(No Model.)

R. WHITAKER.

CRIMPING MACHINE.

No. 471,925. Patented Mar. 29, 1892.

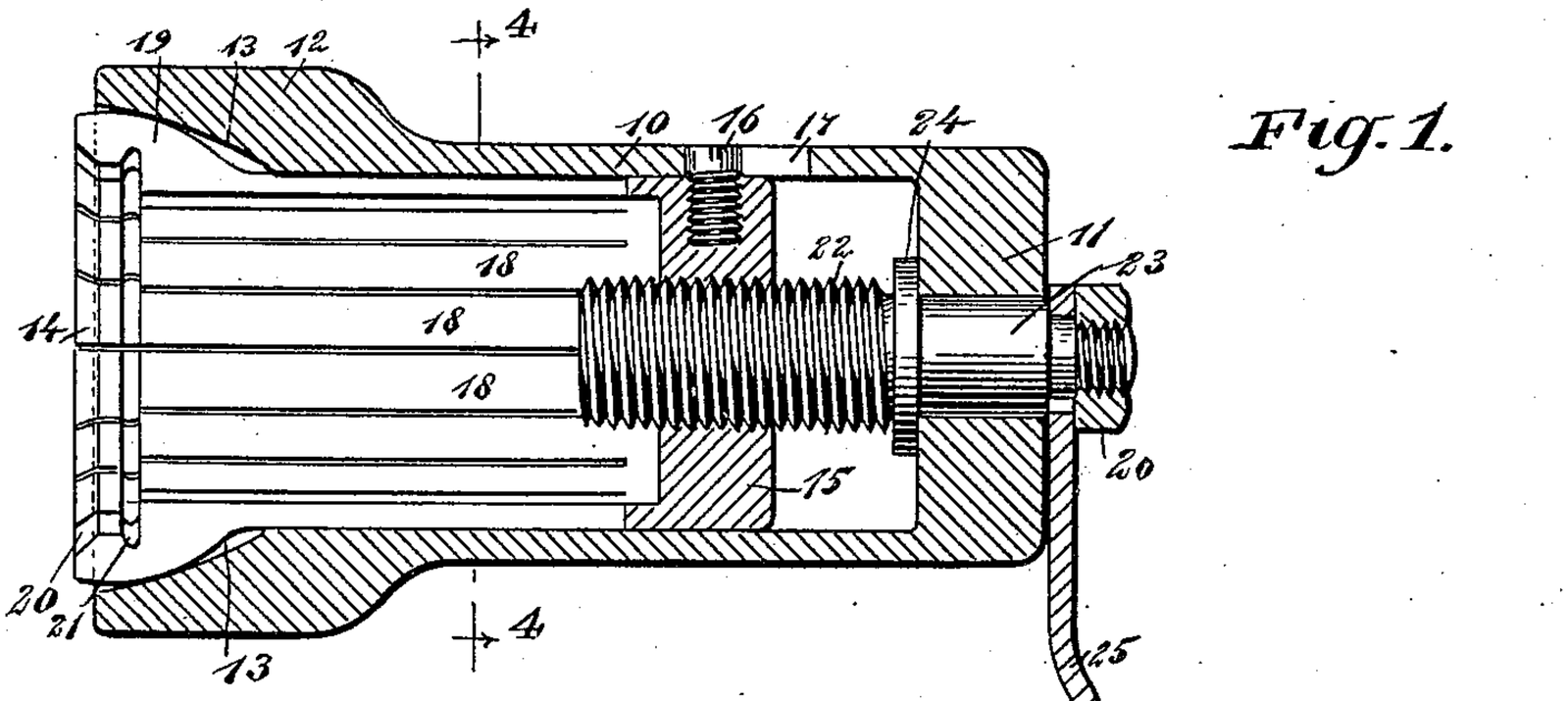


Fig. 1.

Fig. 2.

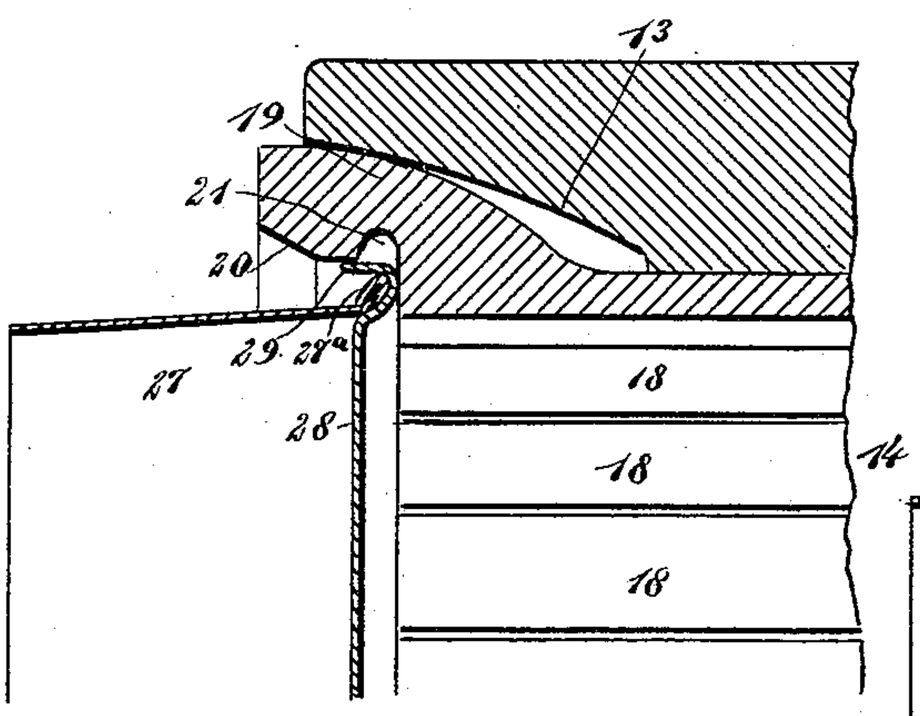


Fig. 3.

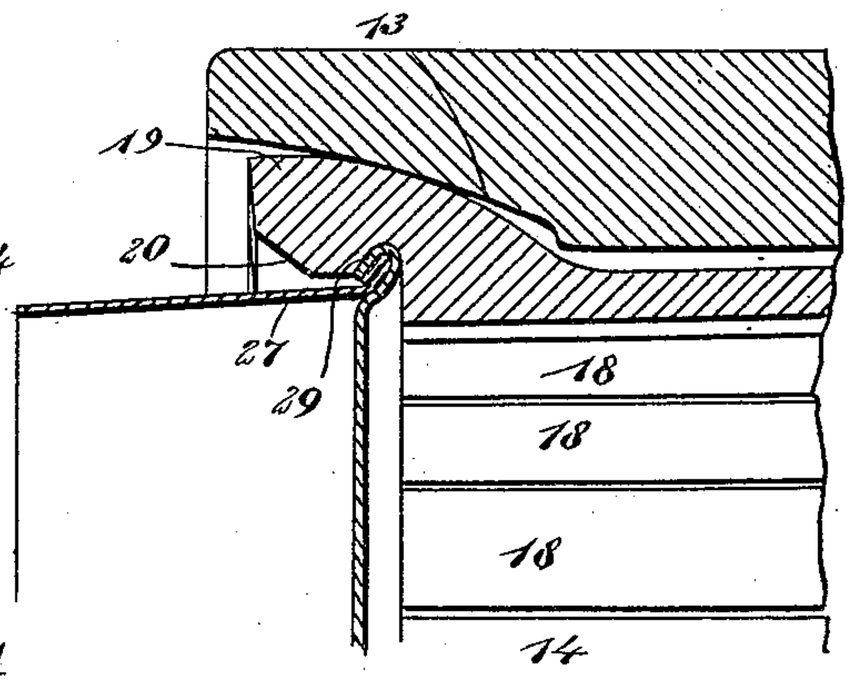
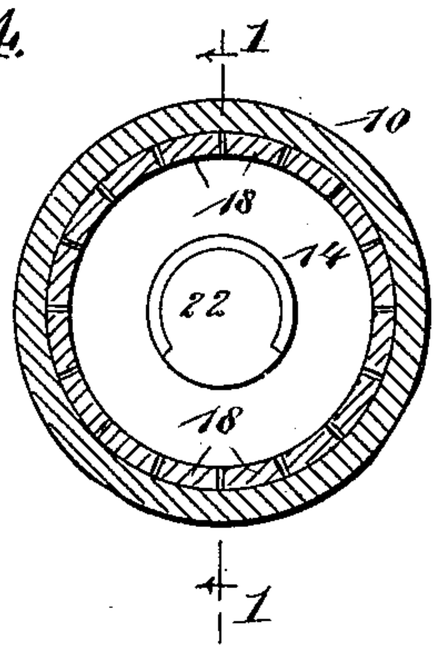


Fig. 4.



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RICHARD WHITAKER, OF NEW BRUNSWICK, NEW JERSEY, ASSIGNOR TO THE EMPIRE MACHINE AND TOOL COMPANY, OF SAME PLACE.

CRIMPING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 471,925, dated March 29, 1892.

Application filed January 2, 1892. Serial No. 416,860. (No model.)

To all whom it may concern:

Be it known that I, RICHARD WHITAKER, of New Brunswick, in the county of Middlesex and State of New Jersey, have invented a new and Improved Crimping-Machine, of which the following is a full, clear, and exact description.

My invention relates to improvements in crimping-machines such as are adapted to crimp or fasten metallic caps upon nozzles.

The object of my invention is to produce a simple device which is especially adapted for fastening caps upon the nozzles of varnish-cans, which may be rapidly operated, which will do the work well, and which may also be adapted for any analogous use.

To this end my invention consists in a crimping-machine, the construction of which will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a longitudinal section of the machine on the line 1 1 of Fig. 4. Fig. 2 is a broken enlarged longitudinal section showing the application of the machine to a cap before the cap is crimped. Fig. 3 is a similar view, but showing the position of the parts after the cap is crimped; and Fig. 4 is a cross-section on the line 4 4 in Fig. 1.

The machine is provided with a tubular body 10, which is closed at one end by a thickened portion 11, and which is enlarged at its open end, as shown at 12, which open end has a tapering or flaring inner wall, as shown at 13, which is adapted to assist in compressing the inner yielding gripper 14. The gripper 14 is adapted to move within the body 10, to which it conforms approximately in shape, and the gripper is prevented from turning in the body by means of a set-screw 16, which is screwed into the solid inner end 15 of the gripper and projects outward through a longitudinal slot 17 in the body 10. The set-screw and slot thus serve to prevent turning of the gripper, and they also limit its longitudinal movement.

The gripper 14 is open at its outer end and is divided by numerous parallel slits, which extend throughout nearly its entire length, into a plurality of spring-gripping fingers 18, which are thickened at their outer ends, and which are rounded up exteriorly, as shown at 19, so as to form a cam-like surface adapted to contact with the tapering wall 13 of the body 10. The inner free ends of the gripping-fingers are tapered slightly, as shown at 20, so as to permit the easy insertion of a nozzle-cap, and each finger is provided on its inner wall and near its outer end with a semi-cylindrical transverse groove 21, adapted to receive the doubled edge of a cap, as described below, the several grooves of the fingers being arranged to register and form a continuous groove, as best shown in Fig. 1.

The longitudinal movement of the gripper is effected by means of a screw 22, which fits a threaded bore in the inner end of the gripper, and which has a bearing 23 in the outer end of the body 10, the screw having a collar 24 thereon, which fits the inner wall of the body 10. The outer end of the screw projects through the body and is provided with a crank 25, by means of which it may be turned, the crank being held in place by a nut 26, screwed to the outer end of the screw 22.

It will be seen that when the crank is turned the screw will also turn, and as the screw cannot move longitudinally and the gripper cannot turn by reason of the set-screw 16 the movement of the screw will impart a longitudinal movement to the gripper. It will be understood that a pulley may be applied in place of the crank 25, so that power may be used to operate the machine; but for the purpose described—that is, attaching caps to varnish-can nozzles—the form shown is preferable, as the machine may be placed conveniently upon a nozzle.

The operation of the device is as follows: The nozzle 27, to which the machine is applied, is of the usual form, having an outwardly-flaring flange 27ª at the top, and the cap 28 is also of the common form, having a flange 29, adapted to be doubled over the flange 27ª. When the machine is used, the gripper 14 is forced outward, as in Figs. 1 and 2, the cap 28 is adjusted upon the nozzle 27, the gripper is placed upon the nozzle, so that

the flat portions of the fingers 18 between the tapering part 20 and the groove 21 will bear on the outer portion of the flange 29, and the crank 25 is then turned, so as to draw the gripper into the body 10, and as the gripper is drawn into the body or the body forced down upon the gripper, as the case may be, the spring-fingers will be compressed, thus doubling the flange 29 tightly over the flange 27ª, as shown in Fig. 3, and making an air and water tight joint.

I do not confine myself to the exact mechanism described and shown, as it may be considerably changed without departing from the principle of my invention. For instance, a cam or lever mechanism may be used to move the gripper and any suitable stop may be substituted for the set-screw 16.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A crimping-machine comprising a hollow body having a tapering inner wall and a yielding and sliding gripper having an open end and provided with an inner annular groove adjacent to the open end and with an exterior cam-surface, substantially as described.

2. A crimping-machine comprising a tubular body having a tapering inner wall at one end and a yielding gripper held to slide in the body, said gripper having a thickened open end with a tapering mouth and a transverse groove adjacent to the mouth, substantially as described.

3. A crimping-machine comprising a tubular body having an open end with a tapering inner wall and a gripper held to slide in the body and provided with a series of parallel spring-fingers having thickened tapering outer ends and transverse grooves adjacent to said tapering ends, substantially as described.

4. A crimping-machine comprising a tubular body having an open tapering end, a gripper slidably mounted in the body and having a series of parallel fingers with thickened free ends and with their free ends tapered and transversely grooved, as described, and a screw mechanism for moving the gripper, substantially as described.

5. The combination, with the tubular body having an open tapered end and having a longitudinal slot therein, of the compressible gripper held to slide in the body and having a thickened free end, a limiting-stop extending through the body slot and into the gripper, and a revoluble screw journaled in one end of the body and fitting a threaded bore in the inner end of the gripper, substantially as described.

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Witnesses:
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