T. WHITFIELD.

Apparatus for Filling and Capping Capsules.

No. 210,589. Patented Dec. 3, 1878.

Fig. 1.

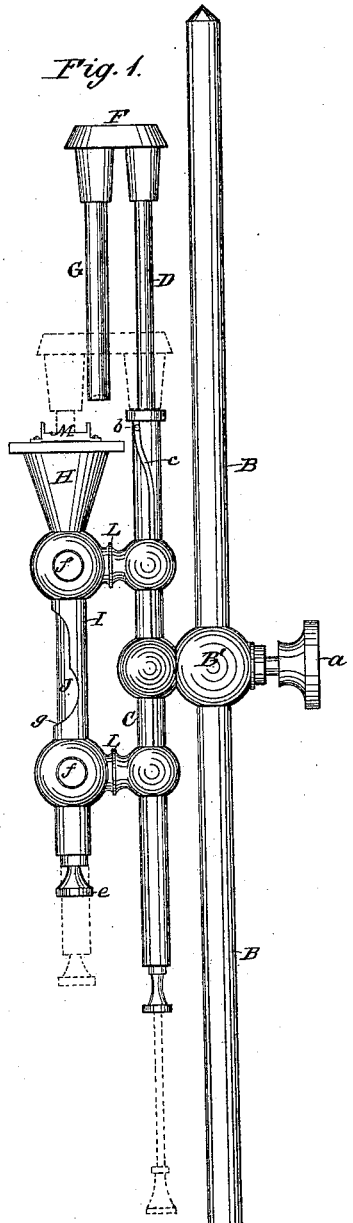


Fig. 2.

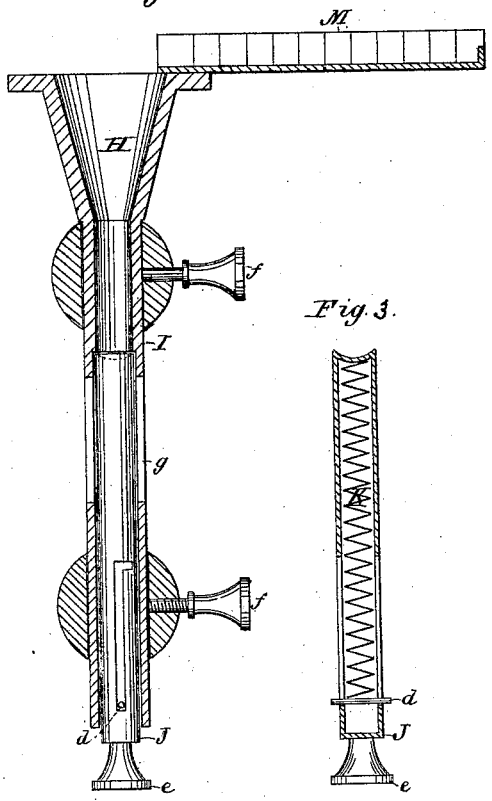
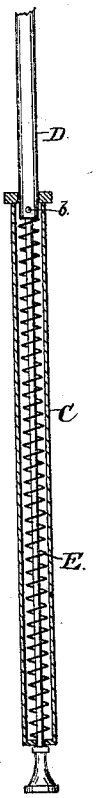


Fig. 3.

Fig. 4.



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THOMAS WHITFIELD, OF CHICAGO, ILLINOIS.

IMPROVEMENT IN APPARATUS FOR FILLING AND CAPPING CAPSULES.

Specification forming part of Letters Patent No. **210,589**, dated December 3, 1878; application filed August 12, 1878.

To all whom it may concern:

Be it known that I, THOMAS WHITFIELD, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Machine for Filling and Capping Capsules; and I do hereby declare that the following is a full, clear, and exact description of the same.

My invention relates to machines for filling and capping capsules.

It consists in certain combinations of instrumentalities whereby capsules may be readily filled with a graduated amount of powder and securely capped at one and the same time.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a front elevation of a machine constructed according to my improvement; Fig. 2, an enlarged detail sectional view; and Figs. 3 and 4 are sectional detail views.

Supported by a suitable base, A, is a rod, B, carrying a slide, B′, which is secured thereon in any desired position by a set-screw, *a*. Attached to this slide is a tube, C, in which works the rod D, whose lower portion is of smaller diameter than the upper part, so as to admit of the lower portion being surrounded by a spiral spring, E, which is compressed between the bottom of the tube C and the shoulder formed by the enlarged portion of rod D, which enlarged portion is of such size as to slide freely in said tube C.

At the bottom of the enlarged portion of the rod is a pin, *b*, which works in a slot, *c*, in the tube C.

Attached to the top of the rod is a cross-head or finger-piece, F, from which depends a plunger, G, which is screwed into the finger-piece, so as to be readily removed or replaced by another of different size. The bottom of this plunger is made concave, to fit the ends of the capsules on which it operates, and is of such size as to readily pass through a funnel, H, attached to or forming the upper extremity of a tube, I, which tube I is a trifle larger than the aperture in the bottom of the funnel, and thus the bottom of the funnel forms a shoulder, which should be of the thickness of the material of the cap of the capsule to be filled. At the lower end of this tube I, and fitting therein, is another rod, J, having its lower half hollow to receive a spiral spring, K, and its top made concave. It is slotted vertically on both sides to move up and down on a pin, *d*, in the tube I.

The slots are extended at right angles at the top, so that when the rod is drawn down by means of a knob, *e*, to its lowest point, it can be held there by giving it a slight turn, so as to bring the corners of the slots under the pin.

The tube I and funnel H, with the plunger G and rod J, must be made so as to be removable, because it is necessary that the interior of the tube and funnel should correspond with the size of the cap and body of the capsule. The tube and funnel are therefore secured, by means of set-screws *f f*, in arms L L, extending from the tube C, so as to be readily removed and others secured therein of the appropriate size for the capsules being filled.

Secured to the top of the funnel is a trough, M, which has graduation-marks on its side, so that the filling material may be readily proportioned.

The operation of the machine is as follows: The plunger G being raised by the spring E to its highest position and the rod J drawn downward, the cap of the capsule to be filled is passed in an inverted position through an aperture, *g*, in the side of the tube, placed in a concave recess on the top of the rod J, and is then forced up against the shoulder formed by the base of the funnel H by the spring K. A sufficient portion of the powdered substance to be inclosed in the capsule is next fed, by means of a suitable spatula, from the trough into the funnel, the powder falling into and lying loosely over the inverted capsule-cap in the base of the funnel. The shell of the capsule, mouth downward, is then dropped into the funnel, and by pressing on the finger-piece F the plunger G is caused to swing around into a position over the tube I by the pin *b*, traveling in the spiral portion of the groove *c*, and then to descend into said tube, forcing the shell of the capsule down upon the material in the base of the funnel, thus filling compactly both parts of the capsule, and uniting them securely at the same time and by the same movement. By drawing down the rod J the capsule descends and falls out at the aperture in the side of the tube. As soon as the pressure is removed from the fin-

ger-piece the plunger G is caused to rise by the spring E, and when the pin *b* reaches the curved portion of the groove *c* the plunger moves sidewise, so as to leave the opening of the funnel clear, ready to receive the next portion of powder and the cap of the capsule.

I am aware a plunger adapted to swing horizontally and descend vertically has been employed for packing coffee, tea, &c., in paper bags.

What I claim as new is—

1. The combination of the tube I, open at the side, and the funnel H, forming at their junction a shoulder, whereby a stop is provided for the cap of the capsule, and its inner surface caused to fit the shell thereof, with a plunger adapted to swing diagonally over the tube and then descend vertically, and a suitable stop or ejecting device, substantially as described.

2. The combination of the rigidly-connected graduated trough M, funnel H, and tube I, having a lateral opening, all said parts being fixed in position, the stop device J, fitted and sliding in said tube and inclosing spring K, all substantially as shown and described.

3. The combination, in a capsule-filling machine, of the tube I and pin *d* with the hollow rod J, having angular slots, arranged to operate substantially as described.

THOMAS WHITFIELD.

Witnesses:

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