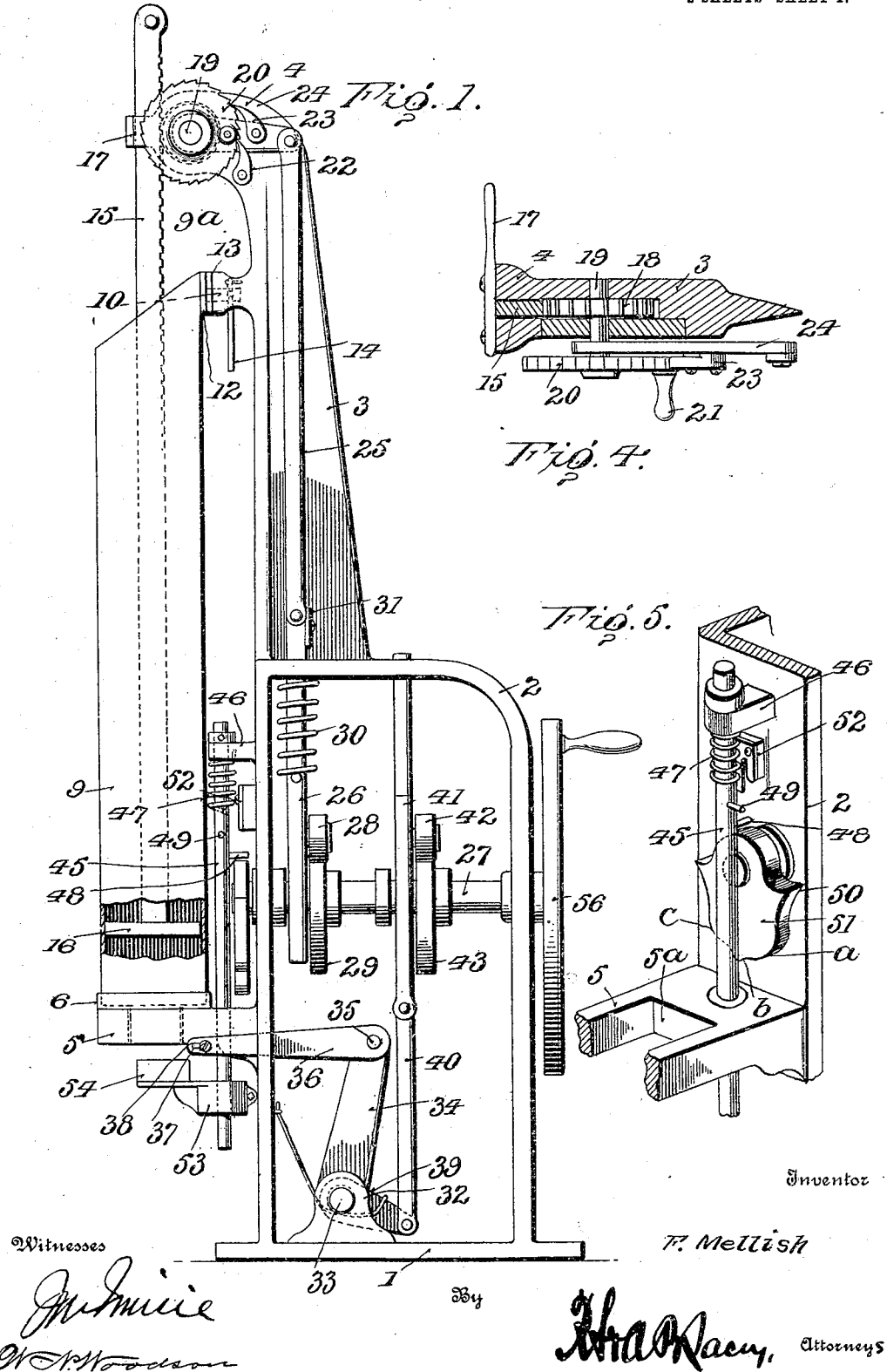


F. MELLISH.
 BUTTER MOLDING AND PRINTING MACHINE.
 APPLICATION FILED NOV. 2, 1908.

932,043.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 1.

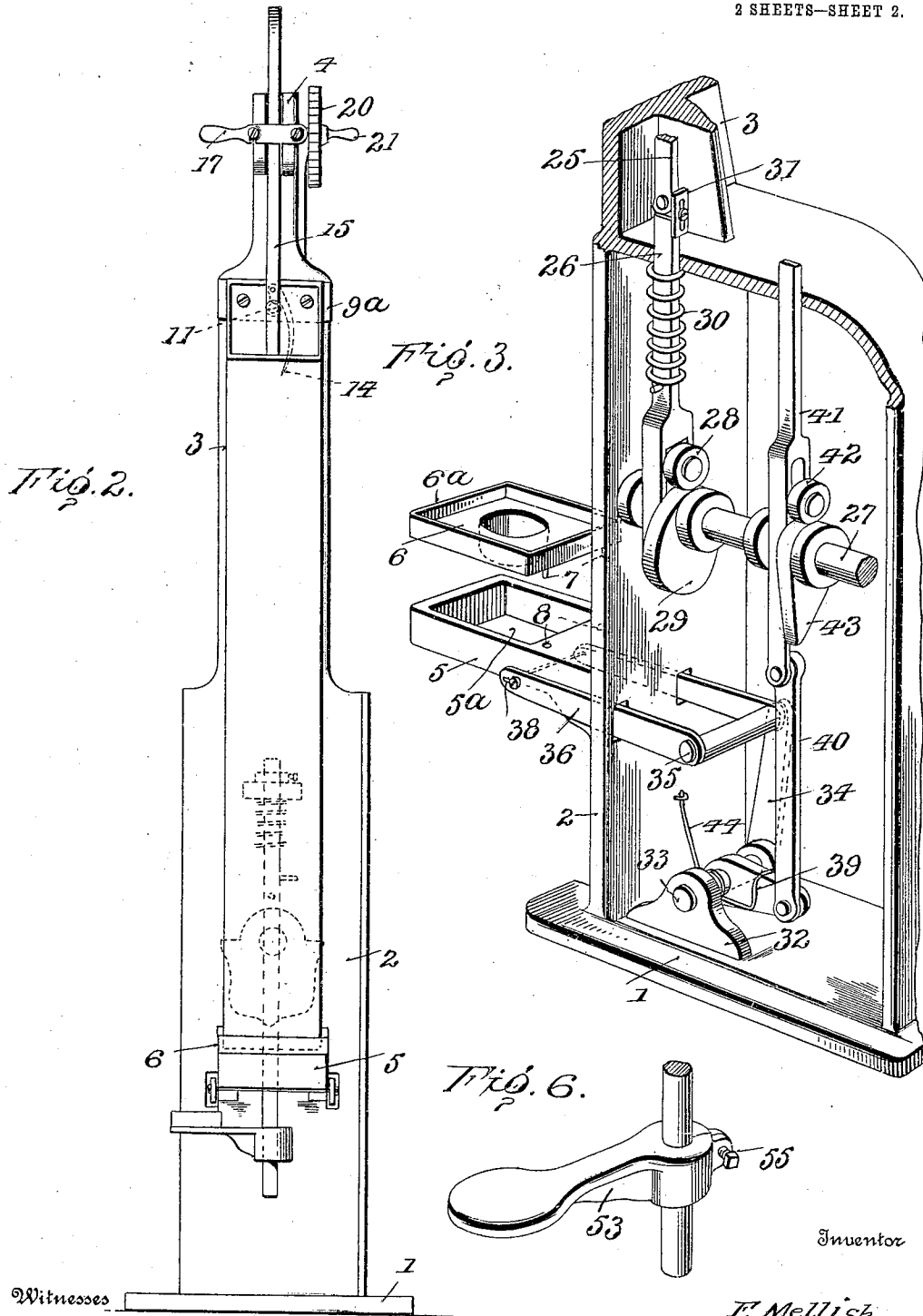


F. MELLISH.
 BUTTER MOLDING AND PRINTING MACHINE.
 APPLICATION FILED NOV. 2, 1908.

932,043.

Patented Aug. 24, 1909.

2 SHEETS—SHEET 2.



Witnesses

J. M. M. M.
W. P. H. H. H.

364

F. Mellish
W. H. M. M. Attorneys

UNITED STATES PATENT OFFICE.

FRANK MELLISH, OF CHICAGO, ILLINOIS.

BUTTER MOLDING AND PRINTING MACHINE.

932,043.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed November 2, 1908. Serial No. 460,764.

To all whom it may concern:

Be it known that I, FRANK MELLISH, citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Butter Molding and Printing Machines, of which the following is a specification.

This invention comprehends certain new and useful improvements in butter molding and printing machines, and the invention has for its object, a machine of this character which will be simple and durable in construction, and efficient in operation, and which will be sanitary in that the butter may be removed from the firkin or tub and passed through the machine and molded and printed in the desired size and with the desired impression and discharged into a receptacle, without being touched by the hand of the operator.

The invention also has for its object an improved apparatus of this character which will be economical in that it will save ice, as the butter passes through a tube in the machine and may be thereby hardened with less consumption of ice than in a tub; and a further object of the invention is a machine of this character which will save labor, in that the butter may be formed into pats or cakes more quickly than by the ordinary hand process, and which will produce pats of a uniform size, although it is to be understood that the invention is susceptible to adjustment, both as to the depth or size of pats that it is desired to form, as well as the shape thereof, and the print or impression thereon.

With these and other objects in view, as will more fully appear, as the description proceeds, the invention consists in certain constructions, arrangements, and combinations of the parts that I shall fully describe and claim.

For a full understanding of the invention, reference is to be had to the following description and accompanying drawings in which:—

Figure 1 is a side elevation of a butter molding and printing machine constructed in accordance with my invention, the face part of the casing being omitted, and the supply tube being partially broken away; Fig. 2

is a front elevation thereof; Fig. 3 is an enlarged perspective view of the lower portion of the machine; Fig. 4 is a horizontal sectional view through the upper end or head of the machine; Fig. 5 is a perspective view illustrating the actuating devices for the printing member; and, Fig. 6 is a perspective view of the printing device.

Corresponding and like parts are referred to in the following description and indicated in all the views of the accompanying drawings by the same reference characters.

The supporting framework of this improved butter molding and printing machine, comprises a base 1, a casing 2 mounted upon said base, and a standard 3 extending upwardly from said casing and provided at its upper end with a forwardly projecting head 4. A bracket 5 projects forwardly from the casing 2, which is preferably formed as an integral part, said bracket being formed with an opening 5^a in which the mold 6 fits, the mold being preferably formed with two dowels 7 designed to be secured in recesses 8 in the bracket, so as to securely hold the mold in place.

The mold 6 is preferably formed with an upstanding marginal rim 6^a in which the lower end of a butter tube 9 fits, the said tube being supported at its lower end on the mold and being provided at its upper end with a transversely extending plate 9^a. This plate is formed with a rearwardly projecting pin 10 adapted to be inserted through an opening 11 formed in a bracket plate 12 secured to the ears 13 projecting forwardly from the standard 3 as clearly illustrated in the drawing. A clutch 14 is designed to hold the pin 10 after it is inserted in the opening 11, so as to securely hold the tube 9, at its upper end.

15 designates a plunger in the form of a rack bar which is mounted in the tube 9 and which is provided at its lower end with a plate or head 16 designed to force the butter downwardly into the tube and out through the bottom opening, of the mold 6. The plunger 16 is guided in its vertical movement by being received in a recess formed in the head 4, the teeth of the plunger facing rearwardly, as shown, and the plunger being held removably in position by means of a latch 17 or the like. The teeth of the plunger 15 mesh with the teeth of a spur

gear 18 that is mounted on a transversely extended shaft 19 journaled in the head 4 of the standard. The shaft 19 carries at one end a ratchet wheel 20 which is provided
 5 with a handle 21 so that it may be manually actuated. The ratchet wheel 20 is engaged by a pawl 22 swung from a lug on the head 4 for the purpose of preventing any back
 10 operation of the machine, and the said ratchet is also engaged by a push pawl 23 carried by a lever 24 fulcrumed at one end on the shaft 19. The other end of the lever 24 is connected by a pitman 25 with a vertically
 15 disposed crosshead 26 extending down into the casing 2 and carrying a roller 28 which is designed to be engaged by a cam 29 on the transversely extending drive shaft 27, the
 20 said shaft being journaled in the casing and preferably projecting therefrom at each end. A spring 30 encircles the cross-head 26 and exerts a tension thereon to swing the lever 24 downwardly after it has been pushed upwardly through the instrumentality of the
 25 cam 29.

In order to limit the downward movement of the lever 24 and the crosshead 26 at different points, and consequently to vary the number of teeth engaged by the pawl 23 at
 30 each actuation for the purpose of varying the movement of the plunger 15, an abutment 31 in the form of a slotted plate is secured to the cross-head 26 and is held at different vertical adjustments by means of a
 35 set screw, as shown, so as to engage with the top side of the casing 2. By this means, it is evident that the movement of the plunger at each actuation may be varied and pats of different sizes secured.

The base 1 is formed within the casing 2 with spaced ears 32, and a rock shaft 33 is journaled in said ears to turn about its longitudinal axis. The said shaft is provided at one end with a crank 34, the said
 40 crank carrying a wrist pin 35 which is parallel to the shaft 33. A sleeve is slipped over and held upon the wrist pin 35, said sleeve carrying two forwardly projecting arms 36 that are mounted to slide through longitudinal
 45 openings formed in the front of the casing. A wire 38 is stretched from one arm 36 to the other and passes through openings in the forward free end of said arms. The said wire being held under tension by screws
 50 secured to the arms and serving as a cutter for the butter which protrudes through the opening in the bottom of the mold 6. In order to reciprocate said arms 36 to cut the butter, the shaft 33 is provided with another
 55 crank 39, the last named crank being secured by a pitman 40 to a crosshead 41 that straddles the drive shaft 27, and that carries a roller 42 designed to be engaged by a cam
 60 43 on said drive shaft. This crosshead is

provided with an arm which projects upwardly through an opening formed in the
 65 top of the casing 2 so as to be properly guided in its movement. The crosshead is raised by the engagement of the cam 43 with the roller 42 so as to project the cutter 38
 70 forwardly across the bottom of the mold 6; a positive movement of the parts being effected by means of a spring 44 which is coiled around the shaft 33, and which has one end bearing against the wall of the casing, while
 75 its other end engages a crank 39 to pull it downwardly.

A vertically disposed rod 45 is mounted for both a rotary and vertically sliding movement at the front of the casing, the
 80 upper end of said rod being mounted in a bracket 46 projecting from the front wall of the casing, the lower end of said rod passing downwardly through an opening formed in the bracket 5. The rod 45 is held under
 85 tension at the lower limit of its movement by means of a coil spring 47, as clearly illustrated in the drawing. This rod 45 is provided with a laterally projecting pin 48 and with another pin 49 projecting at right
 90 angles to the pin 48. The pin 48 is designed to be struck by a shoulder 50 of a cam 51 which is secured to the forwardly projecting end of the drive shaft 27, said shoulder serving
 95 to give a quarter turn to the rod 45 so as to spring the pin 49 into a vertically disposed slide formed in a plate 52, secured to the front wall of the casing 2. The pin 49, as it works in the head of the plate 52 serves to
 100 guide the rod 45 for an up and down movement only as it is subsequently engaged by the cam surface *a*, *b* and *c* of the cam 51. The rod 45 carries at its lower end a horizontally disposed arm 53 which is provided
 105 with a platen 54 of any desired impression. The said arm being held at different vertical adjustments on the lower end of the rod 45 by means of a set screw 55.

In the practical operation of this improved butter molding and printing machine, after the desired mold is secured in
 110 the bracket 5, and a tube 9 with butter in it mounted on the mold is secured in place, as before described, the plunger 15 is positioned in the tube and held with its teeth engaging
 115 the gear wheel 18. As the drive shaft 27 is turned, as by the hand wheel 56 or any other equivalent means, the first step in the operation is performed by the shoulder 50 and cam 51 engaging the pin 48 which turns
 120 the rod 45 in the direction to carry the printing device or arm 53 underneath the mold 6. In the continued movement of the cam 51, the cam surface *a* first engages the pin 49 in the head of the plate 52 and pushes the print-
 125 ing plate up to make the first impression, and then immediately releases. The second cam surface then pushes the printing device

up just a little farther and releases, and finally the cam surface *c* pushes the printing device to the extreme high point and then allows the spring 47 to push the rod downwardly so as to carry the printing device out of the way of the butter which is subsequently cut off and which falls from the mold 6 into a pan of water underneath the same. These repeated actions of the printing device striking the butter a number of times has been found to insure a good impression. After the butter has been impressed with the desired design, as just described, the continued rotation of the drive shaft 27 brings its cam 29 into engagement with the roller 28 and serves to swing the lever 24 upwardly so as to turn the ratchet 20 and its shaft 19, and through the instrumentality of the gear wheel 18, forces the plunger 15 downwardly to the predetermined extent so as to cause the printed end of the column of butter to protrude the desired distance below the bottom of the mold, and the final step in the operation is effected by the subsequent movement of the cam 43, which by engagement with the crank 39 rocks the shaft 33 in a direction to slide the arms 36 outwardly, the wire or cutter 38 being thus passed across the bottom of the mold so as to slice the protruding portion of the butter, the pat thus formed dropping into a receptacle as above mentioned. The printing device then again comes into operation, and the other steps are performed in the proper order. After the contents of the supply tube 9 have been exhausted, the plunger 15 may be easily run up to the upper limit of its movement by the manual actuation of the ratchet wheel 20, and the pawls 22 and 23 thrown into an inoperative position.

Having thus described the invention, what is claimed as new is:—

1. A butter molding machine, comprising a supporting framework, a mold supported thereby, means for forcing the butter into and through the mold, a rod carried by said framework and movable rotatably and longitudinally, pins projecting radially from said rod at right angles to each other, a printing arm carried by said rod, a cam formed with a shoulder and arranged to engage one of said pins to give the rod a quarter turn, a plate secured to the framework and having a slot in which the other pin is brought into registry upon such quarter turn, the cam being arranged to strike said last named pin to move the rod longitudinally, and a drive shaft upon which said rod is mounted.

2. A butter molding and printing machine, a framework carried thereby, means for forming the butter into a mold, a longitudinally and rotatably movable rod carried by the framework, a printing arm secured

to said rod and a spring encircling said rod and arranged to turn the same in one direction, and means for automatically moving said rod rotatably in the opposite direction, and means for moving it longitudinally independent of said spring, as and for the purpose specified.

3. In a machine as specified, the combination of a framework, a mold laterally disposed on said framework, a tube positioned above said mold on said framework, a plunger carried by said framework and depended into said tube, a pawl and ratchet mechanism connected to said plunger for intermittently adjusting the same, a pitman depended from said mechanism, a drive shaft journaled in the lower end of said framework, a cam carried by said drive shaft for raising said pitman to actuate said plunger, arms extended laterally from said framework, a wire engaged across the ends of said arms beneath said mold, a crosshead mounted on said drive shaft, a cam on said drive shaft for engagement with said crosshead, means connected between said crosshead and said arms for moving said wire when said cam is actuated and a printing device mounted on said framework to swing laterally and upwardly to engage the bottom of said mold, said printing device being connected to said drive shaft to be actuated thereby.

4. A machine as specified comprising a frame, a mold on said frame, a tube on said frame over said mold, a plunger mounted in said tube, a pawl and ratchet mechanism carried by said frame for actuating said plunger, a drive shaft in the lower end of said frame, a pitman connected to said mechanism adapted to be actuated by said shaft, arms slidably disposed on said frame beneath said mold, a wire stretched across said arms for cutting material from said mold, a crank shaft connected to said arms for reciprocating the same, a rock shaft on said frame for supporting said crank shaft, a second crank shaft on said rock shaft, a crosshead on said drive shaft, a lever disposed between said crosshead and said second crank shaft, a cam on said drive shaft to actuate said crosshead, a cam positioned upon the end of said drive shaft adjacent said mold, a rod centrally and slidably positioned on said frame, pins carried by said rod for engagement with said cam adjacent said mold and a platen carried by said rod for engagement against the bottom of said mold upon the actuation of said rod by said cam of the end of said drive shaft.

5. In a machine as specified, the combination of a frame, a plastic molding mechanism on said frame, a cutting mechanism on said frame, a printing mechanism disposed on said frame and a drive shaft mounted on

said frame, said drive shaft being connected to all of said mechanisms and adapted to operate the same.

6. A machine as specified having a mold,
5 a platen adjacent said mold to imprint material within the same, means for imparting a reciprocating movement to said platen toward and from said mold in the line of the axis of said mold and means for imparting

to said platen a movement in angular relation to the first named movement upon the withdrawal of the platen from said mold.

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

FRANK MELLISH. [L. S.]

Witnesses:

CUTHBERT SCHAEFER,
ALEXANDER D. ELLIOTT.