(No Model.)

2 Sheets—Sheet 1.

E. S. BOYNTON.

BUTTER WORKER AND MOLD.

No. 502,428. Patented Aug. 1, 1893.

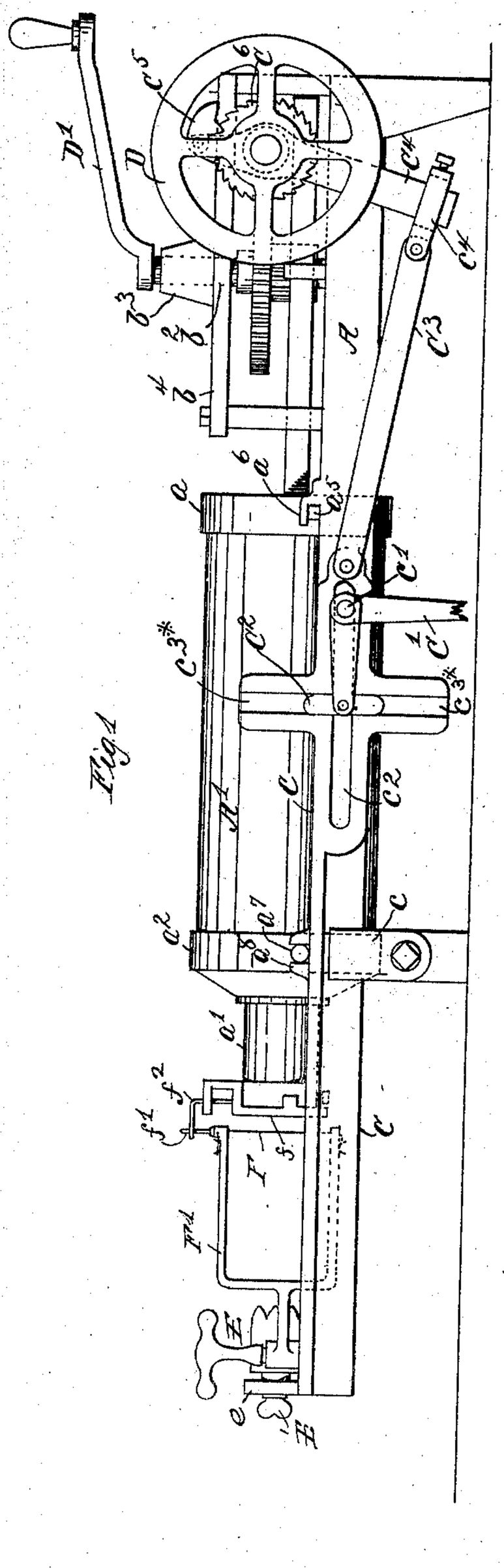

Fig. 1

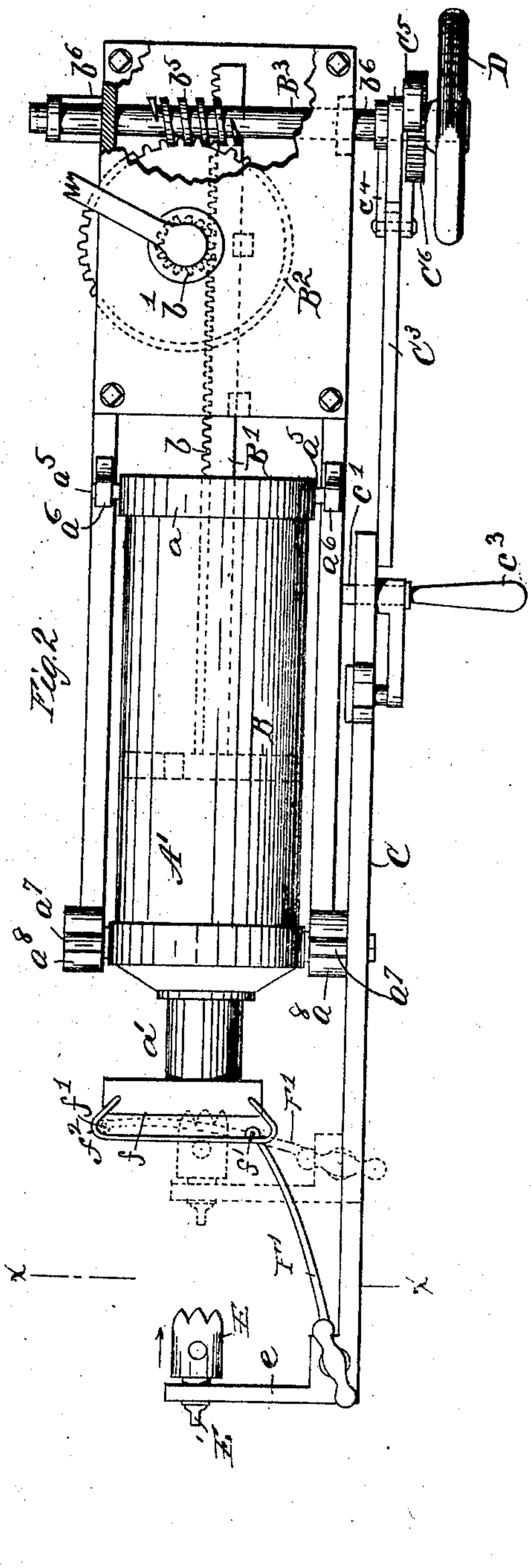

Fig. 2

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3

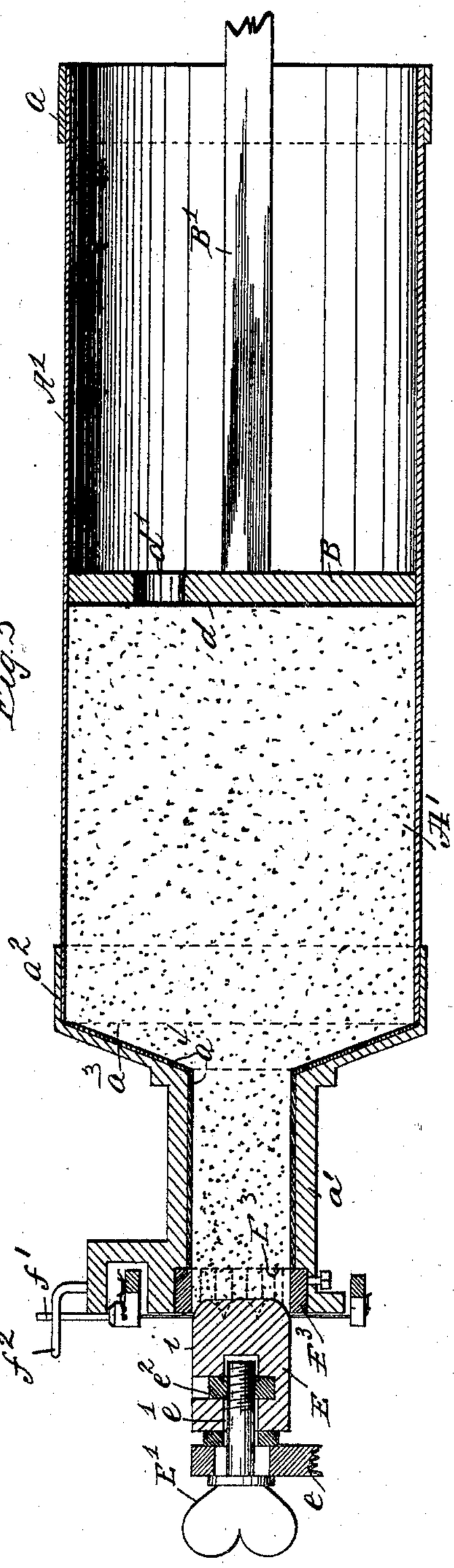


Fig. 4

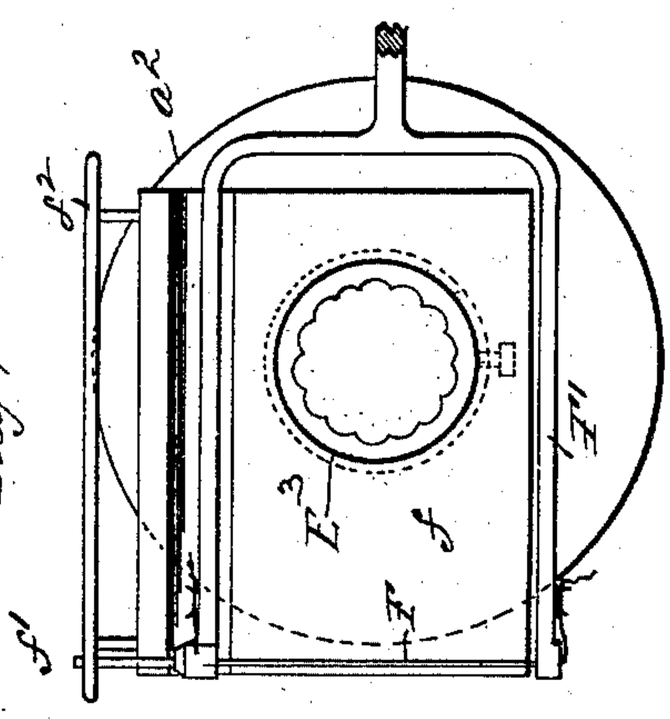


Fig. 6

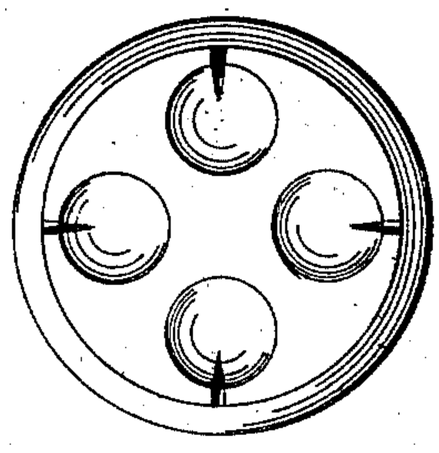
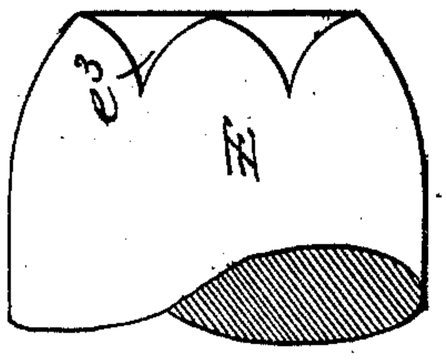


Fig. 5



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UNITED STATES PATENT OFFICE.

EDWARD S. BOYNTON, OF BROOKLYN, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE AMERICAN BUTTER MACHINE COMPANY.

BUTTER WORKER AND MOLD.

SPECIFICATION forming part of Letters Patent No. 502,428, dated August 1, 1893.

Application filed June 9, 1892. Serial No. 436,071. (No model.)

To all whom it may concern:

Be it known that I, EDWARD S. BOYNTON, of Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Forming Butter Cakes, of which the following is a specification.

This invention relates to machines for shaping and cutting from a mass of butter the small cakes or "pats" usually served at table, and it consists in the construction and novel arrangement of parts as hereinafter set forth.

In the accompanying drawings Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a top or plan view thereof with certain parts in section and certain parts broken away to clearly show other parts. Fig. 3 is a longitudinal vertical section on an enlarged scale, of a portion of the apparatus. Fig. 4 is a transverse section through the line x, x of Fig. 2, showing the cutter employed. Fig. 5 is an enlarged side view of a die or mold employed. Fig. 6 is an enlarged view of a die showing lateral air escapes.

Referring by letter to the drawings, in which similar letters indicate similar parts, A, designates the frame of the machine, comprising side and end rails provided with suitable legs; and A′, designates a horizontally arranged butter receptacle here shown as cylindrical and removably supported on the frame A. This receptacle A′, may consist of any suitable material, such as sheet metal, but I prefer it to have an interior coating or lining of tin, so that the butter contained therein will not be injured by metallic salts, or the like.

The receptacle A′ is open at its rear end, and at its rear end is provided with a band a of heavy or strong metal. At its forward end the receptacle is provided with a reduced outlet a'. The outlet spout a' is here shown as attached to a metal ring or band a^2, removably engaging the receptacle A′. This outlet a' and its end wall a^3 are lined with tin a^4.

As a means for removably supporting the receptacle A′ on the frame A, I have shown the ring a as provided with lugs a^5, which engage under hook-shaped keepers a^6 on the upper sides of the side rails of the frame, and the ring or band a^2 is provided with lugs a^7 which engage in notches a^8 formed on the said side rails.

The receptacle A′ is made removable from the parts a, a' because it is designed that a number of receptacles may be furnished suitably packed with butter, so that when the butter is removed, and formed in pats, from one receptacle, a full one can be substituted for the empty one, which can be immediately cleaned.

I will now describe the means for forcing the butter out of the end of the outlet and cutting the cakes or pats.

B designates a plunger movable within the receptacle A′, and having a plunger rod B′ provided with rack teeth b, with which engages a pinion b' mounted on a vertical shaft b^2 having a bearing at its lower end on a transverse bar on the frame A, and at its upper end having a bearing in a block b^3 erected on a plate b^4 supported by posts extending upward from the frame A. A worm wheel B^2 on the shaft b^2 engages normally with a worm b^5 on a worm shaft B^3, having bearings b^6 on the frame A, and which is movable longitudinally for a purpose as hereinafter set forth.

C, designates a reciprocating bar, supported by means of a bracket c secured to one of the side bars of the frame A and a stud c' extending outward from said side bar through a slot c^2 arranged longitudinally in the bar C. A bell-crank C′ is pivoted at its angle to the stud c'. One arm of this bell-crank is provided with a handle c^3 and the other arm thereof is pivotally connected to a block C^2 adapted to slide in ways c^{3*} on the bar C, arranged at right angles to the slot c^2 and intermediate of its ends. Obviously by turning the bell-crank C′ the block C^2 will slide up and down in the way c^{3*} and reciprocate the bar C. A link bar C^3 is pivotally connected to one end of the bar C and at its other end is pivoted to a piece c^4 adjustably connected to a dog carrying lever C^4. The piece c^4 surrounds the dog lever C^4 and is adjustable up and down thereon. It can be held in its adjusted place by means of a set screw as shown. This adjustment is provid-

ed to regulate the throw of the dog and therefore regulate the plunger stroke and the thickness of the butter cakes or pats. The dog carrying lever C^4 near its upper end is provided with a hole through which the worm shaft B^3 passes and a dog C^5 pivoted to the upper end of this lever engages with a ratchet wheel C^6 affixed to the shaft B^3. By this construction it will be seen that when the bar C is reciprocated its backward movement will cause the dog C^5 to ride over the teeth of the wheel C^6 in the usual manner and that during its forward movement the dog will engage with a tooth, rotate the worm and the worm wheel and cause the plunger to move forward sufficiently to force a small section of butter out the forward end of the receptacle ready to be cut off.

As to return the plunger out of the receptacle when all the butter is forced out would be too slow by a reverse rotation of the worm wheel, I provide other means therefor, as follows: The shaft B^3 is movable longitudinally in its bearings. It is provided at its outer end with a hand wheel D, by the turning of which the worm b^5 turning against the teeth of the worm wheel, which is now stationary, will move the shaft until the worm is out of engagement with the worm wheel; then by rotating the shaft b^2, by means of a crank handle D′, on its upper end, the plunger will be quickly retracted.

I will now describe the means for ornamenting the top of the butter cake or pat and severing it from the main portion of the butter.

E, designates a die mounted on an arm *e* extended from a forward extension of the bar C. This die is preferably of wood and is preferably adjustable on and removable from the arm *e*. I have shown it as secured to the arm *e* by means of a screw bolt E′ extended through and movable vertically in a slot in the arm *e*. The die has a longitudinal hole *e′* made in it and it is also provided with a transverse opening into which a metal nut e^2 may be placed so that its threaded opening may register with the hole *e′* in order that the screw bolt E′ may engage therewith. I have found that if the ornamental end of the die be made concave or has its periphery at all parts extended beyond its central portion, it is difficult to make a good impression in the butter because of the air cushion formed, unless the die is constructed with air escapes, as shown in Fig. 6. In making the ornamental die, I prefer to so form it that depressed portions will gradually incline rearward and outward from the center as at e^3. This allows the air to escape from between the die and butter.

I may provide means for ornamenting the edge of the butter cake or pat; as here shown, this means consists of what I term a peripheral die, made in the form of a ring or bushing E^3, secured by means of a set screw in the end of the outlet. Of course a peripheral die of any desired configuration may be employed, or one having a plain interior surface may be used.

In Fig. 3 the die will be seen as extended slightly within the outlet *a′*. This occurs at the end of the backward stroke of the bar C and imprints the end of the butter before it is pushed forward to be cut off.

F, designates a cutter movable across the mouth of the outlet *a′* to sever a pat of butter, which may fall into a receptacle placed to receive it. This cutter is in the form of a wire and is connected at its ends to a frame F′ pivotally connected to the forward extension of the bar C. The operation of the cutter is as follows: After a section of butter shall have been ornamented by the die and pushed forward by the plunger, the bar C will begin its backward movement. This will bring the cutter against the face *f*, of the outlet and the continued backward movement of the bar will cause the frame F′ to turn on its pivot and move the cutter across the outlet and sever the butter, which will fall into a pan or other receptacle. Upon the reverse movement of the bar C an upwardly extending arm or pin *f′* on the frame F′ will engage with a keeper f^2, secured to the front *f*, and cause the frame F′ and cutter F to return to a normal position as shown in Fig. 2.

When a receptacle A′ is filled with butter and placed in the machine I place against the rear end of the butter a tinned metal disk *d* against which the plunger will strike when forcing the butter forward. To prevent the plunger, in its outward movement, from drawing the disk *d*, or butter, with it by air suction, I provide the plunger with a hole *d′* through which air may enter.

Having described my invention, what I claim is—

1. The combination with the receptacle of the plunger, having the air hole, the disk forward of the plunger the cutter, the die a reciprocating bar having an arm on which the die is adjustably mounted and mechanism substantially such as described comprising a crank for operating said movable parts, in both directions substantially as specified.

2. In a machine of the character described, the combination of the cylindrical receptacle having the reduced outlet, a plunger, provided with an air hole, operating in said receptacle, a disk forward of the plunger and movable in the receptacle a plunger-rod having a rack portion, a reciprocating bar and mechanism between said bar and plunger-rod whereby a forward movement is imparted to the plunger during a forward movement of the bar, substantially as specified.

3. The combination with the receptacle of the plunger having the rod provided with a rack, the vertical shaft having the gear engaging with said rack, a worm wheel on said shaft, a worm engaging therewith, a ratchet wheel on the worm shaft, a dog, a lever on which the dog is mounted, a reciprocating

bar, a link-bar pivoted at one end thereto, and at the other end having an adjustable connection with the dog lever, substantially as specified.

4. The combination with the receptacle of the plunger, the plunger operating mechanism, comprising a reciprocating bar a cutter movable across the outlet of the receptacle, a frame carrying the cutter and pivoted to the said reciprocating bar, an arm or pin extending from said frame, and a keeper to engage with said arm or pin to return the cutter and frame to a normal position, substantially as specified.

EDWARD S. BOYNTON.

Witnesses:
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