Dec. 23, 1941. F. G. PURINTON 2,267,667

REINFORCED PLASTIC BUTTON

Filed Oct. 17, 1940

Fig. 1.

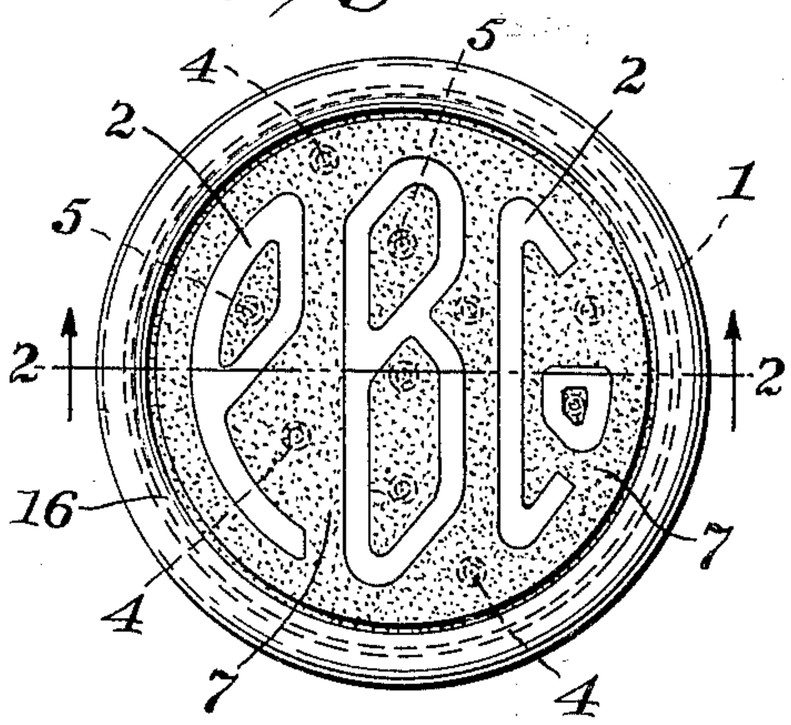


Fig. 3.

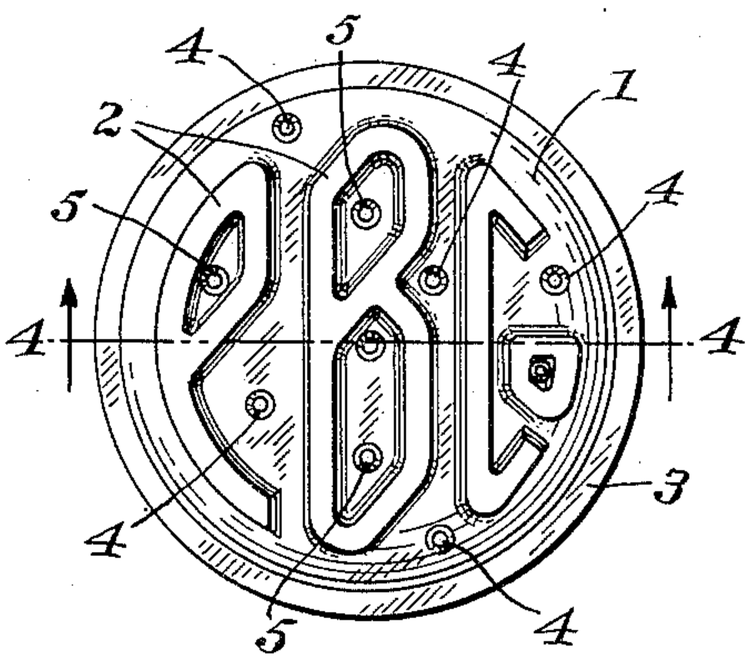


Fig. 2.

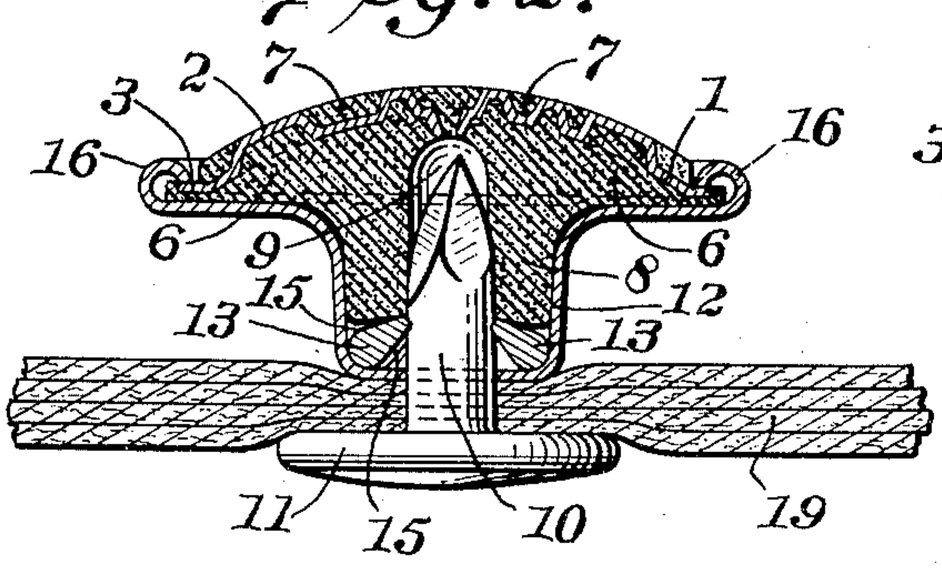


Fig. 4.

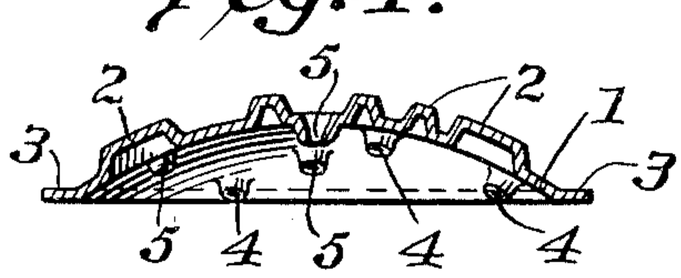


Fig. 7.

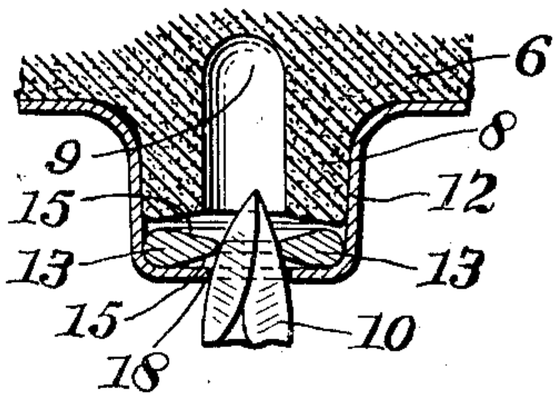


Fig. 8.

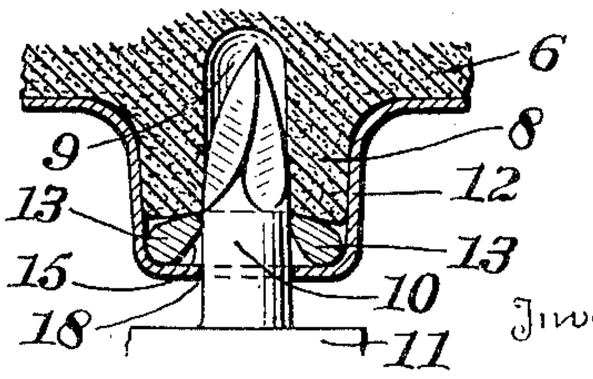


Fig. 5.

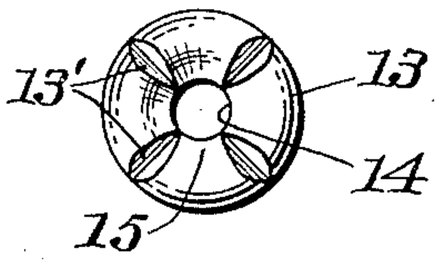
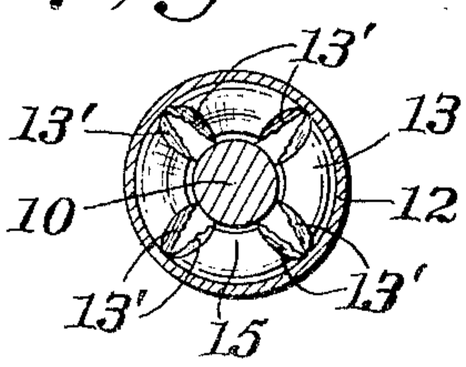


Fig. 6.



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UNITED STATES PATENT OFFICE

2,267,667

REINFORCED PLASTIC BUTTON

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Application October 17, 1940, Serial No. 361,648

6 Claims. (Cl. 24—90)

My invention relates to new and useful improvements in reinforced plastic buttons, and the present application is a companion to the application filed by me of even date herewith for Reinforced plastic buttons, bearing Serial Number 361,647.

In the companion application, a fluted tack fastener is adapted to be driven up into the bore of a novel plastic button to hold the button in its attached position, whereas in the present application a gripping washer in the button shell is utilized together with a smooth prong fastener.

One of the principal objects of this invention, therefore, is to provide a reinforced plastic button consisting of a plastic body or head in which there is embedded a plate having insignia thereon, the top surface of which insignia is flush with the face of the button, thus calling for only one name die in making the stamped plates rather than cutting insignia in all of the cavities in a multiple cavity die; and to further provide the shell, which reinforces the plastic, with a hardened washer which is adapted to be split into quarters when the tack is driven up into the button in the attaching operation, so that these four quarters will act as a toggle to tightly grip the tack fastener and hold the button in its attached position.

A further object of the invention is to provide a reinforced plastic button having insignia embedded therein and to provide a shell, in the bottom of which is deposited a washer, after which the pre-molded plastic body or head is positioned; also to provide an annealed tack fastener which is adapted to be driven into the bore of the plastic body and through the washer. In this attaching operation, the washer is split into four parts, the inner edges of which will bite into the tack, and act as a toggle to prevent the tack from ever becoming dislodged from the button head.

Still another object of the invention is to provide a reinforced plastic button having insignia of a permanent nature, such as a metal plate embedded within the button, the said plate being provided with raised insignia which will lie flush with the outer surface of the button, and to provide an extremely satisfactory gripping means within the shell of the button to form a part of a permanent attaching means.

Still another object of the invention is to provide a reinforced plastic button, the body and hub of the button being formed of plastic into which is to be driven the shank of a tack fastener, which shank is to be gripped by the parts of a washer that is split while the tack is being driven up into the hub of the button.

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 an enlarged top plan view of the completed button;

Fig. 2 is an enlarged vertical sectional view on the line 2—2 of Fig. 1;

Fig. 3 is an enlarged top plan view of the insignia plate;

Fig. 4 is an enlarged vertical section on the line 4—4 of Fig. 3;

Fig. 5 is a top plan view of the tack-locking gripper washer;

Fig. 6 is a sectional plan view to show the washer split by the entrance of the tack; and

Figs. 7 and 8 are fragmentary details showing the position of the tack and washer during the attaching operation.

Referring now more particularly to the several views, and for the moment to Fig. 4, there is shown what I term the insignia plate 1, which is preferably made of relatively thin sheet metal stamped to dome shape and also has stamped therein the insignia in the form of raised letters 2. In the present instance, I have shown the letters "P B Co", although it will be understood that any brand or trade-mark or other design may be stamped in this insignia plate.

The plate preferably has a rim 3 about its periphery and is also provided with the small prick-point openings 4 between the letters and the further prick-point openings 5, which may be seen in Fig. 3.

As explained in the companion case, the plastic body or head of the button is formed by placing the name plate in an inverted position from that shown in Fig. 4 in a die cavity (not shown), on which is deposited a Bakelite pill, and the mold closed and heated, so that the plastic will form the body or head of the button 6 and will flow through the said openings 4 and 5 and fill up the spaces between the letters and in the letters and thus cover the plate but leave the outer surfaces of the letters flush with the face of the button.

In this manner, the plate is well embedded and the plastic above the plate is well anchored with the body. Likewise, the islands or enclosed spaces within the letters are also well

anchored to the base and will not fall or drop from their confined positions.

The openings above-mentioned thus form passageways for the Bakelite when in its plastic form and also permit the plastic above the plate to be well anchored with the body of the plastic material.

The body of the button is also provided with an integral plastic hub 8, in which there is the central bore 9 to receive the prong 10 (Fig. 2) of the tack fastener 11.

As shown in the companion application, there is a metal shell 12, in which the premolded plastic body 6 with its insignia plate 1 is positioned. However, before placing the plastic body 6 within the shell 12, there is deposited a small metal gripper washer 13, which may be pack-hardened and heavily scored in the four places, as at 13'. This washer, of course, has the central opening 14 and is dished on its opposite faces, as at 15 (Figs. 2 and 7).

The plastic body 6, when forced down into the shell, positions the lower edge of its hub adjacent the top surface of this gripper washer. The shell 12 is then rimmed or rolled, as at 16, to tightly hold the plastic body within the shell.

The shell serves several functions. It greatly reinforces the plastic body and it makes a smooth peripheral edge for the button, thus doing away with a grinding operation, as the peripheral edge being bound within the shell may be left in a roughened state.

As heretofore-mentioned, the tack fastener 11 may have the prong 10 annealed, so that the same is relatively soft as compared with the hardened washer.

Also, the diameter of the body of the prong is slightly greater than the diameter of the opening 14 in the metal washer 13.

In Fig. 7, I have shown the prong of the tack fastener as having passed through the perforate bottom 18 of the button shell and entering the opening 14 of the washer, while in Fig. 8 a similar view is shown but with the tack approaching its final position.

In Fig. 2, the button is shown in its attached position, the tack having passed through the cloth 19, through the washer, and wholly up within the bore of the plastic body, while the prong of the tack has now split the washer into four parts. The forward edge of these quarters will bite within the shank and any removal strain on the button will cause the segments to act as a toggle and thus tightly bind the shank and prevent the button head from becoming detached from its cloth.

As is well known, these tack buttons are attached in a button-attaching machine wherein the button head is forced down on the cloth and tack to, in turn, force the tack through the cloth well up within the button head.

In Fig. 6, there is shown the washer as having been broken into quarters by the attaching operation just above-mentioned.

From the foregoing, it will be seen that I have provided a reinforced plastic button wherein the insignia will be of a lasting nature and the metal letters present a pleasing appearance against the black or colored background of the Bakelite.

Furthermore, the shell encasing the hub and part of the body portion greatly strengthens the button as a whole, and even should the plastic hub become fractured, the now-broken washer (segments) will form a tight locking connection within the ring of the tack to thus hold the button in place.

It will be seen that it is not necessary to cast or mold any vise or anchor within the plastic button head but the fastening means is accomplished by depositing the washer above-mentioned in the shell before the pre-molded plastic body is rimmed within the shell.

Also, it will be noticed that when the washer splits, the strain is not transferred to the plastic but is transferred to the sides of the metal shell, which will easily withstand the same.

It will be seen that the plastic insert 6 together with its insignia might be changed from that shown in the drawing without in any way lessening the locking action of the present button. For instance, although I have not illustrated the same in the drawing, it is obvious that the plastic hub 8 might terminate slightly above the washer, provided some other form of insert or filler be fitted between the upper edge of the washer and the lower edge of the hub, as means must be provided for transmitting the attaching pressure from the plunger (not shown) of the button-attaching machine down to the gripping washer to thus drive or force the prong of the tack through the cloth and through the hole of the gripping washer to split the washer and enter the hub, as above-mentioned.

It will also be understood that the plate with the insignia might be of a material other than metal and might be a different shape than that shown, just so it can be embedded in the premolded plastic body of the button, which is to be then fitted within the shell and held by the rimming of the shell.

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

1. A reinforced plastic tack button including a metal body shell open at its top, a pre-molded plastic insert having a hub and provided with a central bore to receive the prong of a tack fastener, an insignia plate embedded within the plastic insert and a portion of the plate lying substantially flush with the top surface of the plastic insert, said body shell secured about the marginal edge of said plate to hold the plastic insert firmly within its shell, a breakable washer lying within the shell and below the lower end of the plastic insert and through which washer the prong of the tack fastener is adapted to pass in an attaching operation to thereby split said washer so that the resultant parts of said washer will tightly grip the prong of the tack fastener.

2. A reinforced plastic tack button comprising a body shell having a hub and said shell open at its top, a pre-molded plastic insert fitted within said shell, the plastic insert having a hub provided with a bore to receive the prong of a tack fastener, a plate having raised insignia embedded near the surface of the plastic insert and the raised insignia being visible from the face of the plastic insert, a radially weakened washer in the bottom of the shell, the upper edge of the shell secured about the marginal edge of the aforementioned plate to tightly hold the plastic insert in its shell, the said washer adapted to be split into segments during an attaching operation when the prong of the fastener is driven therethrough, and the said segments adapted to grip the prong of the fastener.

3. A reinforced plastic tack button including a body shell, a plastic insert having a bore to receive the prong of a tack fastener, a metal plate

having raised portions thereon embedded slightly below the surface of the plastic insert and the raised portions visible from the face of the insert, the body shell secured about the marginal edge of said embedded plate to thereby hold the plastic insert within its shell, a scored metal washer in said shell and lying slightly below the lower end of said plastic insert, said washer adapted to be split into segments during an attaching operation, and the said segments adapted to choke about the prong of the tack fastener to thereby hold the said button in its attached position.

4. A reinforced plastic tack button including a metal body shell open at its top, a plastic insert provided with a chamber to receive the prong of a tack fastener, the upper edge of the shell secured about the marginal edge of the plastic insert to thereby hold the insert within its shell, a hardened, dished, scored metal washer the central opening of which is less in diameter than the diameter of the prong of its tack fastener, and the said washer adapted to be split into segments and bite into said tack fastener when the latter is driven through said washer and up into the chamber of the plastic insert during the button-attaching operation.

5. The combination of a reinforced plastic button including a body shell, a plastic insert within the shell and the edge of the shell crimped about the marginal edge of the plastic insert, a relatively hard metal washer the upper and lower surfaces of which are tapered toward the edge of the central aperture of the washer, the said washer being radially scored so that the same may be easily broken into segments; together with a tack fastener having a prong of softer metal than that of the washer and having a diameter greater than the central aperture of the washer whereby when the prong of the fastener is driven through the aperture in the washer during an attaching operation it will split said washer into segments and the forward ends of said segments will bite into the relatively softer prong of the tack fastener to thereby hold the button in its attached condition.

6. A reinforced plastic button including a body shell having a perforated hub and said shell being open at its top, a plastic body insert fitted within the shell and said plastic body insert also having a hub but terminating short of the inner bottom surface of the hub of the metal shell, the upper edge of the shell secured about the marginal edge of the said plastic body insert, a hard metal washer resting in the bottom of the metal shell and spaced below the lower edge of the hub of the plastic body insert, said washer being scored radially and provided with a central aperture the inner peripheral edge of which is relatively sharp and said washer adapted to be split into segments when the prong of a fastener, whose diameter is greater than the diameter of the aperture in the washer, is forced through said aperture during an attaching operation, and said segments adapted to bite into the prong of the said fastener to thereby hold the button in its attached condition.

FORREST G. PURINTON.