Dec. 29, 1936. C. C. SMITH 2,066,304

METHOD OF PRODUCING HOLLOW ARTICLES

Original Filed July 9, 1934

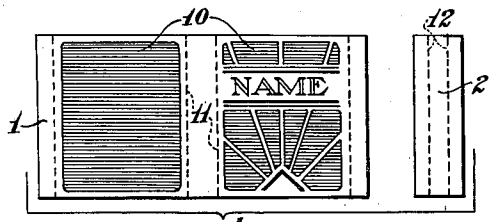


Fig. 1

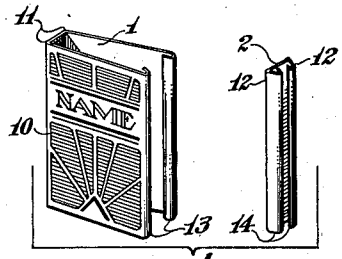


Fig. 2

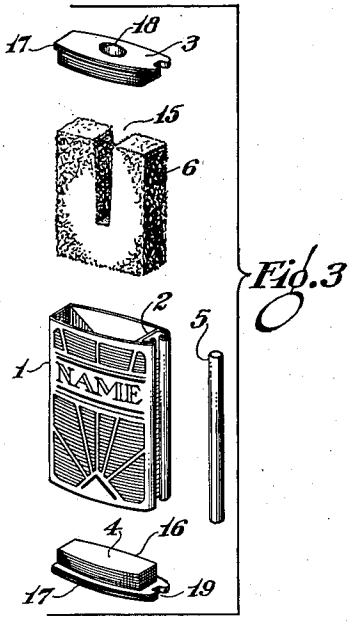


Fig. 3

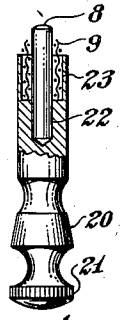


Fig. 4

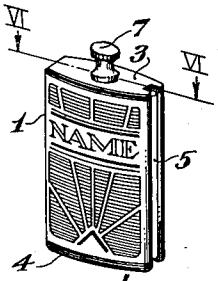


Fig. 5

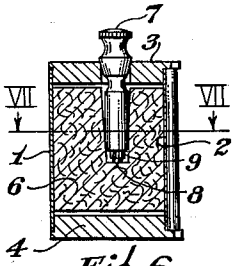


Fig. 6

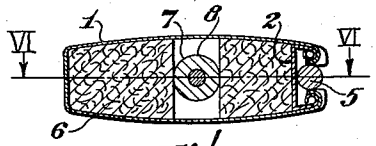


Fig. 7

Charles C. Smith INVENTOR.

BY

Hawgood and Van Horn

ATTORNEYS

Patented Dec. 29, 1936

2,066,304

UNITED STATES PATENT OFFICE

2,066,304

METHOD OF PRODUCING HOLLOW ARTICLE

Charles C. Smith, Cleveland, Ohio, assignor, by mesne assignments, to The W. J. Schoenberger Company, Cleveland, Ohio, a corporation of Ohio

Original application July 9, 1934, Serial No. 734,279, now Patent No. 2,018,094, dated October 22, 1935. Divided and this application December 12, 1934, Serial No. 757,178

11 Claims. (Cl. 29—148.2)

This invention relates to a method of producing hollow articles, and is particularly applicable to the manufacture of small and light articles, such for instance as the shells of lighters.

An object of the invention is to provide an improved method of producing an article which may be easily performed.

Another object is to provide an improved method of producing an article in which the parts may be effectively retained.

Another object is to provide an improved method of producing an article with which simple and economically made parts may be used.

Another object is to provide an improved method by which parts may be assembled without the use of special securing means.

Other objects will hereinafter appear.

The invention will be better understood from the description of a typical product thereof and the manner in which it is produced, both being illustrated in the accompanying drawing in which;

Figure 1 is a view of two metal parts used in manufacturing a hollow shell, in the shape which they assume after being blanked out but before being formed;

Figure 2 is a view of the same parts after the forming operation;

Figure 3 is a view of the parts of Figures 1 and 2 together with their associated parts arranged in position for the final assembly of the shell;

Figure 4 is a view, partly in section, of a striker for use in the shell made of the parts above referred to;

Figure 5 is a perspective view of the assembled device;

Figure 6 is a central sectional view of the assembled device of Figure 5 taken on the line VI—VI thereof; and

Figure 7 is a transverse sectional view of the assembled device of Figure 6 taken on the line VII—VII thereof.

The product which has been chosen for illustrative purposes only is a lighter in which friction on pyrophoric material is used to ignite inflammable liquid.

This application is a division of my copending application for Hollow articles, Serial No. 734,279 filed July 9th, 1934, issued as Patent No. 2,018,094 on October 22, 1935.

The finished device consists of a metal shell, made of two metal pieces 1 and 2, formed and arranged as will be hereafter described, two plugs or heads 3 and 4, a piece of pyrophoric material 5, and an absorbent pad 6, together with a striking mechanism consisting of a handle 7, a striker 8, and a wick 9. These parts are most clearly shown in Figures 3 and 4.

As shown in Figure 1, the parts 1 and 2 are cut from sheet metal in the form of rectangular strips having the same length, and the former being considerably wider than the latter. Piece 1 is intended to form three sides of a quadrilateral container, while piece 2 forms the fourth side thereof, the ends being closed by the parts 3 and 4.

Either before or after cutting the pieces 1 and 2 from the sheet, the former, which will, in the finished device, constitute the majority of the enclosed surface, is provided with any desired ornamentation 10 which may be of any desired character and applied in any desired manner.

However, I find that particularly attractive devices can be made by etching, stamping, plating, enameling and/or combinations of these. For instance, if a brass or bronze alloy is used, coloring the background a dark color is quite effective. Also, upon a brass or bronze, a background of silver plating produces a very attractive color scheme. With either yellowish or whitish metals various colors, lacquers, or enamels may be used to produce quite striking and aesthetic results. The application of the ornamentation to the piece 1 in a flat condition is much easier than would be the case if it were already fabricated into its final form.

After being cut to shape, pieces 1 and 2 are bent into channel-shaped form at the places indicated by dotted lines at 11 and 12, respectively, and their edges are rolled over as indicated at 13 and 14, respectively, in Figure 2. The rolled-over edges 14 of part 2 are of slightly greater curvature than those 13 of part 1, so that the former may fit within the latter and hold them together.

These edges next are interlocked, as indicated in Figure 3, and an absorbent pad 6 is inserted within the hollow of the shell. This pad may conveniently consist of a piece of felt, stamped, as shown, into rectangular form with a notch 15 cut into it for the reception of the striker.

The caps or plugs 3 and 4 are next put into position, and pressed into the space enclosed by pieces 1 and 2.

These caps each consist of a plug part 16 shaped to fit snugly within the space defined by pieces 1 and 2 and hold the latter outwardly, with its rolled edges 14 firmly interlocked with the rolled edges 13 of the former. These plugs

also have a marginal flange 17 which overlies the edges of pieces 1 and 2 and limits the distance that the plug may be inserted between them. The two plugs are identical excepting for the fact that plug 3 has a tapered hole 18 for the reception of the striker. The plugs may conveniently be formed of molded material such as fiber or synthetic resin.

After the above described parts have been assembled, the strip 5 of pyrophoric material, which may conveniently be round as illustrated, or of any other desired shape, is pressed into the groove between rolled edges 13, which frictionally retain the same in place. The flanges 17 of the caps overlie a portion of the ends of this pyrophoric material and prevent it from sliding lengthwise out of the groove, these flanges, however, being notched as indicated at 19, so that they do not extend quite to the outer surface of this bar, and are therefore out of the way of the striker when in use.

The striker, as previously mentioned, consists of a handle 7 which is of generally cylindrical shape and provided with a tapered surface 20, adapted to frictionally engage the surface when not in use, and with a knurled head 21 by which it may conveniently be twisted loose within this hole and held while striking on the pyrophoric material. The cylindrical part of the striker is drilled and counter-bored, as indicated at 22 and 23, respectively, and into the former opening is forced a cylindrical bar 8 of hard material which is used to contact the pyrophoric bar.

The bar 8 may conveniently be simply a cylindrical piece of steel or wire driven tightly into the hole 22.

Within the annular space between bar 8 and counterbore 23 is positioned a wick, which may conveniently be of asbestos fabric or other absorbent and preferably incombustible material, the ends of which extend from the recess 23, so that when the striker is put into the container they will contact the pad 6, and when it is used to strike a light will be exposed to receive the spark from the friction of bar 8 with bar 5.

The operation of the device is as follows:— The pad 6 is saturated with an inflammable liquid such as gasoline or alcohol, the striker is inserted within the casing, so that wick 9 contacts the pad 6 and so becomes moistened with the liquid. When it is desired to strike a light, the striker is turned by means of handle 21 and withdrawn from the casing, and then bar 8 is drawn along the pyrophoric bar 5 to strike a spark therefrom which, impinging upon the wick 9, causes the liquid to burst into flame.

While I have described the illustrated embodiment of my invention in some particularity, obviously many others will readily occur to those skilled in this art, and I do not limit myself to the precise details shown and described, but claim as my invention all embodiments, variations and modifications thereof coming within the scope of the appended claims.

I claim:

1. The method of producing a hollow article which consists of cutting two flat blanks, forming said blanks into channel shape, assembling said blanks with their flanges extending in the same direction and interlocking the flanges of said channels, and then pressing plugs into the ends of the space formed by said channels.

2. The method of producing a hollow article which consists of cutting two malleable blanks, forming one of said blanks into a relatively deep channel and the other into a relatively shallow channel of substantially the same width as the first, assembling said blanks with their flanges extending in the same direction and interlocking the flanges of said channels, and then pressing plugs into the ends of the space formed by said channels.

3. The method of producing a hollow article which consists of cutting two malleable blanks, forming the blanks into channels, forming the edges of the flanges of said channels into hook shaped beads, assembling said blanks with their flanges extending in the same direction and interlocking the beads, and then pressing plugs into the ends of the space formed by the channels.

4. The method of producing a hollow article which consists of cutting two flat malleable blanks, forming said blanks into channels, assembling said blanks with their flanges extending in the same direction and interlocking the flanges of said channels, inserting a spacing element between said interlocked flanges, and then pressing plugs into the ends of the space formed by said channels.

5. The method of producing a hollow article which consists of cutting two flat malleable blanks, forming said blanks into channels, assembling said blanks with their flanges extending in the same direction and interlocking the flanges of said channels, inserting a spacing element between said interlocked flanges, and then pressing flanged plugs into the ends of the space formed by said channels, the flanges of the plugs overlying the ends of the spacing element.

6. The method of producing a hollow article which comprises forming two rectangular flat malleable blanks having substantially the same dimension in one direction and one being substantially greater than the other in a direction perpendicular thereto, the larger blank having ornamentation applied to one surface thereof, forming said blanks into channel shape of substantially the same width and differing depth, assembling said blanks with their flanges extending in the same direction and the edges of the flanges interlocked, and then pressing plugs into the ends of the space formed between said channels.

7. The method of producing a hollow article which comprises forming two rectangular flat malleable blanks having substantially the same dimension in one direction and one being substantially greater than the other in a direction perpendicular thereto, the larger blank having ornamentation applied to one surface thereof, forming said blanks into channel shape of substantially the same width and differing depth, assembling said blanks with their flanges extending in the same direction and the edges of the flanges interlocked, and then pressing flanged plugs into the ends of the space formed between said channels, the flanges of the plugs bearing upon the ends of said channels.

8. The method of producing a hollow article which comprises forming two rectangular flat malleable blanks having substantially the same dimension in one direction and one being substantially greater than the other in a direction perpendicular thereto, the larger blank having ornamentation applied to one surface thereof, forming said blanks into channel shape of substantially the same width and differing depth, assembling said blanks with their flanges extending in the same direction and the edges of the

flanges interlocked, then pressing flanged plugs into the ends of the space formed between said channels, the flanges of the plugs bearing upon the ends of said channels, and inserting a bar between the interlocked flanges and between the flanges of the plugs.

9. The method of producing a lighter or similar article which consists of cutting two flat metallic blanks, applying ornamentation to one of said blanks, then forming said blanks into channel shape, assembling said blanks with their flanges extending in the same direction and interlocking the edges of the flanges of said channels, and then pressing plugs into the ends of the space formed by said channels.

10. The method of producing a lighter or similar article which consists of cutting two flat metallic blanks, applying ornamentation to one of said blanks, then forming said blanks into channel-shape, assembling said blanks with their flanges extending in the same direction and interlocking the edges of the flanges of said channels, inserting an absorbent pad within the space formed by said channels, and then pressing plugs into the ends of the space formed by said channels.

11. The method of producing a lighter or similar article which consists of cutting two flat metallic blanks, applying ornamentation to one of said blanks, then forming said blanks into channel shape, assembling said blanks with their flanges extending in the same direction and interlocking the edges of the flanges of said channels, inserting an absorbent pad within the space formed by said channels, and pressing a bar of pyrophoric material into the space between the interlocked edges of said flanges.

CHAS. C. SMITH.