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PACKAGE FOR CRUSHABLE ARTICLES AND A METHOD
AND APPARATUS FOR PRODUCING THE SAME
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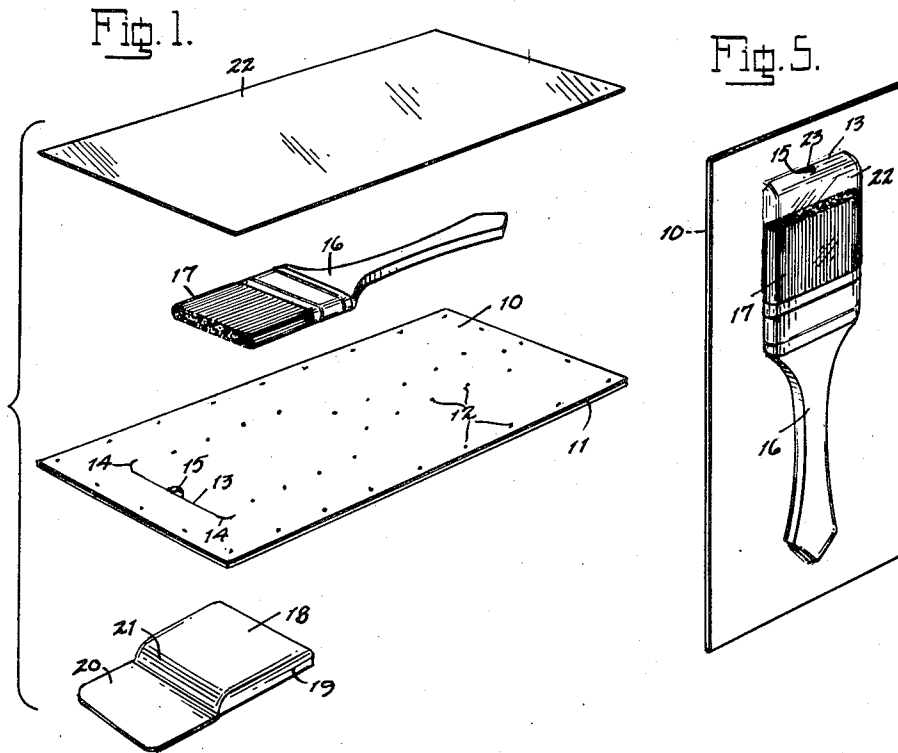


Fig. 2.

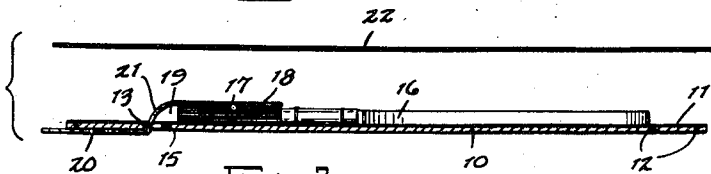


Fig. 3.

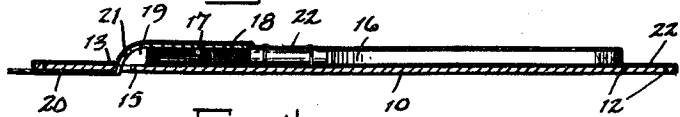
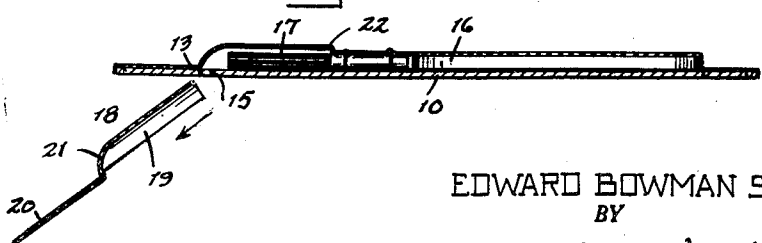


Fig. 4.



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PACKAGE FOR CRUSHABLE ARTICLES AND A METHOD AND APPARATUS FOR PRODUCING THE SAME

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5 Claims. (Cl. 53—22)

The present invention relates to a package for crushable articles and a method and apparatus for producing the same, and is particularly directed to the type of package consisting of a mounting card upon which an article is placed and secured by a molded plastic film which is closely formed about the article and is firmly laminated to the card, preferably by vacuum molding.

With methods heretofore in use, such packages had a tendency to distort the crushable article, or the crushable part thereof, due to the pulling-down effect of the plastic film through the application of vacuum. Inasmuch as the purpose of such packaging, in addition to protecting the article, is to present it in attractive form, these previous methods defeated such purpose to a large extent, as the article would be so changed in appearance that a prospective purchaser would be misled as to its actual form. An example of an article of this type is a paint brush, and with packages produced according to the previous methods, the bristles of the brush would be flattened down or crushed, thus detracting from the appearance and purpose of the package.

Attempts have been made heretofore to overcome this difficulty by providing a transparent plastic bubble or blister of relatively heavy gauge plastic material over the crushable portion of the article, as for instance the bristles of a brush, but this has also proved unsatisfactory as the force of the vacuum tends to collapse or distort the bubble or blister, particularly where there is sufficient heat present to soften the material of the bubble or blister during the application of vacuum.

It is an object of the present invention to provide an improved package and a method and apparatus for producing it, which will dispense with the use of the bubble or blister, and at the same time will prevent the crushable portion of the article from becoming distorted or crushed. To this end it is proposed to provide a removable rigid shield for the crushable portion of the article, about which the plastic film is molded. It is further proposed to provide an improved package wherein the supporting card is provided with a slot opening, utilized during the packaging operation for the removal of the shield, and which provides convenient means for engaging a hook or pin with the card to support the package for display purposes.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawings wherein a satisfactory embodiment of the invention is shown. However, it will be understood that the invention is not limited to the details disclosed but includes all such variations and modifications as fall within the spirit of the invention and the scope of the appended claims.

In the drawings:

Fig. 1 is an exploded perspective view showing the sheet of plastic film, a paint brush to be packaged, the card, and the removable shield;

Fig. 2 is a longitudinal sectional view showing the

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brush and shield in place upon the card, and the sheet of plastic film in superimposed relation thereto;

Fig. 3 is a similar view showing the plastic film molded about the shield and brush and laminated to the card;

Fig. 4 is a similar view showing the package with the shield removed and indicating the method of removing the shield; and

Fig. 5 is a perspective view showing the package supported upon a hook for display purposes.

Referring to the drawings, the card employed in my improved package and method and apparatus for making the same, may be of any suitable outline shape and is illustrated as a rectangular card 10 provided upon its upper surface with a coating layer 11 of a suitable adhesive, as for instance, a heat sensitive plastic resin adapted, as will hereinafter more fully appear, to laminate a plastic film thereto through the combined effect of vacuum and heat.

The card is provided with fine perforations 12 which are suitably arranged in accordance with the particular article to be packaged, being shown as provided in spaced relation around the border of the card and also in spaced relation along the outline corresponding to the outline shape of the article to be packaged, in this case, the outline of a paint brush. Forwardly of the part of the card where the crushable part of the article will be disposed, there is provided a slot 13 curved at its ends as at 14, for a purpose presently to be explained, and provided centrally with a notch opening 15 adapted for engagement by a hook or pin for the purpose of displaying the completed package, as will hereinafter more fully appear. The article to be packaged, shown for example as a paint brush 16, is provided with crushable bristles 17.

The shield 18 is formed of metal or other suitable rigid material and its head portion is shaped to fit over the crushable portion of the article, i. e., the bristles 17 in the case of the paint brush, being provided along its side edges with downwardly curved flanges 19 and being provided with a handle extension 20 connected to the portion 18 by a shoulder 21, the handle portion being in a flat plane slightly below the flat plane of the edges of the flanges 19.

In carrying out the method, the article to be packaged, for example the paint brush, is placed upon the card within the outline defined by the perforations 12, and the shield 18 is engaged over the bristles of the brush by inserting the handle portion of the shield downwardly through the slot 13 and swinging the shield into overlying relation with the bristles, with the flanges 19 engaging the upper surface of the card and the handle portion 20 extending outwardly from the slot 13 at the lower side of the card. In this relation these parts are placed upon the bed of a vacuum machine in relation to have the vacuum applied at the underside of the card through the perforations 12, as well as outwardly of the edges of the card and through the slot 13.

The flat sheet of plastic film 22 is placed in a suitable frame of the vacuum molding machine in spaced relation above the card and is thereupon heated to the desired degree to render it plastic for the purpose of vacuum molding, whereupon the heated sheet is moved downwardly upon the card so that it is first mechanically draped about the article and the shield, and thereupon substantially simultaneously therewith the vacuum is applied at the underside of the card, molding the plastic film in conforming relation about the article and the shield, and at the same time laminating the film to the card in surrounding relation to the article and the shield, the layer of adhesive upon the card being sufficiently softened by the heat of the plastic film so that the combined effect of the heat and the application of vacuum

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firmly adheres the film to the card. Thereupon the shield is removed by means of the handle portion 20 outwardly through the slot 13, the portion 18 moving from its shielding relation at the upper side of the card to the under side of the card, the curved ends 14 of the slot 13 permitting easy passage of the flanges 19. The bristles of the brush are thus exposed through the portion of the transparent film molded by the shield which, being in the form of a blister-like enclosure about the bristles, out of pressing contact therewith, effectually preserves the original shape of the bristles without distortion or crushing. Preferably the edge of the package is trimmed following the vacuum molding of the plastic film thereon.

The slot 13 provides for access of air to the space in which the bristles are enclosed, so that there is a balance established between the air within the enclosed space and the atmosphere, thus eliminating any tendency for the blister-like portion of the plastic film molded about the bristles to distort or collapse due to a differential with atmospheric pressure. As shown in Fig. 5, the notch opening 15 in the slot provides a convenient means for engaging a hook or pin 23 with the card to hang it up for display purposes.

While the method has been described particularly with reference to the so-called vacuum molding method of applying differential pressure to opposite sides of a plastic film, wherein the atmospheric pressure at the upper side is in excess of the reduced pressure produced at the lower side by the application of vacuum; it is pointed out that it may also be carried out by the so-called pressure molding method of applying differential pressure to opposite sides of a plastic film, wherein air pressure is applied to the heated plastic film at the upper side in excess of the atmospheric pressure at the lower side. The design of the shield and the slot may, of course, be varied to suit the particular shape of the article to be packaged.

What is claimed is:

1. The method of packaging which comprises placing an article including a crushable part upon the upper surface of a relatively rigid backing member in spaced relation to the edges of said backing member, placing a removable rigid shield over the crushable part of said article, molding a plastic film over said shield and the part of said article not covered by said shield and laminating said film to the upper surface of said backing member at those portions thereof not contacted by said article and shield, and removing said shield from between said backing member and the part of said film molded by said shield.

2. The method of packaging which comprises placing an article including a crushable part constituting an outer edge of said article upon the upper surface of a relatively rigid backing member in spaced relation to the edges of said backing member, placing a removable rigid shield over the crushable part of said article and about its outer edge, molding a plastic film over said shield and the part of said article not covered by said shield and laminating said film to the upper surface of said

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backing member at those portions thereof not contacted by said article, and removing said shield from between said backing member and the part of said film molded by said shield.

3. The method of packaging which comprises placing an article including a crushable part constituting an outer edge of said article upon the upper surface of a relatively rigid backing member in spaced relation to the edges of said backing member, placing a removable rigid shield over the crushable part of said article and about its outer edge, molding a plastic film over said shield and the part of said article not covered by said shield and laminating said film to the upper surface of said backing member at those portions thereof not contacted by said article, providing an opening in said backing member outwardly of said crushable part engaged by a part of said shield, and removing said shield through said opening from between said backing member and the part of said film molded by said shield.

4. The method of packaging which comprises placing an article including a crushable part upon the upper surface of a relatively rigid backing member in spaced relation to the edges of said backing member, providing an opening in said backing member adjacent said crushable part, placing a removable rigid shield over the crushable part of said article with a portion of said shield extending through said opening to the under side of said backing member, molding a plastic film over said shield and the part of said article not covered by said shield and laminating said film to the upper surface of said backing member at those portions thereof not contacted by said article and shield, and removing said shield through said opening from between said backing member and the part of said film molded by said shield by means of said part of said shield disposed at the under side of said backing member.

5. The method of packaging which comprises placing an article which includes a crushable part upon the upper surface of a relatively rigid backing member in spaced relation to its edges, providing air passages through said backing member at points in surrounding relation to the part occupied by said article, placing a removable rigid shield over the crushable part of said article, molding a plastic film over said shield and the part of said article not covered by said shield and laminating said film to the upper surface of said backing member at those portions thereof not contacted by said article by means of the application of vacuum through said passages, and removing said shield from between said backing member and the part of said film molded by said shield.

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