

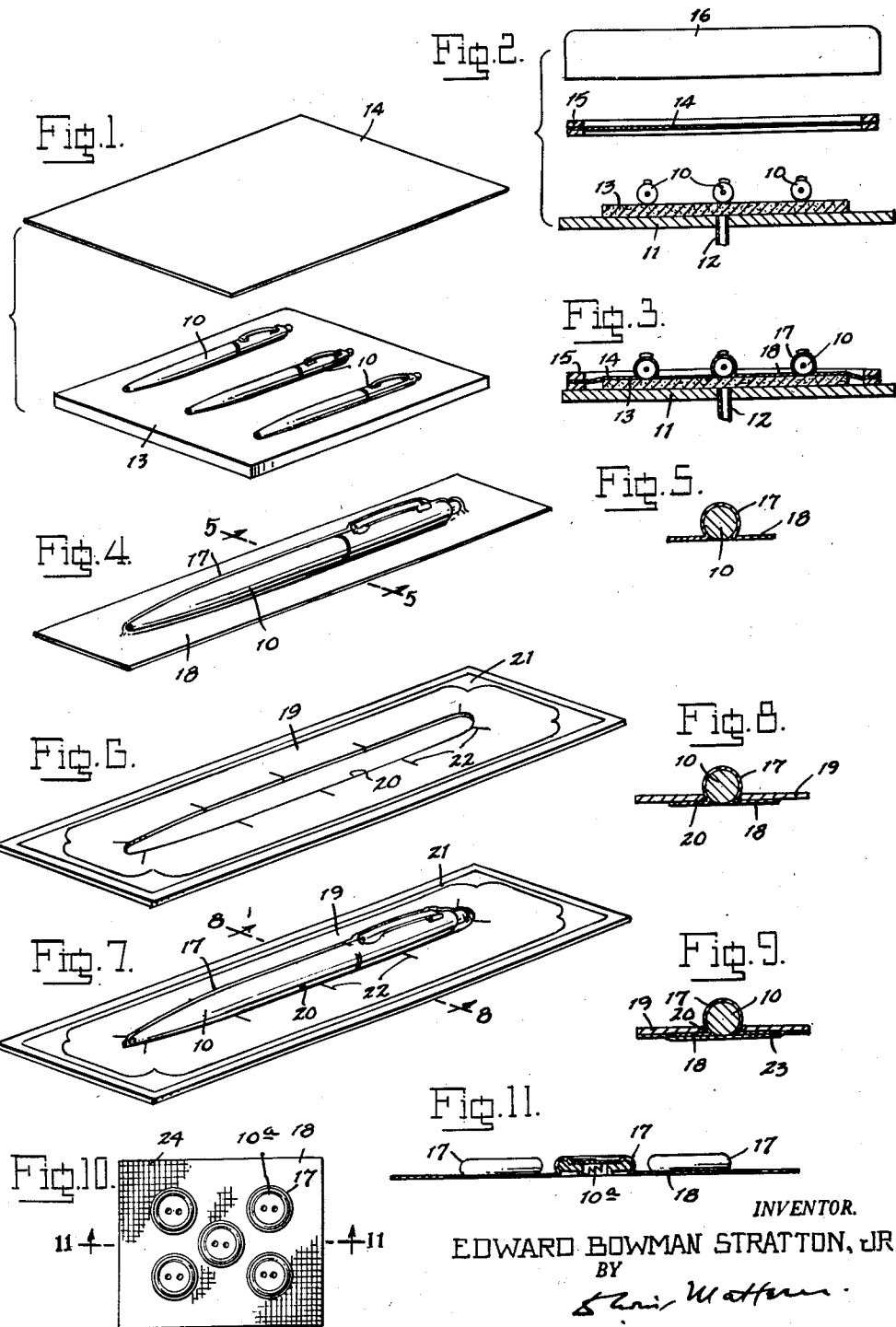
April 5, 1960

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2,931,495

DISPLAY PACKAGE

Filed Oct. 11, 1956



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2,931,495

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Application October 11, 1956, Serial No. 615,264

1 Claim. (Cl. 206—80)

The present invention relates to a display package and method of making the same, and has for an object to provide such packages wherein the articles are partially encased and protected by a plastic film or sheet partially molded about the articles, it being particularly proposed to provide a method permitting the use of a vacuum molding machine for the molding of the plastic film or sheet about the article.

A further object is to provide a package combined with a display card, and in which a minimum amount of the plastic sheet material is employed, thus economizing in the use of this relatively expensive material.

A further object is to provide a package wherein the article partially encased in the plastic sheet material may be combined with the display card by mechanically interlocking these parts together.

Other objects and advantages of the invention will become apparent from a consideration of the following detailed description taken in connection with the accompanying drawing wherein satisfactory embodiments of the invention are 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 claim.

In the drawings:

Fig. 1 is a perspective view showing a plurality of articles to be packaged placed upon a porous support forming part of the vacuum molding apparatus, and a sheet of thermoplastic film in position above the articles;

Fig. 2 is a diagrammatic vertical sectional view showing the arrangement of the parts in a vacuum molding machine prior to the vacuum forming operation;

Fig. 3 is a similar view showing the parts in the vacuum molding machine at the completion of the vacuum molding operation;

Fig. 4 is a perspective view, on an enlarged scale, showing one of the articles and the thermoplastic film in molded relation therewith;

Fig. 5 is a transverse sectional view taken along the line 5—5 of Fig. 4;

Fig. 6 is a perspective view of the display card for assembly with the encased article as shown in Fig. 4;

Fig. 7 is a perspective view showing the encased article assembled with the display card;

Fig. 8 is a transverse sectional view taken along the line 8—8 of Fig. 7;

Fig. 9 is a transverse sectional view of a modified form of the invention wherein a label is adhered to the under side of the assembled display card and encased article;

Fig. 10 is a plan view of a package according to the invention in which a plurality of articles, for example, buttons, are packaged; and

Fig. 11 is a sectional view, on an enlarged scale, taken along the line 11—11 of Fig. 10.

Referring to the drawings, and particularly to Figs. 1—9, the article to be packaged is illustrated as a ball point type writing pen of well-known design, and which

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when resting upon a horizontal surface presents undercut or reentrant side walls because of its generally cylindrical shape, it being pointed out that the undercutting of the side walls of at least a part of the article to be packaged is utilized as a feature of the invention. While a pen is shown for convenience in illustration, it will be understood that the invention contemplates the packaging of any suitable articles wherein at least a portion of the side walls will be undercut or reentrant, other articles suitable for packaging being, for instance, scissors, screw drivers, buttons, etc.

Figs. 2 and 3 show diagrammatically the arrangement of the parts in a vacuum molding machine, and these generally include a platen 11 provided with an opening 12 through which vacuum is applied, a suitable porous support 13 being supported upon the upper side of the platen so that the vacuum applied through the opening 12 will draw or exhaust air through the pores of the support 13. A plurality of the articles to be packaged are placed in suitable arrangement upon the support 13, the arrangement in the case of the illustrated pens being in spaced parallel relation to each other.

A sheet of relatively stiff thermoplastic film 14, which is preferably transparent, for instance, cellulose acetate film, is secured at its marginal edges in a suitable frame 15, and in its raised position, as shown in Fig. 2, is heated by the heater unit 16 to give to the sheet 14 the desired plasticity for vacuum forming. Upon heating the sheet 14, the frame 15 is lowered into contact with the platen 11 causing the plastic sheet to be draped over the articles and seal off at the edges of the support 13, whereupon vacuum is applied causing the sheet 14 to be formed about the top and sides of the articles, the sheet being drawn into flat contacting relation with the upper surface of the support 13 except at the portions of the support directly contacted by or approximately beneath the articles. Thus the thermoplastic film is drawn into close contacting relation with the sides of the article, and due to the cylindrical shape of the pen, and in the case of other articles due to undercutting or reentrant form at the side surfaces, the film is drawn inwardly adjacent the base portion of each article with respect to the wide dimension of the article just above the undercut portion.

Following the forming of the sheet about a plurality of the articles and its removal from the vacuum molding machine, the sheet is severed along cutting lines midway between the articles, so that the individual articles are each partially encased in a molded shield portion 17 and a horizontal integral fin portion 18 extends outwardly from each side of the wall portion of the shield portion encasing the article and from its ends, the lower surface of the fin being in the same plane as the base surface of the article, and the fin portion at each side making an acute angle with its integral wall portion and thereby forming oppositely opening grooves. Inasmuch as this fin portion 18 may be of relatively small dimension, for instance, of the order of about one quarter inch extension at the sides and ends of the article, it will be seen that a very small amount of thermoplastic film is required for each article.

The display card 19 for combining with the encased article is preferably formed of cardboard having a degree of flexibility, and its peripheral edge may be of any desired shape, the illustrated card being shown as rectangular. At a suitable location, as, for instance, centrally as shown, a cutout 20 is provided in the card, this cutout having the general outline shape of the article to be packaged but having a width dimension slightly less than the width dimension of the encased article and having a length dimension slightly longer than the encased article. The card may be suitably printed, for instance, as shown by the decorative border 21.

The encased article is assembled with the card by forcing it upwardly through the slot so that it is, in effect, snapped through the slot, the edges of the sides of the slot thereupon engaging the undercut or reentrant sides of the encased article beneath the wide dimension portion of the article, as clearly shown in Fig. 8, so that the encased article is thus retained in firm relation with the card. This operation is made possible by the flexibility of the card, and when the parts are assembled the cooperative relationship between the encased article and the card gives to the assembly substantial rigidity. Also, in this relationship, the fin 18 of the thermoplastic sheet, which before assembly with the card is relatively flimsy, is after assembly held in substantially flat relation with the underside of the card. In order to give greater flexibility to the card in the area directly surrounding the opening 20, a series of slits 22 may be provided in outwardly extending relation to the opening.

In Fig. 9 there is shown a modification in which a layer of material in the form of a label or underliner 23 is secured to the under side of the assembled card and encased article, the label being either coated with an adhesive at one side so that it may be adhered to the under surface of the card and the fin 18, or the under surface of the card 19 may be coated with an adhesive, preferably heat sensitive, and the label 23 adhered thereto by applying heat and pressure to the upper surface of the card 19. In this case, the heat sensitive adhesive will also cause the surface of the fin 18 contacted by the card 19 to be adhered thereto. The label gives substantial stiffness to the assembly, and in cooperation with the article encasing film and the card effectively seals the article in the package.

In Figs. 10 and 11 articles packaged are illustrated as buttons 10a, a plurality of buttons being packaged in spaced relation by means of the thermoplastic film 14 formed about the top and the reentrant peripheral side surfaces of the buttons in similar manner to the packaging of the pens as above described. In this case the card may be dispensed with, although it will be understood that a card and label may be employed in the same manner as shown in Figs. 1-9. Also, the film may have a decorative configuration formed therein, as, for

instance, a linen simulating surface, as indicated at 24, by providing the support 13 with a linen simulating or other desired molding surface, the heated thermoplastic film being conformed to such surface upon the application of vacuum.

What is claimed is:

In combination a pre-formed encased article and a mounting card therefor, said encased article comprising an article having a top surface, a base surface, and laterally opposite side surfaces each undercut adjacent said base surface and laterally projected between said undercut and said top surface, and a sheet of stiff thermoplastic film having a permanently molded article encasing wall portion molded into conforming contact with and encasing the top and side surfaces of said article, and integral planar flat fin portions extending outwardly from each side of said article encasing wall portion substantially in the plane of said base surface of said article, each fin portion making an acute angle with its integral wall portion and thereby forming oppositely opening grooves, and said mounting card comprising a flexible normally flat card member having an opening receiving said encased article on the upper side of said card with said fin portions in engagement with the underside of said card, the width of said opening being such that its laterally opposite edges snap into said grooves and removably lock said encased article in said card.

References Cited in the file of this patent

UNITED STATES PATENTS

2,151,503	Dowst	Mar. 21, 1939
2,210,509	Strauch	Aug. 6, 1940
2,568,625	Harvey	Sept. 18, 1951
2,690,593	Abercrombie	Oct. 5, 1954
2,705,556	Ringler	Apr. 5, 1955
2,720,969	Kendall	Oct. 18, 1955
2,750,719	Wandelt	June 19, 1956
2,757,793	Deitz	Aug. 7, 1956
2,796,985	Gorton	June 28, 1957

FOREIGN PATENTS

958,491	France	Sept. 12, 1949
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