(No Model.)

W. MANN & G. C. JOHNSON.

BUTTER MOLD.

No. 489,566. Patented Jan. 10, 1893.

Fig. 1.

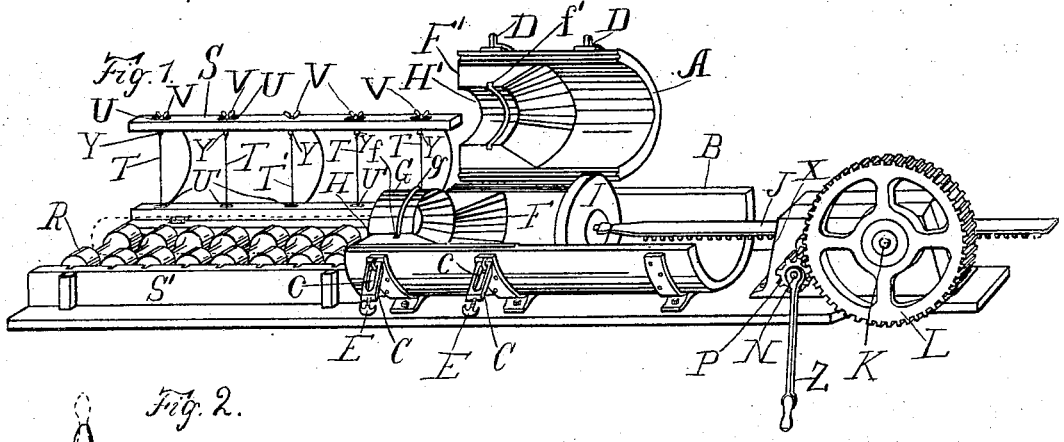


Fig. 2.

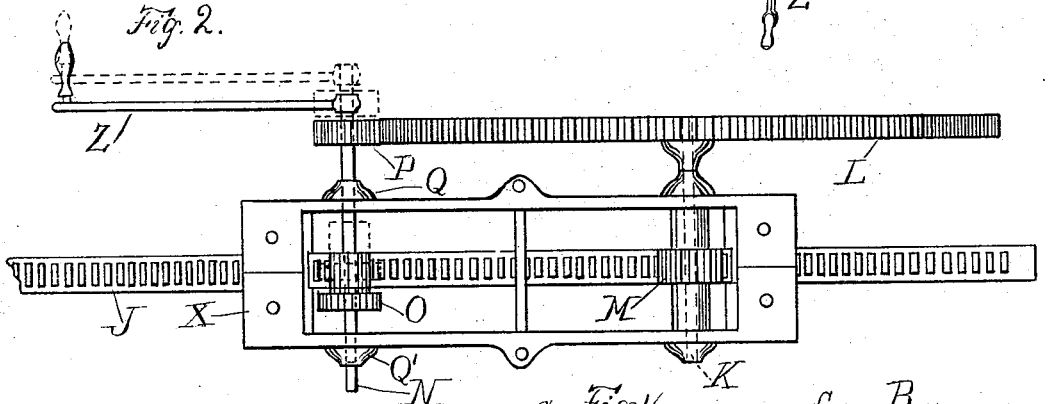


Fig. 3.

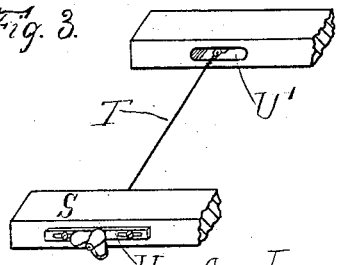


Fig. 4.

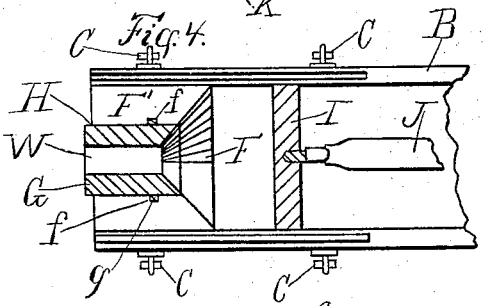


Fig. 5.

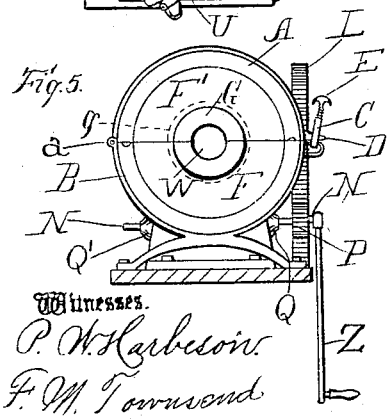
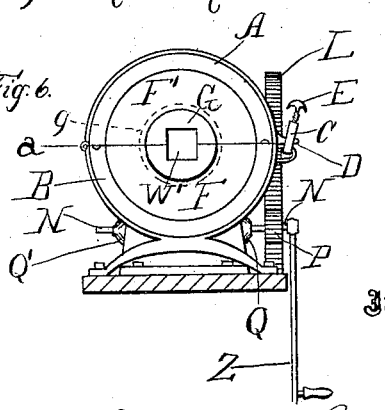


Fig. 6.



Witnesses.
P. W. Larbeson
F. M. Townsend

Inventors.
William Mann
George C. Johnson
by Hazard & Townsend
their attys.

UNITED STATES PATENT OFFICE.

WILLIAM MANN AND GEORGE C. JOHNSON, OF LOS ANGELES, CALIFORNIA.

BUTTER-MOLD.

SPECIFICATION forming part of Letters Patent No. 489,566, dated January 10, 1893.

Application filed October 20, 1891. Serial No. 409,294. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM MANN and GEORGE C. JOHNSON, citizens of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Machine for Forming Butter into Rolls or Bars, of which the following is a specification.

Our invention embraces a number of elements.

The objects of our invention are;—To provide suitable means for adapting the mold to form rolls of different sizes and shapes; to provide suitable means for ready and thorough cleaning; and to provide means for advancing or retracting the piston with greater or less rapidity and corresponding less or greater power as may be required for rapid and efficient operation of the machine. Also to provide suitable adjustable means for cutting the cylinders or bars into rolls of proper length.

Our invention embraces a number of elements and combinations of elements whereby greater facility and rapidity of operation is secured.

Our improved machine comprises the combination of a longitudinally divided horizontal cylinder; means for securing the top and base members of the cylinder together; a removable funnel shaped tubular discharge thimble open throughout from end to end fitted into the chamber of the cylinder between the top and base members of the cylinder at the discharge end of the cylinder, and means adapted to prevent the displacement of such thimble when the thimble is in place in the cylinder and the top and base members of the cylinder are secured together in their closed position.

It also comprises other features and combinations hereinafter set forth.

The accompanying drawings illustrate our invention;—

Figure 1 is a perspective view of our improved butter press open. Fig. 2 is a view of the underside of the piston-operating mechanism with the same thrown into gear to drive the piston forward slowly with great power to force the butter out through the thimble or roll-forming funnel in front. Fig. 3 is a detached fragmentary detail of the adjustable roll-proportioning device. Fig. 4 is a plan view of the front portion of the base with the thimble and a fragment of the piston in horizontal mid-section. Figs. 5 and 6 are end views of two forms of the molding cylinders showing two forms of the removable thimbles or roll-forming devices. Fig. 5 shows the device for forming cylindrical rolls and Fig. 6 that for forming blocks angular in cross-section.

A is the top member of the funnel-mouthed molding-cylinder secured to the base member B by suitable means such as the hinges *a*, the hasps C and lugs D. These fastenings are so arranged that when the top member is closed down upon the base member it may be securely fastened in its closed position to withstand the extra pressure when the mold is in operation. The holes *c* in the hasps which fit upon the lugs are elongated to allow the screws E to be screwed down upon the lugs to clamp the top tightly to the base.

F F′ is the funnel end of the cylinder provided with the groove *f f′* to receive the bead *g* of the thimble G which is arranged to fit into the throat H of the funnel F of the cylinder.

I is the piston head which fits the cylinder closely.

J is the piston rack secured to the piston head and extending back to the rack-operating mechanism which is provided to drive the piston forward and back.

The rack operating mechanism consists of the transmission shaft K provided with the spur L and with the pinion M geared with the rack, and the driving shaft N provided with the rack engaging pinion O and the spur engaging pinion P arranged thereon at a distance apart different from the distance between the spur and pinion of transmission shaft K. The pinion M engages the rack to drive it and to be driven by it. The driving shaft is arranged to slide axially in its bearings Q Q′ and the pinions O P are so arranged that when the rack pinion O is in engagement with the rack to drive it, the spur driving pinion P is free; while by sliding the driving shaft axially, the pinion O is thrown out of gear with the rack and the pinion P is thrown into gear with the spur L so that the rotation of the driving shaft will operate to

drive the spur wheel L. When it is desired to drive the piston rapidly, the rack driving pinion of the driving shaft is thrown into gear with the rack and the driving shaft is then rotated in either direction desired.

In practice the rack is first retracted directly by the driving pinion M to its withdrawn position. Then the cylinder is filled with the butter to be molded and the top member is secured by the hasps and screws. Then the driving shaft is slid to bring the pinion P into gear with the spur L and the driving shaft is then rotated to drive the piston forward to press the butter into the funnel and through the thimble whereby it is formed into a cylinder or bar which is received by the series of rollers R over which it slides until its end reaches the last roller of the series as indicated in dotted lines, Fig. 1. The piston is then stopped and the cutting frame S which is hinged to the base S′ is lowered to cause the cutting wires T T′ to cut the cylinder or bar of butter into suitable lengths.

The frame S is provided with a middle stationary cutting wire T′ and two series of movable cutting wires T arranged respectively upon opposite sides of the stationary wire T′ and provided with means for their adjustment. These movable wires enable the machine to be arranged to cut the rolls to a uniform weight, and also to form uniform rolls of any of the customary weights of butter rolls. We provide each side member of the frame with a series of longitudinal slots U through which the cutting wires T are respectively passed and secured by the thumb-nuts V screwed upon the fasteners Y, which are secured to the ends of such wires. The thumb nuts act against the frame to draw the wires taut. The middle cutting wire T is not movable and is arranged to invariably cut the cylinder or bar of butter midway of the series of rollers. The length of the rolls is adjusted by setting the adjustable wires so that the spaces between the several wires will be equal to the length of roll desired. The diameter and the shape of the cross section of the roll or bar of butter is determined by the size and shape of the aperture W, W′ through the thimbles. The thimbles, being removable, allow the machine to be easily changed to produce rolls of different sizes and shapes. Annular lug or bead *g* fitting into its channel *f* sustains the thimble against the pressure of the butter. When the piston has been driven forward to the funnel the driving shaft is again shifted and the pinion O made to engage the rack while the piston is being retracted; more butter is placed in the cylinder and the operation is repeated. When desired to cease molding the butter, or to change the size or shape of the roll, the upper member is raised as shown in Fig. 1 thus giving access to the interior.

X is the frame of the rack-operating mechanism and Z represents the crank to turn the driving shaft.

Now having described our invention what we claim as new and desire to secure by Letters Patent is;—

1. A butter molding machine comprising the combination set forth of the longitudinally divided cylinder; means for securing the top and base members of the cylinder together; a removable funnel shaped tubular discharge thimble open throughout from end to end fitted into the chamber of the cylinder between the top and base members of the cylinder at the discharge end of the cylinder, and means adapted to prevent the displacement of such thimble when the thimble is in place in the cylinder and the top and base members of the cylinder are secured together in their closed position.

2. In a butter molding machine comprising the combination of the longitudinally divided cylinder provided in its discharge end with the channels *f*, *f′* the thimble fitted in the discharge end of such cylinder and provided with the annular bead *g* and means for fastening the members of the cylinder together.

WILLIAM MANN.
GEO. C. JOHNSON.

Witnesses:
JAMES R. TOWNSEND,
F. M. TOWNSEND.