Dec. 19, 1967 F. V. STAGNITTO 3,358,824

DISPENSING OF PHARMACEUTICALS

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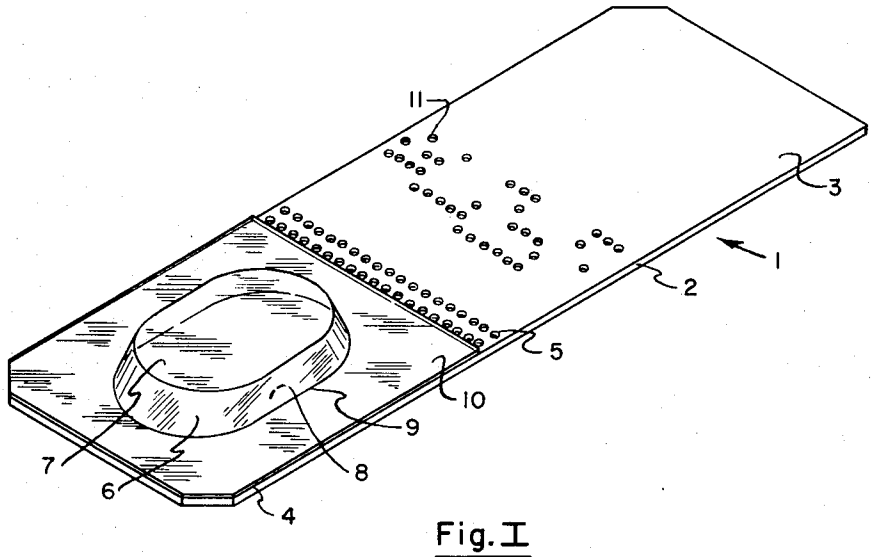


Fig. I

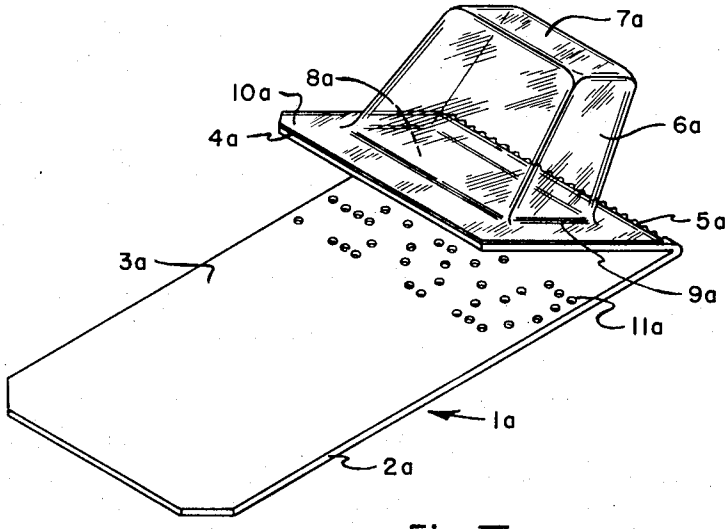


Fig. II

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DISPENSING OF PHARMACEUTICALS

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1 Claim. (Cl. 206—63.2)

This invention relates to a method for dispensing a unit dose of a pharmaceutical in hospitals and to a package which facilitates dispensing a unit dose of a pharmaceutical in hospitals.

More particularly, the invention relates to a method whereby a unit dose of a pharmaceutical can be administered without the dangers inherent in the present method of administering drugs in hospitals and also whereby the administration of a unit dose of a pharmaceutical in hospitals may be carefully traced and controlled from initial source of manufacture through to ultimate consumption by the patient. Particularly envisaged is the elimination of cumbersome present day record-keeping methods in hospitals relating to the dispensing of unit doses of a pharmaceutical to patients and the introduction of a convenient, economical and timesaving information retrieval system designed especially for use with automatic data processing systems. Additionally, the invention relates to a package for unit doses of drugs, comprising the combination of an identification means, e.g., tags, and a receptacle sized to receive a unit dose of a pharmaceutical, said receptacle being affixed to the identification means for facile removal therefrom.

There are many problems inherent in the conventional administration of a single dose of a drug to a patient in a hospital. For example, the dose must be the precise quantity prescribed for the patient. It must be administered at the particular time and with the particular frequency required to suit the exigencies of a particular therapeutic situation. There must be a record kept of when, to whom and in what quantity a drug has been administered and ultimately the hospital must take inventory of their use of drugs to enable them to replenish their stock and to properly bill each patient. Imposing a requirement on the nurse to maintain such accurate records diminishes the time that would otherwise be available for bedside duties. Furthermore, the cost of keeping accurate records of drugs is no small factor of the increasing cost of running a hospital. Additionally, the likelihood of mistake is of a high order, particularly where busy personnel are involved.

The customary means of dispensing drugs today in most hospitals begins with the order of a drug by the physician followed by a requisition therefor by the floor nurse to the hopsital dispensary. A pharmacist at the dispensary will then fill the prescription by transferring a small quantity of a drug from a large receptacle into a smaller one by hand. The pharmacist will provide the receptacle with a label and record various data concerning the drug, including dosage, the date, who requisitioned the drug, etc. The nurse, when receiving the smaller receptacle will remove an individual dose by hand and place it in a suitable cup, generally, a paper or souffle cup. To insure that the right patient receives that medication, the nurse will then usually put a little card with the patient's name in the cup. She will also keep records of the drug, its dosage, to whom and when administered, by whom it was prescribed, the date of its requisition, etc. The unit dose will then be administered to the patient and the records updated with each subsequent administration. As is evident, not only must time-consuming records be kept at each stage, but also there is a distinct health risk in the manual handling of the drug. Furthermore, the receptacle or container in which the drug is transported from the pharmacy

to the nursing station cannot be reused except at the great risk of cross-contamination of drugs.

For example, the container, e.g., a bottle containing penicillin, cannot be reused unless it was refilled with the precise prescription it formely contained. The problems of storage, labeling and cross-contamination necessitate destruction of the container or careful washing before it can be reused. The records kept by the nurse at each nursing station on every floor and by the dispensary of the hopsital must then be collated by bookkeepers and transcribed into permanent records for the purposes of tracing the administration of drugs, replenishing dispensary stock, billing and complying with sundry laws, regulations, etc.

It has now been found that by combining a receptacle means and an identification means, the receptacle means having removably received therein a single dose of a medicament, the identification means being divided by separating means into two separate components, one of said components having fixedly secured thereto the said receptacle means and the other of the said components having indicia thereon whereby to identify the medicament positioned in the receptacle, a means for dispensing a unit dose of a drug is obtained which can completely-eliminate the use of manual records and handwritten documents and thereby free the nurse for bedside duties. Moreover, the instant invention can also completely eliminate the ever-present health risks incident to the manual handling of drugs or medicaments and the risk incident to frequency manual labeling of drugs when place into different containers or receptacles for transport from pharmacy to nursing station and to bedside.

The receptacle means can be separated from the identifying means for the first time at bedside and administered directly to the patient. Thus, the receptacle avoids the defects inherent in the employment of the paper or souffle cups by the nurses to transport a unit dose of the medicament from the nursing station to bedside. The identifying means can then be placed on a patient's spindle at the nursing station. A patient's spindle is any means for receiving or stacking tags, including a nail or rod, etc., which will store said tags without mutilating them. There is one spindle for each bed at each nursing station. The tags may be suspended from the spindle on a prepunched hole designated for that purpose. Product identification to bedside by means of the receptacle with identification matter is readily facilitated. At the time the medicament is removed from the receptacle means and administered, the identification means can be separated into the two components. The component having information thereon is placed on the patient's spindle. The container component having the open receptacle can optionally be stapled or affixed in any manner to a piece of paper, e.g., the patient's daily log. Said container component having the open receptacle could have printed thereon the name of the drug, its strength and manufacturer's lot and control number, thereby providing an exceptionally accurate record of what was administered to the patient with a great saving in cost to the hospital and in precious time to the nurse.

At the dispensary and/or at each nursing station there may be provided a means for adding information to a tag, e.g., a punching means whereby the pharmacist and/or the nurse may add certain information, e.g., patient's name or identification number, etc., to each tag. Periodically, each patient's tags may be removed from the spindle corresponding to his bed and wrapped or tied together by any wrapping or tying means, e.g., a rubber band. The nurse can then add a tag providing certain information such as the patient's name if the tags were not already provided with that information and transmit the tags for each patient to a business office in the hospital or a data center. Hence, the need for bookkeepers to collect

daily information regarding each patient and transcribe it manually into permanent records can be eliminated.

The identifying means of the instant dispensing package is preferably a planar member formed from any suitable material, i.e., any material used for fabricating package receptacles and made from film or sheets, e.g., cardboard, plastic, paper, paperboard, tin foil, aluminum foil, or laminants and coatings of those materials, etc. Said identifying means is preferably divided into two components by a separating means which facilitates the severing of one component from another. The separating means is preferably a transverse line of perforations, said line being situated at any suitable point on the identifying means. One of said integral components (or optionally both components) can be punch coded and/or printed, including magnetic, typographical, etc., for use with automatic data processing systems. The punch coded characters can be in the form of rows of coded perforations which constitute identification indicia. Hence, information can be conveyed by means of those coded perforations or magnetic print, etc., when processed through an automatic data processing system. The indicia marked on the component(s) of the identifying means can identify many variables, e.g., product, strength of dosage, lot, control number, etc. Thus, the age and source of a medicinal can be identified along with a host of other factors. Additionally, indicia, e.g., punch holes, magnetic print, etc., for the conveyance of identification and information can be added to the identification means by equipment placed in tandem with medication packaging equipment for loading the medicament into the receptacle and virtually simultaneously with the affixation of the receptacle. Thereby, the possibility of mislabeling is greatly reduced in that this package configuration does not embody preprinted labels or identification means for affixing to a packaged medication.

One of the separable components of the identifying means is coated on one side with a sealing means to secure the receptacle to a portion of the identification means. The preferred sealing means is a heat seal coating, i.e., a plastic in solid form which when activated by heat will liquefy and become extremely viscous and gummy causing the adhesion of one surface to another. Positioned on said heat seal coating is a receptacle having removably received therein a unit dose of a medicament. Said heat seal coating is the means by which said receptacle is affixed to one of the separable components of the identifying means. The axis of said receptacle is disposed perpendicular to the plane of the identifying means.

It will be understood that the receptacle can be positioned on any suitable part of the identification means but to permit ready removal of a portion of the identification means in a manner hereinabove made evident, it is preferably situated adjacent to one end of the identification means. The receptacle projects out of the plane of the paper so that it can be observed from any angle. It is preferably transparent so that its contents may be readily ascertained. The shape of the receptacle is preferably frusto-conical, although it may be any suitable shape including, for example, concavo-convex, elliptical, cylindrical, rectangular, etc. In general, the diameter of the receptacle is smaller than the identifying means. It will be understood that when the size of a unit dose of a medicament requires a larger receptacle, the diameter of the receptacle can be made slightly larger than the identifying means. However, it is not contemplated that the diameter of any receptacle will be more than twice the transverse dimension of the identification means. What is required is that it be of such a configuration as to permit it to facilely receive the unit dose of medicament with which it is to be employed.

The medicament may be in semisolid form, e.g., a cream, or in solid form, e.g., capsules, dragees, tablets, suppositories and the like or it can be in a filled disposable syringe or an ampul, either in a form suitable for injection per se or in a form adapted to be dispersed in a suitable solvent for oral, topical or parenteral administration. The medicament with which this invention is of especially unique value is an ethical pharmaceutical. The expression "ethical pharmaceutical" as employed herein is intended to represent a drug which can be dispensed only when prescribed by a physician licensed to prescribe same.

Tags have been employed in many facets of commerce, particularly those which involve the dispensing of merchandise. However, never before have they been employed in a system requiring a punctilious degree of care as in a hospital. Mistakes and inaccuracies in other systems never result in the grave consequences inherent in the improper administration of drugs. Remarkably, the result of adapting a suitable tag for use in the instant invention by affixing a receptacle by means of a heat seal coating to a removable portion of the tag, said tag being provided with information capable of being readily retrieved, preferably by processing said tag through a tag reader which will mechanically transfer data to magnetic tapes, punch cards or electronic scanners for an automatic data processing system, is enhanced safety in the administration of drugs in hospitals and greater time available to the nurse for bedside duties.

For the purpose of further describing and illustrating but not limiting the invention, reference is made to the accompanying drawings in which

FIGURE I is a top view, in perspective, of one embodiment of the dispensing package.

FIGURE II is a top view, in perspective, of an alternate embodiment of the dispensing package.

Referring now to the drawings:

FIGURE I shows a perspective view of the dispensing package **1**, which comprises identification means **2** and receptacle **6**. The identification means **2** comprises two components **3** and **4** divided by a transverse shear line provided by perforations **5**. The receptacle **6** is in the form of an inverted frusto-conical cup formed from a transparent material having a closed end **7** and an open end **8** abutting component **4** of identifying means **2**.

Coating is provided at **9** on the perimeter of the open end **8** of receptacle **6** and receptacle **6** is joined to component **4** by heat sealing techniques whereby the coating functions as the adhesion means. Surrounding the receptacle **6** is a shoulder **10** which is integral with receptacle **6** and which is fixedly secured to component **4** by coating **9**. The shoulder thus provides greater adhesion by virtue of greater surface area of receptacle **6** in contact with component **4**. The identifying means **2** is provided with means **11** to permit automatic data processing with any suitable equipment for that purpose. Of course, it is to be understood that indicia for manual recording can be provided in lieu of, or in addition to, the means **11**. Furthermore, suitable indicia can be provided on component **4** in addition to the indicia on component **3** for convenience sake.

In the alternate embodiment shown in FIGURE II, the dispensing package **1*a*** comprises an identification means **2*a*** and a receptacle **6*a***. The identification means **2*a*** is divided into two components, **3*a*** and **4*a***, by a transverse shear line provided by perforations **5*a***. As in the embodiment in FIGURE I, the receptacle **6*a*** is in the form of an inverted frusto-conical cup formed from a transparent material having a closed end **7*a*** and an open end **8*a***. Open end **8*a*** is joined to component **4*a*** by heat seal techniques as described above with respect to FIGURE I. Component **4*a*** is folded along the shear line with respect to FIGURE I. Component **4*a*** is folded along the shear line provided by perforations **5*a*** so that the face thereof not bearing the receptacle **6*a*** overlies part of one face of component **3*a***. Surrounding the recetacle **6*a*** is a shoulder **10*a*** which is integral with receptacle **6*a*** and which is fixedly secured to component **4*a*** by heat sealing means. The identifying means **2*a*** is provided with means **11*a*** to permit automatic data processing as described above with respect to FIGURE I.

I claim:

A medicament dispensing article suitable for conveying information upon processing with an automatic data processing system comprising an identifying means and a receptacle means, said identifying means being of a single uniform thickness and adapted for separation into two components by a transverse score line, said identifying means bearing indicia representing information concerning the medicament one of said two components in a manner so as to convey said information upon the automatic data processing thereof; said indicia comprising punch coded characters in the form of perforations or magnetic ink characters; said recetacle means comprising a blister disposed on the other of said two components of said identifying means intermediate the transverse score line and end of said component and being secured thereon with a peripheral flange, said blister comprising a raised portion having removably received therein a unit dose of a medicament.

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