

Sept. 10, 1968

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3,400,811

DISPLAY PACKAGE

Filed Sept. 3, 1965

3 Sheets-Sheet 1

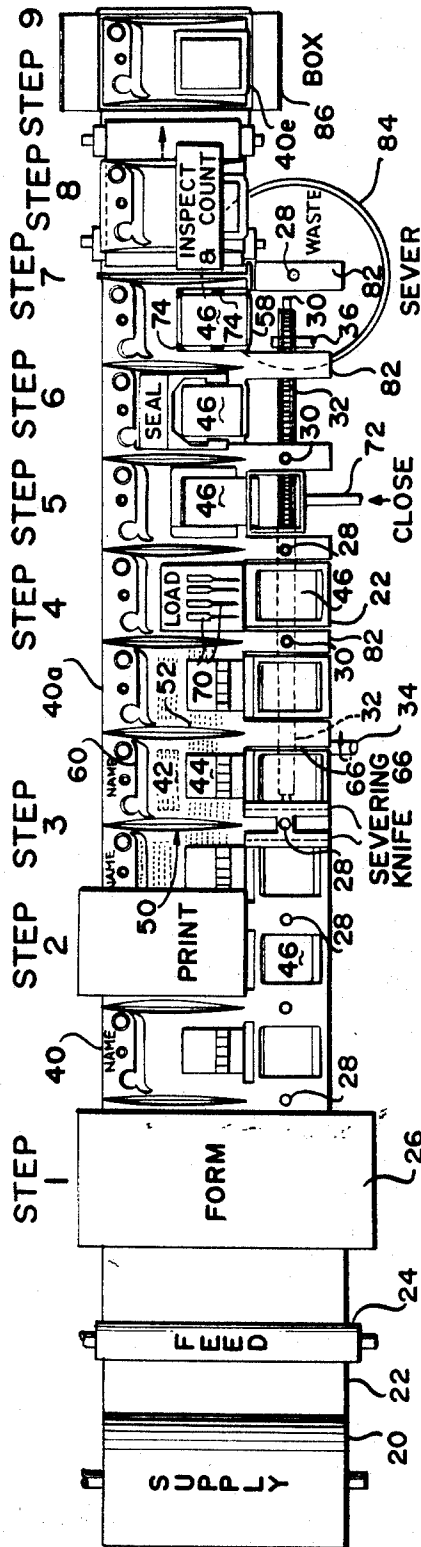


FIG. 1

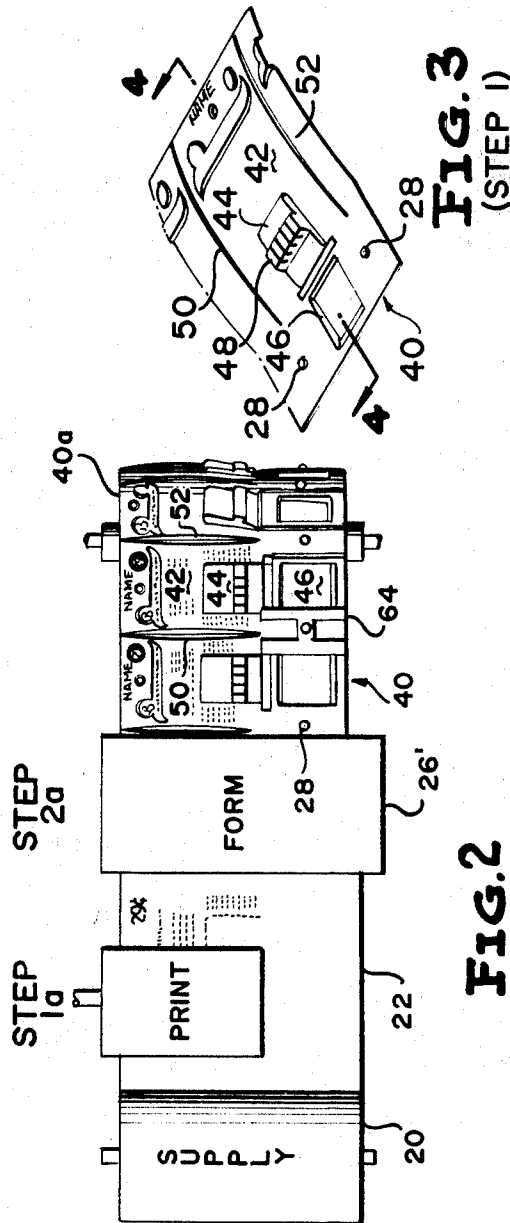


FIG. 2

FIG. 3
(STEP 1)

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FIG. 4

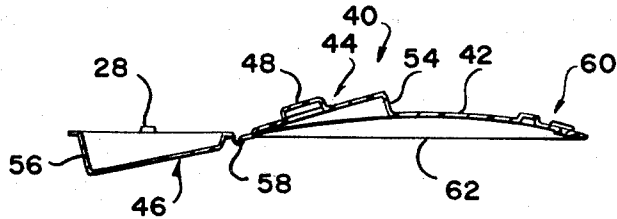


FIG. 5

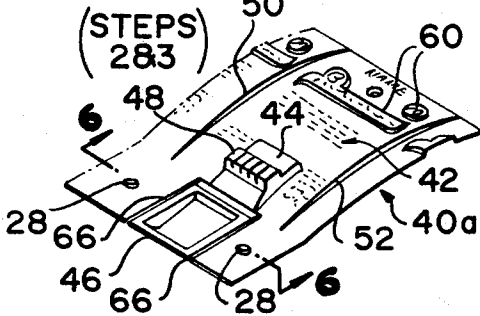


FIG. 6

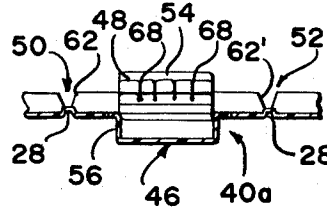


FIG. 7
(STEPS 485)

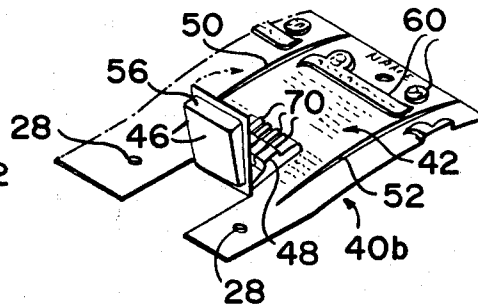


FIG. 8
(STEP 6)

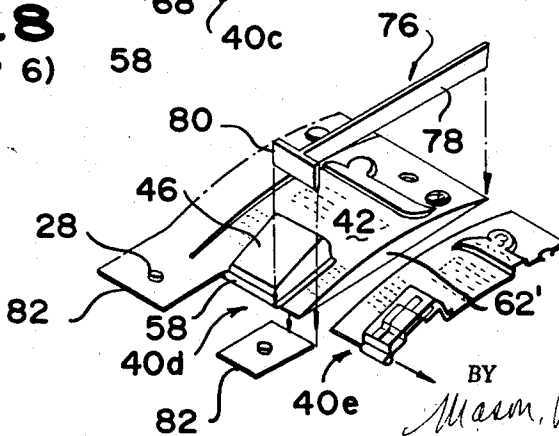


FIG. 9
(STEP 7)

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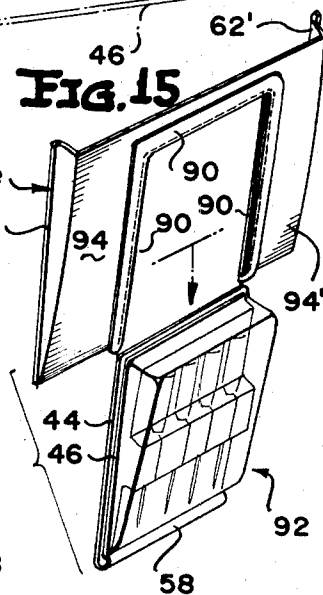
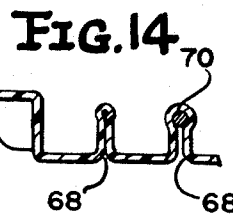
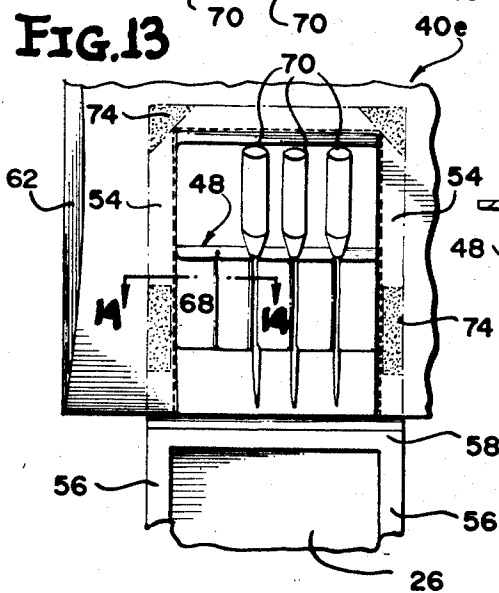
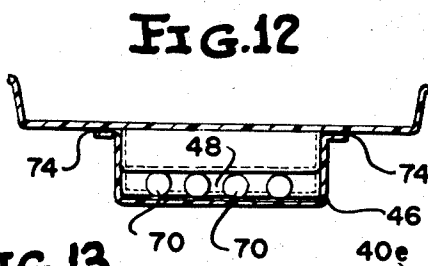
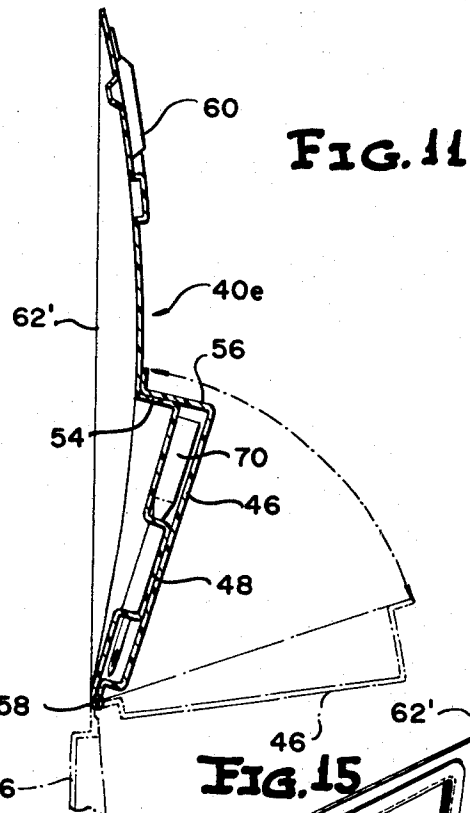
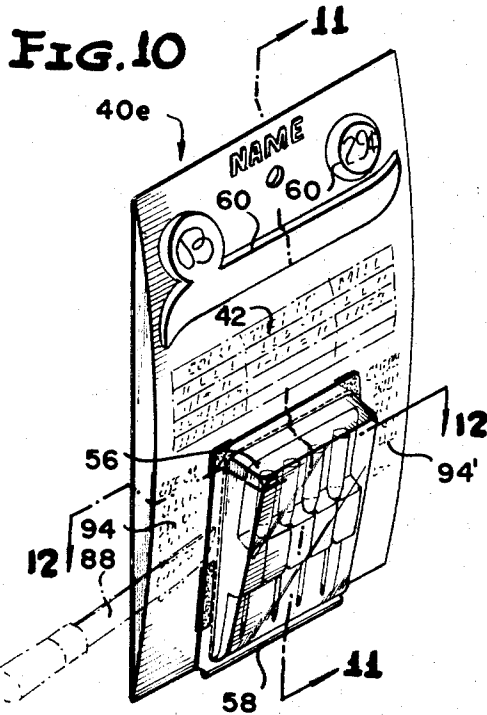
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3 Sheets-Sheet 3



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3,400,811

DISPLAY PACKAGE

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Filed Sept. 3, 1965, Ser. No. 484,996

9 Claims. (Cl. 206-66)

This invention relates to a method and apparatus for retaining and displaying objects and more specifically to a package for elongated objects, such as needles, drills, etc., the package being of unitary construction and formed of a backing member, a pocket area, and a cover for the pocket area, the entire package being formed from a single piece or section of material.

As presently practiced, the packaging of elongated products such as family grade needles, have traditionally been packed in quantities or from three to ten. The needles have usually been inserted by hand into slots or cavities in small injection molded plastic boxes or machine-loaded into folds of paper. Next, covers were placed on the boxes or the folds of paper were inserted in covers or boxes. Many of these containers had three or more parts and assembly of the package was by hand.

Due to the problem of pilferage, it is desirable that a needle package be of some considerable size. Unfortunately, a plastic box of a desired size would be prohibitively expensive, so that nearly all such packages are mounted on a piece of printed cardboard. Blister packs, skin packs, mechanical interlocks, glue, tape and staples have all been utilized. These all have two things in common: the high cost of the materials and the necessity of hand assembly, with the attendant lack of uniformity and accompanying higher costs.

It will be intuitively clear that efficiencies of operation are not achieved in packaging processes when the cost of the package may exceed the cost of the product by two or more times. However, most manufacturers have been content to employ a consumer-needle package which requires the use of four or five components; a two or three part product container, a plain surfaced paperboard card which carries an advertising message and useful information as to the use of the product, and a film or bubble of clear plastic which unites the product container with the card.

In addition to the foregoing disadvantages, a number of other common faults constitute decided obstacles to a truly successful package. For example, in most cases it is difficult to remove the multi-piece plastic container from the paperboard card to gain access to the product. In the present invention, there is no need to remove the product-container from the card since there is no separate card as such. The needles are accessible without having to perform a separation operation.

After separating the container and card of the prior art, the card which holds the manufacturer's total message, including needle size, machine acceptability, and fabric guide, is usually destroyed or at least damaged and, being of little or no use in that condition, is disregarded thus obviating further reference and search for useful information. In the present invention, such damage or mutilation cannot occur since the card and container are formed in a unitary fashion and from a single piece of material.

The prior art product-containers are generally constructed of a rigid plastic and the needles contained therein a loose fitting manner which results in a noticeable rattle. This package does not generally reflect a quality package. The package of the present invention is constructed in such a manner that the needles are gripped securely in place and cannot rattle about, even when the container is opened.

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Opening the plastic product container of the prior art, while with few exceptions, is not difficult, reveals another undesirable characteristic. All of the needles are not exposed at the same time for the user's choice. This is not due to the desirable feature of making the container cover captive to the body, but rather, the poor design effected to accomplish this. In those cases where the container cover is a loose piece, this undesirable aspect is quickly evident. Also, it must be added that the more common containers are prone to spilling of the contents due to accidental jostling or tipping of the container body. In the package of the present invention, the container cover is self-hinged to the container body (recall the unitary construction) and simultaneously exposes all of the needles to the user. By virtue of the nature in which the needles are retained by the body of the container, no accidental spilling or loss of contents can occur. In addition, the cover snaps shut on to the body providing both a sensory and audible assurance that the cover is completely closed.

The machine assembly and loading of most packages of the prior art is difficult and penalized because of the multiplicity of separate pieces to be handled, oriented, indexed, etc., and is not eminently adapted to an in-line, automatic concept. The packages of the present invention will be printed and formed in a continuous web or belt and are eminently suitable for a continuous, automatic, economical in-line loading process. The package is of one piece construction comprising a message area, a body or pocket, and a cover for the pocket.

The decorative aspects of prior "cards" are limited to printed graphics whereas the present package, being constructed of a printable and formable material, possesses all the virtues of excellent two dimensional design as well as the added feature of three dimensional contour. This may include sculptured shape, nestability, raised or depressed lettering, textured surface, and extra strength gained by beading, turned edges or compound curves. Furthermore, the material can be transparent, and by printing on the reverse side, the consumer observes the gloss of the near surface with the printed far surface being legible through the material. This feature serves to reduce marring or defacing of the printed area. The ability of printing the package in a flat condition, before forming, is an important aspect of its attractive economic qualities.

Accordingly, it is the principal object of the present invention to improve packages for the retention and display of products, and methods for fabrication of the package.

It is a further object of the present invention to provide a package of unitary construction having esthetic appeal but retaining the attributes of practicality, usefulness and long serviceable life.

It is a further object of the present invention to provide a package formed of a single section of material, the package including a message area, a product pocket and a cover for the pocket.

It is a further object of the present invention to provide a package of unitary construction wherein the product in the package is not intentionally separated from any instructions concerning the use of the accompanying product.

It is a further object of the present invention to provide a package of unitary construction which, although of a construction which inhibits pilferage during shipping and display, permits total accessibility of the product to the user.

It is a further object of the present invention to provide a package wherein the package cover is self-hinged to the package and when the cover is in its open position, the product is securely retained in place which prevents accidental spilling or loss of the product.

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It is a further object of the present invention to provide a package which may be formed and printed in a continuous web or belt and the product loaded into each package, the individual packages being separated from the continuous web after shipping by the retailer.

It is a further object of the present invention to provide a package of unitary construction which includes a three dimensional contour, of transparent material, which may be of a sculptured shape, possess nestability, have raised or depressed lettering, textured surfaces, and extra strength gained by beading, turned edges or compound curves.

It is a still further object of the present invention to provide a package of unitary construction which may be printed in the flat, before forming, and if of a transparent material, may be printed on the reverse side so as to preserve and protect the printing from marring or obliteration.

These and other objects of the present invention are accomplished by advancing a single, continuous strip of material, such as plastic, between dies which form in one operation and in one piece, a transparent cover, a hinge, a permanent reusable container, and a base or surrounding section of a size to reduce pilferage, which is complete with punched holes, raised or embossed letters and surfaces and a curved shape having depth and improved rigidity. The packages so formed are printed either before or after forming. The packages are left connected to one another, thus maintaining the continuity of the strip. The cover area is die-cut free of the strip leaving only the hinge area for attachment. In the scrap areas adjacent the cover, registration holes or buttons are formed to hold and locate the strip while printing and cutting.

Thereafter, the continuous strip of packages is fed to a loading machine which locates and moves the strip by engaging the registration buttons. The machine automatically inserts the product, such as needles, in slots formed in the plastic, folds over and snaps the cover, heat-seals the cover, die-cuts the package from the strip and also removes the scrap areas from the package. In addition, the packages are counted, inspected to insure the presence of the required number of needles, and placed in the receiving container.

Further features and objects of the package of the present invention are readily apparent. For example, the package may be printed in color either on the back or the front and before or after forming. Certain areas may be left unprinted according to the design of the package. In addition, the cover "snaps" shut over the pocket of the package providing both a sensory and audible assurance that the cover is completely closed. The molding of the package in plastic permits a three dimensional effect through embossing. The needles are designed to snap into grooves or can be dropped into compartments. The needles may be lifted out of the package endwise or rocked out frontwise. The shanks of the needles may be color-coded according to size and one needle may be removed at a time without destroying the complete package. It is intended that the package may be used as a semi-permanent package for the storage of the needles supplied in the package or for other needles.

The invention both as to its organization and method of operation together with further objects and advantages thereof will be best understood by reference to the following specification taken in conjunction with the accompanying drawings in which:

FIGURE 1 is a plan view of a line for forming and completing the packages of the present invention illustrating the method from the supply roll to the final inspection and boxing of the packages;

FIGURE 2 is a view similar to a portion of the view of FIGURE 1 and showing another embodiment with regard to the printing step;

FIGURE 3 is a perspective view illustrating the em-

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bryonic package after the forming of Step 1 of the FIGURE 1;

FIGURE 4 is a sectional view taken along the line 4—4 of the FIGURE 3 and illustrating the contour of the package;

FIGURE 5 is a perspective view illustrating the developing package after the printing of Step 1 and the severing of Step 3 of the FIGURE 1;

FIGURE 6 is a sectional view taken along the line 6—6 of the FIGURE 5;

FIGURE 7 is a perspective view illustrating the emerging package after the loading of Step 4 and the Closing of Step 5 of the FIGURE 1;

FIGURE 8 is a plan view of a package of the web and illustrating the sealing of the Step 6 of the FIGURE 1;

FIGURE 9 is a perspective view showing the packages being separated by a cutter of the Step 7, of the FIGURE 1;

FIGURE 10 is a perspective view of a completed package and illustrating the manner in which a blade may be employed to separate the cover from the pocket and thereby expose the contents of the package;

FIGURE 11 is a sectional elevational view showing the cover in its closed position and in dotted outline, the cover in its open position;

FIGURE 12 is a sectional view taken along the line 12—12 of the FIGURE 10;

FIGURE 13 is a fragmentary plan view with the cover in its open position;

FIGURE 14 is a sectional view taken on the line 14—14 of the FIGURE 13; and,

FIGURE 15 is a fragmentary perspective view showing the manner in which the pocket and cover may be removed along with the contents from the remaining package.

With reference to the FIGURE 1, a supply roll 20, in the preferred embodiment of a clear plastic material, delivers a sheet 22 to a feed roll 24 and to a forming die 26. The forming die 26 performs Step 1 which is shown in perspective in the FIGURE 3.

One of the features of the forming of the Step 1 is the positioning of a plurality of registration apertures 28 which are engaged by a plurality of small teeth 30 supported by a belt 32, the belt 32 being positioned between a pair of drive pulleys mounted upon a pair of shafts 34 and 36. As the shafts 34 and 36 rotate in the direction of the arrow as shown, the teeth 30 upon the belt 32 engage the registration apertures 28 and in this manner, pull or advance the sheet 22 along to the various stations where the steps of the process are performed. At Step 7, the section of material supporting the registration apertures 28 is removed so that the apertures 28 do not appear in the final package. It will be understood that the apertures 28 may not be punched all the way through the material 22 but may be raised points adapted to receive the teeth 30 of the belt 32.

As set forth earlier, the forming die 26 of the Step 1 fashions a section of the sheet 22 into an embryonic package 40 which includes a message area 42, a pocket 44 and a cover 46 for the pocket 44. The package 40 may include any number of perforations, apertures, raised or contoured surfaces which will be dictated according to one's needs. The forming die 26 of the Step 1 would then be fashioned to produce a package 40 having the desired contour. The pocket 44 includes a raised portion, which will be discussed in detail with reference to the later figures and also includes the means 48 for receiving the articles to be subsequently positioned in the pocket 44. The embryonic package 40 is separated from adjacent packages by the elongated depressed areas 50 and 52, the depressed area 50 being to the left of the pocket 44 and the depressed area 52 being to the right of the pocket 44. When the embryonic package 40 is subsequently severed along the elongated depressed areas 50 and 52, a section of the material forms a "skirt" for maintaining the pack-

age in its contoured position and thus providing strength and rigidity to the finished package.

The FIGURE 4, taken along the line 4—4 of the FIGURE 3 illustrates the contoured or sculptured shape of the package 40. The pocket 44 includes a raised lip 54 while the cover 46 includes a mating portion 56 which when in its closed position, the portion 56 overlaps the lip 54. The cover is hinged at 58 and sufficiently deep to permit the cover 46 to just butt against the means 48 for receiving articles. Embossing, such as that indicated at 60, may be die-cut into the package 40 as desired. In addition, a skirt 62 is formed between each of the depressed areas 50 and 52 (FIGURE 3) so as to retain the package 40 in its contoured configuration. This configuration provides strength and rigidity.

After the forming of the Step 1 of the FIGURE 1, the embryonic package 40 advances to a printing station illustrated in the FIGURE 1 as Step 2. Since the package is being constructed of a printable and formable material 22, all the virtues of good two dimensional design are retained along with the added feature of three dimensional contour. This can include sculptured shape, nestability, raised or depressed lettering, textured surface, and extra strength gained by beading, turned edges or compound curves. Furthermore, the material 22 can be transparent so by printing on the reverse side of the package, the consumer observes the gloss of the near surface with the printed far surface being legible through the material. This feature also acts to reduce marring or defacing of the printed area.

In addition to being printed after forming as illustrated in the Step 2 of the FIGURE 1, the sheet 22 may be printed in the flat, before forming, as illustrated by the Step 1a of the FIGURE 2. In the event that the method of the FIGURE 2 is adopted, the ability of the material or sheet 22 to be printed in the flat before forming is an important aspect contributing to its attractive economic qualities.

With continued reference to the FIGURE 2, after the printing of Step 1a, the sheet 22 would be formed by a die 26' which operation is identified as Step 2a. Thereafter, the embryonic package 40 appears similar to that shown in the FIGURE 1. Subsequently, the steps of the process are substantially identical to those of the FIGURE 1 and reference will now be had to that figure.

After the printing of Step 2 of the FIGURE 1 the sheet 22 advances to the position shown below Step 3 wherein an H-shaped severing knife 64 or cutter inserts a transverse cut 66 (the next adjacent cuts 66 being shown since those cuts being performed in Step 3 are directly under the severing knife 64).

The cuts 66, as shown in the FIGURE 5, are substantially parallel to the elongated depressed areas 50 and 52 and extend a distance into the developing package 40a a distance equal to the length of the cover 46. It will be noted at this point, that the sheet 22 becomes an embryonic package 40 after the first step of forming, and a developing package after the second step of printing and the third step of severing. The alphabetical suffixes will be joined to the digit 40 as the method continues until the final loaded and sealed package is formed.

Later in the process, the material about the registration apertures 28 and between adjacent transverse cuts 66 will be removed so that the cover 46 can be moved into its closed and subsequently sealed position.

The FIGURE 6 is a sectional view taken along the line 6—6 of the FIGURE 5 and illustrating in detail the skirts 62 and 62' which are formed in Step 1, and also shown in the FIGURE 4, which lend rigidity to the curved and contoured package 40. The means 48 for receiving articles includes a plurality of slots 68 which, because of the nature of the material, are sufficiently resilient so as to permit the entry of an elongated article, such as a needle, and when a needle is inserted in a slot

68, the slot will give and then snap closed about the article to be loaded in the pocket 44.

With reference again to the FIGURE 1, the next step, Step 4, is a loading step wherein a plurality of needles 70 are loaded into the slot 68, just described. The needles 70 may be loaded by any convenient means such as mechanical equipment (not shown) for performing the Step 4.

As shown in the FIGURE 1, in Step 5 a forked member 72 engages the extending cover 46 and urges the cover 46 upwardly and over the loaded pocket 44. As shown in the FIGURE 7, the Step 4 of loading and the Step 5 of urging the cover 46 over the pocket 44 and enclosing the needles 70 is shown and the emerging package is now identified as 40b. The cover 46 pivots about its hinge 58 to assume its closed position.

In Step 6 shown in the FIGURE 1 and the FIGURE 8, the cover 46 is heat-sealed preferably at four points about the edge of the cover 46 in the area where it joins the pocket 44. These heat-sealed areas are indicated at 74 and although four such areas are shown, other points for sealing and number of sealing points may be selected as found expedient. The emerging package is now indicated as 40c.

In Step 7 of the FIGURES 1 and 9, a cutter 76 in the shape of a T has a long section 78 and a short cross section 80. The purpose of the cutter 76, by the section 78, is to sever adjoining finished packages 40d and to sever an extending portion 82 which extends between adjacent severing lines 66 of adjacent packages and to drop the portion 82 into a waste container 84. The portion 82 includes the registration apertures 28. It will be understood that the registration apertures 28 may not extend all the way through the material but may be in the form of notches so as to permit the teeth 30 of the belt 32 to engage the notch or aperture 28 and thereby carry the sheet 22 along for forming at the Steps 1 through 7.

Thereafter, at Step 8 of the FIGURE 1 the finished packages 40e, now loaded with the needles 70, the cover 46 closed and heat-sealed at 74, are inspected and counted and in Step 9, the finished packages 40e are boxed in a shipping container 86, as appropriate.

At Step 7, it was indicated that the adjacent packages were severed and individually boxed in Step 9. In place of the cutter 76 having its sharp edge section 78, a perforator or intermittent cutter could be substituted for the section 78 so that the packages would no longer be severed from the strip but would be partially joined to each other. In this manner, the strip of finished packages could be rolled for shipment and subsequently separated by the retailer. In this embodiment, the section 78 of the cutter 76 would support a plurality of perforating knives so as to not completely sever the individual packages 40e from the strip.

Whereas the FIGURES 1 through 9 are directed to the construction and loading of the package, the FIGURES 10 through 15 are directed to the unloading of the package 40e by the consumer. For example, in the FIGURES 10, 11 and 12 a knife having a blade 88 may be inserted between the edge portions of the cover 46 and the areas where the cover 46 engage the package and by gentle urging of the blade 88, separate the cover from the pocket 44. The severing or separating areas are well shown in the FIGURES 10 and 12, the FIGURE 12 being a sectional view taken along the line 12—12 of the FIGURE 10. In the FIGURE 11, which is a view taken along the line 11—11 of the FIGURE 10, the cover 46 is shown in its closed position and in dotted outline, in its partly open position and, in its full open position where it extends directly downward from the body of the package 40e. The FIGURE 11 affords an excellent view of the one-piece construction of the package 40e.

The FIGURE 13 is a fragmentary plan view of the package 40e and illustrating the cover 46 in its fully open position. From the FIGURE 13, it is readily apparent

that the needles 70 remain in place with the cover 46 in its open position. The needles 70 may be individually removed and replaced, as desired. The FIGURE 14 is a sectional view taken along the line 14—14 of the FIGURE 13 and illustrating the firm position in which the needles 70 are retained by the slots 68 of the means 48 for retaining the needles 70.

In the event that one wishes to separate the pocket 44 and the cover 46 from the remaining portion of the package 40e, then the knife having the blade 88 of the FIGURE 10 may be inserted substantially perpendicular to the package 40e and by a back and forth motion, sever the article bearing package along with its cover from the entire package 40e.

The severing points of the FIGURE 15 are shown as indicated by 90. Since the mating portion 56 of the cover 46 snaps over the lip 54 of the pocket 44, the packet indicated at 92 in the FIGURE 15 may be conveniently used without the bulk of the entire package 40e. As shown in the FIGURES 10 and 15, additional message areas 94 and 94', in addition to the message area 42, may be conveniently printed alongside the areas from which the packet 92 was separated.

Thus, there has been shown and described a package of unitary construction wherein a section forming a supporting member, a pocket for retaining and displaying the product, and a cover for the pocket are formed of a single sheet of material. The method for constructing and fabricating such a package is set forth including the steps of forming the package, printing upon the package, severing the areas adjacent the cover of the package, loading needles into the pocket of the package, closing the cover over the pocket, heat-sealing the cover to the pocket, severing the individual packages and removing waste, inspecting and counting the packages and final boxing of the packages for shipment. Various embodiments are shown such as perforating the individual packages along their outer edges rather than completely severing the packages one from the other. In addition, the material may be printed before the initial step of forming as just set forth. Thereafter, the package may be utilized in at least two different ways. In the first manner, the opening of the package may be accomplished by inserting a blade to separate the heat-sealed areas so that the cover and pocket remain with the supporting display member. In the other manner, the pocket and cover may be separated from the remaining supporting member and conveniently stored in a smaller area.

In the present invention, there is no need to remove the product container from the backing member as there is no separate backing member as such. The needles are readily accessible without separation. Since the backing member and container are one, no damage to the useful printed information on the package occurs. The container or package is constructed in such a manner that the needles are gripped securely in place and cannot rattle about even when the container is open. The package cover is self-hinged to the container body or backing member and simultaneously exposes all of the needles to the user. Therefore, no accidental spilling or loss of contents of the package can occur. In addition, the cover snaps shut onto the pocket thus providing both a sensory and audible assurance that the cover is completely closed. The packages may be printed and formed in a continuous web or belt and are highly suitable for continuous, automatic, and economical in-line loading process. The package, consisting of a backing member, a pocket and a cover are one piece. The package in addition to possessing all the virtues of good two dimensional design, has the added feature of three dimensional contour. The package can include sculptured shape, nestability, raised or depressed lettering, textured surface, and extra strength gained by beading, turned edges or compound curves. Furthermore, the material can be transparent and by printing on the reverse side, the consumer sees the gloss of the near surface with

the printed far surface being legible through the material. This feature acts to reduce marring or defacing of the printed information.

Thus, the present invention may be embodied in other specific forms without departing from the spirit and the essential characteristics of the invention. The present embodiment is, therefore, to be considered in all respects as illustrative and the scope of the invention being indicated by the appended claims rather than the foregoing description, and all changes which come within the meaning and range of the equivalency of the claims are, therefore, intended to be embraced therein.

What is claimed is:

1. An elongated strip of material formed in a plurality of packages, each of said packages being of unitary construction and comprising a section of material having a message area, a pocket formed in said section having a raised peripheral edge for a portion of its periphery, a cover for said pocket integrally joined to said section of material, the cover being so formed as to engage said raised peripheral edge and thereby provide a locking means, and a series of perforations for identifying the boundary of each package in said strip.

2. A package of unitary construction for retaining and displaying needles comprising a section of material having a pocket, one side of said pocket terminating along an edge of said section of material, a plurality of channels formed in said pocket, a needle retained in each of said channels, a message area surrounding said pocket, and a cover for said pocket integrally joined to the edge of said section along said one side of said pocket.

3. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display panel for ease of removal therefrom, said pocket having a raised panel with article receiving recesses formed therein and a depending reinforcing skirt, and said cover being of a hollow construction for receiving said pocket and has sides for snugly engaging said pocket skirt.

4. The display package of claim 3 wherein said pocket is seated in said display panel, and said cover has sealing flanges sealed to said display panel.

5. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display panel for ease of removal therefrom, said display panel being arched to be of a three dimensional contour and having integral reinforcing means along edges thereof.

6. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display panel for ease of removal therefrom, said pocket being seated in said display panel and said cover being hinged to said pocket along said display panel one edge.

7. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display for ease of removal therefrom, said cover being seated in said display panel and said pocket being hinged to said cover along said display panel one edge.

8. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display panel for ease of removal therefrom, and means in said panel surrounding said pocket for facilitating the removal of said pocket and cover assembly in an intact and closed condition from said display panel, said pocket and cover assembly including a pocket member and a cover member, one of said members being formed in and of said display panel

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and the other of said members being hingedly connected to said one member only along a single edge thereof.
 9. A display package comprising a large display panel, and an appreciably smaller pocket and cover assembly integrally formed with said display panel and positioned along one edge of said display panel for ease of removal therefrom, said pocket having a base panel with a raised intermediate portion, and said intermediate portion having spaced article receiving channels formed therein.

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MARTHA L. RICE, *Primary Examiner.*