United States Patent

[11] 3,593,443

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[45] Patented **July 20, 1971**

[73] Assignee **Merck & Co., Inc.**
Rahway, N.J.

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[54] **LABEL FOR USE IN BLIND CLINICAL STUDIES OF A MEDICAMENT**
6 Claims, 26 Drawing Figs.

[52] **U.S. Cl.** **40/2R**
[51] **Int. Cl.** **A44c 3/00**
[50] **Field of Search** 40/2, 310, 312; 35/17; 206/42

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Primary Examiner—Robert W. Michell
Assistant Examiner—Wendeslao J. Contreras
Attorneys—Reverdy Johnson, Martin L. Katz, Harry E. Westlake, Jr. and I. Louis Wolk

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ABSTRACT: A label to be used in the clinical studies of the effects of a particular medicant and comprises two separable parts, one part of which is secured to the container while the other goes into a file and with both sections having visible thereon the necessary patient and study numbers but not the nature of the medicant nor the dosage. This information is on the file section of the label but is normally hidden by a removable cover.

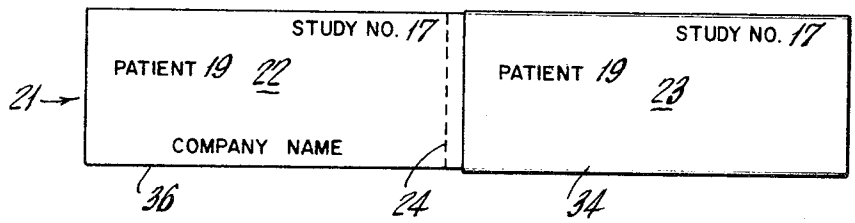

Fig. 1.

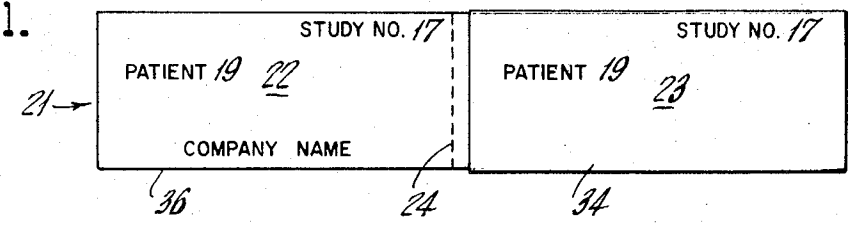

Fig. 2.

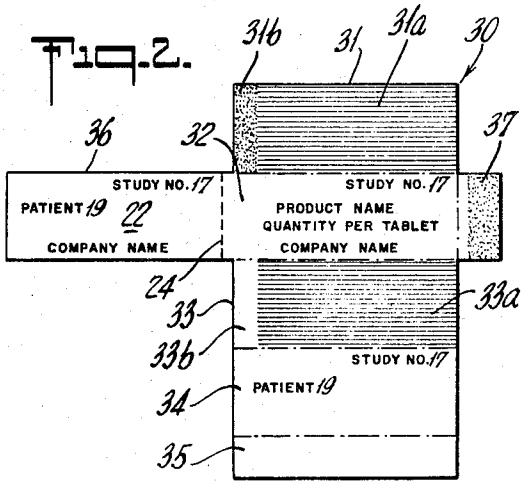

Fig. 3.

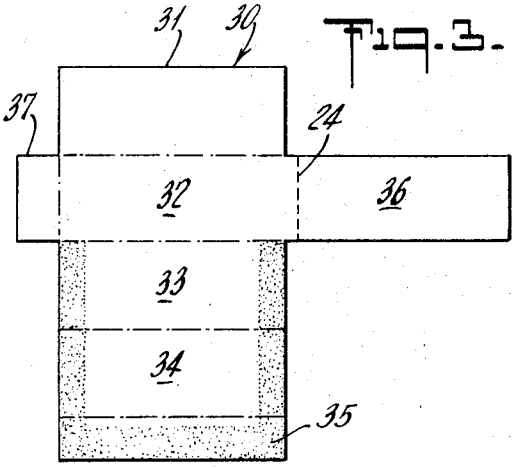

Fig. 4.

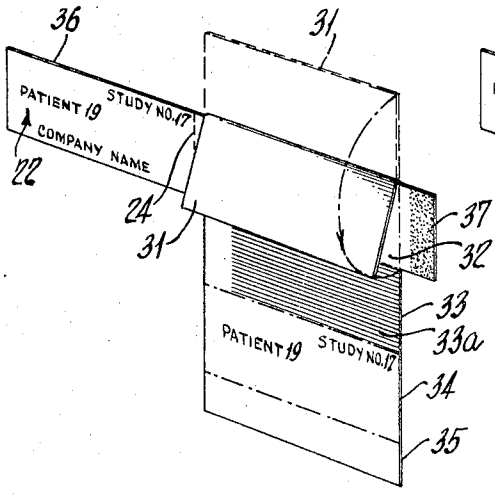

Fig. 5.

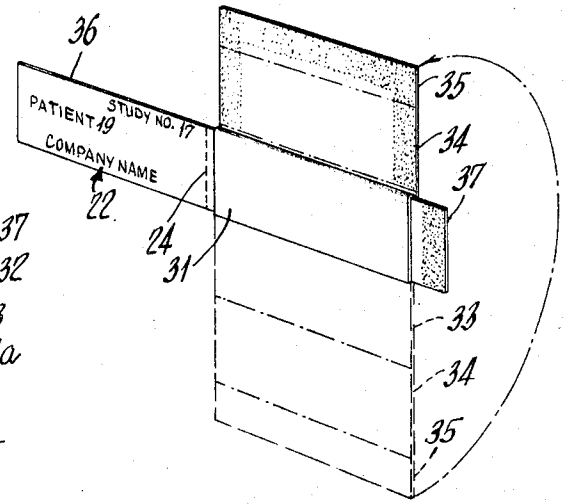

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Fig. 6.

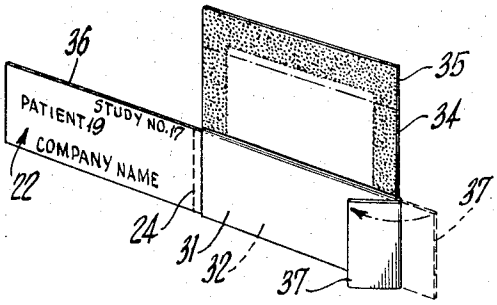


Fig. 7.

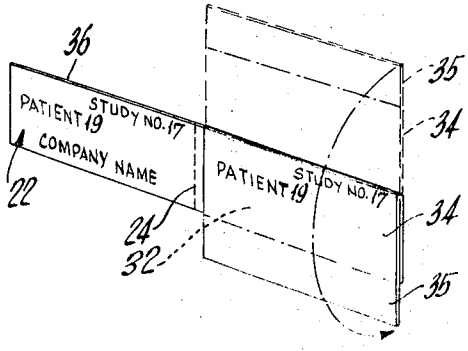


Fig. 8.

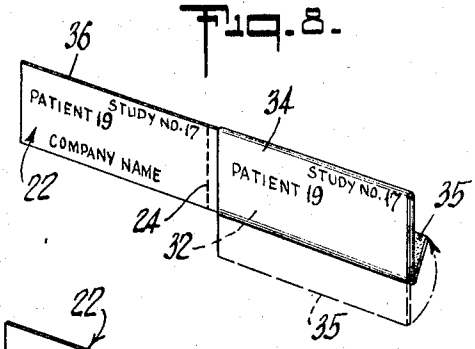
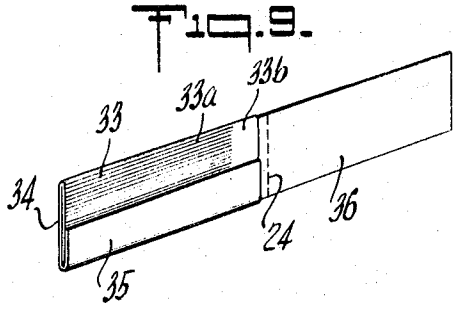


Fig. 9.



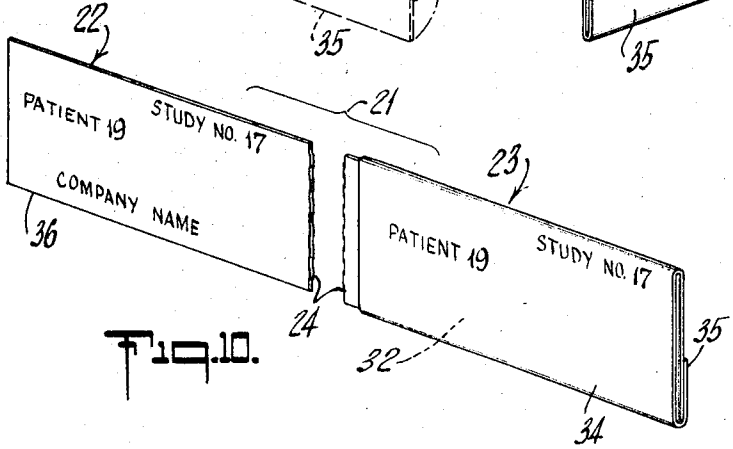


Fig. 10.

Fig. 11.

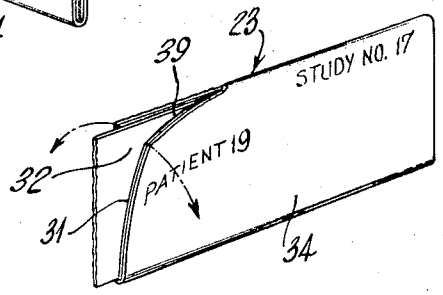


Fig. 12.

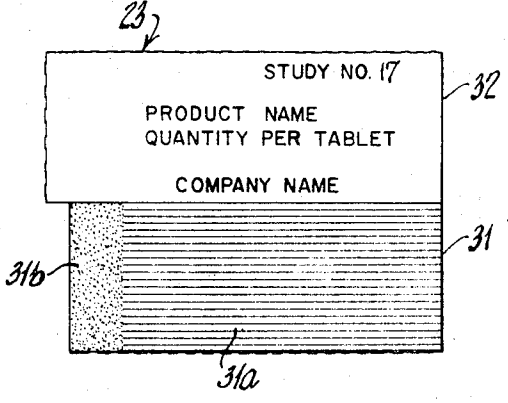


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Fig. 13.

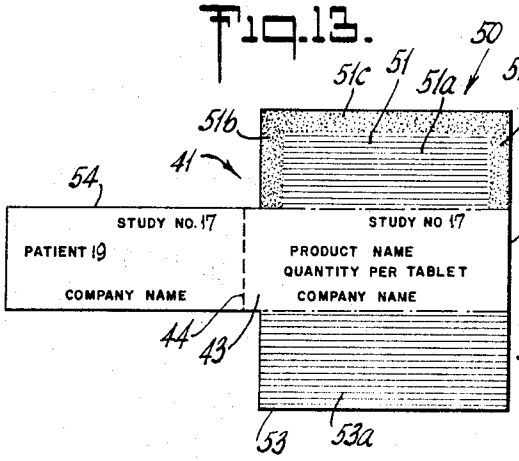

Fig. 14.

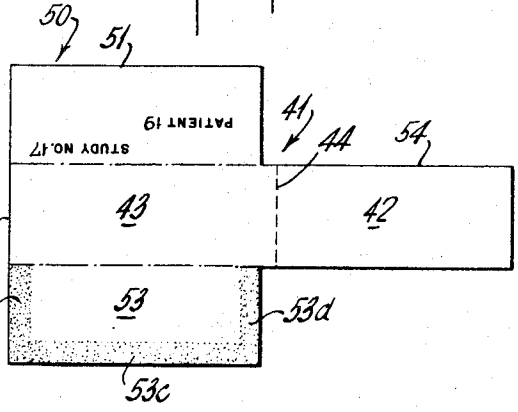

Fig. 15.

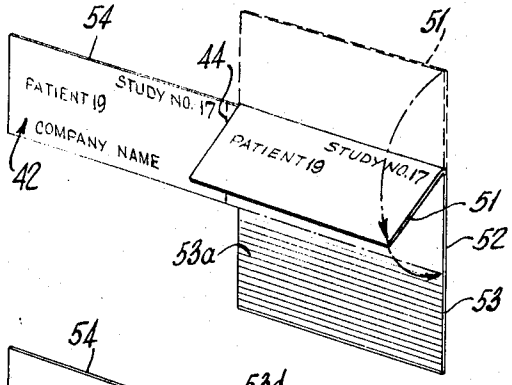

Fig. 16.

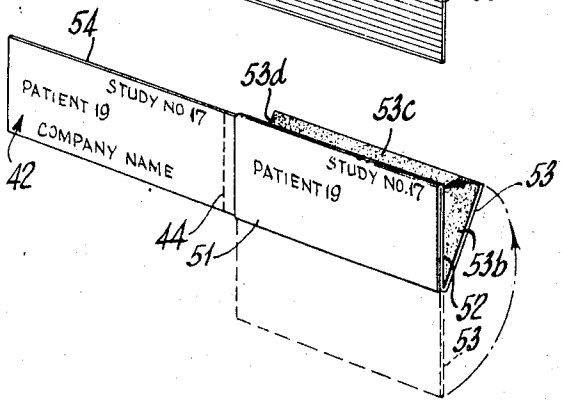

Fig. 17.

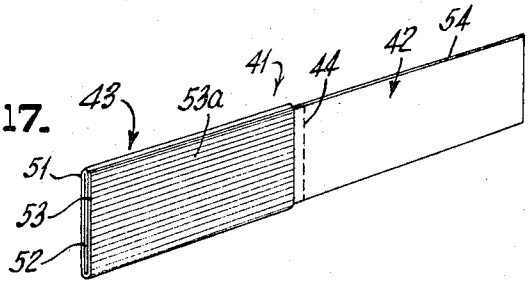

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Fig. 18.

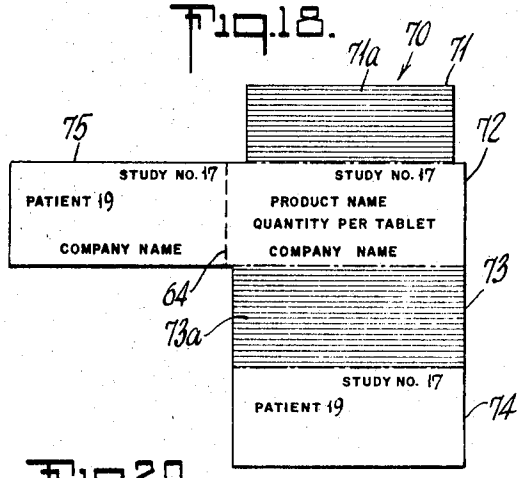


Fig. 19.

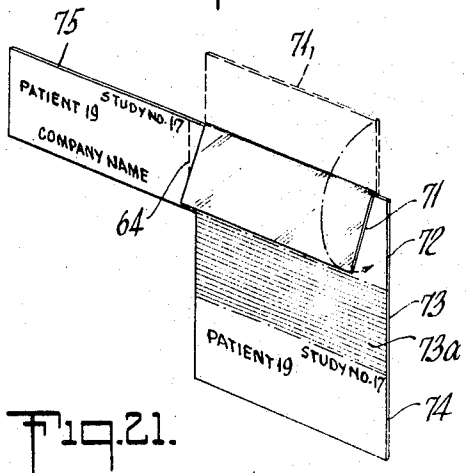


Fig. 20.

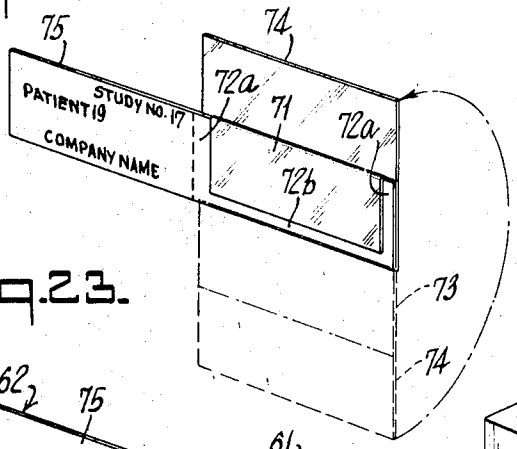


Fig. 21.

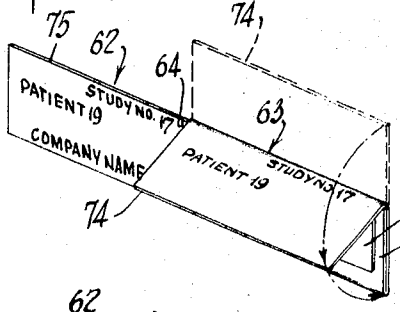


Fig. 23.

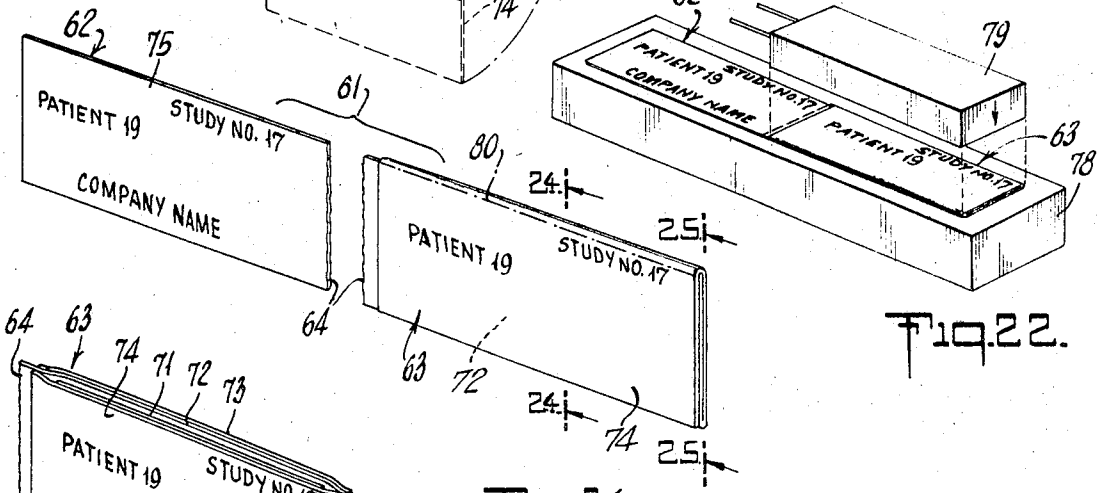


Fig. 22.

Fig. 26.

Fig. 24.

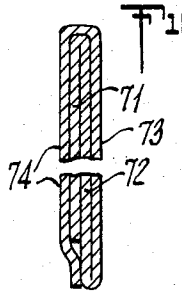
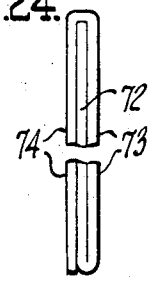


Fig. 25.



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LABEL FOR USE IN BLIND CLINICAL STUDIES OF A MEDICAMENT

SUMMARY OF THE INVENTION

The assembled label has two joined portions; a package portion which is secured to and remains with the medicament container, and a file portion which is detachable from the package portion for inclusion with the records of the patient receiving the tablets or capsules in the container. The information visible on the two portions does not reveal to the clinician the product information for a particular patient, i.e., whether or not the tablets or capsules (in that particular container) that are being administered to that particular patient, contain the medicament being clinically tested, and if so, in what amount. This nondisclosure to the clinician is necessary for a valid, blind clinical study of the medicament.

However, the file portion of the label has a concealed panel bearing this product information regarding the tablets being administered to the associated patient, so that, if medically necessary for a particular patient, the file portion of the label for that patient may be opened to reveal this information to the clinician, without revealing this product information for any of the other patients involved in the same blind clinical study, and thus without invalidating the study as to the remaining patients.

In preparing such a label, the blank used has at least three four-sided panels joined successively on opposite sides, with another four-sided panel joined to the side of the second panel. The product information is printed on the front of the second panel, while most of the front of the first and third panels are printed solid with dark ink. General information, not of product information character, is printed on the front of the panel to the side of the second panel, and also on either the back of the first panel, or preferably on the front of a fourth four-sided panel joined to the bottom of the third panel and extending below it.

The finished label is assembled by folding the first panel over the second, and by folding the third panel under the second, and securing them in that position, so that not only is the product information that is printed on the second panel obscured by the first panel, but also that product information cannot be read by holding the folded label against a light, as the solid ink printing on the first and third panels prevent the passage of light through at least the portion of the second panel that contains the product information printed thereon.

If the label blank has the fourth panel described (as it is preferred), it is then folded forward over the top of the first panel and secured in that position, so that the general information printed on the fourth panel is visible and is adjacent to the general information printed on the panel to the side of the second panel.

The panel to the side of the second panel becomes the package portion of the assembled label, while the remainder of the assembled label serves as the file portion of the assembled label. This file portion the clinician may open, when medically necessary, by cutting the file portion along its lower edge, and removing the covering panel or panels, thereby exposing the product information printed on the second panel.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a front view of an assembled label of the present invention prior to separation of the file portion of the label from the package portion of the label;

FIG. 2 is a front view of the flat, die-cut and printed blank from which the label of FIG. 1 is assembled;

FIG. 3 is a rear view of the same;

FIG. 4 through FIG. 9 are views, in perspective, showing the sequence by which the various panels of the flat, printed label blank of FIGS. 2 and 3 are folded and adhesively secured to produce the assembled label of FIG. 1;

FIG. 10 is a perspective view of the assembled label of FIG. 1 as it is being separated into its two parts, i.e., the package portion and the file portion;

FIG. 11 is a perspective view of the file portion of the label of FIG. 1, as it is being opened to gain access to the concealed information contained therein;

FIG. 12 is a front view of the opened file portion of the label of FIG. 1;

FIG. 13 is a front view of the flat, die-cut and printed blank for a modification of the label of FIG. 1;

FIG. 14 is a rear view of the same;

FIGS. 15 and 16 are views, in perspective, showing the sequence by which the various panels of the flat, printed label blank of FIGS. 13 and 14 are folded and adhesively secured to produce the assembled label;

FIG. 17 is a perspective view of the rear of the assembled label of FIGS. 12—15;

FIG. 18 is a front view of the flat, die-cut and printed blank for another modification of the label of FIG. 1;

FIGS. 19 through 21 are views, in perspective, showing the sequence by which the various panels of the flat, printed blank of FIG. 18 are folded to produce the assembled label;

FIG. 22 is a schematic diagram showing the folded label of FIG. 21 being treated with heat and pressure to secure the panels in their positions as shown in FIG. 21 (the material of which the labels are made having a heat-sensitive coating on its back which, upon the application of heat and pressure, activates and adheres to an adjoining surface);

FIG. 23 is a perspective view of the assembled label from the blank of FIG. 18 as it is being separated into its two parts, i.e., the package portion and the file portion;

FIG. 24 is an enlarged vertical section of the file portion of the label of FIG. 23 along the line 24–24 of FIG. 23;

FIG. 25 is an enlarged vertical end view of the file portion of the label of FIG. 23 as indicated by the line 25–25 of FIG. 23; and

FIG. 26 is a perspective view of the file portion of the label of FIG. 23 as it is being opened to gain access to the concealed information contained therein.

DESCRIPTION OF EMBODIMENT SHOWN IN FIGURES 1—12

Referring to FIG. 1, the assembled label, generally designated 21, has two principal portions, the package portion 22 shown at the left, and the file portion 23 shown at the right, the two portions being initially joined along a perforation line 24.

The back of the package portion 22 is adhesively secured to the container (not shown), such as a bottle, in which the medicament is contained. The back of the file portion 23 is not secured to the container.

The package portion 22 of the label has certain information printed thereon, such as the name of the company distributing the medicament, an identification number (such as 17) identifying the clinical study for which the medicament was prepared, and a patient identification number (such as 19) by means of which the distributing company is able to ascertain whether the tablets or capsules in the container to which the label 22 is secured (i) contain the medically active ingredient that is being clinically tested, or (ii) are merely placebo tablets that only simulate the appearance of such medically active tablets or capsules.

The file portion 23 of the label also has printed thereon the same study identification number (such as 17) and the same patient identification number (such as 19) that appear on the package portion 22 of the label.

It is to be noted that on neither the package portion 22 nor the file portion 23 of the label, in the assembled condition of the label as shown in FIG. 1, does the name of the medically active ingredient appear, nor whether the tablets or capsules in the associated container are medically active tablets or placebo tablets.

In use, the company sends to the clinician a specially prepared supply of containers, some of which contain medically active tablets or capsules and the rest of which contain placebo tablets or capsules. Each such container is labeled

with a label as shown in FIG. 1, except that the labels bear different patient numbers, generally in a numerical sequence. The company's record of these patient numbers also indicates those patients, by patient number, who are to receive medically active tablets or capsules and those patients, by patient number, who are to receive placebo tablets or capsules. This company record is generally referred to as the "code" or "allocation schedule."

When the clinician assigns a particular container to a specific patient, the patient's name is written on both the package portion **22** and the file portion **23** and of the label **21**. Then the file portion **23** is separated from the package portion along the perforation line **24**, as shown in FIG. **10**, and the file portion **23** is put with the medical records for that specific patient.

As previously stated, and as evident from FIGS. **1** and **10**, neither the name of the medicament, nor the quantity thereof contained in each tablet or capsule being administered to a specific patient, is visible on either portion **22** or **23** of the completely assembled label **21**. Hence, neither the doctor nor the nurse handling the medicament container can tell, from the package portion **22** of the label, whether the tablets or capsules within the container contain the medically active ingredient that is being clinically tested, or are merely placebos simulating the appearance of such tablets or capsules. Likewise, neither the doctor nor the nurse who examines the file of the patient to whom the tablets or capsules are being administered, and who, in such examination, see merely the exterior of the file portion **23** of the label **21** of this invention, can tell from the exterior of such file portion, whether the patient is receiving tablets or capsules containing the medically active ingredient, or is receiving a placebo, or can tell the amount of the medically active ingredient being administered, if any is being administered at all.

In this manner, the clinical study of the effect of the medically active ingredient is not subconsciously influenced by any knowledge the doctor, nurse, or patient may have as to whether the medically active ingredient being clinically studied is actually being administered to a specific patient, and as to whether the amount being administered is large or small.

At the end of the clinical study, the clinician reports his results to the company, using the patient numbers appearing on the file portion **23** of the label. The company then interprets these results by the use of the "code" which it has retained, and makes a statistical analysis of those decoded results.

A statistical analysis of the clinical results of the testing of a medically active material on a number of patients in this blind manner, is thus an unbiased and reliable analysis.

It is desirable for safety purposes, in case a specific patient who is involved in such a blind clinical study develops an unexpected reaction that must be treated promptly, that the doctor or nurse know immediately whether or not that specific patient has actually been receiving the medicament under study and, if so, in what amount.

The delay entailed in communicating with company to ascertain this fact is usually unacceptable to the clinician and the company, as the delay might be injurious to the patient.

If the company sends to the clinician, along with the carefully prepared supply of containers for the clinical study, a copy of its patient code for the containers, but in a sealed envelope, with instructions to open the envelope only when necessary to "break the code" for a specific patient, and the clinician does have to open the sealed envelope to determine what was being administered to a specific patient, the statistician is inclined to treat the entire study as unreliable. His reason for this is that there is no way of knowing how much more information the clinician has accidentally, or otherwise, obtained from examining the code, and how much such additional information may have influenced the clinician's report of the clinical results with the other patients.

It is to meet this dilemma in a simple and economical manner that the label of this invention has been devised.

Referring now to FIG. **2**, the label blank generally designated **30** from which the label **21** is prepared is a flat die-cut sheet having four generally rectangular panels **31**, **32**, **33** and **34** of equal size and shape adjoining one another successively on their long sides.

A fifth generally rectangular panel **35** preferably adjoins the fourth panel **34**, with the long side of the fifth panel **35** adjoining the long side of panel **34** opposite the long side that is joined to panel **33**. The short side of this fifth panel **35** is shorter than the short sides of panels **31**—**34**.

Adjoining the second panel **32** on one of its short sides is a sixth panel **36** which is generally rectangular and which has the perforations **24** therein from one long side to the other long side near where the short side of this sixth panel **36** joins the short side of the second panel **32**.

Adjoining the second panel **32** on its other short side is a small, seventh panel **37** which is a generally rectangular panel, the long side of which is the short side of the second panel **32**.

After the label blank **30** is cut to provide the panels described above, the blank is printed on the top side shown in FIG. **2**. The printing of label information is on the second, forth and sixth panels **32**, **34** and **36**, respectively. The printing on the first and third panels **31** and **33** is solid and unbroken and preferably done with a dark ink as indicated by the shading **31***a* and **33***a* representing blue color. This conveniently is the same type and color of ink used for printing the remainder of the blank, i.e., panels **32**, **34** and **36**. Preferably a small part **31***b* and **33***b*, of the panels **31** and **33**, respectively, is left uninked, these parts **31***b* and **33***b* being at the left of the panels as they are viewed in FIG. **2**. The left-hand portion **31***b* of the first panel **31** and the seventh panel **37**, are shown in FIG. **2** with mottled shading to indicate adhesive, which is applied thereto after the label blank **30** is die-cut and printed and is about to be assembled.

The label information printed on the sixth panel **36** is that which appears on the package portion **22** of the assembled label, as shown in FIG. **1**. The label information printed on the fourth panel **34** is that which appears on the file portion **23** of the assembled label, as shown in FIG. **1**.

The label information printed on the second panel **32** includes the name of the product and the quantity of such product per unit dose in the container, such as tablet or capsule. In the assembled label as shown in FIG. **1**, this second panel **32** is part of the file portion **23** of the label but is not visible or accessible without mutilation of the file portion of the label, as will be evident as the description proceeds.

Referring now to FIG. **3**, which shows the back side of the die-cut and printed label blank, it is to be noted that there is no printing thereon. In other words, in preparing the label of the preferred form of this invention, the die-cut label blank **30** is printed on one side only. The mottled shading shown along the short sides of the third and fourth panels **33** and **34**, and over the fifth panel **35**, indicates adhesive which is applied after the label blank **30** is die cut and printed.

The folding and securing of the various panels of the die-cut and printed label blank **30** of FIGS. **2** and **3** to produce the assembled label of FIG. **1**, is shown, in sequence, in FIGS. **4**—**9**, inclusive.

The first panel **31**, after having adhesive applied to its unprinted left-hand portion **31***b*, is folded forward, as shown in FIG. **4**, along the junction between the first and second panels **31** and **32**, so that the first panel **31** overlays the second panel **32**. The panels are secured in that position by the adhesive along the left side of these panels. The solid ink printing **31***a* on this first panel **31** thus is positioned on top of, and covers, the product information printed on the second panel **32**.

The next two steps, shown in FIGS. **5** and **6**, can be performed in that sequence or in the reverse sequence. In the sequence shown, adhesive is applied to the back of the third and fourth panels **33** and **34** near the short sides thereof, and to the back of the fifth panel **35**. The three panels **33**, **34** and **35** are then folded as a unit along the junction between the long sides of panels **32** and **33**, so that the third panel **33** un-

derlays the second panel 32. The panels are secured in that position by the adhesive along the short sides of panel 33. The partially assembled label is then as shown in FIG. 5. In this position of panel 33 the solid ink printing 33*a* is positioned underneath the product information printed on the second panel 32.

The small, seventh panel 37 is then folded along the junction line between the short side of panel 32 and the adjacent (long) side of panel 37, so that the seventh panel 37 overlays the back of the first panel 31. The panels are secured in that position by the adhesive on the front of the seventh panel 37.

In the next step, shown in FIG. 7, the fourth and fifth panels 34 and 35 are folded as a unit along the junction line between the third and fourth panels 33 and 34, so that the fourth panel 34 overlays the back of the first panel 31 and the back of the seventh panel 37. The panels are secured in this position by the adhesive applied to the short sides of panel 34. In this position the front of the fourth panel 34 is over the second panel 32, with the printing on the front of the sixth panel 36. The printing on the front of the second panel 32 is not visible, as that second panel 32 is covered by the first and fourth panels 31 and 34.

In the final step of assembling the label of this form of this invention, the fifth panel 35 is folded along the junction line between the fourth and fifth panels 34 and 35, as shown in FIG. 8, so that the fifth panel 35 engages the back of the third panel 33 (this third panel 33 underlaying the back of the second panel 32). The fifth panel 35 is secured in its folded position by the adhesive applied to the back of this fifth panel 35.

The fully assembled label, when viewed from the rear, is shown in FIG. 9. The first and second panels 31 and 32 are inside the enclosure formed by the fourth panel 34 on the front, and by third and fifth panels 33 and 35 on the back.

After the label has been fully assembled, as shown in FIGS. 1 and 9, after the package portion 22 of the label has been secured to the container containing the material which the clinician is to test in patients, and after the clinician receives such container and assigns it for use with a specific patient, the clinician, or his nurse, separates the file portion 24 of the assembled label from the container portion 22, as shown in FIG. 10, tearing the two portions apart along the perforation line 24 near the short side of panel 36 adjacent to the file portion 23. The file portion 23 is then placed with, and kept with, the medical records of that specific patient.

It is to be noted at this point that in fully assembled form, the label information printed on the second panel 32, containing the name of the product and the quantity of such product per unit dose in the associated container, is obscured by having the first panel 31 and the fourth panel 34 folded over the front of such second panel 32 and secured in that position. In addition, the label information printed on the second panel 32 is not readable by holding the assembled label 21 (or the file portion 23 of such label, if such file portion has been detached from the package portion 22) against the light, for the solid ink 31*a* and 33*a* on the first and third panels 31 and 33, respectively, that overlay and underlay, respectively, the second panel 32, prevent the passage of sufficient light through the file portion 23 of the assembled label to enable the printing on the second panel 32 to be read by the naked eye when the label is so held against the light.

Also, the printing on the second panel 32 is not readable by lifting an edge of a covering panel, for there is no edge of a covering panel that can be lifted without first tearing some part of the assembled label or separating some adhesively secured portion of the assembled label.

If a specific patient in a group of the clinician's patients being administered the contents of the specially prepared supply of containers, develops an unexpected reaction, and for this reason, or some other medically appropriate reason, the clinician wants to know immediately whether that specific patient has actually been receiving the medicament under study and, if so, in what amount, the clinician removes the file portion 23 of the label of this invention from the patient's medical records and cuts or tears the label along the top edge, as shown at 39 in FIG. 11. He then pulls the panels which cover the second panel 32 forward away from the second panel, as indicated in FIG. 11, at the same time breaking the adhesive bond between the part 31*b* of the first panel 31 and the opposite part of the second panel 32, and also tearing or cutting the junction between the second panel 32 and the seventh panel 37. The file portion 23 of the label is then opened up, and in this opened position it appears as shown in FIG. 12.

In so doing, the clinician has broken the "code" as to this specific patient only. He has not broken the "code" as to any of the other patients in the study. Hence, the study can continue and be treated as reliable as to all the remaining patients. A significant saving in clinical time and effort is thus achieved by the label of this invention, while providing the desired safety for the patient and clinician in enabling the clinician to quickly determine, when essential, whether a specific patient is actually being administered the medicament under test, and in what amount.

In addition, the preparation of the label with which this result is achieved is simple and rapid. Printing is required on one side only of the label blank, and after that side has been printed and dried, no further processing effort and time is required, as is necessary with some forms of labels heretofore prepared for use in blind studies.

In one such form heretofore used, the file portion of the label, after having been printed with the product information, is further processed as follows:

i. by varnishing at least the area containing the product information;

ii. by drying the varnished area

iii. by revarnishing the varnished area;

iv. by drying the revarnished area;

v. by overprinting the product information with a solid bar of dark ink;

vi. by drying this overprinting;

vii. by overprinting the product information a second time with a solid bar of the same dark ink used in the first overprinting (in an attempt to make the product information more completely invisible and unreadable in any manner);

viii. by drying this second overprinting;

ix. by turning the label over and printing on the back of the label a solid bar of dark ink over the area where the product information is printed on the front side of the label; and

x. by drying this backside solid bar printing.

To break the code of such prior label, the solid ink overprinting over the top of the label is rubbed or scratched off, which, when done with care, can be done without penetrating the double varnish layer and so without impairing the legibility of the product information printed on the label.

The saving in production time and labor in making the label of this invention, as compared with that required to make such prior label, is manifest. The saving in the time and effort required of the clinician to break the code of the label of this invention, as compared with that required to break the code of such prior label, is also manifest.

Furthermore, the label of this invention does not require that unusual care be taken to insure that, in printing the product information on the label, the pressure of the type on the label does not deform the paper or other stock of which the label is made. With such prior label, such unusual care must be taken, or else the product information can be readily determined by examining the deformations which are present on the back of the printed label. In the label of this invention, if any such deformations are created in printing the product information on the second panel 32, then such deformations are not ascertainable in the fully assembled form of the label, for there is a smooth-surfaced panel 33 folded and secured against the back of the printed second panel 32 which prevents any such paper deformations in panel 32 from being readily ascertained.

DESCRIPTION OF MODIFIED EMBODIMENT (FIGURES 13—17)

FIGS. **13** through **17** show a modified label that embodies some, but not all, of the features of the label heretofore described.

Referring to FIG. **13**, the die-cut and printed label blank **50** of such modified label **41** has three generally rectangular panels **51**, **52**, and **53** of equal size adjoining one another successively on their long sides.

Adjoining the second panel **52** on one of its short sides is a fourth panel **54** which is generally rectangular and which has perforations **44** therein from one long side to the other long side near where the short side of this fourth panel **54** joins the short side of the second panel **52**.

After the label blank **50** is cut to provide the panels described above, the blank is printed on the top side shown in FIG. **13**. The printing of label information is on the second and fourth panels **52** and **54**, respectively. The printing on the first and third panels **51** and **53** is solid and unbroken, and preferably done with a dark ink as indicated by the shading **51***a* and **53***a* representing blue color. This conveniently is the same type and color of ink used for printing the front of the other panels **52** and **54**. Preferably three small parts **51***b*, *51c* and **51***d* of the first panel **51** are left uninked, parts **51***b* and **51***d* being along the short sides of that panel, and part **51***c* being along the long side of that panel that is not adjoining panel **52**. These uninked areas **51***b*, *51c* and **51***d* are shown in FIG. **13** with mottled shading, to indicate adhesive which is applied thereto after the label blank **50** is die cut and printed and is about to be assembled.

The label information printed on the second panel **52** of label blank **50** corresponds to that printed on the second panel **32** of label blank **30**. The label information printed on the fourth panel **54** of label blank **50** corresponds to that printed on the sixth panel **36** of label blank **30**.

The label blank **50**, after the printing described above has dried, is turned over and printed on the back side, as shown in FIG. **14**. This consists of printing on the back of the first panel **51** label information corresponding to that printed on the front of the fourth panel **34** of label blank **30**.

The areas **53***b*, **53***c* and **53***d* on the back of the third panel **53** shown in FIG. **13** with mottled shading, indicate adhesive which is applied to those areas (along the short sides of panel **53** and along the long side of panel **53** that is not adjoining panel **52**) after the label blank is die cut, fully printed, and is about to be assembled.

The folding and securing of the various panels of the die-cut and printed label blank **50** of FIGS. **13** and **14** to produce the assembled label is shown in sequence in FIGS. **15** and **16**.

The first panel **51**, after having adhesive applied around its free edges **51***b*, **51***c* and **51***d*, is folded forward, as shown in FIG. **15**, along the junction between the first and second panels **51** and **52**, so that the first panel **51** overlays the second panel **52**. The panels are secured in this position by the adhesive along the edge areas **51***b*, **51***c* and **51***d* of panel **51**. The solid ink printing **51***a* on this first panel **51** thus is positioned on top of, and covers, the product information printed on the second panel **52**. The label information printed on the back of the first panel **51** now appears on the front of the label, over the area of the second panel **52**.

In the next step, shown in FIG. **16**, the third panel **53** is folded along the junction between the second and third panels so that the third panel **53** underlays the second panel **52**. In this position the solid ink printing **53***a* on this third panel **53** covers the back of the label information printed on the front of second panel **52**. The panels **52** and **53** are secured in that position by the adhesive along the edge areas **53***b*, **53***c* and **53***d* of panel **53**.

The resulting assembled label **41** is shown in FIG. **17**, as viewed from the rear, similarly as for the assembled label **21** shown in FIG. **9**. The use of the assembled label **41** is the same as described for the assembled label **21**, and so is not repeated. The opening of the file portion **43** of the assembled label **41** is substantially the same as shown in FIGS. **11** and **12** for the file portion **23** of the assembled label **21**. The top long edge of the file portion **43** is cut, and the covering panel **51** which overlays the product information bearing panel **52** is peeled off to expose the printing on the product information bearing panel **52**.

DESCRIPTION OF ANOTHER MODIFIED EMBODIMENT (FIGURES 18—26)

In lieu of using a tacky, pressure-sensitive adhesive as described in connection with FIGS. **1**—**17**, the labels may be made using material having a heat-sensitive adhesive coating on the back of the label blank, so that, upon the application of heat and pressure to the label after its panels are folded into assembled position, the adhesive is activated so that it adheres to the adjoining surface which is pressed against the adhesive-bearing surface, thereby securing the label in its assembled position.

FIGS. **18** through **26** show one mode of making a label of this invention using material having such a heat-sensitive coating on one of its sides.

The label blank generally designated **70** from which the label **61** is prepared is a flat, die-cut sheet having a printable surface on its front side and having, on its back side, a heat-sensitive coating of the type referred to above. A satisfactory sheet of this character in white "Kromekote" cast coated paper, which is coated on one side and sold by Champion Papers, a division of U.S. Plywood-Champion Papers Inc. of Hamilton, Ohio, the sheets having subsequently been coated on their other side by the Nashua Corporation of Nashua, N.H. with a delayed action heat sealing adhesive sold under the name "Pervenac" BM-3.

The label blank **70** has four generally rectangular panels **71**, **72**, **73** and **74** adjoining one another on their long sides. Panels **72**, **73** and **74** are substantially of the same size. Panel **71** is somewhat smaller in length and height, with the panel substantially centered in relation to the adjoining panel **72**.

A fifth generally rectangular panel **75** adjoins the second panel **72** on one of its short sides, and has perforations **64** therein from one long side to the other long side near where the short side of this fifth panel **75** joins the short side of the second panel **72**.

After the label blank **70** is cut to provide the panels just described, the blank is printed on the top side, as shown in FIG. **18**. This printing includes label information on the second, fourth and fifth panels **72**, **74** and **75**, and solid or substantially solid ink over all, or substantially all, of the first and third panels **71** and **73**. This solid ink printing is indicated by the shading **71***a* and **73***a* on these panels **71** and **73**, respectively, the shading representing blue color. This solid ink printing is conveniently of the same type and color of ink that is used for printing the remainder of the blank, i.e., panels **72**, **74** and **75**.

The label information printed on the fifth panel **75** is that which appears on the package portion **62** of the assembled label, as shown in FIG. **23**. The label information printed on the fourth panel **74** is that which appears on the file portion **63** of the assembled label, as shown in FIG. **23**.

The label information printed on the second panel **72** includes the name of the product and the quantity of such product per unit dose in the container, such as tablet or capsule. In the assembled label as shown in FIG. **23**, this second panel **72** is part of the file portion **63** of the label but is not visible or accessible without mutilation of the file portion of the label.

The folding of the various panels of the label blank **70** is shown in sequence in FIGS. **19**, **20** and **21**. The first panel **71** is folded forward, as shown in FIG. **19**, along the junction between the first and second panels **71** and **72**, so that the first panel **71** overlays the second panel **72**. The solid ink printing **71***a* on this first panel **71** thus is positioned on top of, and covers, the product information printed on the second panel **72**. Because the first panel **71** is smaller in length than the

second panel 72, and is centered with respect thereto, there is a small strip 72*a* along each short side of the second panel 72 (see FIG. 20) that is not covered by the first panel 71. Likewise, because the first panel 71 is smaller in height than the second panel 72, there is a small strip 72*b* along the lower long side of the second panel 72 (see FIG. 20) that is not covered by the first panel 71.

The third and fourth panels 73 and 74 are then folded backward as a unit, as shown in FIG. 20, along the junction between the long sides of panels 72 and 73, so that the third panel 73 underlays the second panel 72. In this position the solid ink printing 73*a* on the third panel 73 is positioned underneath the product information printed on the second panel 72.

Finally, the fourth panel 74 is folded forward, as shown in FIG. 21, along the junction between the long sides of panels 73 and 74, so that the fourth panel 74 overlays the first panel 71 and the second panel 72.

If desired, the sequence of folding these panels may be slightly varied, as follows: the third and fourth panels 73 and 74 are folded backward as a unit, as shown in FIG. 20, and then the fourth panel 74 and the first panel 71 are together folded forward, similarly as shown in FIG. 21.

The label as thus folded, whether by the sequence first described or by the alternate sequence described in the preceding paragraph, is then secured in its folded position by subjecting the folded, or file portion 63, of the label to heat and pressure, as schematically shown in FIG. 22. The label is placed upon a support plate 78 and a heated plate 79 is then moved down against the support plate 78 (or the support plate 78 is moved up against the heated plate 79). The heat activates the coating on the back of the material of which the label is made, and causes the coating to adhere to the adjoining surface against which it is pressed thereby securing the label in its assembled position.

The assembled, and thermoplastically secured, label 61 is shown in FIG. 23, as it is being separated along the perforation line 64 into its two parts, i.e., the package portion 62 and the file portion 63. As evident from this figure, and from the enlarged sectional and end views FIGS. 24 and 25 of the file portion 63 of this label, in conjunction with FIGS. 19, 20 and 21, the fourth panel 74 is secured to the second panel 72 by the action of the thermoplastic coating on the back of the fourth panel 74 in adhering to the areas 72*a* and 72*b* around three sides of the second panel 72. The remainder of the fourth panel 74 is secured to the first panel 71 by the thermoplastic coating on the backs of the two panels which engage each other. The third panel 73 is secured to the second panel 72 by the thermoplastic coating on the backs of these two panels which engage each other.

In the fully assembled form of this embodiment of the label of this invention, the label information printed on the second panel 72, containing the name of the product and the quantity of such product per unit dose in the associated container, is obscured by having the first panel 71 folded over the front of such second panel 72 and secured in that position by the fourth panel 74. In addition, the label information printed on the second panel 72 is not readable by holding the label against the light, for the solid ink printing 71*a* and 73*a* on the first and third panels 71 and 73, respectively, that overlay and underlay, respectively, the second panel 72, prevent the passage of sufficient light through the file portion 63 of the assembled label to enable the printing on the second panel 72 to be read by the naked eye when the label is so held against the light.

Also, the printing on the second panel 72 is not readable by lifting an edge of a covering panel, for all such edges (i.e., the edges of the fourth panel 74) are adhesively secured to the second panel 72.

Finally, the printing on the second panel 72 cannot be read by examining the deformations which such printing may create on the back of the panel 72, for there is a smooth-surfaced panel (i.e., the third panel 73) positioned over the back of the second panel 72 and secured in that position. This prevents any such paper deformations in panel 72 from being readily ascertained.

As with the embodiments of this label previously described, the package portion 62 of the label 61 is secured to the container containing the material which the clinician is to test in a patient, and the file portion 63 is separated from the package portion 62 by the clinician, or his nurse, by tearing the two portions apart along the perforation line 64. The file portion 63 is then placed with, and kept with, the medical records of the patient receiving the contents of the associated container.

If it becomes necessary for the clinician to know quickly what a specific patient has actually been receiving, and in what amount, the clinician removes the file portion 63 of the label from that patient's medical records and cuts off the top edge of the label, as indicated by the line 80 in FIG. 23. He then slightly pushes together the two side edges of the label, which then opens up along the top edge, as shown in FIG. 26. The clinician can then pull the front part of the label down, tearing the side edges of the panel 74 or pulling those edges away from the side edges 72*a* of the second panel 72, to expose the label information printed on the second panel 72. In doing this, the clinician does not "break the code" for any other patient in this blind study, so that the study continues, as to the remaining patients involved in that study, as an unbiased and reliable clinical test of the material being tested.

Another embodiment of the invention which is so similar to the embodiment of FIGS. 18—26 that it is not separately shown, is to use heat-sealable sheet material similar to that described in connection with FIGS. 18—26, but with the first panel corresponding to panel 71 having the same height as the second panel corresponding to panel 72. (In other words, there is no area corresponding to area 71*b* when the first panel is folded forward over the second panel.) However, there is an additional panel below the fourth panel corresponding to panel 74. This additional panel, after the fourth panel is folded over the front of the label (i.e., over the back of the first panel corresponding to panel 71), is folded rearward over the back of the label. Thus this additional panel, after the folded label is subjected to heat and pressure, serves to secure the bottom of the first panel, corresponding to panel 71, in position over the panel on which the label information is printed (i.e., the second panel corresponding to panel 72). This embodiment of the invention is less efficient in the use of label material, as it employs one more panel than does the embodiment of FIGS. 18—26.

Still another embodiment of the invention which is so similar to the embodiment of FIGS. 18—26 that it also is not separately shown, is to position the fourth panel, corresponding to panel 74, to the right side (as viewed in FIGS. 18—20) of the third panel, corresponding to panel 73. In such case the first panel, corresponding to panel 71, need not have its right side (as viewed in FIGS. 18—20) cut away to produce an uncovered strip corresponding to strip 72*a* when the first panel is folded forward over the second panel. In assembling this label, the fourth panel is thus folded forward from the side over the second panel and over the already-folded-forward first panel. When the label, as thus constructed and folded, is subjected to heat and pressure, the original back side of the fourth panel is adhesively secured to the original front side of the second panel along a strip at the bottom corresponding to strip 72*b*, and along a strip at the left side corresponding to strip 72*a*. The folding along the junction line between the side of the fourth panel and the side of the second panel enables the adhesive bond between the second panel and the fourth panel along the strip corresponding to strip 72*a* at the right side of the second panel, to be dispensed with, without impairing the integrity of the assembled label.

We claim:

1. A label, for use in blind clinical studies of a medicament:

formed from a blank having a succession of at least three adjoining panels which are folded along the panel junction lines so that the first panel overlays the second panel and the third panel underlays the second panel;

medicament-identifying indicia on the original front side of the second panel and substantially solid ink on the original front side of the first and third panels so that when the first and third panels are folded to overlay and underlay, respectively, the second panel, the medicament identifying indicia on the second panel not only is covered and so rendered invisible, but also is not readable by holding the folded label against a light;

other indicia, representative of the single patient being administered the medicament with which the label has been associated, and not of a character to identify the medicament to the clinician, either on the original back side of the first panel or on the original front side of the fourth panel adjoining the third panel, the fourth panel, when present, being folded over the original back side of the first panel when the latter is folded over the second panel, in either case the other indicia being the indicia exposed on the front of the folded label; and

means adhesively securing said panels in folded position while maintaining free from adhesive the portion of the original front side of the second panel on which the medicament identifying indicia is printed, so that the clinician may, if necessary, cut along the junction line between the first and second panels and readily pull forward the second panel from the first panel to expose the medicament identifying indicia for the single patient being administered the medicament associated with the label.

2. An assembled label as set forth in claim 1 in which the blank has an additional panel adjoining the side of the second panel, the original front side of the additional panel having thereon indicia substantially corresponding to the other indicia, the original back side of the additional panel being adhesively secured to the container containing the medicament to be clinically tested and the additional panel having a tear line at or near the junction line between the additional panel and the second panel, at which tear line the remaining portion of the assembled label may be separated from the portion of the label secured to the container so that the separated portion may be readily kept with the medical records for the specific patient identified by the other indicia.

3. A label, for use in blind clinical studies of a medicament, formed from a blank having a succession at at least four adjoining panels which are folded along the panel junction lines so that the first panel overlays the second panel, the third panel underlays the second panel, and the fourth panel overlays the first and second panels together, the blank also having an additional panel adjoining the side of the second panel;

medicament-identifying indicia printed on the original front side of the second panel and substantially solid ink printed on the original front side of the first and third panels so that when the first and third panels are folded to overlay and underlay, respectively, the second panel, the medicament identifying indicia on the second panel not only is covered and so rendered invisible, but also is not readable by holding the folded label against a light and also is protected from examination of the original back side of the second panel for any deformation of the label stock caused by printing the medicament identifying indicia on the original front side thereof;

other indicia representative of the single patient to be administered the medicament with which the label is associated, and not of a character to identify the medicament to the clinician, printed on the original front side of the fourth panel and on the original front side of the additional panel, this other indicia thus being the indicia exposed to the clinician after the label is fully folded;

means adhesively securing the succession of panels in folded position while maintaining free from adhesive the portion of the original front side of the second panel on which the medicament identifying indicia is printed; adhesive securing the original back side of the additional panel to the container containing the medicament to be clinically tested; and

the additional panel having a tear line at or near the junction line between the additional panel and the second panel, at which tear line the remaining portion of the assembled label may be separated from the portion of the label secured to the container so that the separated portion may be readily kept with the medical records for the specific patient identified by the other indicia;

this separated portion, after being cut by the clinician, when necessary to do so, along the junction line between the first and second panels, enabling the clinician to readily pull forward the second panel from the first panel to expose the medicament-identifying indicia printed on the second panel for the single patient being administered the medicament in the associated container, without exposing to the clinician the medicament-identifying indicia for any other patient in the same blind clinical study.

4. The label as set forth in claim 3 in which the blank has a fifth panel in the succession of panels and a stub panel positioned along the side of the second panel opposite the side along which the additional panel is positioned;

the stub panel being folded forward over the original back side of the first panel after the latter is folded forward to overlay the second panel, and the fifth panel being folded back to underlay the third panel after the fourth panel is folded forward to overlay the second and first panels together; and

the adhesive of the adhesive means for securing the panels in folded position being applied along the side of the original front side of the first panel nearest the additional panel, over the original front side of the stub panel, along the sides of the original back side of the third and fourth panels, and over the original back side of the fifth panel.

5. The label as set forth in claim 3 in which the adhesive means includes a heat sensitive coating on the back side of the blank that can be activated upon the application of heat and pressure to the folded succession of panels to secure them in their folded positions, the first panel being slightly smaller than the second panel so that the original back side of the fourth panel is adhesively secured to the original front side of the second panel around the perimeter of the second panel not covered by the first panel when folded to overlay the second panel.

6. A plurality of labels, one for each container of material to be administered to patients in a blind clinical study of a medicament, wherein the clinician is not to be advised which containers contain the medicament in a certain amount, which containers contain a placebo, and also, if desired, which containers contain the medicament in another amount, each such label having a package portion secured to the associated container and a separable file portion for inclusion with the medical records of the specific patient being administered the contents of the container to which was secured the corresponding package portion of the label, the file portion of each such label bearing, in a concealed manner, the identification of the contents of the container to which was secured the corresponding package portion of the label, so that the clinician may, when medically necessary for a specific patient, ascertain by appropriate mutilation of the file portion of the label for that patient, the identity and amount of the material being administered to that patient, without ascertaining the identity and amount of the material being administered to any other patient in the blind clinical study; characterized in that:

each label is formed from a flat blank having a printable front side and a heat sensitive coating on its back side that can be activated upon the application of heat and pressure thereto;

the blank having a succession of four substantially rectangular panels adjoining one another along their long sides and having a fifth substantially rectangular panel with one of its short sides adjoining one of the short sides of the second panel, the second, third and fourth panels being of substantially equal size and the first panel being slightly smaller than the second panel, and the fifth panel being

separable from the second panel along a tear line at or near the junction line between the fifth and second panels;

medicament-identifying indicia being printed on the printable side of the second panel;

other indicia representative of the single patient to be administered the medicament with which the label is associated, and not of a character to identify the medicament to the clinician, being printed on the printable side of the fourth panel and on the printable side of the fifth panel;

substantially solid ink printed on the printable side of the first and third panels;

the first panel being folded forward along its junction line with the second panel to overlay the second panel, the third and fourth panels being folded rearward along the junction line of the third panel with the second panel so that the third panel underlays the second panel, and the fourth panel being then folded forward along its junction line with the third panel to overlay the first and second panels together;

the first four panels of the label being adhesively secured in folded, assembled portion by activation of the heat sensitive coating on the original back sides of those panels and constituting the file portion of the label; and

the fifth panel being adhesively secured to the appropriate container by activation of the heat sensitive coating on the original back side of that panel, so that the fifth panel constitutes the package portion of the label.

Dedication

3,593,443.—*Julius Christ Demetrius, Jr.*, Lansdale, and *Wayne Martin Grim*, Chalfont, Pa. LABEL FOR USE IN BLIND CLINICAL STUDIES OF A MEDICAMENT. Patent dated July 20, 1971. Dedication filed July 29, 1971, by the assignee, *Merck & Co., Inc.*

Hereby dedicates to the Public all the remaining portion of the term of said patent.

[*Official Gazette November 16, 1971.*]