(No Model.) 4 Sheets—Sheet 1.

J. B. LAWTON.

SOAP STAMPING MACHINE.

No. 418,467. Patented Dec. 31, 1889.

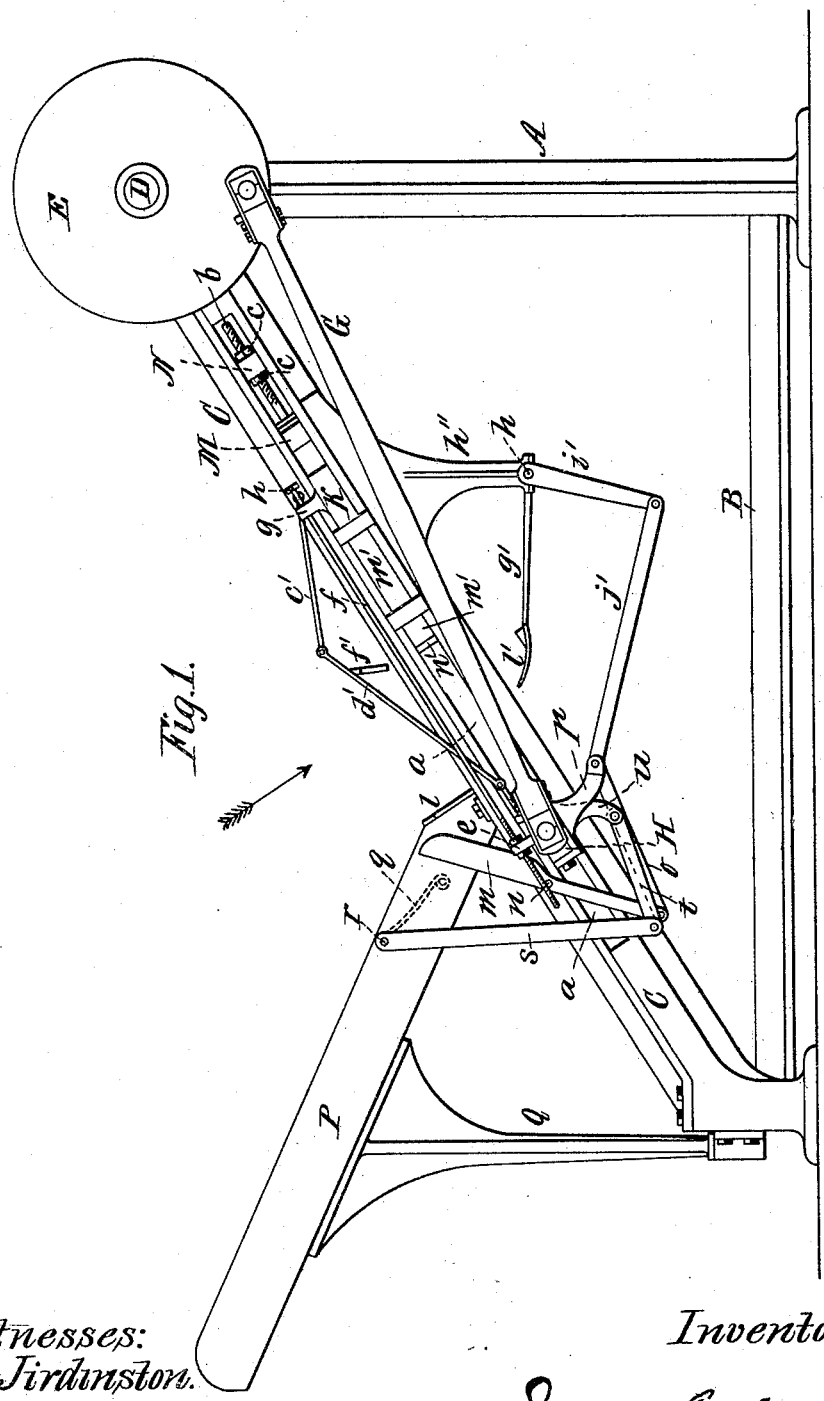

Fig. 1.

Witnesses:
W. C. Tirdinston.
Charles Billon

Inventor:
James B. Lawton
by Peck & Rector
his Attorneys.

(No Model.) 4 Sheets—Sheet 2.

J. B. LAWTON.

SOAP STAMPING MACHINE.

No. 418,467. Patented Dec. 31, 1889.

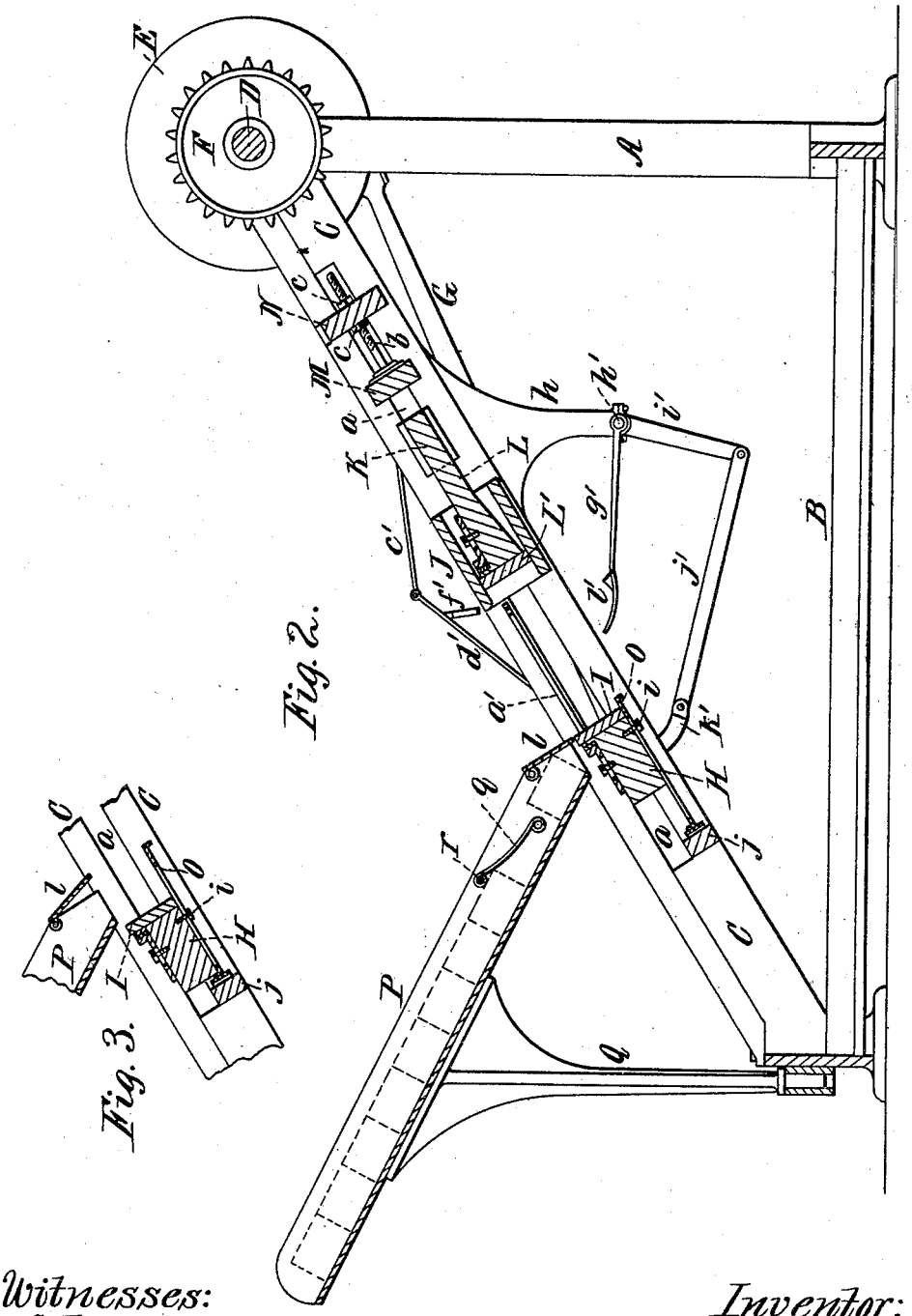

Fig. 2.

Fig. 3.

Witnesses:
W. C. Tirdinston.
Charles Billon

Inventor:
James B. Lawton
by Peck & Rector
his Attorneys.

(No Model.) 4 Sheets—Sheet 3.

J. B. LAWTON.

SOAP STAMPING MACHINE.

No. 418,467. Patented Dec. 31, 1889.

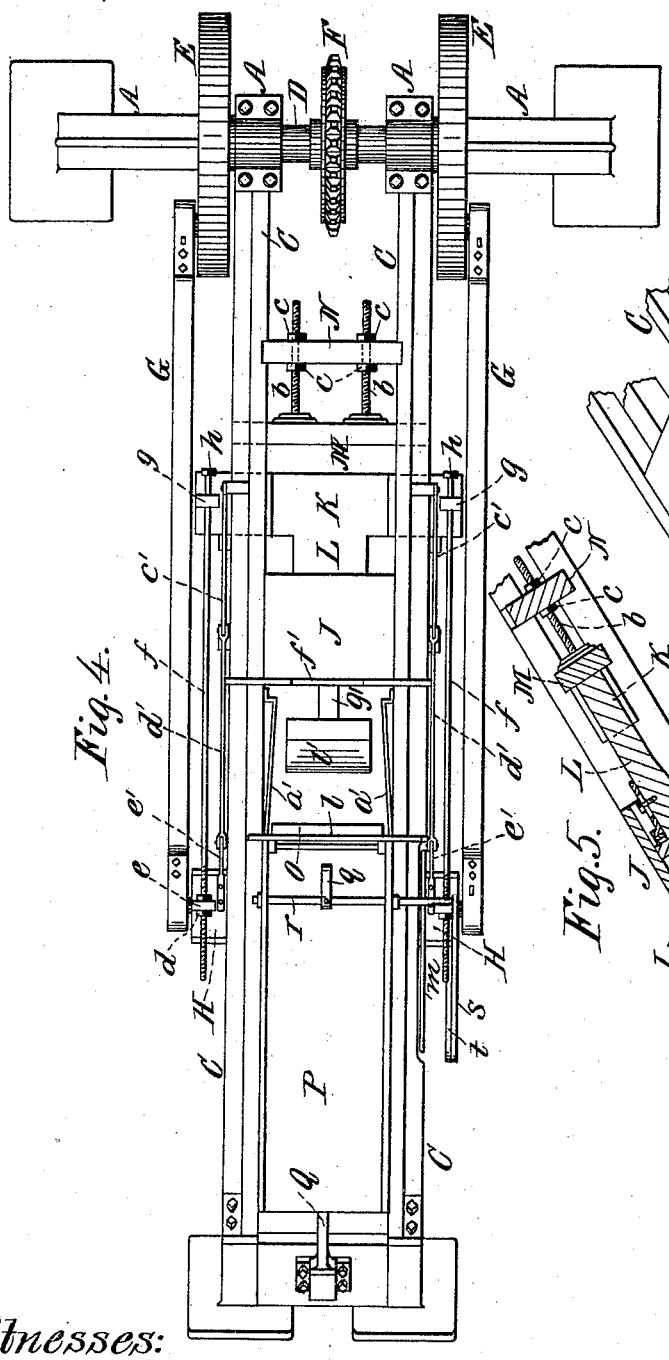

Fig. 4.

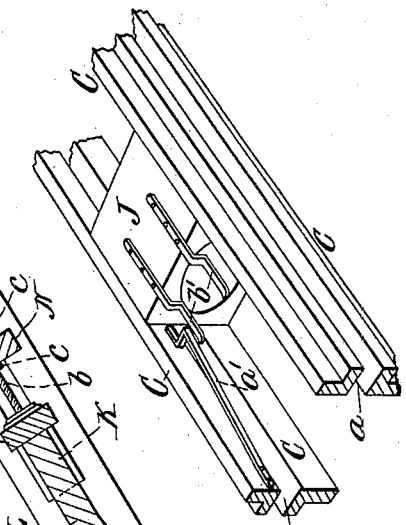

Fig. 6.

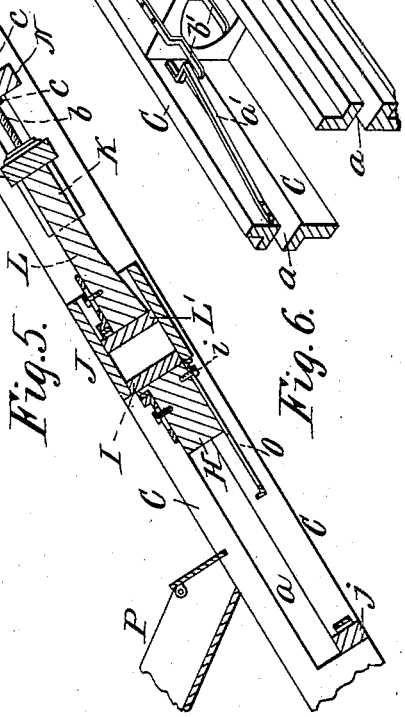

Fig. 5.

Witnesses:
W. C. Tirdinston.
Charles Billon

Inventor:
James B. Lawton
by Peck & Peck
his Attorneys.

(No Model.) 4 Sheets—Sheet 4.

J. B. LAWTON.

SOAP STAMPING MACHINE.

No. 418,467. Patented Dec. 31, 1889.

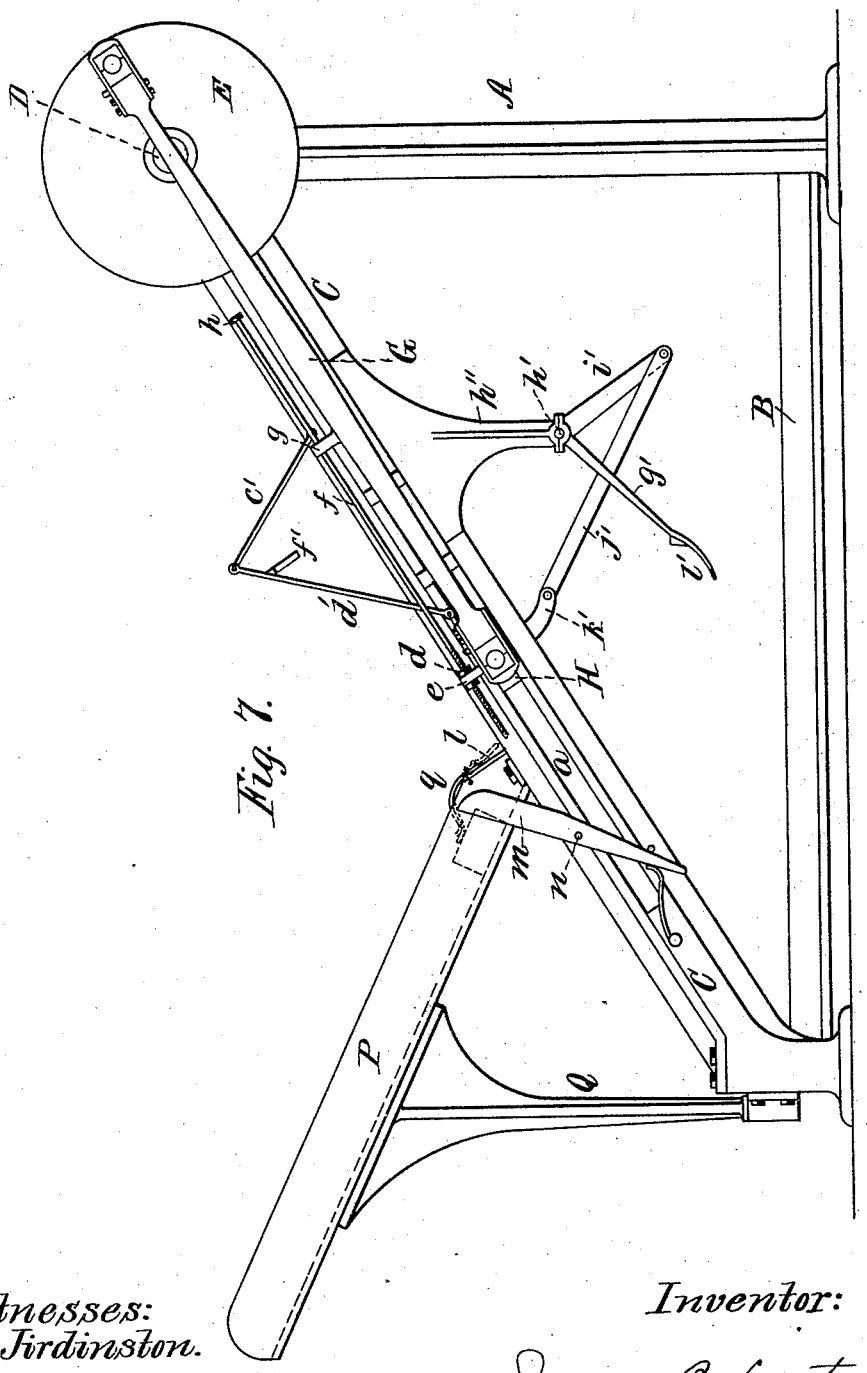

Fig. 7.

Witnesses:
W. C. Firdinston.
Charles Billon

Inventor:
James B. Lawton
by Pierce Rector
his Attorneys.

UNITED STATES PATENT OFFICE.

JAMES B. LAWTON, OF CINCINNATI, OHIO.

SOAP-STAMPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 418,467, dated December 31, 1889.

Application filed September 9, 1889. Serial No. 323,360. (No model.)

To all whom it may concern:

Be it known that I, JAMES B. LAWTON, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Machines for Pressing and Stamping Soap, 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 machines for giving cakes of soap their final shape and ornamentation, including trade names or marks; and it has for its object the improved construction of such machines, by which their efficiency and simplicity are increased and the danger to employés operating them lessened.

The novelty of my invention will be hereinafter set forth, and specifically pointed out in the claims.

In the accompanying drawings, Figure 1, Sheet 1, is a side elevation of a machine embodying my invention. Fig. 2, Sheet 2, is a corresponding view in section. Fig. 3, Sheet 2, is a sectional detail of the lower part of the feed-trough and the lower die. Fig. 4, Sheet 3, is a plan view of the machine, looking in the direction of the arrow of Fig. 1. Fig. 5, Sheet 3, is a sectional elevation in detail showing the position of the parts while the pressing and stamping takes place. Fig. 6, Sheet 3, is a detail perspective showing a modification in the centering-guides for oval cakes. Fig. 7, Sheet 4, is a side elevation of the machine in modified form.

The same letters of reference are used to indicate identical parts in all the figures.

The frame of the machine is in this instance composed of uprights A, bottom tie-bars B, and two inclined bars C, having slots *a* extending through them to form inclined guides, the whole forming a rigid triangular frame-work. Suitably journaled at the apex of this frame is a horizontal shaft D, provided at its ends with cranks or, as shown, with crank-disks E, and likewise provided with a driving-wheel—in this instance a sprocket-wheel F. Pitmen G extend from the cranks or pins upon the disks E, and are connected at their lower ends to the projecting ends of a cross-head or block H, secured and guided in the lower part of the slots *a* in the bars C. It will thus be seen that the revolution of the shaft D imparts a reciprocating motion to the block H, causing it to travel up and down in the slots *a*, which serve as its guides. Upon the upper front face of the block H, between the bars C, is secured in any suitable manner, preferably detachably, the lower pressing and stamping die I, suitably ornamented on its face, Figs. 2 and 3, and rigidly secured between the bars C above the die I is a compress-box J, open at its upper and lower ends, and into which the die I enters and snugly fits at the completion of its upward stroke.

K is a second cross-head, confined and guided in the slots *a* above the compress-box, and it is provided with a bar L, which extends down and enters the upper end of the compress-box, and is provided on its lower end with an upper die L′, preferably detachable, and suitably ornamented on its face, and which snugly fits within the compress-box. Between the bars C, just above the cross-head K and guided in the slots *a*, is a stop-bar M, supported by threaded rods *b*, passed through an upper rigid cross-bar N and made adjustable to or from the cross-head K by nuts *c*, or in any other suitable manner.

Adjustably secured by nuts *d* to lugs *e* upon the projecting ends of the cross-head H are two upwardly-extending rods *f*, whose upper ends pass through lugs *g* upon the projecting ends of the cross-head K, Figs. 1 and 4, and are provided with heads *h* to engage said lugs, as presently explained.

Secured to the under side of the cross-head H, beneath the die I, is a flat sliding shelf O, supported in this instance by a set-screw *i*, passed through a longitudinal slot in the shelf O and sufficiently tight to hold said shelf from movement except as presently explained.

The operation of so much of the machine in pressing and stamping the cake of soap may be thus described: As seen in Fig. 3, when cross-head H is down to its lowest point of stroke, the lower edge of the shelf O has been arrested by the cross-bar or other suitable stop *j*, and its upper edge has been projected beyond the face of the die I to form a support for a cake of soap, which is placed

thereon edgewise. As the cross-head H and die I are drawn up, the cake of soap supported on the projected shelf O is carried up with them, and is presented squarely to the lower mouth of the compress-box J, into which it enters, the shelf O being pushed back in the meantime by the contact of its upper edge with the lower edge of the compress-box. (See Fig. 5.) When the upper face of the cake of soap comes in contact with the die L′, it forces the latter up, and with it the cross-head K, until the latter is arrested by the bar M, whereupon the further slight upward travel of the cross-head H and die I effects the pressing and stamping of the soap within the compress-box and between the dies I and L′, as will be readily understood. The rods *f* are so adjusted that when the die I has been retracted from the compress-box some distance the heads *h* engage the lugs *g* and draw down the cross-head K, thereby forcing down the die L′ and expelling the cake of soap from the box. The cakes of soap may be fed onto the shelf O by hand; but for the purpose of automatically feeding them upon the shelf O, I have provided an inclined trough P, supported on an upright Q, attached to the frame-work, and having at its lower discharging end a hinged arresting-gate *l*, one end of which projects beyond the side of the trough, so as to be engaged by a wiper-lever *m*, pivoted, as at *n*, to Fig. 1, and connected at its lower end by a link *o* to a projection or hanger *p*, secured to the cross-head H, the parts being so adjusted that just before the cross-head H has completed its downward stroke the wiper-arm is tilted forward and lifts the gate *l*, as seen in Fig. 3, to permit the cake of soap arrested by said gate to drop out upon the shelf O. To prevent the other cakes of soap from sliding out while the lowermost one is being dropped onto the shelf O, I provide a second arrester, which is a spring-arm *q*, secured to a shaft *r*, journaled in the sides of the trough, and one of whose projecting ends has secured to it a pendent arm *s*, whose lower end is connected by a pivoted link *t* to a projection *u* from the cross-head H. The adjustment is such that when the gate *l* is tilted to drop out a cake of soap the spring-arm *q* is pressed down on top of the next succeeding cake and arrests the column of cakes above it, and when the gate *l* has dropped back the arm *q* is raised to permit said cake to slide under it against the gate *l*, in position to be dropped upon the shelf O after the preceding cake has been pressed and the die I has finished its downstroke and the shelf O is projected to receive it.

To insure the centering of the cake of soap upon the shelf O before it enters the compress-box, I provide inclined spring-guides *a′*, Figs. 4 and 6, which are secured to the inner sides of the bars C just below the compress-box, and when oval cakes are being pressed and stamped additional upper guides *b′* may be employed, as seen in Fig. 6, in which case they are secured to the compress-box, as shown.

To prevent the possibility of the pressed cakes adhering to the surface of the die L′ after they have been forced out of the compress-box, I provide the jointed arms *c′ d′* on each side, the upper ends of the former of which are pivoted to the bars C and the lower ends of the latter to the cross-head H or extensions *e′* thereof, Fig. 4. Extending across from the arm *d′*, in proper position to come down over the lower mouth of the compress-box, is a U-shaped strip *f′*, that, as the die I is nearly down and the pressed cake of soap is expelled from the compress-box, is drawn down by the travel of the cross-head H and forces the cake of soap from the die L′. Upon the upstroke of the cross-head H this strip is raised out of the way above the compress-box, as seen in Figs. 1, 2, and 7, and as will be readily understood.

For the purpose of receiving the pressed cakes as they come from the compress-box and gently depositing them below the latter, I have provided an arm *g′*, Figs. 1 and 2, beneath the compress-box, secured at its rear end to a shaft *h′*, to one end of which shaft is fastened a crank *i′*, whose lower end is connected by a pivoted link *j′* to a pendent arm *k′*, secured to the cross-head H. Upon the forward end of the arm *g′* is secured a receiving plate or tray *l′*, and the parts are so adjusted that this tray is swung up under the lower mouth of the compress-box just as the pressed cake is ready to be expelled and receives it. As the cross-head H ascends, carrying on the shelf O another cake to be pressed, the arm *g′* is lowered and the pressed cake on the tray is carried down and deposited in any suitable receptacle. Instead of or in addition to this removing mechanism a traveling endless apron might be located under the compress-box to receive and carry off the pressed cakes; or both might be dispensed with and the cakes be removed in any other convenient manner.

The modification represented in Fig. 7 consists in applying the arrester-arm *q* directly to the arresting-gate *l*, as shown, and so dispensing with the parts *r*, *s*, *t*, and *u*, and also in operating the wiper-arm *m* positively by the contact of the projecting end of the cross-head H therewith on the completion of its downstroke, and thereby dispensing with the parts *o* and *p*. It results from this construction that when the gate is tilted to drop a cake on the shelf O the arrester is, by the tilting of the gate, forced down on the cake of soap immediately above the one being dropped, and so holds it and those above it until the gate is again closed, as will be readily understood.

To prevent the dies I and L′ coming in contact with and injuring each other should the machine be operated at any time without a constant supply of soap being fed into it, I provide spacing-bars *m′*, secured to the cross-

head K, and extending downwardly and lengthwise of the slots *a*. Their lower ends may be provided with rubber or other buffers *n'*, and they are of such length that they are engaged by the lower cross-head H in its upward travel just before the lower die I would come in contact with the die L', and thereupon the two dies and two cross-heads move upward together with the two dies held a short distance apart.

The soap pressing and stamping machines now in general use, so far as I am familiar with them, employ a lower stationary die and a superimposed vertically-reciprocating die, and in operation the attendant places the cake of soap to be pressed upon the lower die by hand and removes it by hand after the upper die has descended and pressed and stamped it, thereby constantly exposing his fingers to danger of injury between the dies—a danger which is entirely absent in my improved machine, whether the cakes of soap be fed in directly by hand or are fed automatically from the supply in the inclined trough.

My invention is not limited to the details of construction and exact arrangement of the parts illustrated, for these may be varied without departing from it. For instance, while the reciprocating shelf O on the under side of the die I forms a useful and valuable feature of my invention, it might in some cases be dispensed with and a shelf or other suitable support rigidly secured to the die I or cross-head H and arranged to enter a recess in the lower side of the compress-box J be substituted for it; or, while retaining a shelf which is movable relatively to the die I, it is not essential that its movement should be a reciprocating one.

Having thus fully described my invention, I claim—

1. The combination, with the die L', of the die I, movable relatively thereto, and the reciprocating shelf O, carried by the die I, and operating substantially in the manner and for the purpose described.

2. The combination, with the compress-box J and die L', contained therein, of the die I, movable relatively thereto, and the reciprocating shelf O, carried in guides on the lower side of the die I, and operating substantially in the manner and for the purpose described.

3. The combination of the inclined guides C, the upper die L', the lower reciprocating die I, provided with a shelf O, and means for operating the same, substantially as and for the purpose described.

4. The combination of the inclined guides C, the compress-box J, the movable die L', contained therein, the die I, movable in the guides C relatively to the die L', and the shelf O, carried by the die I, substantially as and for the purpose described.

5. The combination of the inclined guides C, the cross-heads H and K, confined therein and carrying the dies I and L', the compress-box J, containing the die L', and the rods *f*, secured to the cross-head H and engaging the cross-head K, substantially as and for the purpose described.

6. The combination of the inclined guides C, the reciprocating dies I and L', moving therein, and the interposed spacing-bars *m'*, for preventing contact between the dies, substantially as described.

7. The combination of the inclined guides C, the upper die L', the lower reciprocating die I, carried by the cross-head H, moving in the inclined guides C, the crank-disks E, and the pitmen G, connecting said disks and cross-head, substantially as and for the purpose described.

8. The combination of the compress-box J, the dies I and L', and the spring-guides *a'*, substantially as and for the purpose described.

9. The combination of the compress-box J, the upper movable die L', contained therein, the lower die I, movable to and from the upper die L' and carrying the material to be pressed up to the upper die L' in the box J, and an adjustable stop, as M, for limiting the upward movement of the upper die L', substantially as and for the purpose described.

10. The combination of the upper die L', the lower die I, the toggle-arms *c' d'*, the former connected at their upper ends to a fixed point of the frame-work and the latter moving at their lower ends with the die I, and the cross-arm *f'*, substantially as and for the purpose described.

11. The combination of the dies L' and I and the receiving-tray *l'*, arranged beneath the former and actuated by the movements of the latter, substantially as and for the purpose described.

12. The combination, with the die L' and the die I, movable relatively thereto, of the inclined trough P, provided at its lower end with a gate *l*, actuated by the movements of the die I, substantially as and for the purpose described.

13. The combination, with the inclined guides C, the upper die L', the lower die I, movable relatively thereto in the guides C, and provided with a shelf O, of the inclined trough P, provided at its lower end with a gate *l*, actuated by the movements of the die I, substantially as and for the purpose described.

14. The combination, with the inclined guides C, compress-box J, the upper die L', movable therein, the lower die I, movable relatively to the die L', and the reciprocating shelf O, carried by the die I, of the inclined trough P, having a gate *l* at its lower end actuated by the movements of the die I, substantially as and for the purpose described.

15. The combination, with the inclined guides C, the upper die L', and the lower die I, movable relatively thereto, of the inclined trough P, the gate *l* at the lower end thereof, and the wiper-arm *m*, actuated by the movements of the die I to open the gate *l*, substantially as and for the purpose described.

16. The combination, with the inclined

guides C, the upper die L′, and the lower die I, movable relatively thereto, of the inclined trough P, provided with the arrester *q*, actuated by the movements of the die I, substantially as and for the purpose described.

17. The combination, with the inclined guides C, the upper die L′, and the lower die I, movable relatively thereto, of the inclined trough P, provided with the arrester *q*, and the gate *l*, actuated by the movements of the die I, substantially as and for the purpose described.

18. In a soap pressing and stamping machine, the combination of the compress-box, the upper pressing and stamping die movable therein, and the lower die movable to and from said upper die and arranged to carry the cake of soap to be pressed up into said compress-box and compress it between the dies, substantially as and for the purpose described.

JAMES B. LAWTON.

Witnesses:
EDDIE LAWTON,
EDWARD RECTOR.