June 26, 1945.

C. TURNER

2,379,391

ART OF MAKING CANDLES

Filed Feb. 9, 1942

3 Sheets-Sheet 1

Fig. 1.

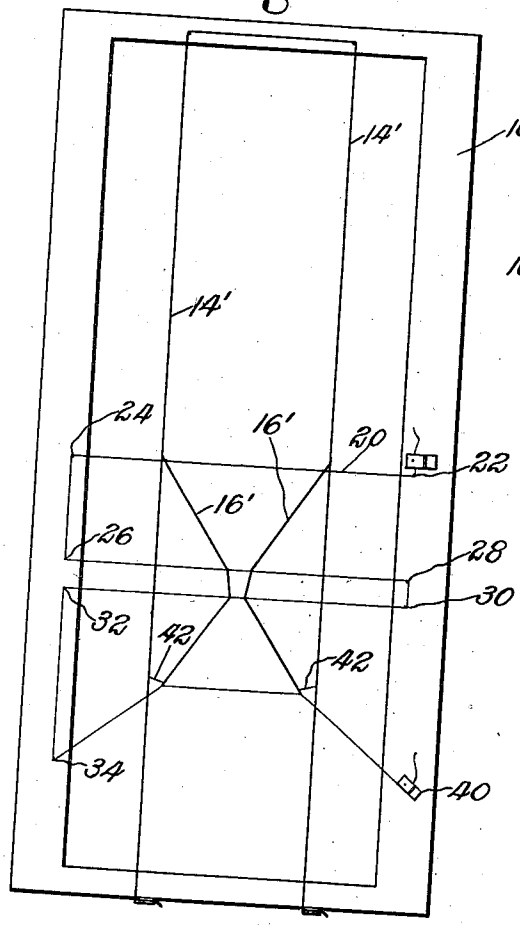
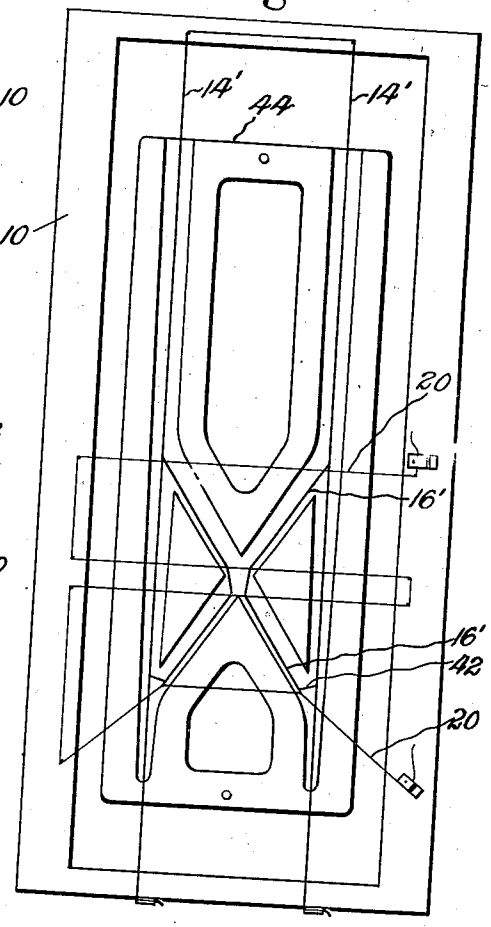


Fig. 2.



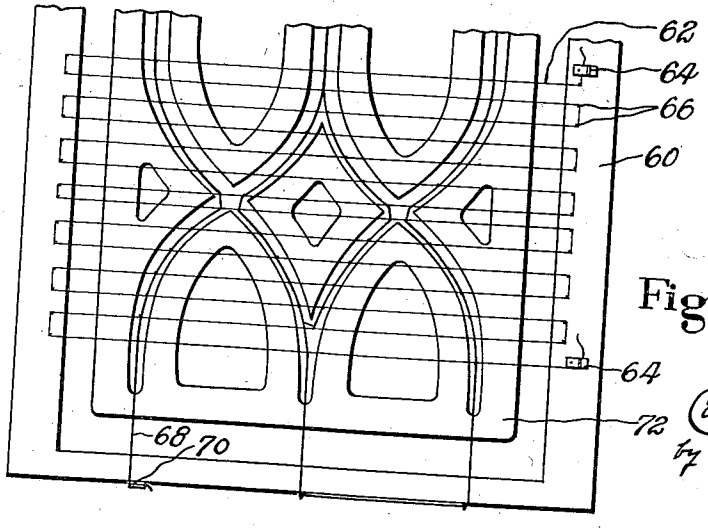


Fig. 3.

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ART OF MAKING CANDLES

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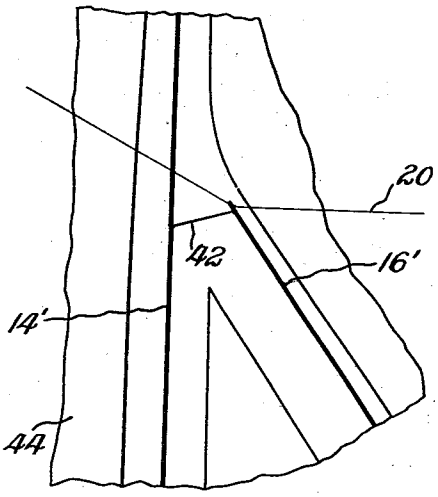


Fig:4.

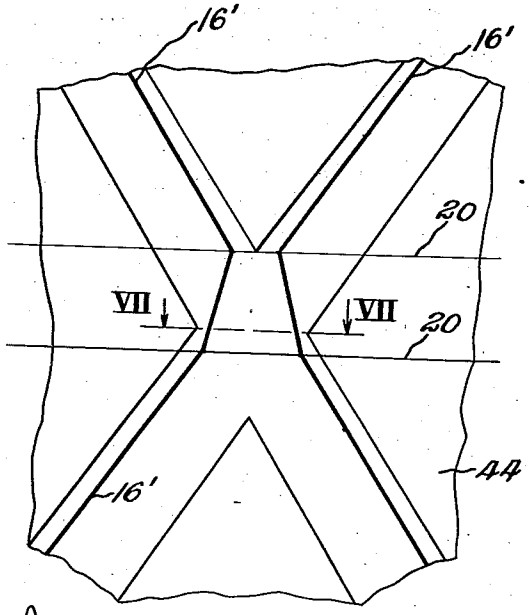


Fig:5.

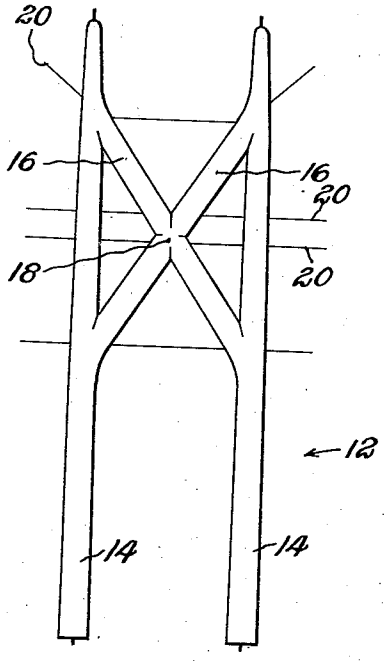


Fig:6.

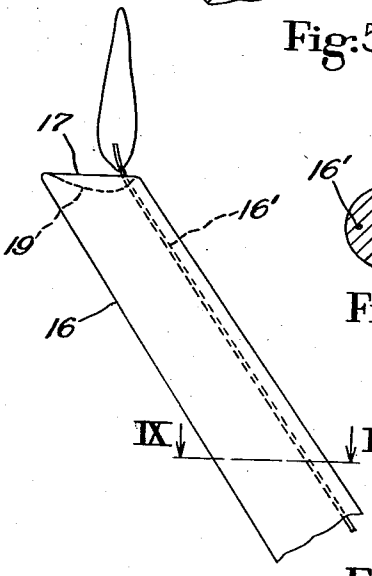


Fig:8.

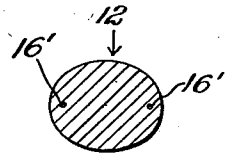


Fig:7.

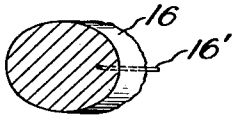


Fig:9.

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ART OF MAKING CANDLES

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Fig:10.

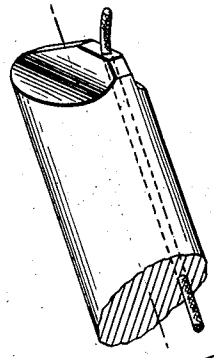
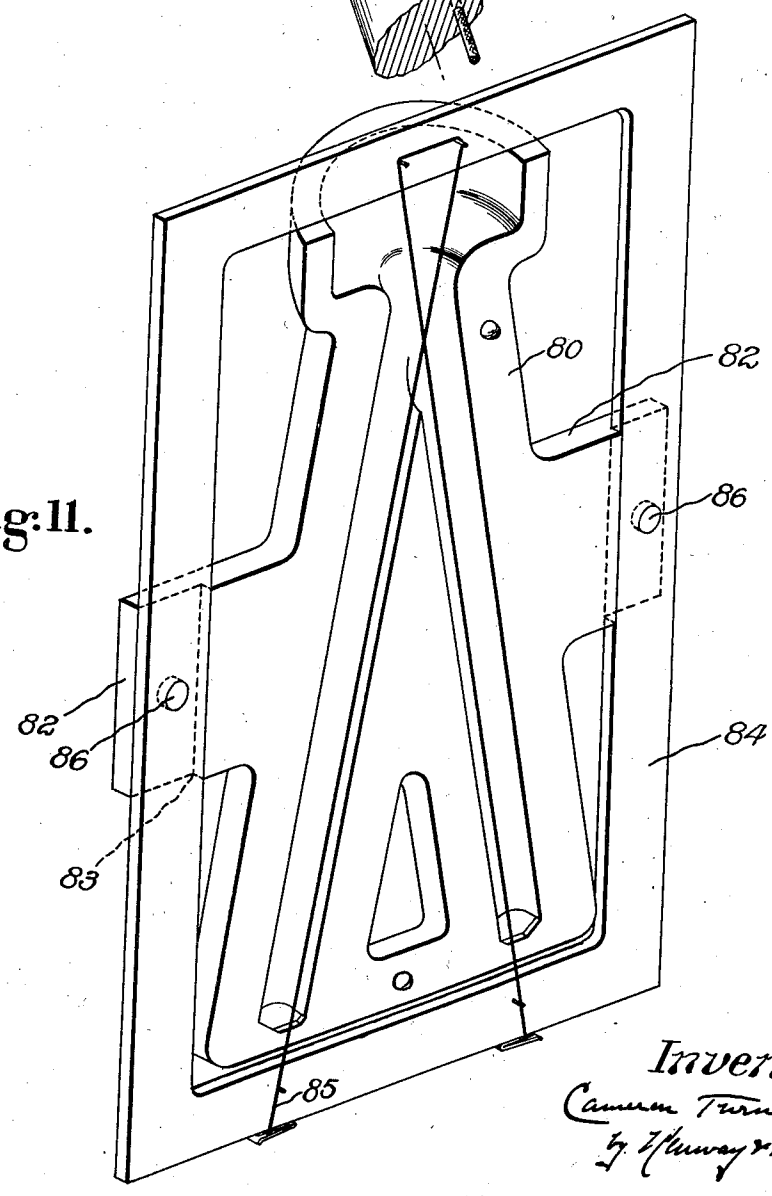


Fig:11.



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Patented June 26, 1945 2,379,391

UNITED STATES PATENT OFFICE

2,379,391

ART OF MAKING CANDLES

Cameron Turner, Beverly, Mass.

Application February 9, 1942, Serial No. 430,019

11 Claims. (Cl. 18—27)

My invention relates to the art of making candles, particularly multiple candles of the general type shown in my prior Patent No. 2,196,509 issued April 9, 1940.

Such candles consist essentially of a plurality of vertical straight sections interconnected by angularly disposed branches or sections which may be straight or curved. Both the vertical and the angularly disposed sections contain wicks, and when the candle burns down the flames travel along the various slanted interconnecting sections until they are consumed so that the candle as a whole burns with a variable number of flames in progressive stages of use.

In making the ordinary straight candle the wick is held in the axis of the mold, a matter which presents little difficulty. However, it is more troublesome to hold the wick in place when making a candle which has angularly disposed branches, especially when they are curved. One object of my invention is to fix a wick in proper outline easily and inexpensively so that it can be inserted in a candle mold and be maintained in predetermined outline during the pouring of the molten wax.

One feature of the process of the invention comprises fastening the wick in an open frame, drawing it into a predetermined outline, and then placing the frame around a mold so that the wick is maintained in proper position in the mold while the wax is poured in. The open frame permits ready access to the wick and facilitates the delicate task of adjusting it to the required predetermined outline to fit the mold to be employed.

My invention includes within its scope a novel candle having an angularly disposed section in which a wick is placed offset from the axis of the section and near the upper side of the section. I have discovered that a wick offset upwardly will cause an inclined candle to burn evenly and will cause the burning end to remain horizontal as the candle is consumed.

My invention also includes candle molding apparatus comprising a two-part mold constructed and arranged to receive the open wick frame referred to above. When the wick has been properly secured to the frame, and shaped therein, the frame is inserted in the mold and locked in place with the wick in the mold cavity. Then the wax is poured into the mold. After the wax has hardened, the mold is opened, the wick ends are detached from the frame, and the candle is thus completed.

These and other features of the invention will be best understood and appreciated from the following description of a mold and wick frame, together with a preferred embodiment of a candle illustrating the offset wick location selected for purposes of illustration and shown in the accompanying drawings in which:

Fig. 1 is a plan view of the wick frame with a wick positioned therein,

Fig. 2 is a plan view showing the wick frame assembled with respect to one half of a candle mold,

Fig. 3 is a fragmentary plan view of a wick frame and wick for a different type of candle,

Fig. 4 is a fragmentary view on an enlarged scale showing the flame lead connection between a portion of the vertical wick and a portion of the oblique wick, all properly located with reference to the mold.

Fig. 5 is a corresponding view showing the oblique supplementary wicks in their proper relation to the mold,

Fig. 6 is a view in elevation of the completed candle made with the assistance of the apparatus of Figs. 1 and 2,

Fig. 7 is a sectional view of the candle on the line VII—VII of Fig. 5,

Fig. 8 is a fragmentary view of an inclined candle section,

Fig. 9 is a sectional view on the line IX—IX of Fig. 8,

Fig. 10 is a view in elevation showing the finished end of an inclined candle section, and

Fig. 11 is a plan view of a wick frame and lower mold section for a V-shaped candle.

The essential feature of the process of my invention consists in attaching a wick to a frame and applying means to draw the wick into a predetermined outline, so that the prearranged wick may be bodily mounted in proper position with respect to a selected candle mold.

In Fig. 1 is shown a wick frame 10 in the shape of an elongated rectangle suitably dimensioned to receive a wick to be incorporated in a multiple candle 12 of the type shown in Fig. 9. The candle 12 comprises two long straight vertical sections 14, and a wick or wicks for these sections are fastened to the frame 10 to form two long straight reaches 14'. The candle 12 also includes two diagonal or angularly disposed sections 16 which meet in an area 18. The ends of two short lengths of wick 16' are secured in spaced relation to a thread 20. One end of the thread 20 is secured to the frame 10 as shown at 40, and the wick 16' is so connected to the thread 20 that the lower ends thereof intersect the lengths 14'.

The thread 20 is now carried across the frame 10 and secured thereto as shown at 34, and the thread 20 is then carried along the side member of the frame 10 to the point 32 whence it is again carried across the frame to the point 30. The wicks 16' are secured to the thread 20 between the points 32 and 30 but closer together than the spacing of their lower ends between the points 22 and 24. The thread 20 is then carried along the side member of the frame 10 to the point 28 from which it extends across the frame again to the point 26. Between the points 28 and 26 the wicks 16 are again secured to the thread 20 at spaced points. From the point 26 the thread 20 is carried along the side member of the frame 10 to the point 24 from whence it is carried to the ends of the wicks 16' and is connected thereto at intermediate points, finally once again crossing the frame to be secured thereto as shown at 22. The points 24, 26, 28, 30, 32, and 34 may consist of small pins set into the frame 10 and around which the thread 20 is drawn. However, the points 40 and 22 must comprise means to clamp the ends of the thread securely. The upper ends of the wicks 16' do not intersect the vertical wicks 14' but terminate with substantial spacing. The gaps are bridged by short threads 42 which, in the completed candle, act as flame leads or conductors or as a fuse by which the sectional wicks 16' are ignited.

In using the terms "upper," "lower" and "vertical" I have found it convenient to refer everything to its position when the complete candle is erect and in a position to be lighted. Since candle molds are closed at the top of the candle and open at the bottom, it is customary to invert them during the molding operation, so that the frame and molds are shown in inverted position in Figs. 1, 2, 3 and 11.

Fig. 2 shows the next step in the process of making the multiple candle. Here the frame 10 with the carefully arranged wick secured thereto has been disposed about one half of a candle mold 44. It will be seen that the straight reaches 14' of the wick are located in the axes of the long straight channels in the mold 44. The wicks 16' however, are not located in the axis of the angularly disposed channels of the mold 33, but are so disposed that in each of the four straight sections the wicks 16' are disposed above and offset from the axis of the channel of the mold. I have discovered that when a section of candle having an axially disposed wick is burned while at an angle to the vertical, the candle is consumed in a wholly irregular manner, and the melted wax runs down from it to an excessive degree. The ideal condition in a burning candle is one in which the slowly receding upper line of the candle remains always horizontally or at right angles to the flame. When this occurs, the interior of the candle at the top line becomes dished, and the melted wax tends to remain in the dished portion until it is drawn up by the wick, instead of running continually down the outside of the candle.

I have found that this optimum condition may be maintained in an angularly disposed candle provided the wick is offset upwardly from the center of the candle. The result obtained is well illustrated in Figs. 5 and 8 which represent one of the angularly disposed sections 16 of the multiple candle 12. It is to be assumed that the flame has travelled down the candle and divided, one flame continuing to travel down the long branch 14, and another flame traveling angularly down the section 16. It will be observed that the upper line of the candle is horizontal as shown at 17, and that the interior of the candle at the top is dished as shown by the dotted line 19. In Fig. 8 the offset position of the wick 16' is clearly demonstrated.

The manner in which the wicks 16' are held in offset position is clearly shown in Figs. 4 and 5 where it will be seen that the thread 20 in combination with the short thread 42 is so arranged that the outline of the wick is properly maintained, and in addition the sections 16' of the wick are held in offset position.

The foregoing description relates to the application of my invention to the manufacture of a multiple candle having straight sections throughout, as shown in Fig. 3. However, I also contemplate the manufacture of a candle composed of a plurality of interconnected curved sections. Such a type is suggested in Fig. 3 which shows a candle comprising four curved essentially V-shaped sections, two of which are inverted and connected to the other upright pair. The wicks are first positioned upon a rectangular frame 60, similar in construction to the frame 10. A thread 62 is carried back and forth across the frame in closely spaced reaches, the thread being secured at its ends by clamps 64 and maintained in predetermined position by a plurality of pins or tacks 66. A wick 68, attached to the end of the frame at 70, is secured to the reaches of the thread 62, which are so closely spaced that the wick 68 may be drawn into any desired curve. Thus the wick 68 is first curved to the right as shown in Fig. 3 and then brought back in a curve to the left. The pattern shown in Fig. 3 corresponds to the channels in the mold 72 which is shown in position beneath the wick 68. It will be apparent that the thread 62 forms a closely spaced grid pattern to which a wick may be attached according to a predetermined plan or pattern. When the wick has thus been arranged the entire frame is placed around a mold so that the wicks are properly located with respect to the channels in the mold.

After the candle has been molded, either with curved or straight sections, the thread is broken to release the candle from the wick frame, and the exposed lengths of the thread are sheared off with a sharp blade. The ends of the threads will then be flush with the outer surface of the candle and leave no noticeable trace.

In Fig. 11 I have shown apparatus for making a candle having two V-shaped sections and an enlarged cylindrical base. The half mold 80 is formed with channels prepared for the desired shape of candle and also comprises a pair of lugs 82 extending from the body of the mold and recessed at their outer ends as shown at 83. It is to be understood that the opposite halves of the candle mold are of complementary shape. The recessed lugs are adapted to receive and support a wick frame 84 upon which a wick 85 has previously been stretched in desired outline. The wick frame is first engaged with the lugs of one half of the mold 80 and the other half of the mold is then superposed so that the frame is clamped between the lugs 82 of the molds. Preferably, and as shown in Fig. 11, the lugs 82 and the frame 84 are apertured as shown at 86 so that dowels or pins may be inserted in order to maintain the proper spatial relationship of the wick frame and the two halves of the candle mold 80. It should be noted again that the wick 85 is

so located that in the angularly disposed portions of the candle it is offset from the axis.

In positioning the vertical portions 14' of the wick it is desirable to use a continuous piece of wick fastened as shown in Figs. 1 and 2 at one end of the frame and drawn around pins in the other end of the frame as in this way the tension of the two portions is equalized. In practice it has been found preferable to place the vertical and intermediate wick sections in position in the required outline and then to place the transverse thread 20 in position under tension and preferably overlying the wicks which have already been placed. The wicks are then tacked or fastened to the transverse threads by spots of cement so that the wicks are maintained permanently in position suspended completely within the frame and without reference to any locating pins.

It is desirable to position the flame lead threads 42 with a slight upward inclination. As the flame burns down the wick of the vertical candle sections it will upon reaching the thread 42 ignite the latter and a flame will run across this conductor as a fuse and ignite the wick in the oblique section of the candle. This expedient eliminates the occurrence of two main wick flames at the same location in the candle which might result in excessive melting and dripping of the candle. The manner of supporting the intermediate wick sections herein disclosed is also advantageous in that it leaves the vertical wick sections entirely undisturbed and free of all distorting side pull. The transverse threads are of gossamer size and their only function is to hold the several parts of the wick securely in place until the candle is completed. The small portions of this thread remaining within the candle disappear without noticeable flame. Pyroxylin cement has proved entirely satisfactory for securing the wick to the transverse threads.

Having thus described my invention what I claim as new and desire to secure by Letters Patent:

1. Process of molding multiple candles, which comprises securing wicks to a frame in predetermined outline and spacing, securing transverse threads to various points of said wicks and to the sides of the frame, inserting the frame-supported wicks and threads into a candle mold, molding a candle in said mold, withdrawing the molded candle, and shearing off the exposed portions of the threads.

2. Process of making candles having obliquely disposed sections, which comprises securing the ends of longitudinally disposed wicks to a frame, securing transverse threads to various points of said wicks, tensioning the threads to hold sections of the wicks in oblique position, inserting the frame-supported wicks and threads in a candle mold, and pouring molten wax into said mold.

3. Process of molding a multiple candle having curved sections which comprises, securing the upper and lower ends of wicks to a frame, securing transverse threads to the frame at closely spaced intervals, tensioning said threads and cementing the wicks thereto in a series of short segments, each segment being disposed at a slight angle to the adjacent segments, inserting the frame-supported wicks and threads in a candle mold, and pouring molten wax into the mold.

4. Process of molding a multiple candle having angularly disposed sections, which comprises securing wicks to a frame, securing threads to various points along said wicks in the lengths to be placed in the angularly disposed sections, tensioning said threads to draw said lengths of the wicks into predetermined outline, placing the frame-supported wicks and threads in a candle mold having angularly disposed sections, maintaining the angularly drawn wicks offset toward the top of the candle from the axes of the angularly disposed sections of the mold, and pouring molten wax into the mold.

5. A candle mold comprising two complementary mold members, a plurality of recessed lugs extending from the body of each mold member, a wick-holding frame engaging the recesses of the lugs, and dowel pins passing through the lugs and the frame to hold the frame between pairs of lugs.

6. Process of making multiple branch candles which comprises securing a wick to an open frame, attaching the wick to a thread stretched across the frame, the point of attachment of the thread and the wick being selected to hold sections of the wick in angular relation to each other, superposing the frame with the wick on a candle mold, and molding a candle in said mold and about said wick.

7. Process of making candles which comprises forming a grid pattern of threads across an open frame, securing wicks to said frame and to said threads, the points of attachment of the threads and the wicks being selected according to a prearranged pattern, whereby sections of the wicks are maintained in angular relation to each other, combining the frame with a candle mold exhibiting the desired pattern, the wicks being disposed in the channels of the mold, and pouring molten material around the wicks.

8. The process of making multiple candles, which consists in securing one end of a wick to a rectangular frame, drawing the wick across the frame in a plurality of passes and fastening its free end thereby equalizing tension in all of said passes, fastening intermediate sections of the wick in oblique position and in angular relation to each other, and enclosing the wick thus shaped in candle molds.

9. Process of molding multiple candles which includes the step of securing two wicks in parallel relation in a frame, supporting another wick in inclined position between the parallel wicks, connecting the upper end of the inclined wick through an oblique thread to one of the parallel wicks, and then enclosing the wicks in a candle mold and filling the mold.

10. Process of molding multiple candles which includes the steps of securing a plurality of wicks in parallel spaced relation all in a single plane, supporting a connecting wick in an inclined position between the parallel wicks, enclosing the wicks within a candle mold consisting of separatable sections of circular cross-section, and then casting cylindrical candle sections therein about the wicks.

11. The process of molding multiple candles with arched connecting sections, which consists in stringing wicks back and forth between holding members, then deflecting sections of the wicks into curved shapes by attaching them at consecutive points to transverse threads, and then enclosing the wicks in a sectional mold and filling the mold.

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