

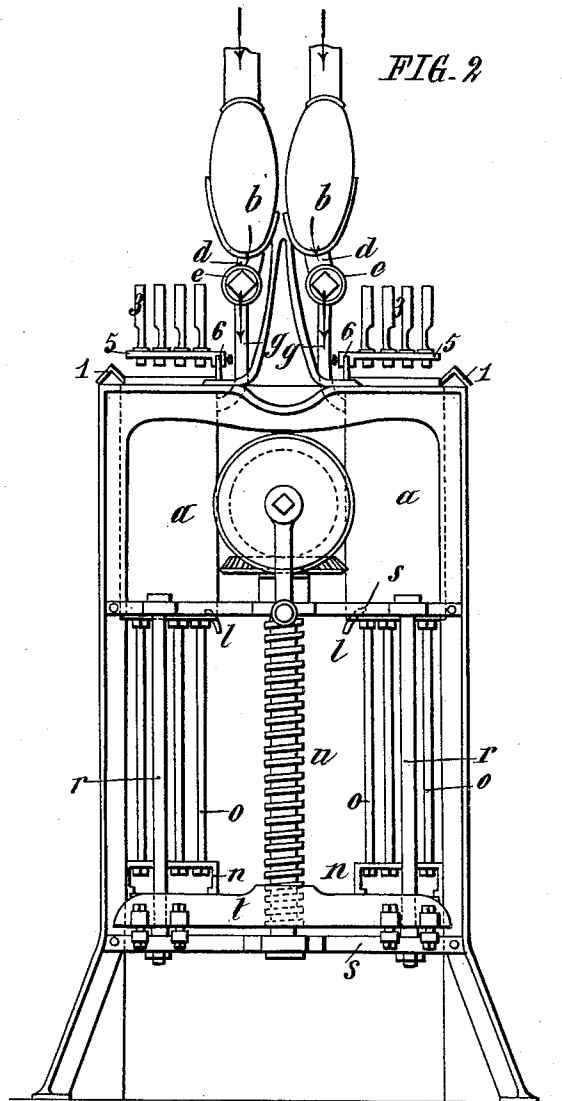
(No Model.)

5 Sheets—Sheet 2.

A. A. ROYAU.
CANDLE MOLDING MACHINE.

No. 475,521.

Patented May 24, 1892.



WITNESSES:

Henry E. Eversding,
L. M. Hirschlager.

INVENTOR.

Alexandre A. Royau

By

Brien & Stewart
his Attorneys

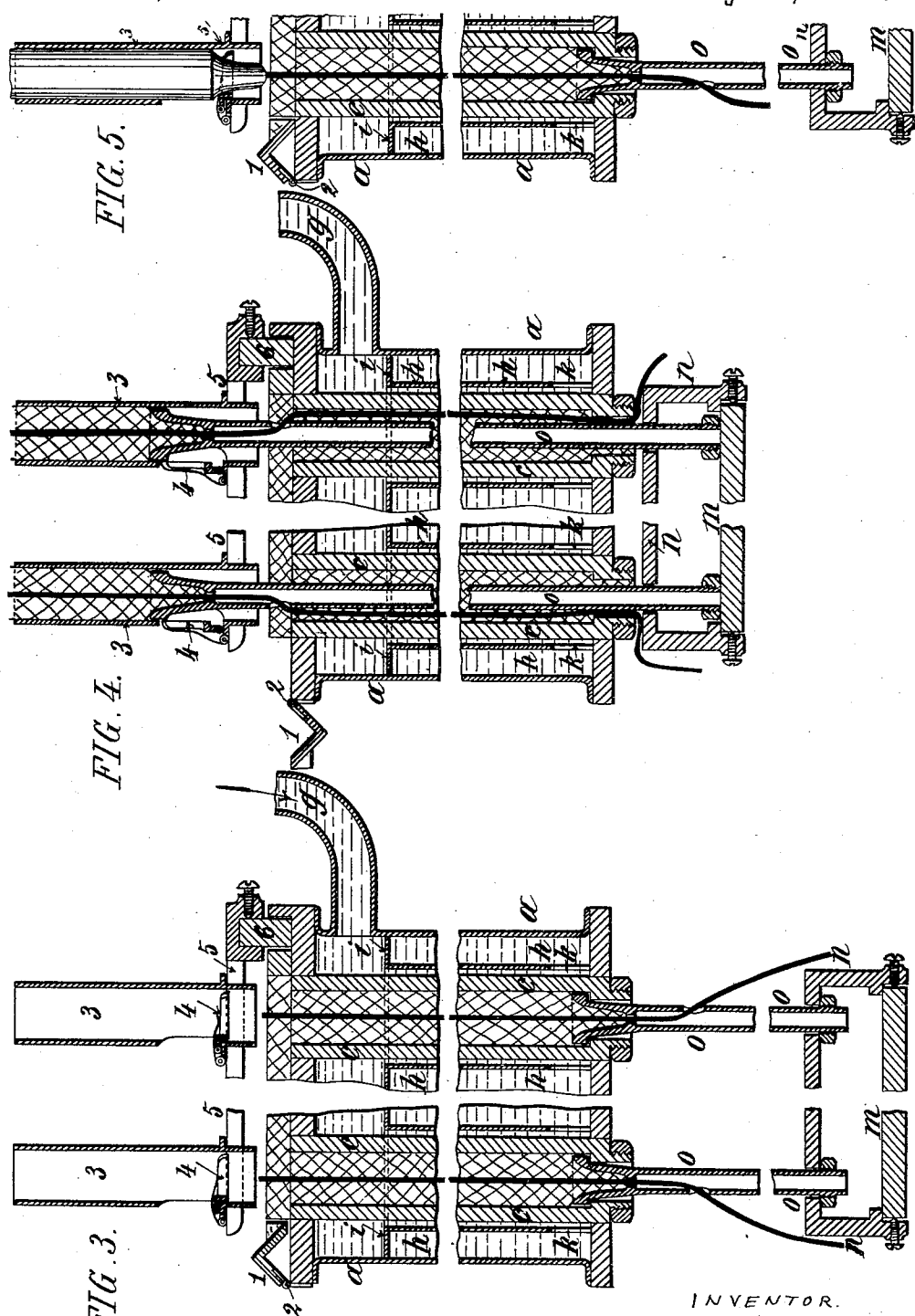
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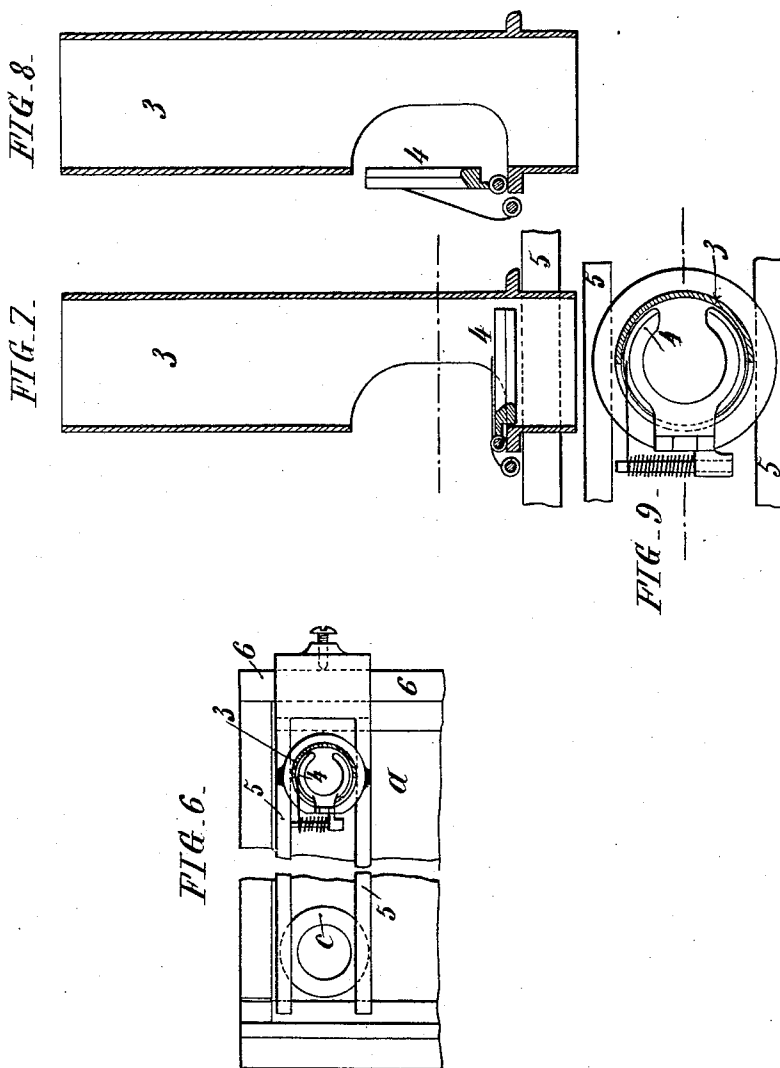
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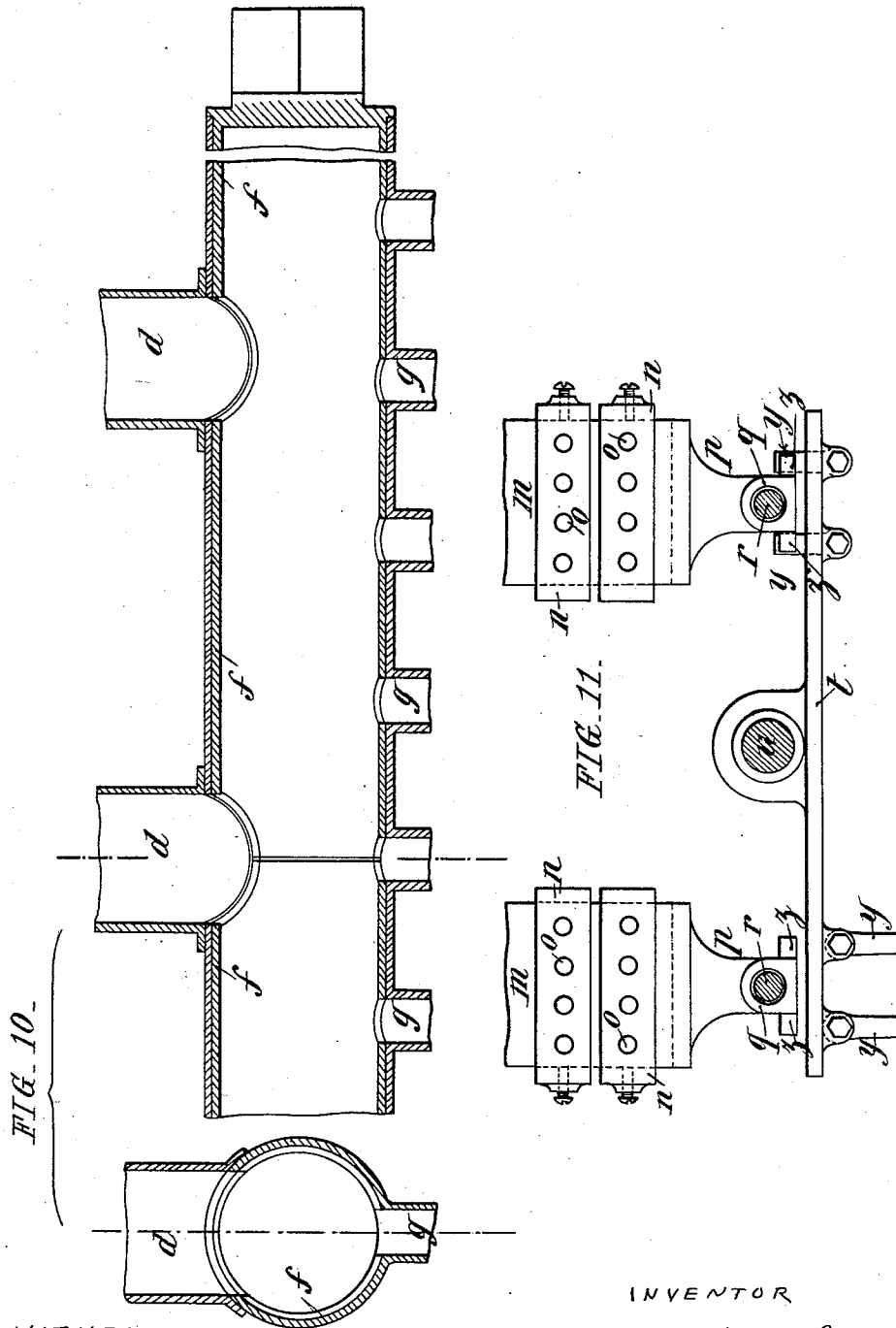


FIG. 10.

FIG. 11.

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UNITED STATES PATENT OFFICE.

ALEXANDRE ALPHONSE ROYAU, OF CHÂTILLON-SOUS-BAGNEUX, NEAR
PARIS, FRANCE.

CANDLE-MOLDING MACHINE.

SPECIFICATION forming part of Letters Patent No. 475,521, dated May 24, 1892.

Application filed September 10, 1891. Serial No. 405,250. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDRE ALPHONSE ROYAU, of the city of Châtillon-Sous-Bagneux, near Paris, France, have invented an Improved Candle-Molding Machine, of which the following is a full, clear, and exact description.

Candle-molding machines usually necessitate considerable labor and are slow in operation.

This invention relates to an improved machine for molding candles which, notwithstanding its relatively small dimensions, is capable of a considerable output with little labor—say of turning out two hundred and fifty candles every quarter of an hour when worked by one man only.

Reference is to be had to the accompanying drawings, forming part of this specification, wherein—

Figure 1 is a side elevation of a candle-molding machine embodying my improvement. Fig. 2 is an end elevation of the same. Fig. 3 is a vertical section of the mold-chest and candle-sheaths, showing the candle in the mold. Fig. 4 is a similar view showing the candle in the sheath. Fig. 5 is a similar view, the candle being in the sheath and the piston-rod drawn down, leaving the mold ready for another filling. Fig. 6 is a top plan view of Fig. 3. Fig. 7 is an enlarged central vertical section of a candle-sheath with the holding-flap closed down. Fig. 8 is a similar view, the flap being thrown up. Fig. 9 is a cross-section on line 9 9, Fig. 7. Fig. 10 is an enlarged longitudinal and cross section of a multiple supply-cock, and Fig. 11 shows the mechanism for discharging the candles from the molds.

The principal characteristic of the machine is the rapidity with which either hot or cold water can be introduced into the mold-chest. In order to instantly fill the mold-chest with water at the desired moment, the following arrangement is employed:

The machine comprises two parts symmetrically arranged, as shown in Fig. 2, each consisting of a mold-box *a*, combined with a system of pipes for the supply of water thereto. At the upper part of the machine-frame are mounted two tanks *b* for supplying water to

the two mold-chests. In order to admit water around the whole of the molds *c* at once, a series of pipes *d* connect each reservoir *b* with the cylindrical casing *e* of a multiple-way cock *e'*, extending the whole length of the machine, the hollow plug *f* of which is made in two parts and operated from opposite ends to avoid torsion thereof, as shown in Fig. 10. From the casing *e* extend as many pipes *g* as there are transverse rows of molds in the chest, all controlled by the plug *f*, the water, if cold, serving to cool them suddenly for discharging the molded candles, or if hot to heat the molds, as required. The water contained in the separate reservoirs *b* passes through pipes *d*, casing *e*, cocks *e'*, and pipes *g*, connected to the mold-chests, and thence around the molds *c*, Figs. 3, 4, and 5.

In order that the water, whether cold or hot, shall reach the molds at the required temperature, the latter are inclosed concentrically in tubes *h*, having an intervening annular space to contain the water. All the tubes *h* are fixed to a plate *i*, as shown in Figs. 3, 4, and 5, so that the water arriving by the pipes *g* is first distributed over the plate *i* and then descends through the tubes *h* around the molds, and finally escapes through the slits *k* at the lower part of tubes *h* into the mold-chest *a*, from which it is drawn off by a cock *l*, Fig. 2.

Upon a longitudinal plate *m*, Figs. 1 and 11, are mounted as many -shaped brackets *n* as there are molds, forming a row in the longitudinal direction, to which brackets *n* are connected as many tubular piston-rods *o* as there are molds in the transverse direction, the ends of the plate *m* resting upon arms *p*, Figs. 1 and 11, provided with a guide-collar *q*, sliding on a vertical guide-rod *r*, mounted between two cross-pieces *s*, Fig. 2.

At each end of the machine a cross-head *t* works in guides and is moved up and down by means of a screw-shaft *u*, operated by a pair of bevel-pinions *v* and winch-handle *x*, these cross-heads *t* serving to elevate the plates *m* and rods *o* for discharging the molds. The cross-heads *t* may be made to lift either one or both plates *m*, according as the molds of one or both chests are to be discharged at one time. For this purpose the said cross-heads *t* are connected with the plates *m*, to be

lifted by means of latches *y*, which are caused to engage with lugs *z* on the guide-collars *g*, as shown in Fig. 11.

After the molds are filled the layer of wax in the mold-trough is removed, for which purpose the side 1, Figs. 1 to 5, of the trough is turned down on its hinge 2 and the wax cut off flush with the molds. The cross-heads *t* are then raised so as to force up all the piston-rods *o* and push the molded candles into the sheaths 3. (Represented in Figs. 3, 4, 5, 7, 8, and 9.) The candles on entering these sheaths raise forked spring-flaps 4, as shown in Fig. 4, which come beneath and retain the candles, the sheaths 3 holding the candles a sufficient time to give time for the spring-flaps to engage beneath them. The sheaths are mounted in series upon forks 5, which rest on a bar 6, extending within the whole length of the mold-chest. After the candles have been raised into the sheaths 3 the rods *o* are again lowered by moving down the cross-bars *m*, after which a fresh quantity of wax is run in before cutting the wicks of the previous batch of candles contained in sheaths 3, in order to keep the wicks stretched and central in the molds *c*. The wicks *w* are drawn from a reel or other suitable device through an opening in the side of the tubular rods *o*, and thence through the vertical center of the molds *c*, as shown in Figs. 3 and 5. When the finished candle has passed into the sheaths at the top of the mold, the wick is cut at the lower or tapering portion of the candle and the candle can then be removed from the sheaths. As the rods or pistons *o* descend they leave the molds free and clear for the reception of another charge of candle-stock.

By surrounding the candle-molds with an annular chamber to receive the water from the tanks on top of the machine the candle-molds can be kept at any temperature desired,

the liquid being enabled to pass from the annular chamber through openings in the bottom of the surrounding tube, into and out of the mold-chamber, as heretofore described.

It is evident that the form of the tanks *b*, the number of pipes *g*, and molds *c*, &c., as well as the dimensions of the various parts, may be considerably varied without departing from the nature of the invention.

I claim—

1. In a candle-molding machine, a heating and cooling apparatus combining therein a candle-mold chest, candle-molds secured in said chest, tubes surrounding said molds and adapted to form a chamber between said tubes and molds, a chamber *a* around and above said tube-chambers and connected therewith, water-tanks arranged above said chamber *a*, pipes connecting said tanks with said chamber *a* and the top of said tube-chambers and adapted to instantly fill said tube-chambers, and means for discharging the water from and out of the mold-chest, all said parts being arranged and adapted to operate substantially as described, and for the purposes set forth.

2. In a candle-molding machine, the combination, with the molding and discharging mechanism, of a holding mechanism consisting of receiving sheaths or tubes 3, secured to the top of the molding-machine, and a spring holding-flap 4, pivoted to one side of said sheaths and adapted to hold the candle as it passes from the mold, substantially as described, and for the purposes set forth.

The foregoing specification of my improved candle-molding machine signed by me this 19th day of August, 1891.

ALEXANDRE ALPHONSE ROYAU.

Witnesses:

ROBT. M. HOOPER,
ALBERT MOREAUX.