Nov. 4, 1941. F. G. PURINTON 2,261,285

REINFORCED MOLDED BUTTON

Filed July 30, 1940

Fig. 1.

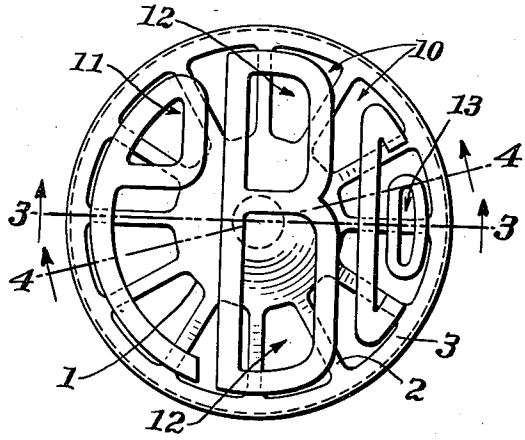


Fig. 2.

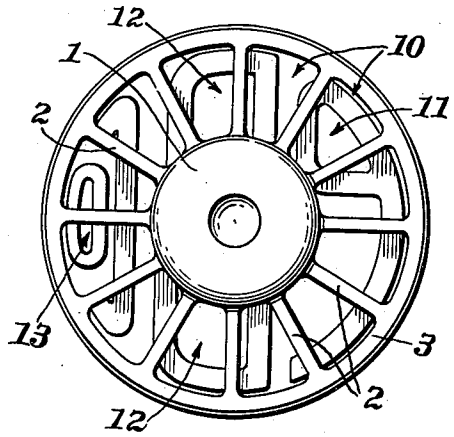


Fig. 3.

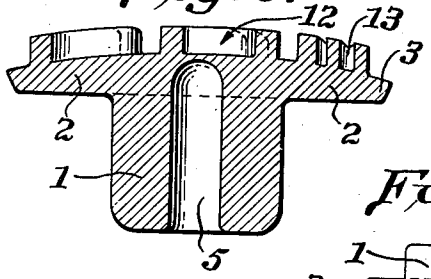


Fig. 4.

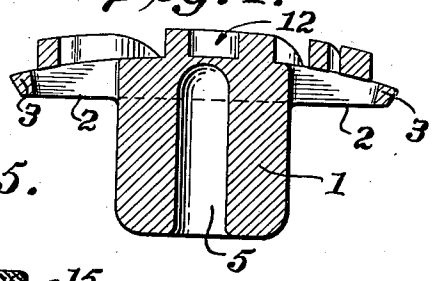


Fig. 5.

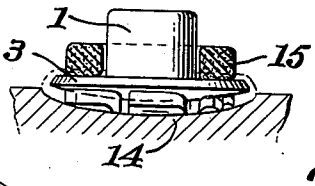


Fig. 6.

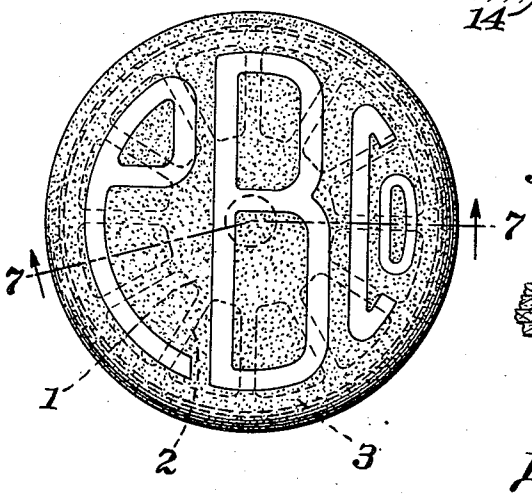
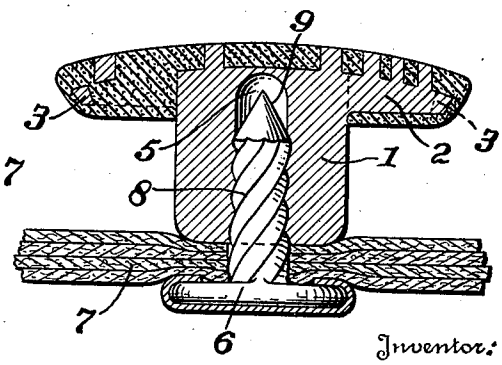


Fig. 7.



Inventor:

Forrest G. Purinton,

By Parker Cook,

Attorney.

Patented Nov. 4, 1941 2,261,285

UNITED STATES PATENT OFFICE

2,261,285

REINFORCED MOLDED BUTTON

Forrest G. Purinton, Waterbury, Conn., assignor to The Patent Button Company, Waterbury, Conn., a corporation of Connecticut

Application July 30, 1940, Serial No. 348,512

3 Claims. (Cl. 40—2.2)

My invention relates to new and useful improvements in buttons, and more particularly to a button formed of Bakelite molded over a die-cast metal frame.

An object of the invention is to provide a plastic button having a metal reinforcing frame, on which frame the insignia is also integrally cast to thus become a part of the frame, the bars forming the letters of the insignia extending generally across a multiplicity of spokes to thereby strengthen the frame as a whole.

A further object of the invention is to provide a molded plastic button having a skeleton metal frame consisting of a plurality of spokes and the adjacent open spaces and to also provide insignia in the form of integral metal bars which extend over at least one spoke and at least over a portion of a space between two spokes so that plastic material, when molded about the frame, may flow around the spokes and through the open spaces in the insignia and also between the adjacent bars of the insignia to thus securely bond the plastic in and about the frame and the bars of the insignia.

A further object of the invention is to provide a button with a die-cast frame having a hub provided with a core in which a fluted tack is to be driven, such a fastening means being shown in the application filed by me, William A. Zwiebel, and Harold N. Verzier on January 3, 1939, bearing Serial Number 249,138, for Tack buttons.

Still another object of the invention is to provide a molded button with an open or skeleton frame having a central bore to receive the fastening member, thus doing away with the small vise or anchor that usually has to be embedded in a Bakelite button, and at the same time to provide a molded Bakelite button wherein the skeleton frame will have the desired insignia or letters die-cast therein, thus making it unnecessary to cut the letters or insignia in the die cavities of the mold that is used in molding the Bakelite about the metal button frames.

Still another object of the invention is to provide a Bakelite button, the Bakelite being molded about a skeleton frame with the insignia or letters upstanding from the body of the frame. Also, each letter extends over a plurality of open spaces in the frame, so that the Bakelite in the closed or encircled portions of any letters will be well tied or anchored with the main body of the Bakelite.

With these and other objects in view, the invention consists in certain new and novel arrangements and combination of parts, as will be hereinafter more fully described and pointed out in the claims.

Referring now to the drawing showing a preferred embodiment,

Fig. 1 is a top plan view of a die-cast metal frame of the button on a greatly enlarged scale;

Fig. 2 is a bottom plan thereof;

Fig. 3 is a vertical sectional view taken on the line 3—3 of Fig. 1;

Fig. 4 is a similar view but taken on the line 4—4 of Fig. 1;

Fig. 5 is a fragmentary view showing the button placed in a mold with the Bakelite pill or doughnut placed about the hub thereof;

Fig. 6 is a plan view of the face of the button completed by the molding process; and

Fig. 7 is a vertical sectional view taken on the line 7—7 of Fig. 6 and showing the button attached to the garment with a spirally fluted shank tack.

Referring now to the drawing and for the moment to Figs. 1 to 4, inclusive, there is shown a metal frame which is preferably die-cast in an automatic single cavity die-casting unit, so that only one die with the special insignia need be made. In this way, a great multiplicity of these frames may be made and the cost of the dies reduced to a minimum.

This frame is preferably cast from a zinc alloy, and I have found that one made up as follows has a high impact strength over years of aging and the hub will not have a tendency to split when the tack fastener is driven therein:

Element:		Percent
Aluminum	nominal	4.1
Copper	do	None
Magnesium	do	0.04
Iron	maximum	0.075
Lead	do	0.003
Cadmium	do	0.003
Tin	do	0.001
Zinc		Remainder

It will be understood that other similar alloys might be used with equally good results, and I do not wish to be in any way limited to the one above-mentioned.

The frame consists of the central hub 1, the radiating ribs 2 extending from the upper portion thereof, and the peripheral rim 3.

For the sake of clearness of illustration, I have shown a circular frame, because the majority of buttons are circular, although it will be understood that this frame might be other than cir-

cular in outline, if special shaped buttons are desired.

Centrally of the hub 1 is the bore 5, into which a tack 6 is to be driven when the button is to be attached to a garment 7 (see Fig. 7). The tack 6 is fluted, as at 8, and pointed, as at 9, to readily pierce the garment when attached in a button-attaching machine. This form of fastening means is illustrated and described in the application filed by me, William A. Zwiebel, and Harold N. Verzier on January 3, 1939, bearing Serial Number 249,138, for Tack buttons.

Thus, it will be seen that there is no anchor or vise necessary for this type of fastening, which greatly reduces the cost of molding a Bakelite button, as it is a relatively expensive operation to mold a small anchor or vise centrally of a Bakelite or other similar composition button.

In the present embodiment, I have shown the frame as having twelve radiating ribs and, therefore, twelve resultant spaces 10 between the ribs. These resultant spaces are very necessary, as it is partly through these spaces that the Bakelite is to flow when the button is being molded and they permit the Bakelite to tie or bind with the Bakelite that is within the closed portions of certain of the letters.

Cast integral and on the face of the frame are shown the letters "P B Co", but it will be understood that any other desired letters or insignia may be used as requested by the purchaser. However, the center letter should extend completely across the hub and over one or two of the spaces on each side of the hub, so that the body of the Bakelite may bind the Bakelite that will be within the encircled spaces of the center letter.

Likewise, letters to the left and right of the hub should also extend across several of the spaces between the ribs to bind the material in the encircled portion of the letters.

In the present instance, where the letters "P B Co" are used, it will be noticed that the encircled space 11 in the letter "P" is over an open space; likewise, the closed spaces 12 in the letter "B" are over several of the open spaces; while the closed space 13 in the letter "o" is over its two adjacent open spaces. Then the "fill" in these letters will be bound with the body of the Bakelite.

These metal letters, as heretofore mentioned, are cast integral with the frame and extend upwardly for a short distance, as may well be seen in Figs. 3 and 4. It is to be remembered, however, that the button shown in the drawing has been greatly enlarged for the sake of clearness of illustration and that, in reality, the finished button will show substantially but a thin outline of the letters.

The frame may be polished and nickel or copper-plated, if desired, and if nickel-plated, the outline of the nickel letters embedded in a black or dark background gives a very pleasing appearance to the face of the buttons.

It might be repeated that any other letters might likewise be used or even a fanciful design, providing, of course, that any encircled spaces of a letter or design should extend over an open space between the radial spokes, so that there will be no possibility of the Bakelite falling out of these circumscribed parts of the letters or design.

It is also possible to build this frame without the rim 3, but this rim 3 will add strength to the frame and button and tie the ribs so that if it is desired to plate the frame, there will not be a tendency for the same to bend or get out of shape during the handling.

The second step in the formation of the button is to place a frame in an inverted position, as shown in Fig. 5, in a die cavity of a lower mold, fragmentarily shown at 14, and to encircle the hub 1 with what might be termed a "pill" or "doughnut" 15 of Bakelite.

The amount of Bakelite in the pill will be such that it will cover the face of the button as well as the back of the frame and fill the various interstices in the letters to thus give the letters an inlaid appearance.

When the frame is placed in the die cavity of the mold, a substantial supporting surface is presented to the frame, so that the centering of the frame within the cavity is a simple matter, which is not the case where a small vise or die has to be accurately centered and cast within a Bakelite button.

When the upper portion of the mold (not shown) is closed, the lettering or insignia will be forced tightly against the bottom of the mold, so that when the heat is applied, the pill or doughnut, of course, will soften and flow about the rim and through the respective spaces 10, but the faces of the letters being pressed tightly against the bottom of the mold will prevent them from being covered.

Also, the Bakelite extending behind and in front of the frame will well bind the Bakelite that is within the closed portion of the letters, so that there is no possibility of any of the Bakelite dropping from the said closed portions.

The frames may be placed by hand in the multiplicity of die cavities in a mold, or they may be dropped from a tray, and likewise the pills or doughnuts may be loaded into a tray and a plurality of them deposited at one time over the hubs of a plurality of buttons.

It will be seen that in molding buttons in quantities, it will only be necessary to cut one name die cavity for the casting machine, which will be changed when the name is to be changed, thus overcoming the necessity of cutting a name in each die cavity of the mold that is used for applying the Bakelite.

As heretofore mentioned, when buttons are molded, there are often two hundred die cavities in the one mold and heretofore it would have been necessary to cut each die cavity with the desired insignia. This is entirely overcome with the present invention.

The button is one that will withstand the hard usage to which it is to be put. By using the relatively strong metal hub with the central bore and driving the metal tack into the bore, there is no necessity to mold an anchor in the hub, which is generally necessary for deforming the prong of the tack.

It will be understood that different colored plastic or Bakelite might be used to provide different contrasts with the metal that forms the letters or insignia of the frame.

Finally, it will be noticed that not only have I produced a button that is relatively inexpensive to manufacture in large quantities, but I have also produced a Bakelite button that is substantially reinforced with a metal frame throughout the entire head and which will not crack or break when run through a washing machine and, at the same time, I have produced a hub that is exceedingly strong and will not split or crack when the fastener is driven therein.

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

1. A molded plastic button including a reinforcing metal frame, the said frame having a hub provided with a central bore to receive a fastening member, the said frame also including a peripheral rim and spokes radiating from the hub to said rim, raised metal letters formed integral with the frame and superimposed on said spokes and said letters extending across at least one spoke and over a space between said spokes and the molded plastic encasing said frame and filling the space within and between the letters and the top plane of the letters being substantially flush with the top surface of the plastic material.

2. An article of manufacture including a metal frame, the said frame having a metal central depending hub provided with a central opening therein, the said frame including a rim and spokes radiating from the hub to said rim, metal bars formed integral with said spokes and extending in a plane above said spokes and said bars being in the form of indicia and each bar extending across at least one spoke and at least partially over one open space, the frame with the exception of said hub being embedded within a plastic compound, and the said plastic compound filling the spaces between said spokes and between said bars forming the indicia and the top surfaces of said bars being substantially flush with the top surface of the plastic material.

3. A button including an all-metal hub, said hub provided with a chamber to receive a fastening member, a metal frame including spokes radiating from the hub and a peripheral rim joined with said spokes, metal bars also formed integral with the frame and extending in a plane above the normal level of said frame, said bars extending over at least a portion of a space between two spokes and also extending over at least one spoke, a plastic filler extending over the entire frame and filling the spaces between the spokes and the bars, and the surface of said bars being substantially flush with the top surface of the said plastic.

FORREST G. PURINTON.