

(No Model.)

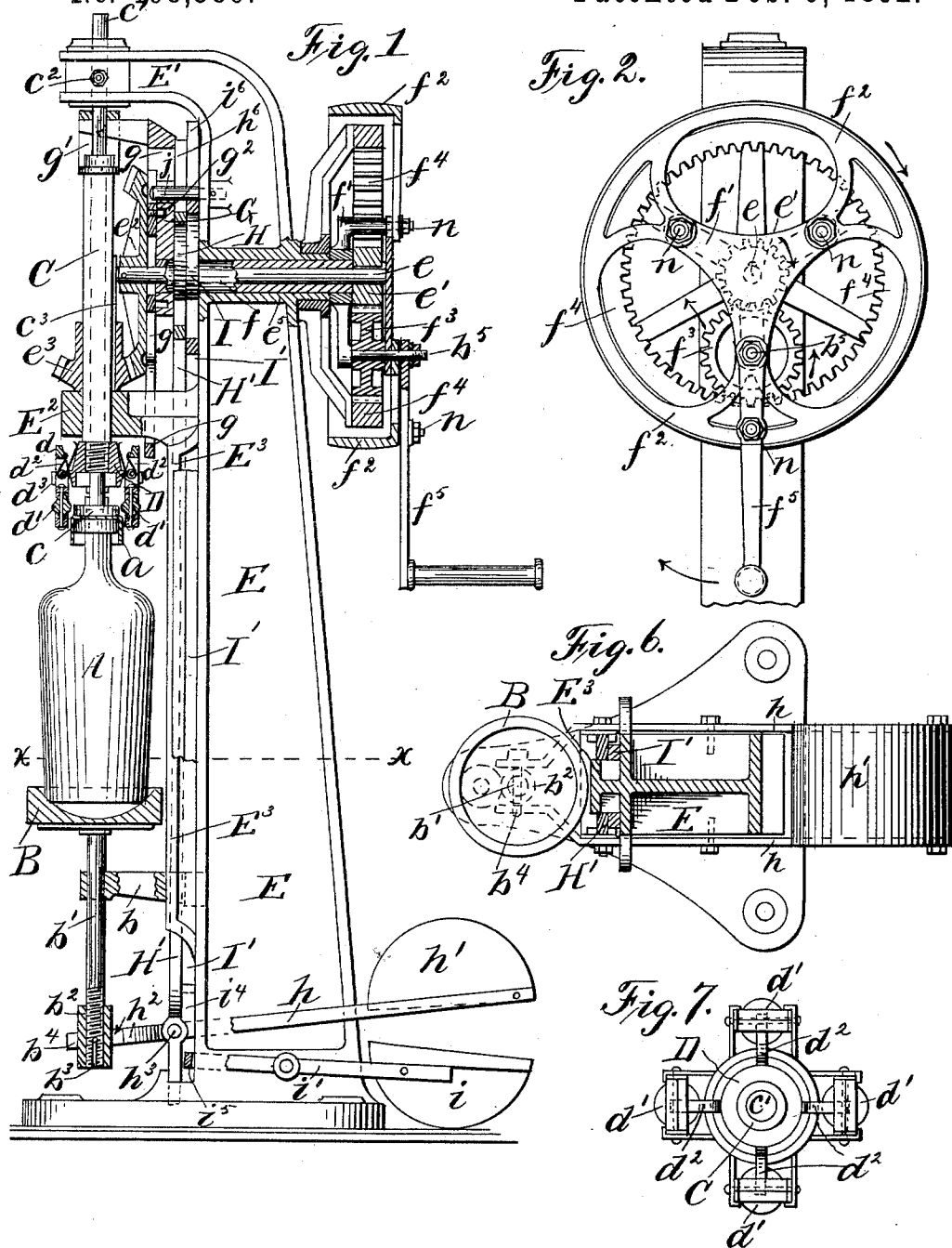
2 Sheets—Sheet 1.

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APPARATUS FOR CAPSULING BOTTLES, &c.

No. 468,389.

Patented Feb. 9, 1892.



Witnesses:
Ella S. Johnson
J. H. Sommers.

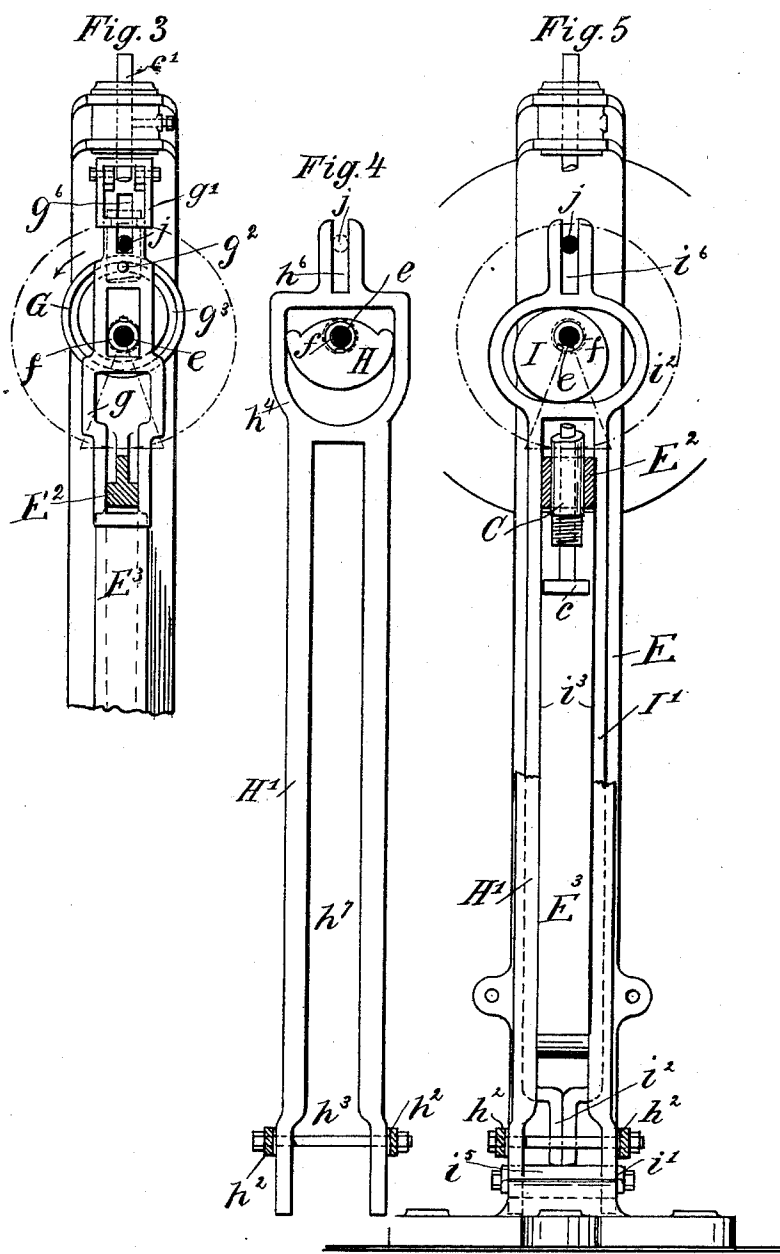
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UNITED STATES PATENT OFFICE.

FRANCIS SERAPHICUS PICHLER, OF BUDA-PESTH, AUSTRIA-HUNGARY,
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APPARATUS FOR CAPSULING BOTTLES, &c.

SPECIFICATION forming part of Letters Patent No. 468,389, dated February 9, 1892.

Application filed December 11, 1890. Serial No. 374,332. (No model.)

To all whom it may concern:

Be it known that I, FRANCIS SERAPHICUS PICHLER, a subject of the King of Hungary, residing at Buda-Pesth, in the Kingdom of Hungary, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Apparatus for Capsuling Bottles and the Like; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

The invention relates to machines for applying tin-foil capsules to bottles, and has for its object to provide a simple, compact, and efficient mechanism by means of which the capsuling is or may be automatically effected.

The invention consists in structural features and combinations of parts, as will now be fully described, reference being had to the accompanying drawings, in which—

Figure 1 is a sectional side elevation of a capsuling-machine embodying my invention. Fig. 2 is a rear elevation of the upper portion of the machine. Figs. 3, 4, and 5 are detail views of the reciprocating slides. Fig. 6 is a section on line *x x* of Fig. 1, the bottle being omitted; and Fig. 7 is a top view of the presser-carrier.

The operative mechanism and devices are supported on a suitable frame consisting of a base and a standard E, rising vertically therefrom and having the upper overhanging portion E', the bearing-arms E² b, the guide-rib E³, a bearing e⁵ for the driving-shafts, and a bearing to which is keyed or otherwise rigidly secured an interiorly-toothed ring or wheel f⁴.

The concentric driving-shafts e and f in bearing e⁵ receive motion through the following mechanism: The inner driving-shaft e has secured to its rear end a pinion e', and the outer driving-shaft has secured thereto at the same end a driving or belt pulley f², concentric with the interiorly-toothed ring f⁴. The driving or belt pulley has inwardly-projecting radial arms, by means of which said pulley is secured to a spider f', keyed to the rear

end of the hollow shaft f, the radial arms of which spider have pins or bolts extending through holes at the inner ends of the radial arms of the belt-pulley f², to which the arms are secured by means of nuts n. The bolt b⁵ on one of the spider-arms is made longer by shortening the horizontal portion of said arm and serves as a bearing for a pinion f³ in gear with pinion e' and toothed ring f⁴. It will be readily understood that when the belt-pulley f² is revolved its motion will be transmitted to shaft f, and as the pinion f³ revolves with the pulley, but is in gear with the toothed ring f⁴, said pinion will also revolve about its own axis, and being of greater diameter than pinion e' on shaft e the latter will be revolved at a greater speed than the shaft f. The shaft e carries at its front end a bevel-gear e², and the shaft f carries at the same end a grooved eccentric G, a cam H, and an eccentric I in the order named. A hollow spindle C has a bearing in the arm E² of standard E, and said spindle carries a bevel-pinion e³, connected with the spindle by a spline or feather c³, so as to admit of a vertical reciprocation of the spindle independently of the pinion and a rotary movement with said pinion, which is driven by the bevel-wheel e². A presser or clamping-rod extends through the spindle C, and is adjustable in the overhanging upper end of the standard E by means of a set-screw c², and at its lower end the rod carries a presser or clamping disk c, which may be a die, and provided in its under face with any desired matter in relief or intaglio—such, for instance, as an individual's or firm's name or other matter—to be impressed into the foil capsule. The rod c' serves as a guide for the spindle C and as a clamping device or die for holding the bottle to be capsuled in proper position. The spindle C is connected at its upper end with a yoke or strap g', pivoted to the forked end of a slide g, that has a pin g², which projects into the groove of the eccentric G of shaft f, by means of which said slide and the spindle C can receive a reciprocating motion. At its lower end the spindle C carries a carrier D, that has the form of a truncated cone, and is provided at its lower end or edge with bracket-arms d³, in which are pivoted hangers d, whose upper

portion, or that portion above their pivot, is beveled or inclined outwardly, while the lower portion of the carrier D, from which the bracket-arms d^3 project, inclines inwardly, so as to permit the spring d^3 on the pivot of the hanger and having bearing on the upper end thereof and on the carrier D, respectively, to press the lower portion inwardly or toward the axis of the spindle C with a yielding pressure.

10 In the lower portion of the hangers, of which I have shown four, (see Fig. 7,) is journaled a presser-wheel d' on a vertical spindle, so that as the spindle C is simultaneously revolved and reciprocated the said presser-wheels will also be revolved on their own axes by frictional contact with the foil capsule, so that the capsule a is not only firmly appressed to the bottle, but also more or less spread and thoroughly smoothed out.

15 The bottle is supported on a table B, secured to a rod b' , that has motion in and is guided by the arm b on standard E, hereinbefore referred to. The lower end of the rod is screw-threaded and adjustable in a sleeve-bearing b^2 , journaled to the outer end of a lever h , that is fulcrumed to the lower forked end of a slide H' , immediately in rear of slide g , which is reciprocated by the cam H on shaft f . (See also Fig. 4.) The rear end of the lever h carries a weight h' , that tends to lift the table-support b' , whose lower end is slotted, as shown at b^3 , for the reception of the journal b^4 , that extends through the sleeve-bearing and through said slot b^3 .

20 In rear of the slide H' is a slide I' , the foot i^2 of which has bearing on the cross-bar i^5 of a lever i' , fulcrumed on the standard E, and said slide is reciprocated by the eccentric I, hereinbefore referred to. (See Fig. 5.) The upper end of all the slides is slotted, as shown at g^6 , h^6 , and i^6 , Figs. 3, 4, and 5, respectively, and into said slots projects a guide-pin j on the standard E. The body of the slides is also slotted, or the slides may be forked, and through said slots projects the arm E^2 , that serves as a guide for the body of the slide g , while the slides H' I' are guided by the rib E^3 , projecting from standard E.

25 The operation of the machine may be briefly described as follows, the parts being in the position shown in Fig. 1: The cam H in the position shown in Fig. 1 has lifted the slide to its highest point, the weighted lever h firmly appressing the bottle to the presser-head c , and, if desired, with sufficient force to make an impression into the foil capsule, or by additional pressure applied to the weighted end of the lever h . If motion is now imparted to the belt-pulley f^2 from any suitable motor, or by hand through the crank f^5 , Figs. 1 and 2, a rapid rotation will be imparted to the shaft e through the gearing f^5 and e' , and through the gearing e^2 e^3 to the spindle C, which will simultaneously be reciprocated at the same rate of speed by the slide g through the eccentric G on said shaft e . At the same time a less rapid motion will be imparted to the

shaft f through the belt-pulley f^2 , the cam H and eccentric I revolving with said shaft, and their relative arrangement thereon is such that the eccentric I will commence to depress the slide I' before the cam H has assumed such a position as to allow the slide H' to move downward also. As the foot of the slide I' has bearing on lever i' , the said lever will be tilted and its weighted end moved upwardly toward the like end of lever h , at which time the cam H will be in a position to allow the slide H' to move downward also, thereby bringing the weighted ends of levers h and i' into contact, the lever i' continuing to move upward, thereby tilting lever h and lowering or depressing the table B until the slides have reached the limit of their downward motion, when said table will have been lowered sufficiently to bring the mouth of the bottle clear of the presser-wheels d' , when it is removed and another bottle with a foil capsule a is set onto table B. After the slides have reached the limit of their downward movement the eccentric I commences to move the slide I' upward again, so that both levers h and i' will move downward, thereby carrying the mouth of the bottle against the presser disk or die c , when the described operations are repeated. As the carrier D revolves about and reciprocates along the neck of the bottle, and as the presser-wheels are forced against said neck by their spring d^2 and caused to revolve on their own axes, they will not only firmly appress the foil to the neck but spread the same so as to form a smooth surface and a hermetic seal.

It will be readily understood from the description of the operating mechanism that instead of reciprocating the spindle C the bottle-holding devices may be reciprocated and the spindle simply revolved. Instead of the weights h' and i , springs connected with the base of the machine and with the levers h and i' may be used.

Having thus described my invention, what I claim is—

1. In a bottle-capsuling machine, the combination, with a bottle-holder comprising a presser or clamping disk or die and a table between which the bottle is adapted to be held, of a pivotal support for said table and a weight operating on the support to move the table toward the disk or die, and a presser adapted to revolve about and reciprocate along the axis of the holder, for the purpose set forth.

2. In a bottle-capsuling machine, the combination, with a support for the bottle and a clamping device consisting of a rod having at its lower end a clamping disk or die, of a tubular spindle adapted to revolve and reciprocate on the rod, a conical carrier secured to the spindle, spring-actuated hangers pivoted in bearings on the carrier, and a presser-wheel journaled on a vertical spindle in each of said hangers, for the purposes set forth.

3. In a bottle-capsuling machine, the com-

5 combination, with the spindle C, the bevel-pinion e^2 , connected therewith by a spline or feather, and the slide g , from which said spindle is suspended, of the shafts e and f , the bevel-wheel e^2 on shaft e in gear with the pinion e^3 , and the eccentric G on shaft f for reciprocating the slide g , substantially as and for the purpose set forth.

10 4. In a bottle-capsuling machine, the combination, with the table B, the rod b' , threaded and slotted at its lower end, the sleeve-bearing b^2 , and the weighted lever h , to which said bearing is journaled, said journal extending through the slot in the rod, of the presser-rod c' and the revoluble and reciprocating sleeve C, substantially as and for the purposes set forth.

20 5. In a bottle-capsuling machine, the combination, with the table B, its rod b' , the slide H' , the weighted lever h , fulcrumed to said slide, and the rod-bearing b^2 , journaled to the lever, of the weighted lever i' , the slide I' , having bearing on the weighted lever, the shaft f , the cam H, and eccentric I on said shaft, said cam and eccentric working in suitable straps or slots in the slides H' I' , respectively, substantially as and for the purposes set forth.

6. In a bottle-capsuling machine, the combination, with the spindle C, the bevel-pinion e^2 , connected therewith by a spline or feather, the slide g , from which said spindle is suspended, the slides H' I' , the concentric shafts e and f , the bevel-wheel e^2 , in gear with pinion e^3 , the eccentric G, working in a slot of slide g , said wheel and eccentric being secured to the shaft f , and the cam H and eccentric I on shaft f , of the fixed toothed ring f^4 , the belt-pulley f^2 on shaft f , the pinion f^3 , and a pinion e' on shaft e , said pinion f^3 being in gear with the ring and pinion e' and adapted to revolve with the belt-pulley f^2 , substantially as and for the purposes set forth.

30 35 40

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

FRANCIS SERAPHICUS PICHLER.

Witnesses:

HUGO VLINGLERY,
GERSTERÖRÖN THONSTUDYAR.