T. RIOS.

METHOD OF MAKING CANDLES.

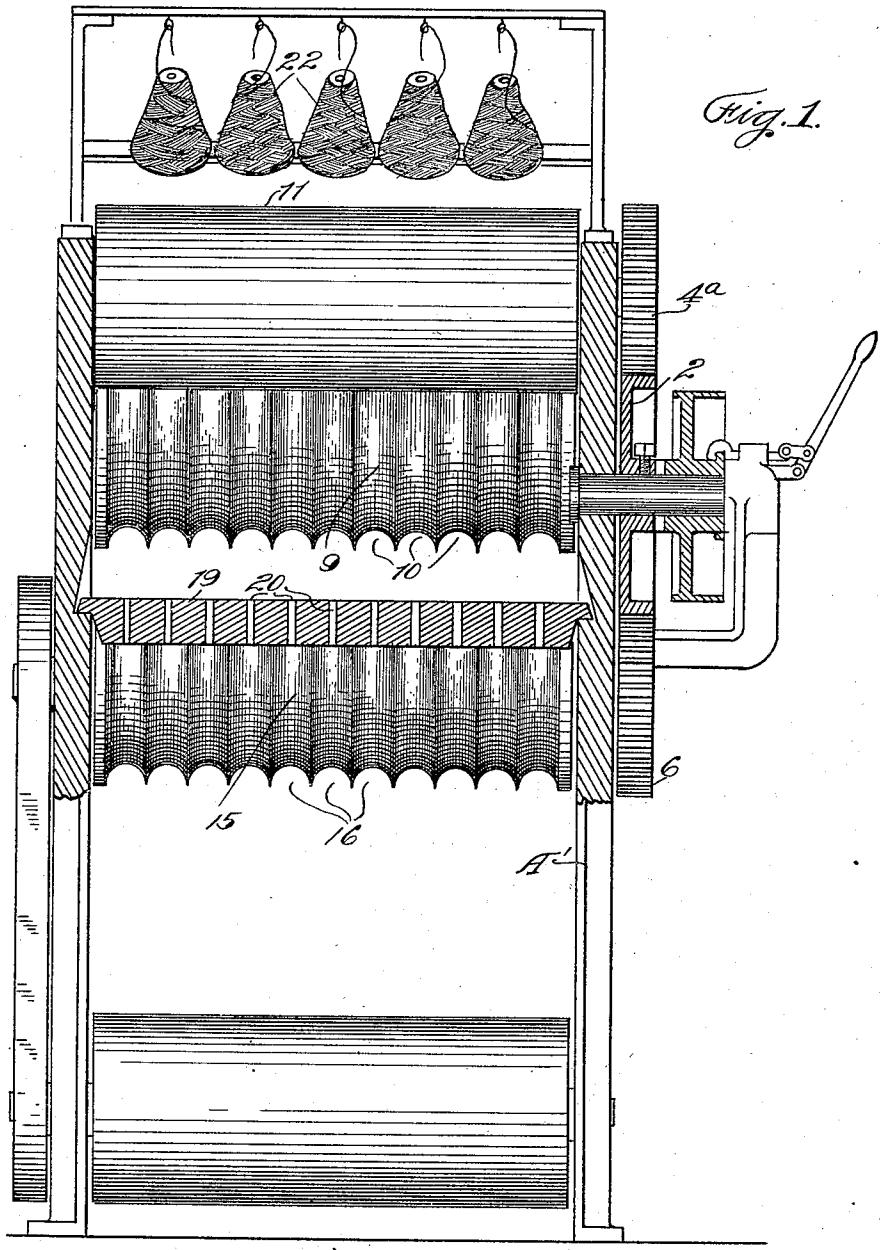
APPLICATION FILED NOV. 30, 1914.

1,178,875.

Patented Apr. 11, 1916.

3 SHEETS—SHEET 1.

Fig. 1.



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Louise Linnett.

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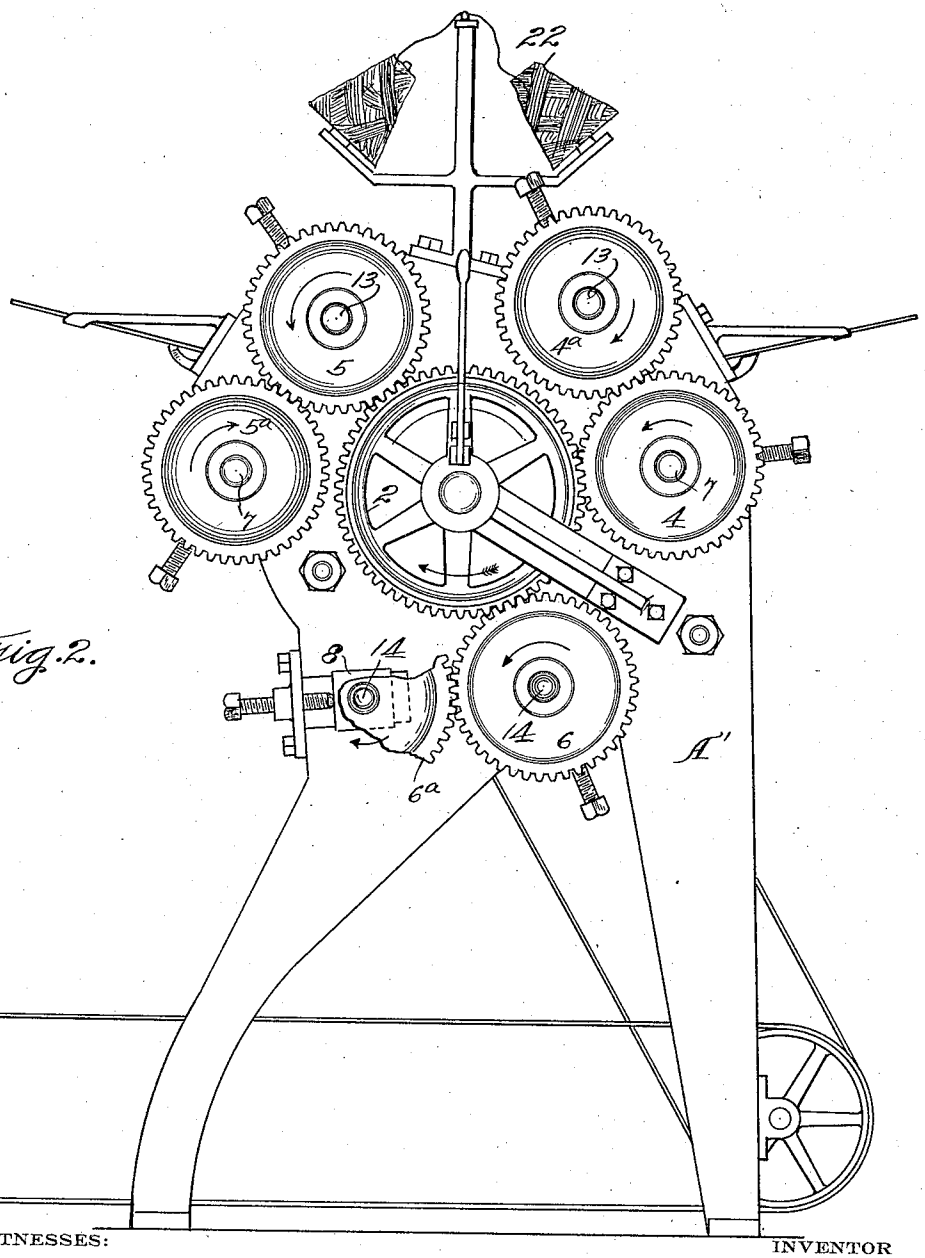


Fig. 2.

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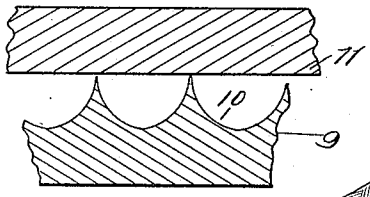


Fig. 4.

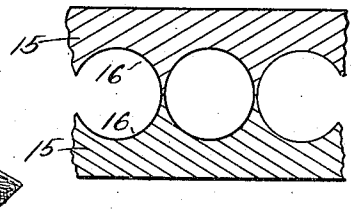


Fig. 5.

Fig. 3.

Fig. 6.

WITNESSES:

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UNITED STATES PATENT OFFICE.

THOMAS RIOS, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO JOHN F. LIBBEY, OF SAN FRANCISCO, CALIFORNIA.

METHOD OF MAKING CANDLES.

1,178,875. Specification of Letters Patent. Patented Apr. 11, 1916.

Application filed November 30, 1914. Serial No. 874,735.

To all whom it may concern:

Be it known that I, THOMAS RIOS, a citizen of Mexico, residing at the city and county of San Francisco and State of California, have invented new and useful Improvements in Methods of Making Candles, of which the following is a specification.

This invention relates to the formation of plastic bodies, like candles, and pertains especially to the art of making candles and to a machine for the practice of the art.

It is an object of the invention to provide an improvement in the art of manufacturing candles, whereby these articles may be produced from a batch of material to a completed candle in a very short period of time and in large quantities; and it is a further object of the invention to provide an apparatus for the practice of the art.

The invention consists of the process and the apparatus for the practice of the process for making candles.

It also comprises details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a side elevation partly broken away. Fig. 2 is an end view of the machine. Fig. 3 is a vertical cross section. Fig. 4 is a diagrammatic view of the initial or half mold rolls. Fig. 5 is a similar view of the finishing rolls. Fig. 6 shows a form of candle made by the invention.

By this invention candles, one form of which is shown at A, are made of a batch of candle stock of suitable plasticity and material, this being subjected to a drawing action through suitable means and partly formed. During the forming, a wick is introduced and the forming continued until the candle is completed.

A′ indicates a frame of appropriate type, bearing at one end a suitably driven master or sun gear 2, grouped angularly about and meshed with which are three intermediate or pinion gears 4, 5 and 6. The pinions 4, 5 and 6 drive respective gears 4^a, 5^a and 6^a. The pinions 4 and 5^a are secured upon parallel shafts 7 in adjustable boxes 8 on opposite sides of the axis of the frame A′ and each carries a roll 9 provided with parallel, circumferential grooves 10 of semi-elliptical cross section, the depth being about one-half the major axis. The grooves are closely arranged so that the dividing walls terminate in a thin, knife-like edge. Superposed upon the grooved rolls 9 are smooth cylinders 11 adjustable to contact therewith by sliding bearings 8 supporting shafts 13 of the rolls 11. The meshed gears 4^a and 5 are secured upon the cylinder shafts 13.

Mounted upon parallel shafts 14, below the plane of the rolls 9, are coöperating rolls 15, each with semicircular, parallel, circumferential grooves 16 equal in width to the grooves 10 of the upper rolls 9 and in vertical alinement therewith. The shafts 14 carry the meshed gears 6—6^a. Projecting oppositely from the upper sides of the rolls 9 are feed tables, upon which stock B from which candles are to be made is placed. This material is advanced between the cylinders 11 and their respective grooved rolls 9 and is pressed into the parallel half-round grooves 10 where it is molded into parallel half-round bars, flat side toward the center or axis of the machine.

Just beneath the presser cylinders 11 are deflectors 17 which positively direct the molded bars down toward throat plates 18 which converge toward the tops of the lower adjacent finishing rolls 9. The half-round bars move down into the line of circular apertures formed by the alined grooves 16 of the close rolls 15, and while passing therebetween are brought flat-side together and united longitudinally by compression during a change of form from that of slightly elliptic to that of circular in cross section, as shown in Figs. 4 and 5.

The wick may be introduced during the molding of the candles by any appropriate means, in this case comprising a guide rail 19 extending between the throat plates 18 and having perforations 20 alined with the centers of the coördinate grooves 16 so as to lead wick material, as cords 21, from bundles 22 centrally through the circular apertures at the plane of the horizontal diameters of the rolls 15. As the tallow, wax, paraffin, or other material utilized, passes between the finishing rolls 15, the wick material is inclosed between the half-round bars, which are compressed together firmly and enter and pass through straightening bar 23. The finishing roll grooves may be divided into a number of segments by ending dies 24, shaping the cylindrical

candle bars at suitable intervals as they pass through the rolls 15. At each die is a cutter 25 which severs the bar and its wick cord, thus completing the candle. The number of candles made at each revolution of the finishing rolls 15 is controlled by the number of segments each groove 16 is divided into and by the number of grooves longitudinally of the rolls. Thus if the grooves each include two segments and there are ten grooves, one revolution of the finishing rolls will produce twenty candles. Thus by this process a complete candle may be made in a very short period of time from a firm but ductile material. The process consists of molding bars of the material, introducing a wick between the bars, and pressing the bars together to embrace the wick, the pressing operation also finishing the candle by imparting to it the desired shape.

The operation of the machine is as follows: After a series of wick bundles has been positioned and the wick guide threaded, the machine is started by the application of power from a suitable source. Candle stock is then placed upon the tables and advanced against the initial presser and forming rolls 11 and 9, one set of which is on each side of the frame. These rolls press the stock into bars of semi-elliptic cross section which are deflected into the space between the subsequent and finishing rolls 15 between which the wicks hang. These rolls press the opposing half-round bars together upon the intervening wick and by their rolling action shape and compress the candles. The shaping rolls 15 also cut the cylindrical candle bars into pieces of suitable length and at the same time reduce or tip the candles at one end of each.

Having thus described my invention, what I claim and desire to secure by Letters Patent is—

1. The method of manufacturing candles from plastic material which consists in forming longitudinal sections of the candle, introducing a wick material between the sections, and pressing said sections together upon the wick.

2. An improvement in the art of manufacturing candles which consists in forming strips from plastic material, introducing a wick material between said strips, pressing said strips together upon the wick, and severing the compressed strips into pieces.

3. An improvement in the art of manufacturing candles which consists in forming strips from plastic material, introducing a wick material between said strips, pressing said strips together upon the wick, and shaping and severing the compressed strips into pieces.

4. The method of making candles in a continuous operation which consists of shaping longitudinal sections from candle stock, running said sections together and introducing a wick material between them, and severing the resulting bar into candles.

5. The method of manufacturing candles which consists of separately shaping strips from batches of candle stock into longitudinal sections by running the same through shaping devices simultaneously, running said sections together between pressing devices to form a candle bar, introducing a wick material between said sections before they are pressed together, and severing the pressed resulting bar into candle lengths.

6. A method of making candles in a continuous operation which consists of simultaneously shaping a plurality of longitudinal sections from candle stock by running the stock through oppositely disposed shaping devices, directing opposite sections together between pressing devices, introducing a wick material between the sections as they are pressed together in pairs, and severing the resulting bars into candle lengths as the same are passed through the pressing devices.

7. The method of manufacturing candles in a continuous operation which consists of separately shaping under pressure strips from batches of candle stock, simultaneously running said strips together under pressure and from opposite directions upon a wick material which is continuously introduced between the running strips, and severing the compressed resultant bar into pieces.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

THOMAS RIOS.

Witnesses:
JOHN H. HERRING,
ANGELO RIOS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."