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[54] **COMPOSITE-PACKAGING AND CONTROL SYSTEM**

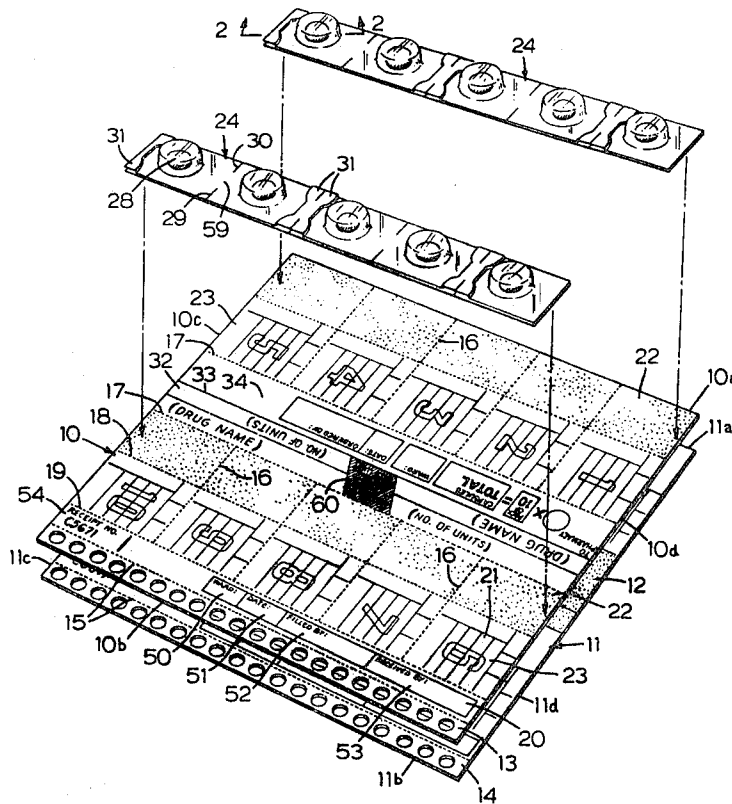
**16 Claims, 9 Drawing Figs.**

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 206/42, 206/65 A, 206/65 K

[51] Int. Cl. .... **B65d 85/42,**  
 B65d 85/56

[50] Field of Search ..... **206/56 A,**  
 56 AB, 42

**ABSTRACT:** A composite-packaging and control system for articles or compositions of matter and particularly suited for drugs includes at least upper and lower sheets secured together in overlying relationship. At least a part of the upper sheet is separated into removable strips by lines of weakness, and a packaged drug, for example, is fastened to a part of each strip, the remainder of the strip being for the entry of information. The lower sheet is copy paper onto which any information entered on a strip by pen or pencil, for example, is copied.



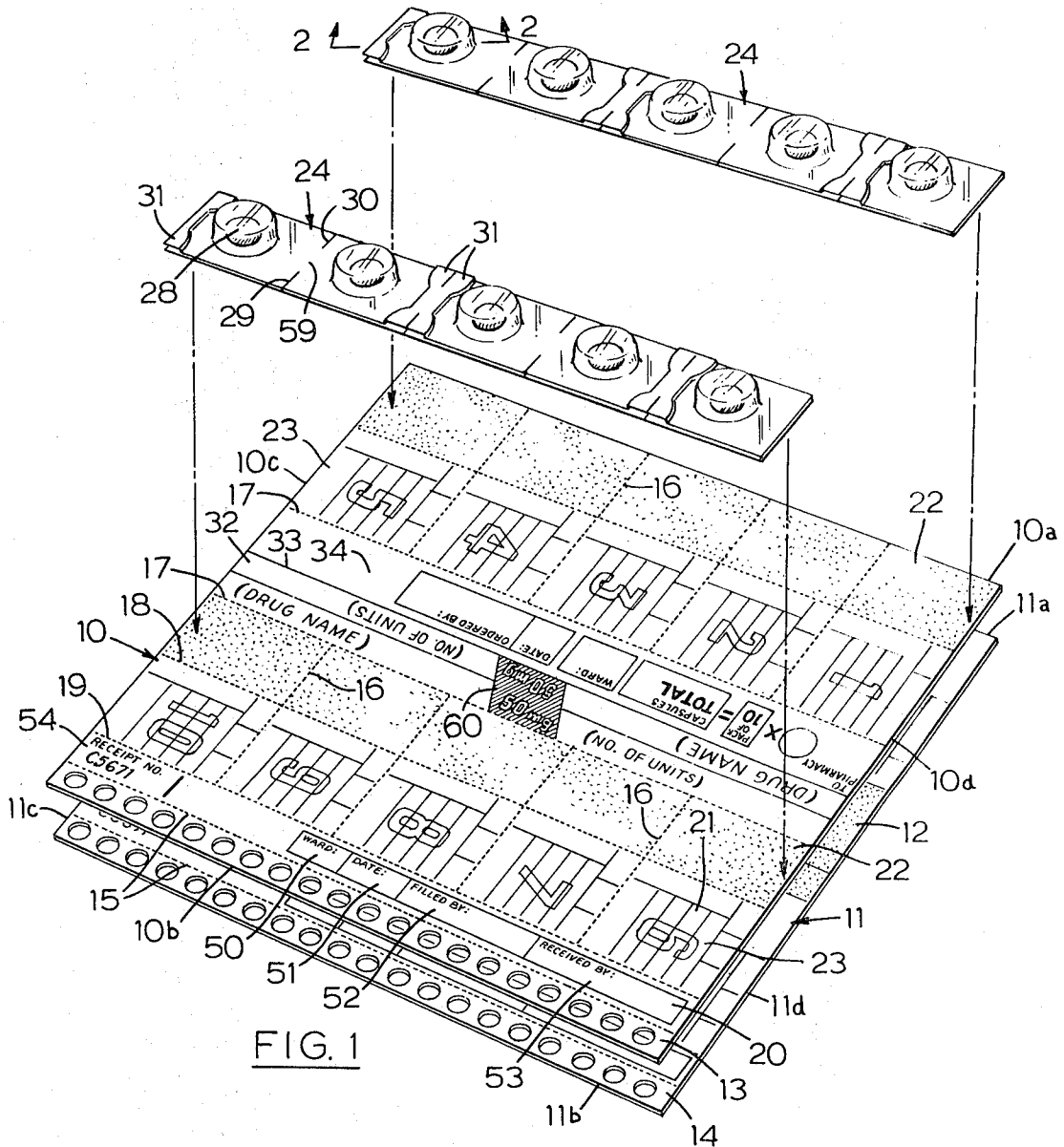


FIG. 1

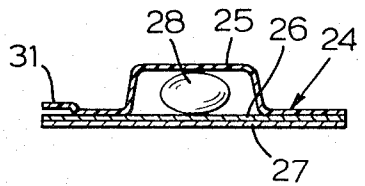


FIG. 2

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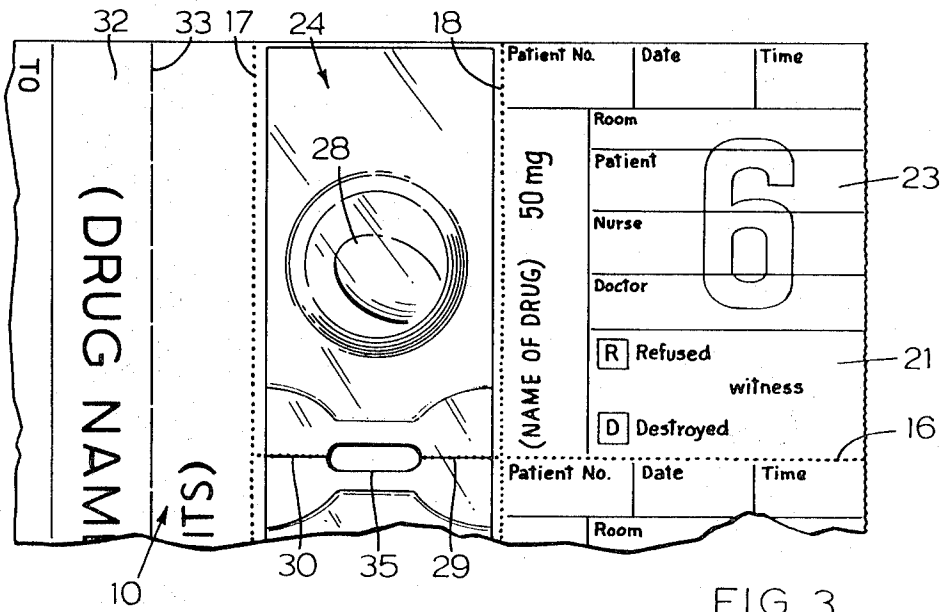


FIG. 3

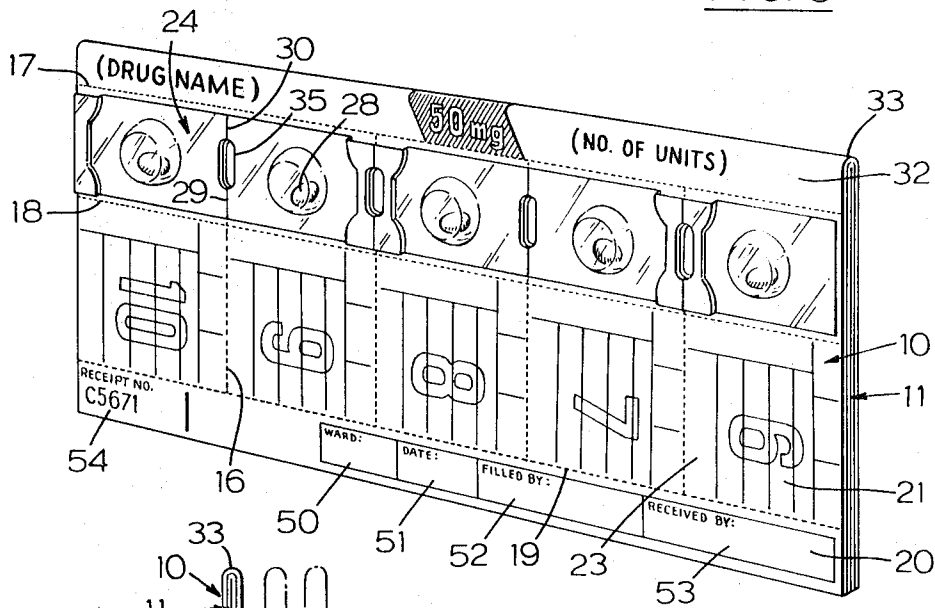


FIG. 4

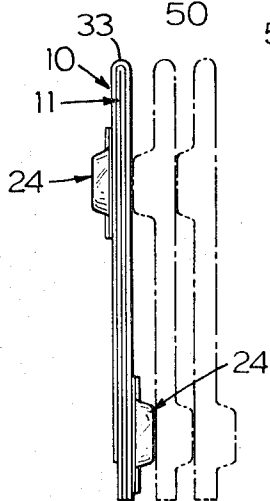
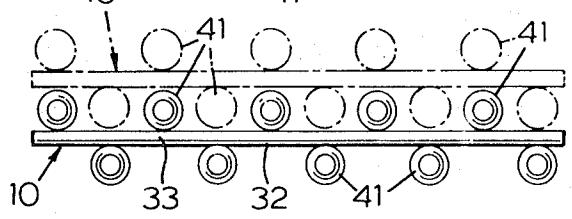
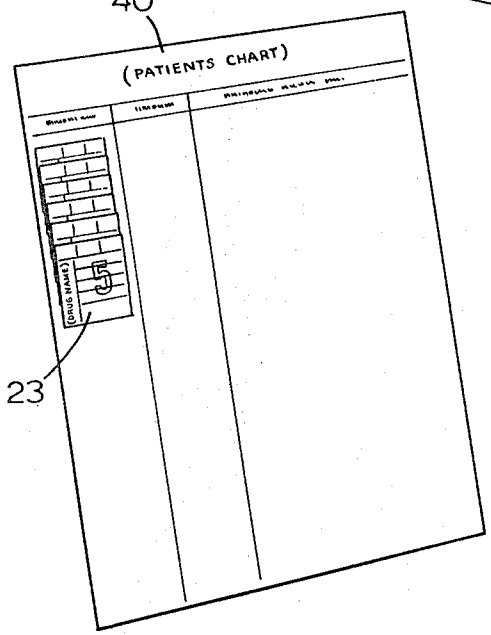
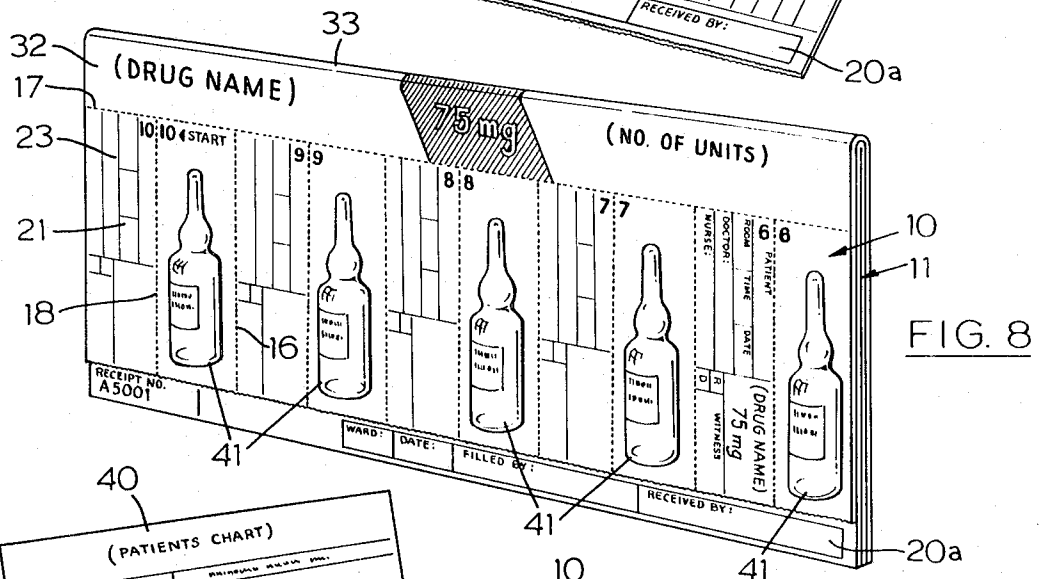
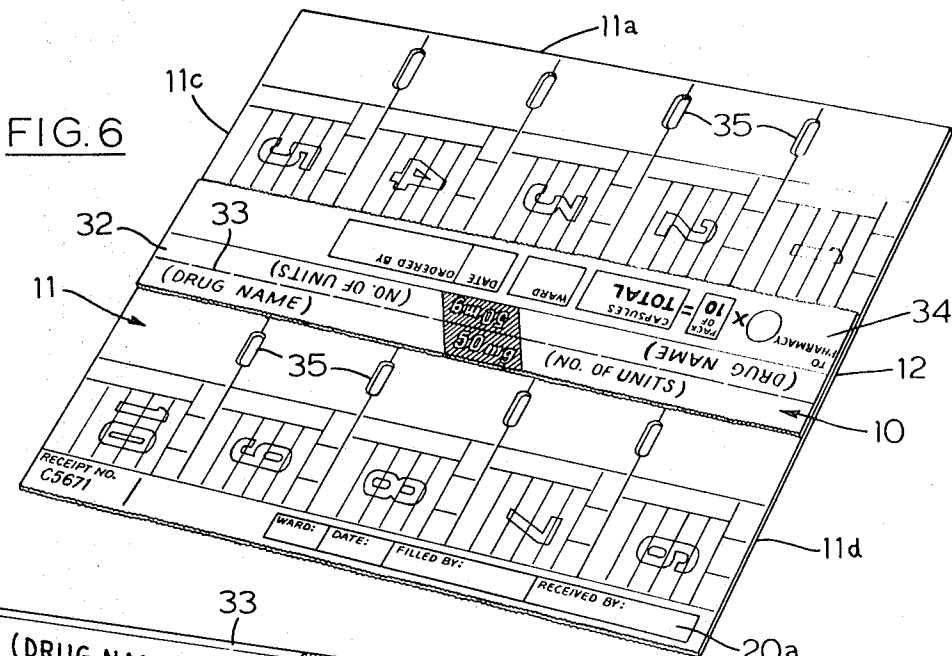


FIG. 5

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**FIG. 7**

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## COMPOSITE-PACKAGING AND CONTROL SYSTEM

This invention relates to a composite packaging and control system, for commodities, particularly drugs, it being understood that, as used herein, the term drug is intended to include drugs and pharmaceuticals of all types including solids, liquids and ointments.

While this invention will be disclosed in detail herein as it relates to drugs, it is to be understood that this is for illustration only and is not intended as limiting, since the invention may be practiced with commodities other than drugs.

The dispensing, distribution and administration of all drugs in hospitals presents numerous problems in terms of product contamination, medication errors and excessive labor costs. This is particularly true with all controlled drugs and narcotics with the stringent control procedures and record keeping imposed by legislation. Present methods and systems now in use lead to product contamination, mounting labor costs and medication errors of various types. In some cases the wrong drug or the incorrect dose may be administered or the patient may receive a drug intended for someone else. Because of complex record keeping, the patient may not ever receive the intended prescription or may be over-medicated during a prolonged period.

Accurate keeping of records is also a problem in order that the attending physician and nursing staff (with changing shifts) have a dependable record of all medication which the patient has been receiving. Drug theft problems within the hospital also present a distinct problem which is even more pronounced with controlled drugs and narcotics and suggests the need for improved control measures.

In accordance with one embodiment of this invention there is provided a unit-dose-type package as a composite and integral part of the drug control forms which comprise a new and complete system for drug dispensing, distribution and control. It is designed to solve the problems and hazards outlined above, and improve the safety and efficiency of hospital drug dispensing with a decrease in overall labor costs.

Briefly, a composite drug package and control system (hereinafter referred to as a drug package for the sake of simplicity) embodying this invention includes at least two sheets joined together in a region with the upper sheet being separable into strips to a part of each of which a packaged drug is secured, the remainder of each strip being for recording information which also is recorded on the lower sheet, the latter being copy paper.

This invention will become apparent from the following detailed description, taken in conjunction with the appended drawings, in which:

FIG. 1 is an exploded, perspective view of a drug package embodying this invention;

FIG. 2 is a section taken along line 2—2 in FIG. 1;

FIG. 3 is an enlarged view of part of the package of FIG. 4;

FIG. 4 shows a drug package embodying this invention ready for use;

FIG. 5 is an end elevation showing how packages of the type shown in FIG. 4 can be stacked together;

FIG. 6 shows what is left of the package of FIG. 1 or FIG. 4 after all the drugs have been dispensed;

FIG. 7 is a perspective view of a patient's chart showing slips removed from a drug package embodying this invention adhered thereto;

FIG. 8 is a perspective view of another embodiment of this invention; and

FIG. 9 is a top elevation showing how drug packages of the type shown in FIG. 8 can be stacked together.

Referring to FIG. 1, a drug package embodying this invention includes upper and lower sheets of paper 10 and 11 respectively having side edges 10a, 10b, 11a and 11b and end edges 10c, 10d, 11c and 11d. In the region designated 12 the sheets of paper are fastened together, as by adhesive, for example. The sheets may be of the continuous-form-type having punched marginal sections 13 and 14 that also may be adhered together. Lines of weakness such as perforation lines 15

enable marginal sections 13 and 14 to be detached from the remainder of the sheets.

On both sides of region 12 upper sheet 10 has lines of weakness in the form of perforation lines 16 and 17 and also lines of weakness in the form of perforation lines 18. On one side of region 12 there is a line of weakness in upper sheet 10 in the form of perforation line 19.

Section 20 of sheet 10 that is located between perforation lines 15 and 19 constitutes a receipt slip.

Perforation lines 16, 17 and 19 on one side of region 12 separate a part of sheet 10 into strips 21 numbered from six to 10, while perforation lines 16 and 17 on the other side of region 12 also separate a part of sheet 10 into strips 21 numbered from one to five.

Each strip 21 has a drug package-receiving section 22 and a section 23 for the entry of information, sections 23 being separable from sections 22 by tearing along perforation lines 18.

Fastened to sections 22 are packaged drugs 24. In the embodiment of the invention shown in FIG. 1, and best shown in FIG. 2, there are provided blister packs constituted by an upper sheet 25 of a thermoplastic material such as PVC to the bottom of which is adhered, as by heat sealing, for example, a sheet of foil 26 that is backed by a paper sheet 27. In each blister pack is a drug in the form of a capsule or tablet 28.

The blister packs are preformed in strips of, say, five blister packs per strip, and the strips may be cut completely through at 29, and 30, but the sections 59 between the cuts left un-

cut, so that the blister packs remain in strip form. A part 31 of each sheet 25 is raised and not adhered to foil 26. This enables the blister pack to be opened quickly.

The back of upper sheet 10 may have a material applied over its whole surface that becomes an adhesive when moistened and may in fact be DAVAX (trade mark) paper. Alternatively, parts of the backs of sections 23 may have a strip of material applied thereto that becomes an adhesive when moistened, whereby such sections 23 may be adhered to a patient's chart, as will become more apparent hereinafter. If desired, the back of receipt slip 20 may be similarly "gummed."

Lower sheet 11 is so called carbonless copy paper or action paper. Thus, when information is written on any one of sections 23, it is copied onto sheet 11. Similarly, information entered on receipt slip 20 is copied onto sheet 11. Of course it would be possible for sheet 11 to be ordinary paper and for a sheet of carbon paper to be disposed between sheets 10 and 11. Where herein and in the claims reference is made to copy paper, it is to be understood that this terminology is intended to embrace any arrangement, configuration or system which permits information entered on upper sheet 10 to be copied onto the lower sheet or sheets, if there is more than one lower sheet and "paper" is to be understood to encompass cardboard or other suitable sheet material.

Section 32 of upper sheet 10 can be considered as a file tab and includes a fold line 33 so that the package can be folded as shown in FIG. 4 with the two sections of the package on either side of region 12 disposed side-by-side. It will be noted that information as to the name of the drug, the number of units of the drug and the dosage appears on both sides of the fold line.

Another part of upper sheet 10 is designated by reference numeral 34 and constitutes a reorder slip for ordering another drug package. It will be noted that sections 32 and 34 are adhered to lower sheet 11 in region 12.

The manufacture of the drug package now will be discussed commencing from the point in time when the upper and lower sheets without any indicia thereon exist as a continuous form adhered together at region 12 and with marginal sections 13 and 14 also adhered together and perforation lines 16-19 provided. Upper sheet 10 then is printed, it being contemplated that such information as the drug name and dosage would be printed in blue for control drugs and red for narcotics, while other information and indicia shown in greater detail in FIG. 3, e.g., "Room," "Patient," "Nurse," etc., would be printed in

black. Of course, since sheet 11 is copy paper, anything printed on sheet 10 will be and is copied onto sheet 11.

After the printing operation, the strips of packaged drugs 24 are adhered to areas 22 as by means of a hot melt adhesive, for example. Subsequently, the sections 59 of the blister packages between cuts 29 and 30 may be removed by an oval die (not shown), for example, whereby openings 35 (FIG. 4) are formed between cuts 29 and 30 enabling each strip 21 to be readily separated from the others and the other parts of upper sheet 10. An oval die is used rather than a die that would make a straight cut to ensure that the part between cuts 29 and 30 is opened. Of course, rather than employing a "five-up" blister package, individual packages could be employed and individually adhered to each section 22. Other packaging than blister packaging could be used, of course, e.g., strip sealed or pouch-type packaging.

At any time after the aforesaid operations have been completed, marginal sections 13 and 14 may be detached and the package folded along line 33 into the configuration shown in FIG. 4. The package now is ready for use and may be stored in the hospital pharmacy until required at a nursing station. When so required, the package is delivered to the nursing station, the pharmacist first completing the information required to be inserted in spaces 50, 51 and 52. The information required to be inserted in space 53 is filled in at the nursing station and receipt 20 torn off along line 19 and returned to the pharmacy. Any information entered on receipt 20 is copied onto the receipt section 20a (FIG. 6) of sheet 11. Each receipt is numbered as shown at 54, and it is contemplated that consecutive numbering of the drug packages will be employed.

In the nursing station the packages may be conveniently stacked in a file drawer or box, and, in this respect attention is directed to FIG. 5. As shown therein and also in FIG. 1, the blister packs 24 on opposite sides of fold line 33 are offset with respect to each other so that they interdigitate when the drug packages are stacked side by side. Such an arrangement provides high-volumetric efficiency both for shipping and storage.

When the first one of tablets 28 is to be administered to a patient, the nurse administering the drug or some other person completes section 23 of the one of strips 21 marked ten with all of the relevant information (see FIG. 3 which shows in detail what information is required, the same information being required for each section 23). This information at the same time is copied onto sheet 11, of course, whereby, in a single entry all the necessary medication and control information is recorded. The whole of the first strip 21 (the one marked 10) then is detached by tearing along perforation lines 16 and 17 bounding this strip. It is very important to note that sections 21 and 22 are not separated at this point. Indeed they are kept together until just before the capsule or tablet 28 is to be administered to the patient. This minimizes the possibility of the wrong drug being given to the patient, because the patient's name, number and room number is marked on section 23.

When tablet 28 is to be given to the patient, sections 22 and 23 are separated by tearing along perforation line 18, and sheet 25 is separated from backing 26. The drug then is administered.

After the foregoing steps have been completed, the gummed strip on the back of section 23 is moistened and this section or drug ticket is adhered to the patient's chart shown at 40 in FIG. 7. In this manner a permanent record of all drugs administered to the patient is maintained. The amount of information that the nurse is required to write on the patient's chart is reduced so her time will be saved, particularly if most of the information for section 23 is completed by a nursing assistant or clerk at the nursing station or even in the pharmacy where a centralized-pharmacy system is employed.

The foregoing steps are repeated until all of the drugs have been administered, at which point all that is left of the package is, as shown in FIG. 6, sheet 11 and sections 32 and 34 of the upper sheet. If desired another package or packages may be

ordered by completing section 34, but, in any event, the remainder of the package is returned to the hospital pharmacy to be retained as a permanent control record. Section 34 can be removed from the remainder of the form and filed separately in the hospital pharmacy, if desired.

The embodiment of the invention shown in FIG. 8 differs from that of FIG. 4 in that the drug is a liquid stored in closed containers such as ampules 41, and section 23 and the packaged drug are arranged side by side (see FIG. 8) rather than one above the other as in FIG. 4. In the embodiment shown in FIG. 8, the receipt section of the upper sheet has been torn off.

FIG. 9 shows how ampules 41 on adjacent drug packages interdigitate when the packages are stacked.

An important feature of a drug package embodying this invention is the reduction in medication error inherent in the fact that there is no need to separate the drug from its adjacent information containing slip 23 until the drug actually is to be administered to the patient, and a sealed, numbered, unit dose package protects the drug right to the point of administration to the patient. Furthermore, the possibility of medication error is reduced since positive identification of the drug is provided until the drug is administered to the patient. Another important feature is the provision of sections or slips 23 providing a permanent record on a patient's chart of information required to be checked by that patient's doctor. Furthermore, there is another permanent record on the copy paper. The prominent featuring of the drug name and strength on section 32 on both sides of fold line 33 also is designed to eliminate errors, as is the prominent featuring of the drug name on each section or slip 23. The diagonal section 60 is deliberately made so as to draw attention to the strength of the drugs carried on the package, since many errors presently are made in hospitals in the administration of the incorrect strength of drug.

While blister packaging is not essential to the invention, the use of peel open blister package provides an easy-open pack and eliminates any need for the nurse to handle the drug. The blister pack can act as a serving spoon or dispensing vessel which saves time and money, and the possibility drug contamination is reduced.

At the present time capsules, tablets, etc., are received by hospital pharmacies in units of 500 or 1,000 and the pharmacist cannot be positive that the count is absolutely accurate. Moreover inventory taking is time consuming with such a system. Packages embodying this invention, on the other hand, each carry a predetermined number of drug units so that the accuracy of incoming shipments and the taking of inventory is greatly simplified. Similarly, the taking of an end of shift inventory at each nursing station can be done quickly and accurately, particularly since the strips 21 are removed in descending numerical order, so that a glance at the form will reveal how many units are left.

It also should be noted that the control system and package of the present invention eliminates certain costly operations presently carried out in the hospital pharmacy, e.g., counting and hand filling of counting wheels and scanners and further reduces the problems of direct contamination of the drug or the possibility of cross contamination and migration problems which can occur with present methods.

In the embodiment of the invention shown in FIG. 8, since ampuls 41 are relatively heavy, strengthening of the package may be required, as, for example, by the addition of a sheet of cardboard sandwiched between the two parts of sheet 11.

Another possible embodiment of the invention would be one-half the package shown in FIG. 4, for example, i.e., the package of FIG. 4 cut along line 33. In this case it would be desirable for both receipt slip 20 and reorder slip 34 to be provided on each half-package.

In the event that the patient is to be charged for medication administered, a package embodying this invention may be modified by the inclusion of other detachable sections or portions to be completed with the required information and

directed to the hospital accounting department for billing or other processing. To this end or for other purposes, a package embodying this invention may include two or more lower sheets 11 and/or the upper sheet may include additional detachable sections.

What we claim as our invention is:

1. A package for commodities comprising at least an upper and a lower sheet each having spaced apart side edges and spaced apart end edges, means securing said upper and lower sheets together in a region intermediate said side edges with said upper sheet overlying said lower sheet, whereby there are first parts of said sheets on one side of said region and second parts of said sheets on the other side of said region, first lines of weakness formed in said first and second parts of said upper sheet and separating said parts of said upper sheet into a plurality of strips that may be separated from each other and any remainder of said upper sheet by tearing along said first lines of weakness, a packaged commodity fastened to each of said strips but occupying only a part of the area of each of said strips, whereby space is provided on each of said strips for entry of information, said lower sheet being copy paper such that information entered on said strips also is copied onto said copy paper.

2. A package according to claim 1 wherein said sheets are folded so that said first and second parts thereof are disposed side-by-side, said packaged commodities secured to said strips of said first part of said upper sheet being offset with respect to said packaged commodities secured to said strips of said second part of said upper sheet, whereby said packaged commodities are adapted to interdigitate when a plurality of such packages are stacked side-by-side.

3. A package according to claim 1 including adhesive means on the side of said strips adjacent to said lower sheet, whereby said strips may be adhered to an object.

4. A package according to claim 1 including second lines of weakness formed in said strips and separating the areas of said strips to which said packaged commodities are secured from the remainder of said strips, whereby said areas of said strips to which said packaged commodities are secured may be detached from said remainder of said strips when said packaged commodities are removed from said strips.

5. A package according to claim 4 wherein said commodities are drugs and including adhesive means on the side of said strips adjacent to said lower sheet and located on said remainder of said strips, whereby said remainder of said strips may be adhered to a patient's chart or the like.

6. A package according to claim 5 wherein said sheets are folded so that said first and second parts thereof are disposed side-by-side, said packaged commodities secured to said strips of said first part of said upper sheet being offset with respect to said packaged commodities secured to said strips of said second part of said upper sheet, whereby said packaged commodities are adapted to interdigitate when a plurality of such

packages are stacked side-by-side.

7. A package according to claim 6 wherein said commodities are drugs, said packaged drugs being in dispensable unit doses of material and enclosed in packages secured to said strips.

8. A package according to claim 6 wherein commodities are drugs, said packaged drugs being liquids in closed containers secured to said strips.

9. A package according to claim 1 wherein a portion of said first part of said upper sheet constitutes a receipt for said package and a third line of weakness formed in said first part of said upper sheet and separating said receipt from the remainder of said first part of said upper sheet, whereby said receipt may be removed by tearing along said third line of weakness.

10. A package according to claim 1 wherein a part of said upper sheet left fastened to said lower sheet after all of said strips have been removed constitutes a reorder slip for ordering another package.

11. A package for commodities comprising at least first and second sheets, means securing said sheets together in overlying relationship, lines of weakness formed in said first sheet and separating said first sheet into a plurality of removable strips that may be separated from each other and any remainder of said first sheet by tearing along said lines of weakness, a packaged commodity fastened to each of said strips but occupying only a part of the area of each of said strips, whereby space is provided on each of said strips for entry of information, said second sheet being copy paper such that information entered on said strips also is copied onto said copy paper.

12. A package according to claim 11 wherein said sheets are folded over upon themselves about a fold line, said strips being provided on both sides of said fold line.

13. A package according to claim 11 including adhesive means on the side of said strips adjacent to said second sheet, whereby said strips may be adhered to an object.

14. A package according to claim 13 including second lines of weakness formed in said strips and separating the areas of said strips to which said packaged commodities are secured from the remainder of said strips, whereby said areas of said strips to which said packaged commodities are secured may be detached from said remainder of said strips when said packaged commodities are removed from said strips.

15. A package according to claim 14 wherein said sheets are folded over upon themselves about a fold line, said strips being provided on both sides of said fold line.

16. A package according to claim 15 wherein said packaged commodities on opposite sides of said fold line are offset with respect to each other, whereby said packaged commodities are adapted to interdigitate when a plurality of such packages are stacked side-by-side.

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