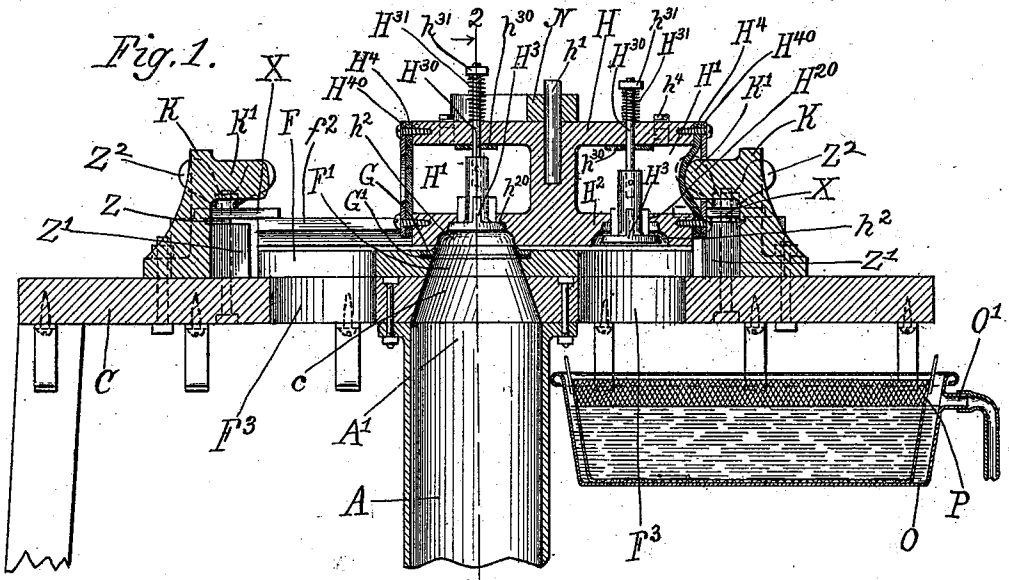
(No Model.) 4 Sheets—Sheet 1.

J. TOBIN.

BUTTER MOLDING MACHINE.

No. 510,453. Patented Dec. 12, 1893.

Fig. 1.



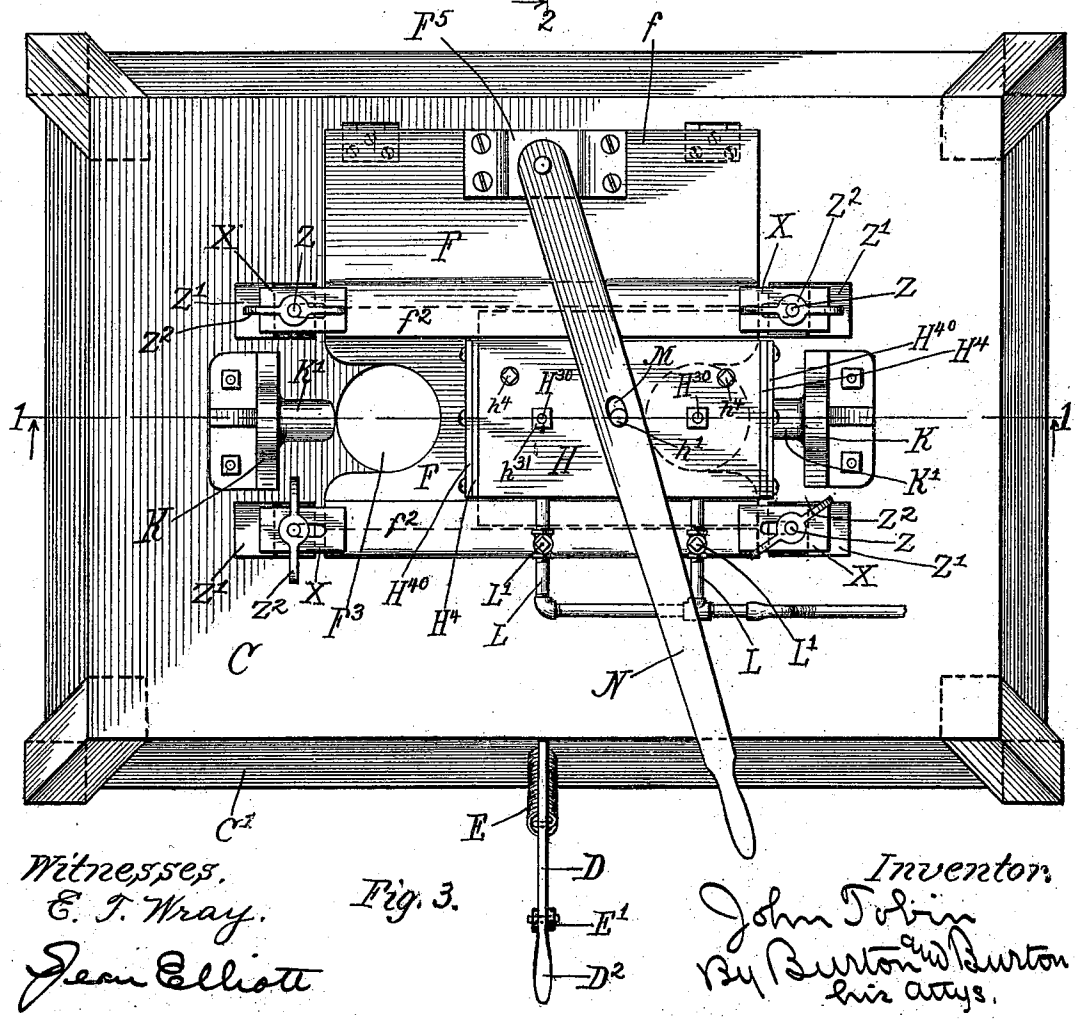


Fig. 3.

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THE NATIONAL LITHOGRAPHING COMPANY,
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(No Model.)

4 Sheets—Sheet 2.

J. TOBIN.

BUTTER MOLDING MACHINE.

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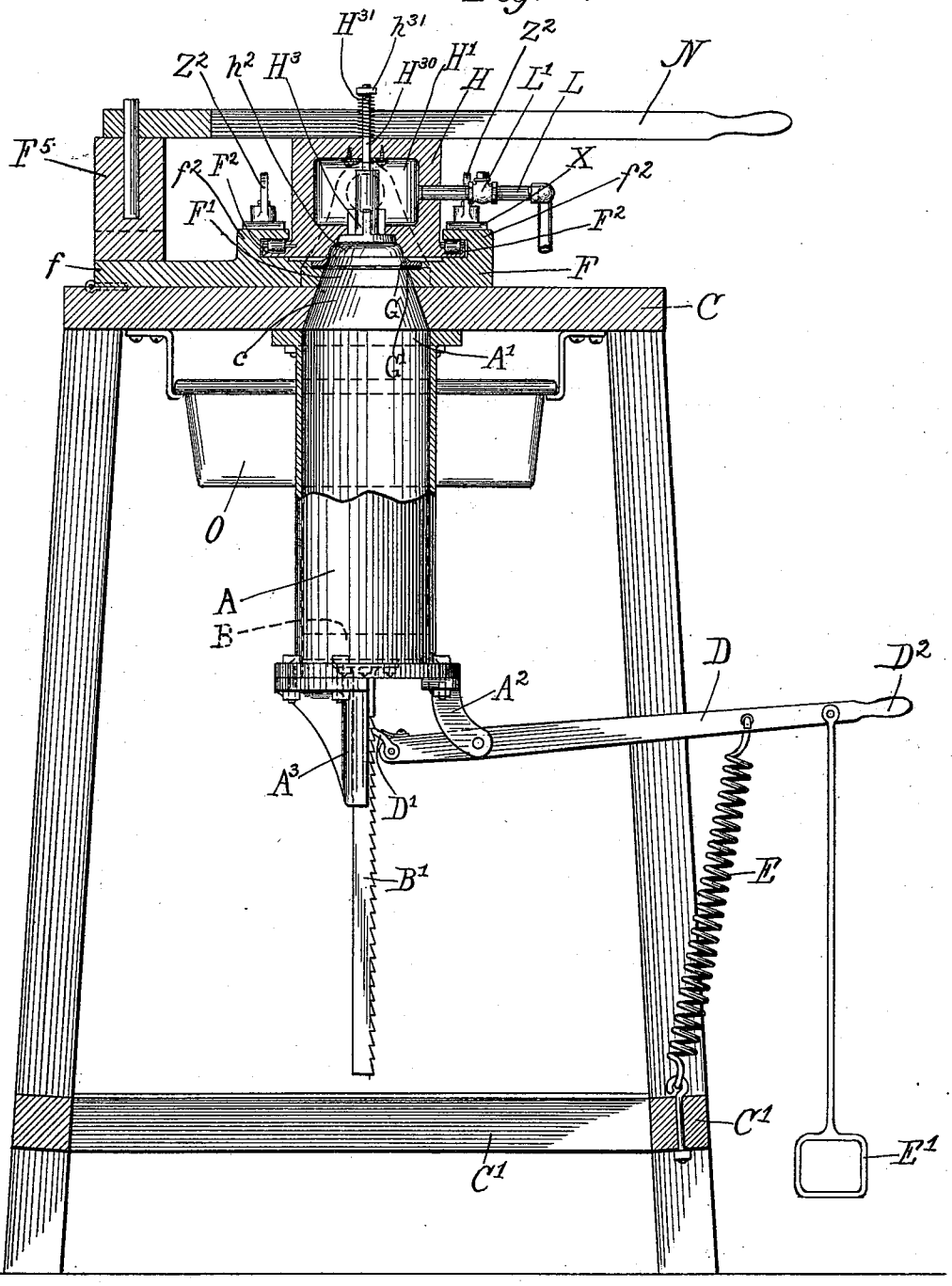
Fig. 2.



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BUTTER MOLDING MACHINE.

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Fig. 4.

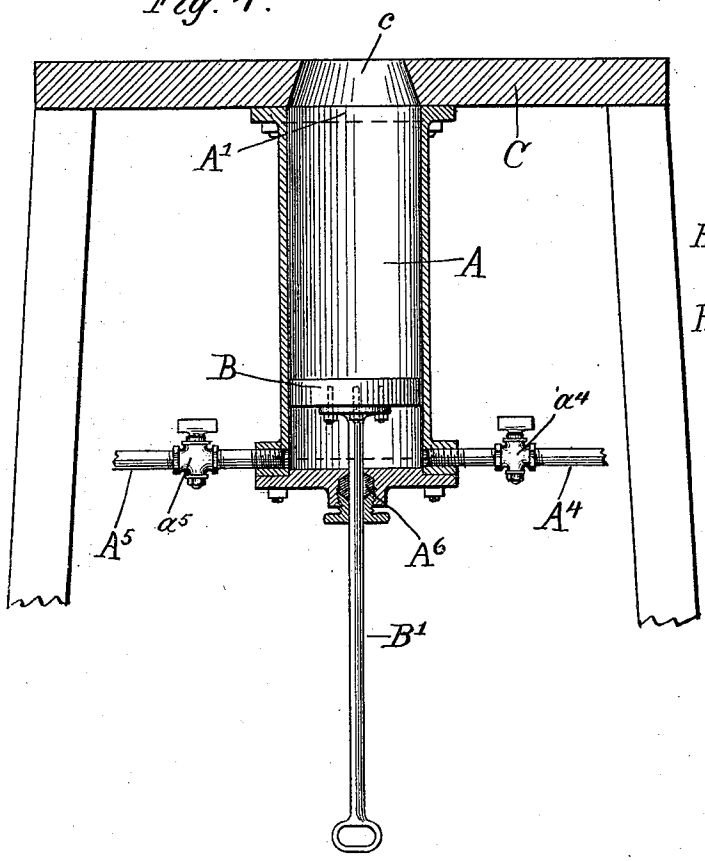

Fig. 7.

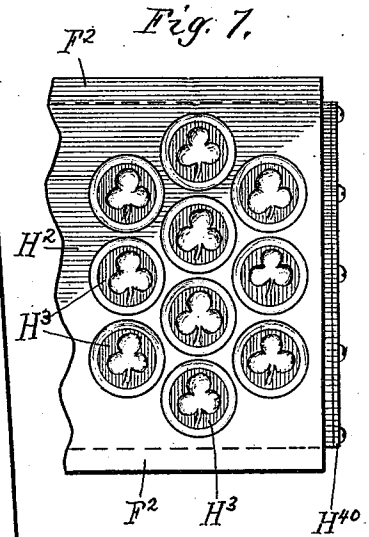

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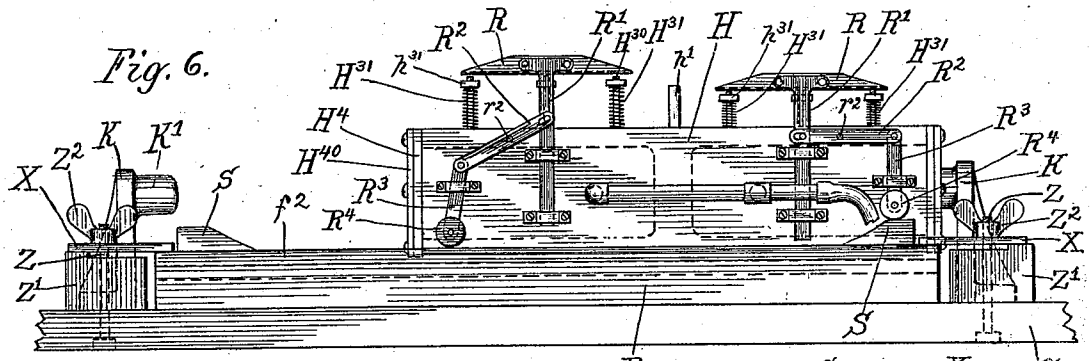
Fig. 6.



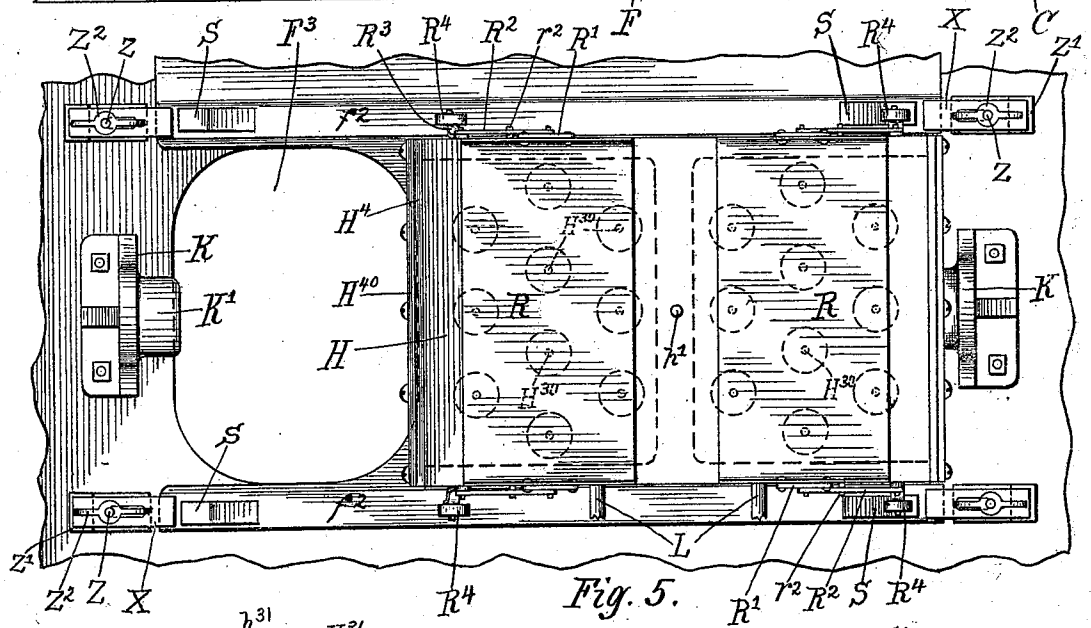


Fig. 5.

Fig. 8.

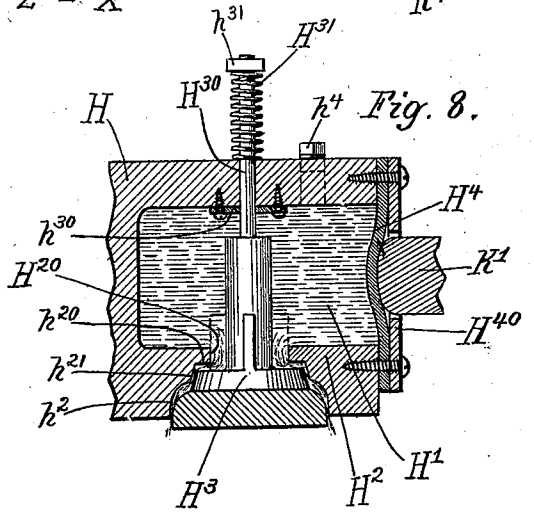
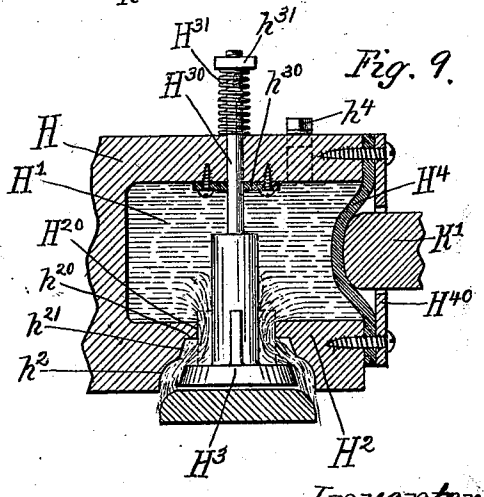


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN TOBIN, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO PAUL J. DAEMICKE, OF SAME PLACE.

BUTTER-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 510,453, dated December 12, 1893.

Application filed December 16, 1892. Serial No. 455,352. (No model.)

To all whom it may concern:

Be it known that I, JOHN TOBIN, a citizen of the United States, residing at Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Butter-Molding Machines, which is fully set forth in the following specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide improved mechanism for rapidly molding butter, or similar substance, into small disks or "pats," as is customary for convenience of table use in public restaurants.

The invention consists in the specific means employed for freeing or stripping the pats, when molded, from the mold and imprinting die, and in the means for collecting or receiving them adapted to prevent them from becoming again aggregated into a mass in the receptacle, and is adapted to other analogous purposes.

In the drawings: Figure 1 is a vertical section of my improved mechanism taken at a plane indicated at the line 1, 1, on Fig. 3. Fig. 2 is a section at the line 2, 2, on Fig. 1. Fig. 3 is a plan. Fig. 4 is a detailed section of a modification of the receiver and devices for expelling butter. Fig. 5 is a plan of a modification in which a nest or group of imprinting dies and molds is employed instead of a single die with each pressure chamber. Fig. 6 is a side elevation of the same modification. Fig. 7 is a bottom or inverted plan of the imprinting dies showing their grouping in the modifications shown in Figs. 5 and 6. Fig. 8 is a section in the same plane as Fig. 1, but upon an enlarged scale, through one of the pressure chambers and mold cavities, showing the die-valve just started off its seat. Fig. 9 is a similar detail section, showing the die-valve fully off its seat, and the butter pat detached from the valve by the water current.

The mechanical nucleus of my improved machine is an upright receptacle A, designed to be charged with the butter or other substance to be molded, and provided with a piston or follower B, adapted to be advanced upward within it to force the butter out at the upper end through the mouth A′, from which the substance would emerge in a prism or cylinder if the piston were operated in the absence of the molds and imprinting dies which constitute the co-operating part of the mechanism. This receptacle A will most economically be made cylindrical in form, and it will be hereinafter referred to as the cylinder A. It is secured on the under side of a bed or table C suitably supported, and I design to employ usual mechanical means for forcing the piston upward and keeping upward pressure against it continuously during the operation of the machine, but I do not limit myself to the use of such mechanical means as I shall herein describe, and any suitable means for applying such upward pressure may be substituted.

The mechanical means illustrated consist of a lever D, fulcrumed on a bracket A^2 rigid with the cylinder A, and carrying at its inner end a spring governed pawl D′, which engages ratchet teeth on the stem B′ of the piston B, said stem being guided in the bracket A^3 which projects down from the cylinder A.

I have shown two means of applying force to the lever D to drive the piston upward in the cylinder,—one consisting of a spring E, connected at one end to the lever and at the other end to one of the bars C′ of the supporting frame bed C, tending to pull the outer end of the lever down and force upward the inner end whose pawl is engaged with the piston stem. The other means consists of a stirrup E′ connected with the lever D, the operator by the foot in the stirrup supplying the downward force on the lever in lieu of or in addition to the force applied by the spring E. Whichever means or whatever other means may be employed to actuate the lever it may be restored to initial position by the hand of the operator, and for that purpose it is provided with a handle D^2.

Other pawl and ratchet expedients may be substituted for the simple one herein illustrated without departing from the substance of this part of the invention. If preferred, instead of any strictly mechanical means for forcing the piston upward and keeping it subject to upward pressure, water pressure may be employed, water being admitted through a pipe A^4 through the cylinder A, under pressure sufficient to accomplish the desired result, and when the piston has been forced upward to its limit, the supply valve a^4 being closed and the valve a^5 in the waste pipe A^5 being

opened, the piston may be pulled down or allowed to descend as butter is packed into the cylinder from the top, and then the valves being reversed the operation will be repeated. The piston stem B′ should in that case pass through a stuffing box A^6 at the bottom of the cylinder.

It will be understood that the bed C is apertured at the end of the mouth of the cylinder A, or, in other words, that such aperture *c* in the bed constitutes a part of the cylinder through which the butter is forced by the piston, and the bed C might be entirely dispensed with, or may be considered merely as a part of the frame work for supporting the cylinder and the other mechanism, for I provide as the final mouth-piece of the cylinder a bed-plate F, hinged at one end *f* to the bed C,—or, in more general terms, having its hinge fixed with respect to the cylinder A,—and having the aperture F′ registering with the upper end of the cylinder A and constituting the true final mouth of that cylinder. This bed-plate F has parallel slide bearings F^2 F^2 on the opposite sides of the mouth F′, which are preferably raised slightly above the general surface of the bed-plate, for a reason hereinafter explained, and between said guide-ways, one on each side of the mouth F′, are two apertures F^3 F^3; or, it may be said that the bed-plate is cut away between the slide bearings at each side of the mouth, for these apertures may be as they are shown without boundary on the side remote from the mouth F′.

G is a metal lining for the mouth F′ which protrudes up above the surface of the bed-plate F to the level of the slide bearings F^2 F^2, the upper edge being preferably acute. This lining is flanged at the lower edge and seated in the bed-plate with an intervening cushion of rubber or like material G′ to give it a slight capacity for yielding and to prevent its touch against the die-carrying platen or mold-block hereinafter described from being too hard and at the same time insure its complete contact with said block. The purpose of elevating the slide bearings is to bring them to the level of the upper edge of this lining, and any mechanic will readily understand thereby how to vary the structure to accomplish the same result otherwise.

Upon the slide bearings F^2 F^2 I mount the double chambered traveler H. The lower wall or floor H^2 of each chamber H′ is a mold-block and has any desired number of mold apertures h^2 of the size and form of the pats or molds of butter to be formed, all of the said apertures in each chamber floor being grouped within the limit of the dimensions of the mouth F′ of the bed-plate F, so that when the traveler stands with either chamber directly above the mouth all of the mold apertures in the mold-block which forms the bottom of that chamber may lead directly from the mouth of the cylinder and be in position to be charged therefrom. For each of the apertures h^2 I provide as the top or upper boundary of the mold cavity a valve H^3 whose downwardly facing surface may contain any desired imprint to be formed upon the butter pat, and which may also be referred to as a die. This die-valve has a stem H^{30} extending up through the chamber and through the upper wall thereof, a suitable packing washer h^{30} being provided to make it water-tight at the point where it penetrates the upper wall of the chamber, and above said wall and outside of the chamber it is provided with a spring H^{31} re-acting against the top of the chamber and against a nut h^{31} screwed on to the upper threaded end of said stem and serving as a means of regulating the tension of the spring which, as will be understood from this description, operates to uphold the die-valve keeping it on its flat seat h^{20} about the aperture H^{20}, which leads to the chamber from the mold cavity. There is provided also for the valve in the margin of the aperture H^{20}, below the flat seat h^{20} a tapered seat h^{21}, and the valve is itself correspondingly tapered at its margin to fit said seat. The remote ends of the two chambers H′ H′ are closed by elastic diaphragms H^4 H^4 suitably bound at their outer margins to the body of the chambers as by annular plates H^{40} H^{40}, leaving the center of the diaphragm exposed through the central opening of such annular plate. The distance from the center of the mold cavity or group of mold cavities in the bottom of the chambers respectively is such that when one cavity or group of cavities is registered with the mouth F′ of the cylinder the other cavity or group of cavities is overhanging one of the discharge apertures F^3 F^3; and the entire traveler is adapted to reciprocate on the slide bearings F^2 F^2 the distance from center to center of said cavities or groups so that they may be brought alternately in position to register with the cylinder mouth and alternately to register with the discharge apertures F^3 F^3 respectively.

Upon the bed or frame C,—or, speaking generaliy, rigid with the cylinder A,—at the opposite ends respectively of the track of reciprocation of the traveler, I mount fixed brackets K K, having projecting from them and toward the traveler the bumpers K′ K′ in line with the central openings in the plates H^{40} H^{40}, and adapted to protrude into said openings and against the yielding diaphragms H^4 H^4 when the traveler at the limits respectively of its movement approaches the one or the other bumper. These bumpers protrude far enough so that the diaphragms collide with them respectively a little before the limit of the traveler is reached, and the bumpers are thereby caused to push the yielding diaphragms inward at each limit of such movement.

L L are water pipes, leading into the chambers H′ H′ respectively, and provided with check valves L′ L′ opening inward and seating by pressure outward so that they admit water and prevent its return. They are de-

signed to be connected with any source of water supply which will afford the moderate pressure needed, as hereinafter explained.

N is a lever fulcrumed on the post F^5, rigid with the bed plate F, and having a slot M attached to and engaging the traveler by means of a stud h' protruding into the slot M, so that by means of said lever the traveler may be reciprocated in its slide bearings.

The mode of operation of this structure may now be understood as follows: The cylinder A being charged with butter and upward pressure being applied to the piston tending to force the butter out of the mouth, the traveler being at one limit of its movement, so that the mold cavities connected with one of the pressure chambers H′ are over the mouth of the cylinder, the butter is thus forced into all such mold cavities so exposed above the mouth of the cylinder, and the pressure upon the piston is made sufficient to produce the complete imprint of the dies upon each pat of butter thus molded. This process will occur practically instantaneously, requiring no appreciable halting in the action of the traveler, which, however, must come to rest at this position because at this position it reverses its direction of movement; and being now moved to the opposite limit of its path, the metal lining G of the mouth constituting an upstanding flange with an acute edge, as described, being held elastically in contact with the under face of the mold-block or floor of the pressure chamber having the mold cavities, scrapes said bottom surface clean, leaving each mold cavity filled and without any protruding excess of butter. By the time the mold cavity or group of cavities has passed clear of the intervening portion of the bed-plate between the mouth and the discharge aperture at the end toward which the traveler is moving, so that all the mold cavities overhang said discharge aperture, the bumper K′ is in contact with the diaphragm H^4 and the further movement of the traveler causes the bumper to be protruded into the pressure chamber, forcing the yielding diaphragm thereinto and expelling water past the valves H^3, the pressure produced by the intruding bumper forcing the valves downward off their seats. A careful analysis of this action will make it apparent that at the very first pressure of the bumper upon the diaphragm being exerted against the water within the chamber, which is absolutely unyielding, will unseat the valves to an appreciable extent and send a knife-edge jet of water all around them which will have a tendency to follow the periphery of the mold cavity between the same and the butter therein and sever the butter from the mold, if there exists any adhesive tendency; and that as the pressure continues and more water is expelled, the valves being further depressed will by their own downward movement carry the butter pat down away from the peripheral wall of the mold cavity, admitting a considerable volume of water past the valves respectively on to the annular marginal portion of the butter pat which protrudes beyond the periphery of the die or valve; and this water under pressure thereby acts as a cylindrical stripper to push the butter pat off from the face of the die to which it will naturally have adhered, especially if the figure cut upon the die to be imprinted upon the butter be deeply cut. By this process, which will pass through all its stages almost instantaneously as the traveler collides with the bumper and is then pushed a very short distance farther after the collision, each butter pat will be forced off its imprinting die or valve and delivered downward through the discharge aperture of the bed-plate. While this delivery is occurring from one set of mold cavities, the other set connected with the other pressure chamber is overhanging the mouth of the cylinder and receiving its charge of butter, and upon the reversal of the movement of the traveler a similar process to that above described will be repeated at the other end of its course, and a delivery of pats will be made through the other discharge aperture of the bed-plate.

For the purpose of receiving the molded pats, I provide underneath each discharge aperture a pan O, which will be in the first instance filled with water to the level of its overflow aperture O′, and in which all the water forced out of the pressure chamber above it will be received, causing a constant overflow of water through the overflow aperture O′. This aperture is at a point remote from the end of the pan which is overhung by the discharge aperture of the bed-plate and at which the butter pats and water are delivered into the pan, so that there is a constant current from that receiving end of the pan toward the opposite end at which the overflow aperture is located. This will cause the butter pats, as they are dropped from the dies, falling on to the water to float immediately away from the point at which they are dropped toward the other end and leave the point clear to receive the next discharge, thus avoiding to a large extent the piling up of pats one upon another, which might cause them to become agglomerated again into an integral mass before they could be removed to the refrigerator. For the convenience of thus removing them, and also further to assist in keeping them separate, I provide a basket or woven wire pan or tray P, which is set into the pan O, constituting as it were a lining for the same and which may be lifted out and thereby serve to dip out all the butter pats floating at the time in the pan; and the intended mode of operation is that this shall be done and a new basket substituted as frequently as the entire surface of the water is covered with butter pats, the basket thereby taking out a single layer each time. The basket may fit closely within the pan if desired, except at the vicinity of the overflow aperture, and at that point the wall of the basket stands away from the

wall of the pan a little distance. The purpose of this is to prevent the overflow being closed up by the butter pats floating against it, as they naturally otherwise would. Such a precaution, consisting of the interposition of a screen at a little distance from the overflow aperture should be employed, even if the basket for the other purposes described were not used, and the end of the basket which serves for this purpose has this special function independent of the general function of the basket. For convenience of compact storage in the refrigerator the baskets are made flaring just enough so that when nested one within another their bottoms will be separated vertically a distance a little greater than the thickness of the butter pats. It might seem unnecessary to make the baskets in the first instance deeper than necessary to retain the butter pats, but I prefer that there should be sufficient depth of water above the bottom of the basket to prevent any butter pat falling through its entire depth and striking the bottom; hence I make the basket substantially as deep as the pan, and by their flaring shape provide for their economical storage.

When a plurality of mold cavities and dies operating as valves to close them are associated with each pressure chamber, it might happen that by reason of variation in the tension of the springs H^{31}, or on account of adhesion of some of the valves to their seats, the water would obtain sufficient egress past a few of the valves when the bumper collides with the diaphragm, and the remainder would not be forced off their seats at all, and, as a consequence, only a portion of the pats would be delivered from the molds. To remove this liability, when each pressure chamber has a plurality of mold cavities and valves in the bottom, as shown in Figs. 5 and 6, I provide a platen R overhanging the upper ends of all the valve stems, being upheld upon two arms R′ R′ rigid with the platen and guided upon the outside of the traveler, and having pivoted to their lower ends respectively the levers R^2 R^2, which are fulcrumed upon the studs r^2 r^2 projecting from the outside of the traveler, and to the opposite ends of said levers I connect the vertical slide bars R^3 R^3, which are guided on the traveler and carry at their lower ends rollers R^4 R^4. The weight of the slide bars R^3 and rollers R^4 is sufficient to uphold the platen and prevent it from resting its weight upon the valve stems, but on the bed-plate F at opposite sides of the path of reciprocation of the traveler I provide the inclined cams S S in the paths respectively of the rollers R^4 R^4 as they are carried with the traveler in its reciprocation, and in such position longitudinally with respect to the path of the traveler that the rollers will collide with said cams at about the same instant that the bumper collides with the diaphragm or nearly enough in coincidence with the latter collision to cause the cams, as the traveler continues its movement, to force the rollers up and pull the platen down to bring the platens on to the ends of the valve stems and forcing downward the valves with a positive and uniform movement so that the water will unavoidably be forced out around each valve and on to each butter pat to strip it from the die.

When a plurality of pats is molded at one time by the employment of a plurality of mold cavities in connection with each pressure chamber, I prefer the grouping of the mold cavities in the form shown in Fig. 7, because it is desirable to make the stroke or travel of the traveler as short as possible, and at the same time it is not desirable to make either the pressure chambers or the butter receiver excessively oblong, and the arrangement shown gives a medium stroke and a medium variance between the two dimensions of the chamber.

It will be evident that a similar method may be employed to mold other plastic substances besides butter, but if it should be applied to other than oleaginous substances, or especially if it should be applied to substances particularly insoluble in water a different fluid should be substituted for the water. Thus, oil might be substituted in many instances, and alcohol would be an appropriate substitute in other cases. I do not limit myself to the liquid, nor to the substance molded, although I have designed this machine for the specific purpose of molding butter, as stated.

The bed-plate F carrying the mold-block and chambers and all appurtenances as well as the lever for reciprocating the traveler, being hinged to the receiver supporting frame, is adapted to be tilted back and completely expose the upper end of the receiver so that it may be easily charged with the substance to be molded. In operation, it being essential that the bed-plate should make perfectly tight junction by its contact with the bed around the margin of the aperture *c*, in order that butter may not be forced between them while it is being forced into the mold cavities, it is necessary not only to fit the two surfaces accurately to each other but also to bind them tightly together during the molding operation, and inasmuch as the hinge connection is liable to be loosened to make the junction reliably tight, I prefer not to rely upon that connection at all for the purpose; and especially it is important to relieve the hinges of the strain which they would experience from the pressure which fills the molds if the hinges were relied upon as part of the means for holding the two surfaces in contact. I therefore provide for this purpose, to wit, binding the bed-plate F down to the bed C during the molding operation, the bolts Z Z Z Z inserted up through the bed C and through the posts Z′ Z′ Z′ Z′ on the upper side of the bed outside of the bed-plate F, two of them being in line parallel with the hinges at one side of the path of reciprocation of the trav-

eler, and the other two in line parallel with the hinges at the other side of said path. The upper ends of these bolts are provided with thumb-nuts Z^2 Z^2, &c., and upon the bolts between the ends of the posts and the thumb-nuts respectively the buttons or clamps X X, &c., are located and adapted to lap their ends upon the upper surfaces of the ribs f^2 in which the slide bearings of the traveler are formed, so that when the thumb-nuts are tightened the bed-plate F is bound downward on to the bed C directly in the vertical planes of the two bearings respectively of the traveler and held in that position independently of the hinges. Preferably the posts Z' Z', &c., are cut away around the bolts and inward therefrom, so that the clamp buttons X X, &c., bear at one end upon the posts and at the other end upon the ribs, and are without bearing at the under side below the thumb-nuts with the obvious advantage of obtaining more perfect action for the purpose for which they are designed.

In order to permit the air to escape from the chambers when they are first filled, I provide the removable plugs h^4 which may be withdrawn while the chambers are being filled and afterward replaced and remain while the device is in use.

I claim—

1. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and which constitutes part of the wall of the mold cavity, means for supplying liquid under pressure to the chamber, and means for forcing the valve off its seat whereby the liquid is discharged past the valve against the molded substance to force the latter from the mold.

2. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and whose back constitutes a part of the wall of the mold cavity, and which is adapted to be unseated by moving into said cavity, means for supplying liquid under pressure to the chamber, and means for forcing the valve off its seat into the mold cavity whereby the liquid is discharged past the edge of the valve on to the molded substance to strip the latter off the back of the valve.

3. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and constitutes part of the wall of the mold cavity adapted to be unseated by moving into said cavity, means for supplying liquid under pressure to the chamber, a spring tending to hold the valve seated against such pressure, and means for forcing the valve off its seat, substantially as set forth.

4. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and constitutes part of the mold cavity, means for supplying liquid under pressure to the chamber, a check valve to prevent the return of liquid thus applied, and means for applying pressure to the liquid in the chamber in excess of that by which it is supplied thereto to force said valve off its seat and discharge water past the same into the mold cavity, substantially as and for the purpose set forth.

5. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and constitutes part of the wall of the mold cavity, means for supplying liquid under pressure to the chamber, and a check valve to prevent the return of liquid thus supplied, the chamber wall having an opening closed by a yielding diaphragm, and a bumper adapted to collide with said diaphragm to force the same inward and apply pressure to the water in the chamber in excess of that by which it is supplied thereto, substantially as and for the purpose set forth.

6. In a machine for molding plastic substance in combination with the mold cavity, a chamber communicating therewith, a valve which controls such communication and whose back constitutes part of the wall of the mold cavity and which is adapted to be unseated by moving into said cavity, means for supplying liquid under pressure to the chamber, a spring operating upon the valve to hold it on its seat against such supply pressure, the chamber wall having an opening closed by a yielding diaphragm and a bumper adapted to force the diaphragm inward to apply pressure to the liquid contents thereof in excess of the supply pressure whereby the valve is forced from its seat, and the liquid is forced from the chamber into the mold cavity, substantially as set forth.

7. In a machine for molding plastic substance, in combination with the receiver and means for ejecting the substance therefrom, a bed-plate having an aperture which constitutes the mouth of the receiver; a chambered traveler reciprocating over said mouth, such chamber having its wall proximate to said mouth provided with a mold cavity on its outer side facing the mouth, such cavity communicating with the chamber; a valve which controls such communication and constitutes part of the wall of the mold cavity; means for reciprocating the traveler to bring the mold cavity alternately over and away from the receiver mouth; means for supplying liquid to the chamber; the chamber wall comprising a yielding diaphragm; a fixed bumper adapted to arrest the diaphragm and force it inward at that limit of the traveler's movement at which the mold cavity is out of communication with the receiver mouth; substantially as set forth.

8. In a machine for molding plastic substance, the receiver and the means for forcing

the substance therefrom; a bed-plate having an aperture which constitutes the mouth of the receiver, provided with an upstanding acute-edged marginal lining or flange; a block having mold cavities facing the receiver mouth and mounted in slide bearings on opposite sides of the mouth, and means for reciprocating it back and forth over the same; the acute edged lining of the mouth being in contact with the face of the mold block as it reciprocates; whereby an interval exists between the surface of the bed-plate and the face of the mold-block to prevent the molded substance in the mold cavity from being dragged therefrom by adhesion to the bed-plate, substantially as set forth.

9. In combination with the bed-plate having the discharge mouth of the receiver, and the mold-block reciprocating thereabove, the acute edged upstanding flange constituting a marginal lining for said mouth, and an elastic cushion interposed between the same and a bed-plate; whereby the acute edge is held yieldingly in contact with the face of the mold-block as the latter reciprocates, substantially as set forth.

10. In a machine for molding plastic substance, in combination with the receiver from which the substance is forced into the mold cavity, a mold-block having a plurality of mold cavities grouped within the dimensions of the mouth of the receiver and adapted to be simultaneously charged therefrom; a chamber with which said mold cavities communicate, and valves which control such communication and constitute part of the wall of the mold cavity; means for supplying liquid under pressure to such chamber; the valves having their stems protruding outside of the chamber; a platen adapted to be moved against the ends of the stems to force the valves simultaneously off their seats; substantially as set forth.

11. In combination with the receiver and a chambered traveler reciprocating past the mouth of it, having a plurality of mold cavities in the outer side of that wall of the chamber which is proximate to the mouth of the receiver and grouped within the dimensions of said mouth so as to be charged simultaneously therefrom; a chamber in said traveler with which the mold cavities communicate, and valves which control such communication and constitute, each, part of the wall of the mold cavity whose communication it controls, means for supplying liquid to the chamber; the valves having their stems protruding outside of the chamber; a platen adapted to contact the ends of all the valve stems; guide bearings for lever connections from said platen terminating in the cam rolls, and the inclined cams, and a bumper adapted to transmit pressure to the liquid in the chamber; said bumper and cams being located substantially as described, whereby they simultaneously perform their respective functions to open the valves and apply pressure to the water in the chamber to drive it past the valves, substantially as set forth.

12. In combination with the molding devices, a pan located below the same into which the molded forms may fall from the mold; means for affording a supply of liquid to the pan near the point at which the molded forms are received, the pan having an overflow aperture at a point remote from the supply; whereby the molded forms are received in a liquid having a movement away from the point at which they are received: substantially as set forth.

13. In combination with the molding devices, the pan located below the same into which the molded forms fall from the mold having means for supplying liquid to the pan, and a basket or reticulated tray within the pan whereby the molded forms may be gathered therefrom, substantially as set forth.

14. In a machine for molding butter, in combination with the mold cavities and means for forcing the butter thereinto; water chambers communicating with such cavities and means for forcing the water therefrom against the forms in the cavities to dislodge them therefrom; substantially as set forth.

15. In a machine for molding butter, in combination with the molding devices and the means associated therewith for forcing water through the mold cavities to dislodge the molded forms; a pan located below the mold and adapted to receive the molded forms and the water from the mold, said pan having an overflow aperture at a point remote from the point at which the molded forms are received: substantially as and for the purpose set forth.

16. In a machine for molding plastic substance, in combination with a receiver and its supporting frame and means for ejecting the substance from it, a bed-plate hinged to the receiver-supporting frame and having an aperture which constitutes the discharge mouth of the receiver, a mold-block mounted on said bed-plate and having mold cavities adapted to be charged from the receiver mouth, substantially as set forth.

17. In combination with the mold-block and the bed-plate on which it is mounted, the receiver from which the mold cavities are charged by pressure and the frame which supports it, said bed-plate being hinged to said frame, and disengageable clamps which bind it thereto between the line of the hinges and the mold cavity, whereby the hinges are relieved of the pressure by which the mold cavities are filled, substantially as set forth.

In testimony whereof I have hereunto set my hand, in the presence of two witnesses, at Chicago, Illinois, this 3d day of December, 1892.

JOHN TOBIN.

Witnesses:
CHAS. S. BURTON,
JEAN ELLIOTT.