April 7, 1970 B. J. GRAY 3,504,788

PACKAGE

Filed July 5, 1968 2 Sheets-Sheet 1

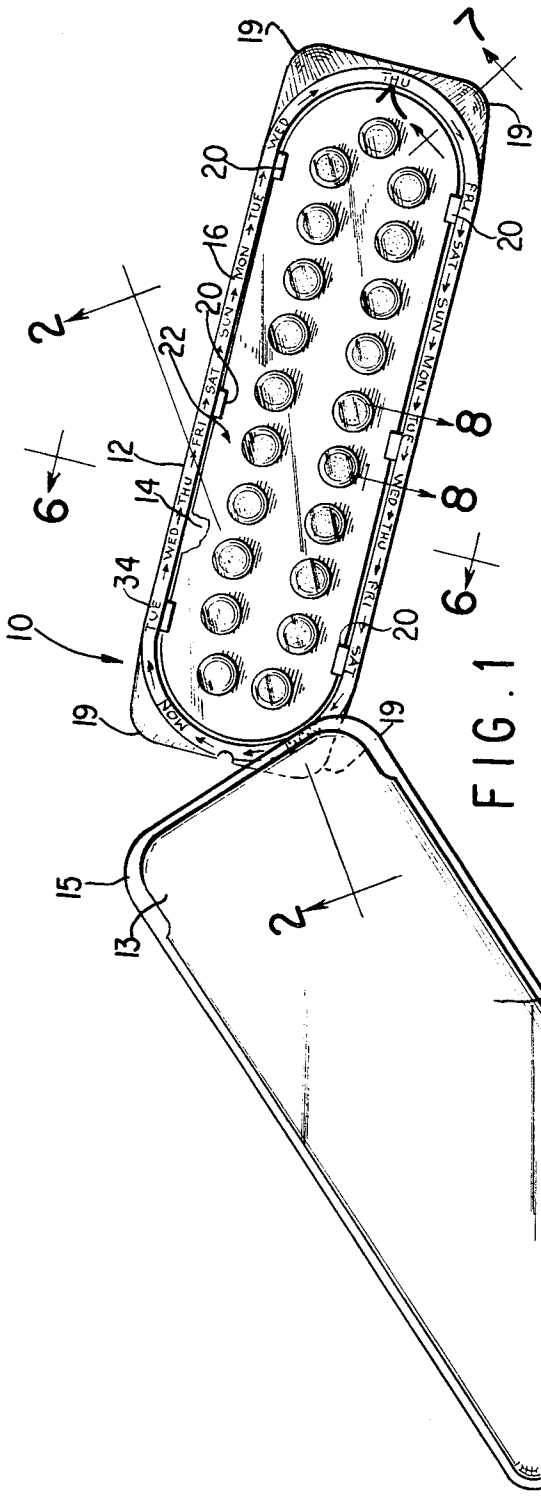

FIG. 1

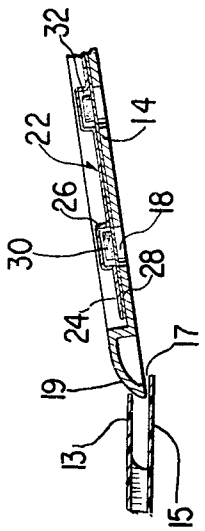

FIG. 2

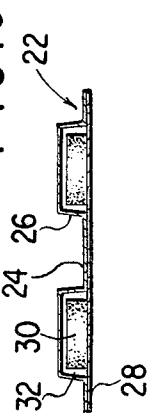

FIG. 9

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PACKAGE

Filed July 5, 1968 2 Sheets-Sheet 2

FIG. 3

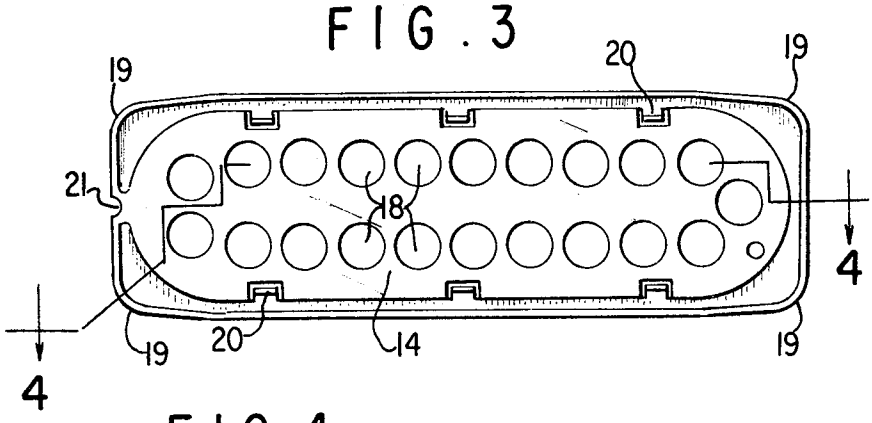


FIG. 4

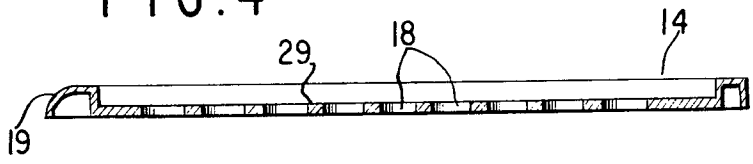


FIG. 5

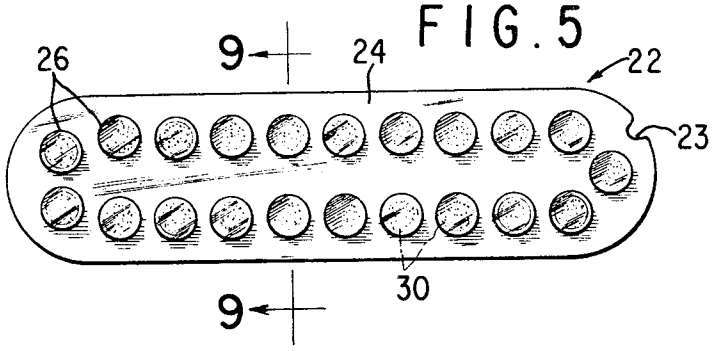


FIG. 6

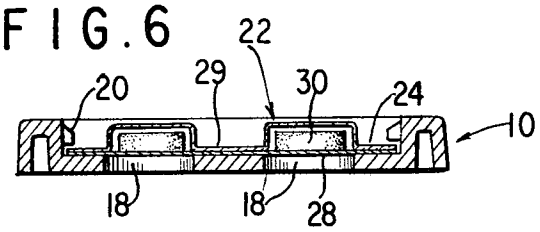
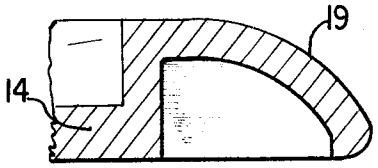


FIG. 7



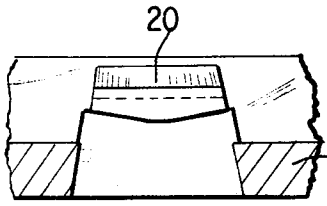


FIG. 8

United States Patent Office 3,504,788 Patented Apr. 7, 1970

3,504,788

PACKAGE

Burton J. Gray, Valley Forge, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

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Int. Cl. B65d 83/04, 5/38, 85/56
U.S. Cl. 206—42 6 Claims

ABSTRACT OF THE DISCLOSURE

The disclosure is directed to a container for medicament tablets which has a rigid tray supporting a press-through packet of the tablets and a slip-fit outer sheath. The rigid tray may be marked with the time sequence of doses for the regimen of treatment contemplated with the tablets.

The present invention is directed to packages for solid dose forms and, more particularly, is directed to a three component package made up of a press-through packet, a rigid tray to support the packet, and an outer sheath to protect the packet and rigid tray. The invention will be described with regard to tablets, although it is to be understood that it applies to other solid dose forms, and broadly to any item which may be packaged in a press-through packet.

It is a common practice today to use press-through packets, or blister-packs, to contain tablets for oral ingestion for therapeutic purposes. A press-through packet is made up of a first sheet, typically clear preformed polyvinyl chloride, and a second sheet of rupturable material, typically a metallic foil sheet, such as aluminum, which is attached to it and with it defines a number of sealed compartments each containing one or more tablets. For high speed production and economy of operation, the polyvinyl chloride and foil sheets may be used in reel form. The polyvinyl chloride sheet is unreeled, formed, and filled with tablets. The foil is applied to it, for instance by heat-sealing. A tablet is removed from a compartment by pressing on the polyvinyl chloride blister which in turn presses the tablet against the foil, rupturing the foil and releasing the tablet. A problem is that press-through packets are relatively flexible and are subject to mechanical damage with danger of loss or contamination of the tablets

It is also well known to apply to a package, indicia of the time at which a tablet is to be ingested. The indicia may include a plurality of markings, graphic or otherwise, indicating in ordered sequence the dose to be taken at a particular time during a regimen of treatment. The indicia may be purely visual, such as printed matter, or may be tactile, such as embossing or debossing. A problem is that indicia may become obscured by mechanical damage, such as abrasion, where the package contains dosage forms for a long period of treatment, and the package is carried on the person.

A problem in the prior art has been to present a plurality of tablets for a regimen of treatment in a utilitarian package which is commercially acceptable as attractive, which protects the tablet from contamination and mechanical damage and also contains printed instructions which are easy to follow, with a direct indication of the time a particular dose is to be taken, and with an indication of doses that have already been taken.

Another problem is that some users of medication which is to be self administered over a long period of time and must therefore be carried on the person, are diffident about the appearance of the package and prefer that the package not be an obvious pill package. This is particularly true with regard to contraceptive tablets.

It is a general object of the present invention to provide a table package which has a pleasing appearance but overcomes the problems of the prior art.

It is a particular object of the present invention to provide a package for a month's supply of contraceptive tablets which makes use of a press-through packet to prevent contamination, which is sufficiently rigid to protect the tablets for mechanical damage, which provides indicia of dosage, and which prevents dulling of the indicia.

It is a further object of the present invention to provide a rigid tray for a press-through packet which may be easily inserted into an outer sheath.

It is another object of the present invention to provide a specially designed, constructed and assembled package which is a combination of a press-through packet, a rigid tray for the packet and an outer sheath enclosing the packet and the tray.

It is a still further object of this invention to provide a tablet package from which the dosage form is easily removable yet which has sufficient rigidity to protect the tablets during transportation.

It is still another object of this invention to provide indicia which are an easily understood dosage reminder to prevent missed doses and over-dosage, and which are protected from mechanical damage.

Other and further objects will be apparent to those skilled in the art from a reading of the following description taken in conjunction with the drawings, in which

FIGURE 1 is a top view of a package embodying the features of the present invention, and showing a corner of a rigid carrier entering a flexible sheath;

FIGURE 2 is a sectional view taken generally along line **2**—**2** of FIGURE 1;

FIGURE 3 is a bottom view of the rigid tray of the embodiment of FIGURE 1;

FIGURE 4 is a sectional view of the rigid tray taken generally along line **4**—**4** of FIGURE 3, shown with the bottom oriented to the bottom of the drawing;

FIGURE 5 is a top view of a pres-through packet used in conjunction with the embodiment of FIGURE 1;

FIGURE 6 is a sectional view of the rigid tray taken generally along line **6**—**6** of FIGURE 1;

FIGURE 7 is a partial sectional view taken generally along line **7**—**7** of FIGURE 1 and showing in detail a typical tapered corner of the rigid tray;

FIGURE 8 is a partial sectional view taken generally along line **8**—**8** of FIGURE 1 and showing in detail the retaining boss of one embodiment of the present invention; and

FIGURE 9 is a sectional view taken generally along line **9**—**9** of FIGURE 5.

It has been found that a month's supply of contraceptive tablets may be packaged to resemble a pocket comb case, and it is acceptable to the diffident, yet avoids the foregoing problems. The size and number of tablets for a month's supply of Ovral, which is Wyeth Laboratories' trademark for contraceptive tablets containing d-norgestrel may be packaged so that the shape may be conveniently arranged to be of about the same size as a small pocket comb. Each tablet is sealed in one compartment of a multi-compartment press-through packet. The packet is supported in a rigid tray having indicia. A light plastic sheath, preferably polyvinyl chloride greatly resembling a comb case, is used to enclose the rigid tray. The vinyl plastic sheath is tough, moisture proof and may be made decorative, thus providing protection against moisture and mechanical damage to the contents as well as presenting a pleasing appearance. The sheath is preferably flexible and may be made rigid or semi-rigid, if desired.

The objects of the present invention may be achieved by the use of a package **10** made up of an outer sheath **11**, a rigid tray **12** and a press-through packet **22**. The outer

sheath **11** is comprised of a first sheet **13** and a second sheet **15** connected at three sides and having an entry **17** provided at one end.

The rigid tray **12** has a planar portion **14** and a raised rim **16** surrounding the planar portion **14**. A number of orifices **18** are arranged in the planar portion **14** in a predetermined pattern as shown in FIGURES 1, 2 and 3. A number of retaining bosses **20** are formed in the rim **16** and extend inwardly above the planar portion **14**, as shown in FIGURES 1 and 8. An indexing notch **21** aids in orienting the tray **12** for automatic machine packaging.

The press-through packet **22** is made up of a deformable sheet **24** having a plurality of blisters **26** formed in it in a pattern corresponding to the pattern of the orifices **18** in the tray **12**. A pressure rupturable sheet **28** is connected to the blister sheet **24**, for instance, by heat sealing or by an adhesive. A solid dose form **30**, such as a tablet, is disposed in each of the compartments **32**, formed between blisters **26** and rupturable sheet **28**. An indexing notch **23** aids in orienting the packet **22** for automatic machine packaging. The rupturable sheet **28** may be made of metallic foil, such as aluminum, cellophane, plastic, such as polyethylene, or the like.

As may be seen in FIGURE 6, the packet **22** is disposed in the tray **12** with the rupturable sheet **28** adjacent the tray surface **29** and with the blisters **26** extending away from the orifices **18**. The packet **22** is restrained from excessive motion in two dimensions by the surrounding rim **16** and in the third dimension by the bosses **20**.

The rigid tray is thicker than a pocket comb and is not easily insertable into the outer sheath, particularly where the sheath is flexible. It has been found advantageous to taper at least one corner, and preferably all four corners of the rigid tray **12** as an aid to easy insertion, in wedge-like fashion, of the rigid tray **12** into the outer sheath **11**. Surprisingly, it is found that this small change in the rigid tray shape greatly facilitates the insertion of the rigid tray into the outer sheath, particularly where the package is assembled by automatic machinery. When only a single corner is tapered the rigid carrier must be inserted in a particular orientation. It is preferable that all four corners be tapered.

As may be seen in FIGURES 1 and 2 the rigid tray **12** may be easily inserted into the sheath **11** by first introducing the tapered corner **19** into the entry **17** between the sheets **13**, **15**. Because the tapered corner **19** is substantially thinner than the remainder of the tray **12**, the corner **19** enters easily and spreads apart the sheets **13**, **15** permitting the remainder of the tray to follow. The corner **19** is typically about one-fifth as thick as the remainder of the tray **12** and is preferably rounded to a smooth leading edge, as may be seen in the drawings.

As shown in the drawings, indicia **34** may be applied to the rim **16** in a position sequentially correlated with the individual dose forms **30**. The indicia **34** serve as a memory device, that is, as reminders when a tablet is to be taken, and also indicate whether or not the tablet for a particular time has been taken.

The term "indicia" as used in the present application defines a plurality of markings, graphic or otherwise, indicating an ordered sequence. The indicia may be purely visual, such as printed matter, or may be tactile, such as embossings or debossings. The indicia may be applied either to the rim **16** as shown in the drawings or may be applied to the packet **22** if desired.

The arrows and daily designation shown in the drawings may be replaced by a wide variety of suitable indicia. For example, an ordered sequence of numbers, letters, figures or designs may be employed. The indicia may be correlated with any time divisions equal to the periodic ingestion of the tablets or in appropriate cases may be devoid of any time connotation and utilize only a symbol of sequence such as the arrows shown on FIGURE 1.

The particular embodiment shown is especially advantageous for use with a contraceptive pill, which is to be taken daily for 21 days. The days of the week have been shown sequentially as indicia and the number of tablet compartments provided is 21, as shown. It is to be understood that the indicia may be changed, for instance to a 28 day regimen and the number of compartments varied to adapt to another sequence of treatment. For instance, the indicia may be stated as time in hours of the day and the number of compartments varied to suit a one day or multiple day supply of tablets.

In use the rigid tray **12** is removed from the outer sheath **11**. A dose form **30** may be removed from the tray **12** by pressing on the blister forming a selected compartment **32**, with sufficient force to rupture the sheet **28** at that location and forcing the dose form through the related orifice **18**. The tray **12** may be returned to the sheath **11** as described above.

What is claimed is:

1. A protective package for solid dose forms comprising in combination:

(A) A press-through packet containing solid dose forms,

(B) An elongated rigid tray supporting said packet, and

(C) A flexible outer sheath having front and back members joined together at the periphery with an opening at one end and adapted to receive said rigid tray, said tray being of such a size as to fit within said sheath and having at least one corner which tapers from the full depth of said rigid tray to less than about one-fifth the depth of said tray and which serves as a leading edge for the insertion of said rigid trays into said protective sheath.

2. A package as defined in claim **1** further comprising indicia formed on said tray, said indicia being sequentially correlated with the dose forms.

3. A dispensing package for tablets comprising:

(A) An elongated rigid tray further comprising

(1) A substantially planar inner portion having a plurality of orifices located in a predetermined pattern;

(2) A raised rim surrounding said inner portion, at least one corner of said rim being tapered to less than about one-fifth of its full depth;

(3) A plurality of retaining members extending from said rim above said planar portion; and

(B) A press-through packet disposed in said tray and retained in position by said retaining members and further comprising

(1) A first sheet having a plurality of blisters corresponding in number and pattern to said plurality of orifices, said blisters extending away from said orifices in the assembled position;

(2) A second sheet of rupturable material connected to said first sheet and defining a plurality of compartments with said first sheet; and

(C) A plurality of dose forms in said compartments.

4. A package as defined in claim **3** in which said rupturable second sheet is metal foil.

5. A multiple compartment, separately-releasing, dose-indicating, dispensing blister package comprising

(A) A substantially flexible first sheet adaptable to a substantially planar configuration and having formed therein a plurality of blisters arranged in an oval pattern of two rows, each of said blisters being adapted to contain a single dose of at least one medicament;

(B) A substantially flexible, rupturable second sheet adaptable to a substantially planar configuration and connected to said first sheet and defining with said blisters a plurality of sealed compartments;

(C) At least one dosage form disposed in each of said compartments;

(D) A rigid support sheet substantially planar in con-

figuration and having a plurality of orifices arranged in a pattern corresponding with said pattern of said blisters;

(E) A rigid support rim connected to and surrounding said support sheet and positioning said first and second sheets in a predetermined relation to said support sheet, while restraining said first and second sheets from excessive movement in two dimensions, at least one corner of said rim being tapered to less than about one-fifth its full depth; and

(F) A plurality of retaining members extending from said rim above said support sheet and restraining said first and second sheets from excessive movement in a third dimension.

6. A package as defined in claim 5 further comprising indicia formed on said rim, said indicia being sequentially correlated with said dose forms.

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JOSEPH R. LECLAIR, Primary Examiner

J. M. CASKIE, Assistant Examiner

U.S. Cl. X.R.

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