft contents of the cylinder C from being pressed out around the sides of the cylinder E.

G is a plunger working in the cylinder. It
 50 is forced in by means of a screw, and heretofore with machines of this class the pressure exerted has been sufficient to break the machine, because the operator had no means of
 55 knowing when the suppositories were completely filled out in the molds. An excess of pressure was almost unavoidable. I have found that by providing perforations F² through the cut-off base-plate F, one opposite
 60 each of the molds, I am able to tell when the molds are full and the suppositories formed by the appearance through said openings of
 65 strings, he knows it is time to remove the cut-off plate, and when the said plate is removed the finished suppositories will be forced

out of the molds by the pressure of the incoming material from the cylinder C and will
 70 drop down onto the tray H. The base-plate F will then be replaced, so as to close the ends of the molds, and the operation will be repeated until all of the contents of the cylinder C have been used.

In the manufacture of bougies a cylinder
 75 E', having a single central opening of uniform diameter, will be used in place of the cylinder E, and the cut-off plate will not be required, as the bougies will first be made in one long
 80 continuous piece and will be cut off in desired lengths with a knife. To facilitate the cutting and measuring of these lengths, a trough h will be secured to the outer end of the cylinder E' in proper position to catch the material as it comes out of the machine. This
 85 trough will have a scale of inches marked on it, by means of which the operator can cut off the desired lengths without further measurement.

Heretofore machines of this class have been
 90 run by hand-power largely because of the impossibility to tell when the suppositories were made and the pressure relieved before the machine was broken; but with my improved
 95 means of indicating the completion of the suppositories I am able to apply other power and will operate the screw by belting from a pulley on the piston-rod back to a pulley
 100 driven by steam or any other suitable power.

I will now describe the mechanism by
 105 means of which I will actuate the plunger G. Supported by the standard A² and the additional standard A³ are journal-boxes, within which is mounted the laterally-extended hub of the pulley M, as shown in Fig. 3. The
 110 pulley is held from lateral displacement by the two standards, but is free to revolve on its extended hub ends. This hub has a central longitudinal screw-threaded opening through which the piston-rod N, to which the
 115 plunger or piston G is fastened, is projected.

The middle portion of the length of the piston-rod N is large enough to fill the opening through the hub of the pulley and is threaded to match the thread of the opening in the hub.
 120 When the threaded portion of the rod N is in engagement with the hub of the pulley, the plunger will be forced in or out of the cylinder, depending on the direction of rotation of the pulley; but when the plunger has reached
 125 the cylinder E and all of the material has been used up that was contained in the cylinder C the plunger will stop. This is provided for by making the rod N smaller and leaving off the threads of the requisite portion of the
 130 outer end of said rod. By leaving off the thread on a requisite portion of the inner end of the rod N and making the rod smaller the plunger will stop in its movement when it has been drawn out of the cylinder C. This
 135 above construction will be understood from Fig. 2.

P is a lever connected with the outer end of the screw and affords means for pressing

the rod N longitudinally to make the thread "take hold" in starting the piston in or out after it has come to a stop.

In the modification shown in Fig. 7 the perforations to indicate when the suppositories are finished, instead of being formed through the cut-off plate, are formed through the walls of the molds and would be equally effective, but not quite so conveniently in view for the operator, as if made through the vertical cut-off plate.

Having thus fully described my invention, what I claim as new is—

1. In a suppository-machine, a cylinder into which the material to be made into suppositories is placed, a water-jacket surrounding the cylinder and having inlet and outlet pipes whereby a circulation of water through the jacket may be obtained, a plunger to compress the material in the cylinder and molds communicating with the cylinder into which the material from the cylinder will be forced by the action of the plunger, substantially as described and specified.

2. In a suppository-machine, the combination of suitable supports, forming part of a retaining-frame for the cylinder; a cylinder removably secured to the frame and resting in the supports, a water-jacket surrounding the cylinder, a cut-off plate perforated oppo-

site each chamber of the mold, a mold cooperating therewith and inserted in the bore of the cylinder and retained by means of a bayonet-joint, and a plunger mounted in some fixed part of the machine and working in the cylinder, substantially as described and specified.

3. In a suppository-machine, a frame, a cylinder removably secured to the frame, a water-jacket surrounding the cylinder and having a hinge with a longitudinal opening placed so as to allow the removal of the cylinder from its support when it is raised to a certain angle, a mold inserted in the bore of the cylinder and retained by means of a bayonet-joint, a base-plate closing the outer end of the mold, and forming chambers, each of said chambers having outside communication through a small orifice, as and for the purposes specified, and a plunger mounted in some fixed part of the machine and working in the cylinder, all of said parts being combined and arranged substantially as described and for the purposes specified.

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

CHARLES L. TRUSLER.

Witnesses:

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