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EUROPEAN PATENT APPLICATION

(21) Application number: 88309352.8

(51) Int. Cl.4: **B65D 33/00 , B65D 77/28**

(22) Date of filing: 07.10.88

(30) Priority: 05.11.87 GB 8725949

(43) Date of publication of application:
10.05.89 Bulletin 89/19

(84) Designated Contracting States:
AT BE CH DE ES FR GB GR IT LI LU NL SE

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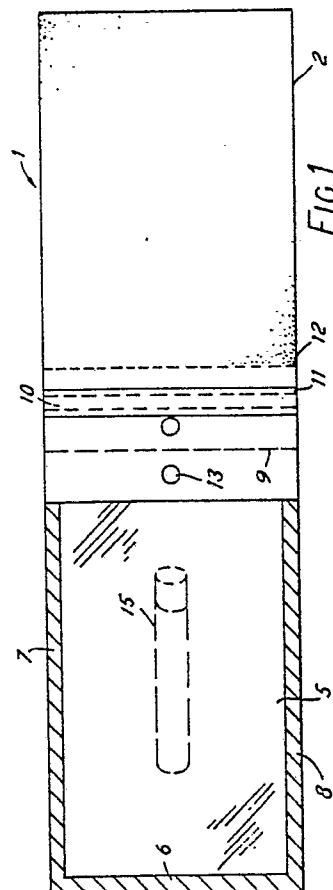
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(54) **Improvements in business forms assemblies.**

(57) This invention is concerned with a forms assembly primarily intended for use for example in hospitals for recording details of a medical test comprising a backing sheet with a first part intended to receive information about a medical sample and a second part comprising a container for the sample whereby the first part of the backing sheet which is part of a continuous web is capable of receiving information written thereon and the assembly includes a bag with an open mouth to contain the sample and a line of adhesive is provided to the mouth of the bag.

The side of the backing sheet and the side of the transparent sheet, both to be contacted by the line of adhesive are of plastics material so that a bond may be made between the backing sheet and the transparent sheet and the line of adhesive.



EP 0 315 327 A2

This invention has reference to forms assemblies and has particular reference to forms assemblies for use in hospitals and which are especially useful in connection with blood, urine or other medical tests in recording information about the tests.

It is estimated that in the United Kingdom some three hundred million (300,000,000) medical tests are made annually which require the taking of samples of blood, urine etc. Information about the samples is recorded and it is vital to ensure that the sample and the recorded information about the sample are retained securely together. It is also especially vital to ensure that recorded information about one sample is not confused with another sample in order that the sample and information about the sample can be transported for example between one laboratory and another laboratory. It is also important that sample material shall not be spilled. In the Specification No. 139413 of European Patent Application No. 84305878.5 there is described a forms assembly primarily intended for use for example in hospital for recording details of a medical test comprising a backing sheet with a first part intended to receive information about the sample and a second part comprising a container for the sample whereby the first part of the backing sheet is capable of receiving information written thereon and the assembly includes a transparent sheet secured on three sides to the second part of the backing sheet to form a bag with an open mouth to contain the sample and the assembly having a fold line about which fold line the assembly may be folded, a line of adhesive provided adjacent to the mouth of the bag characterised in that the backing sheet is part of a continuous web and the line of adhesive is provided on the opposite side of the fold line to contact the mouth of the bag when the assembly is folded whereby the mouth of the bag is directed towards the fold line.

In such a construction the line of adhesive contacting the mouth of the bag comes in contact with both the backing sheet and the second part which provides the container. Because the backing sheet is of paper material and the second part comprises a transparent plastics material it is sometimes difficult to secure a watertight joint between the adhesive and both the backing sheet and the second part of transparent plastics material.

It is also important that the container when contained in the bag shall remain upright when the forms assembly is folded and suspended on a support.

It is therefore an object of the present invention to provide an improved forms assembly and in particular to provide an improved combined form and compartment capable of securely containing a sample of blood or other medical sample.

It is a further object of the present invention to provide a forms assembly of simple construction and readily capable of securing a container with a medical sample therein in a watertight condition for relatively long periods.

It is a still further object of the present invention to provide a forms assembly which may be suspended and a container contained in the forms assembly be retained upright.

According to the present invention a forms assembly primarily intended for use for example in hospitals for recording details of a medical test comprises a backing sheet with a first part intended to receive information about a medical sample and a second part comprising a container for the sample whereby the first part of the backing sheet is capable of receiving information written thereon and the assembly includes a transparent sheet secured on three sides to the second part of the backing sheet to form a bag with an open mouth to contain the sample and the assembly having a fold line about which fold line the assembly may be folded, a line of adhesive is provided adjacent to the mouth of the bag which line of adhesive is provided on the opposite side of the fold line to contact the mouth of the bag when the assembly is folded, whereby the mouth of the bag is directed towards the fold line.

Characterised in that the side of the backing sheet and the side of the transparent sheet, both to be contacted by the line of adhesive are of plastics material so that a suitable bond may be made between the backing sheet and transport sheet and the line of adhesive.

A forms assembly in accordance with the present invention will now be described by way of example with reference to the accompanying drawings wherein

Fig. 1 is a plan front view of one part of the forms assembly,

Fig. 2 is a side view of the forms assembly of Fig. 1

Fig. 3 is a plan rear view of the part shown in Fig. 1

Fig. 4 is a side view of the forms assembly supported on a filing tray and

Fig. 5 is a diagrammatic view of a known construction of bag to receive a medical sample in a container.

Referring to Figs. 1 and 2 of the drawings there is shown a forms assembly comprising a backing sheet 1. This backing sheet preferably comprises a sheet 2 of business forms stationery of heavyweight paper laminated with plastics material and may be a separate sheet or be one form length of a continuous web.

As shown in Fig. 1 the front face of the sheet 1

(and as shown in Fig. 3 the rear face of the sheet 1) is laminated with, or coated with, plastics material to provide a water resistant paper render the sheet substantially moisture proof or leak proof. The sheet 1 is preferably of heavyweight paper laminated with polyester film or a layer of polythene as supplied by the Company TELCON PLASTICS. Thus one face of the sheet is of plastics material for securing purposes and the other face of the sheet is of paper for readily receiving written material and especially handwriting.

The laminated coated material paper has a partially rigid property to retain its shape as will be hereinafter described.

The backing sheet may have marginal feed apertures (not shown) at the opposite sides of the web to enable the web to be provided as continuous stationery assembly so as to be fed through a typewriter or print web unit of a computer whereby information is applied to the web by the typewriter or print unit. The feed apertures are also useful for registration purposes. The continuous stationery web also has cross perforations to divide the web into forms lengths (only one form being shown in Figs. 1 and 3)

The sheet 2 has on the right hand side as shown in Fig. 3 and on the paper side of the laminated paper a written data area 4 suitable to receive information about a blood test to be carried out on a patient and also has a bag area 5a. Printed matter including lines defining areas relating to certain kinds of information, and words specifying the kind of information are included. Some of this information to be applied in the respective areas such as the name and address of the patient, may be applied by label to which data has been applied in a typewriter or like print unit but other information, for example as to the results of tests carried out as the blood sample may be inserted by hand on the web. On the left hand side of the sheet 2 (as shown in Figs. 1 and 2), as sheet web 5 is secured by lines of adhesive 6, 7, 8 to the sheet 2 to form a bag 5a secured on three sides with an open mouth on the fourth side. The transparent sheet 5 is of non stretch polyester film which may be of the kind sold under the Trade Name "MELINEX" sold by I.C.I. plc and is of the kind which does not tear readily unless first cut and gives good visibility. The sheet 5 may also be a polyester film modified for heat seal purposes or be a polyester/polythene blend extruded film modified for heat seal purposes. A suitable material is found to be plastics material sold by the company DRG under the reference 240 Z. The lines 6, 7, 8 of adhesive include a longitudinal line 6 extending longitudinally of the sheet 2 and adjacent to the margin of the sheet 2 and transverse lines of adhesive 7 and 8 extending transversely of the web

on opposite sides of the lines of cross perforation dividing the web into form lengths. The adhesive is of the kind capable of adhering to plastics sheets and conveniently is a resin based hot melt adhesive as sold under the name Willet H1203 Hot Melt Adhesive. It is also considered possible to seal the two sheets 2 and 5 by heat sealing rather than by adhesive.

A fold line constituted by a line of fold perforations 9 extends longitudinally of the assembly and is provided centrally of the web between the inner edge of the transparent sheet 5 and the inner edge of the printed data area 4. This fold line 9 is a precision fold line to provide a positive fold and is made up of long slot perforations. It will be appreciated that this fold line 9 is outside the bag so formed by the sheet 2 and the transparent sheet 5. A line of adhesive 10 extends longitudinally of the sheet 2 and is positioned between the fold perforations 9 and the inner edge of the printed data area. It is required that the line of fold perforations 9 shall be positioned midway between the inner edge of the transparent web and the centre line of adhesive 10. This is to ensure that when the form length is folded about the line of fold perforations 9, the line of adhesive 10 covers the inner edge of the transparent sheet 5 one half of the adhesive covering the lip of the transparent sheet 5 and one half covering the part of the plastics material side of the sheet 2 between the lip of the sheet 5 and the line of fold perforations 9. As described the bag closed on three sides, is formed from the backing web 1 and the transparent web 5 with the lines of adhesive 6, 7 and 8 securing the bottom and sides of the bag. The line of adhesive 10 covering the mouth of the bag closes the bag on the fourth side thereby providing a completely sealed package. Because the adhesive serves to act as a bond between webs of polyester or polythene plastics material a moisture proof or leak proof seal is obtained. Also because the sheets 2 and 5 have faces of plastics material a secure heat seal may be obtained.

A barrier sheet 11 covers the line of adhesive 10 to prevent the line of adhesive 10 sticking to other material. The barrier sheet is preferably a ribbon of waxed paper. An additional line of cross perforations 12 is provided between the line of adhesive 10 and the area 4 of printed data to enable the printed data area to be detached from the assembly when information recorded on the data area is required for data processing or other purposes.

A pair of suspension apertures 13 are positioned adjacent to and on opposite sides of and equidistant from the line of fold perforations 9 so that when the web is folded about the line 9, the apertures are in register so that the assembly may

be suspended on a filing post or on rail type suspension system to facilitate transport to the laboratory or for storage purposes until such time as they are required.

The printed data area 4 can be detached from the remainder of the form length and the information recorded on the area 4 can be used for the required purposes. In particular, the information area 4 may be used in conjunction with a Coulter machine for blood count purposes or a handwritten report may be completed on the form.

In a typical example, a form length has a width of 17.7 inches (450 mms) and a form depth of 5 inches (127 mms). It is preferred that the backing sheet 1 is of laminated plastics material paper coated with a plastics material for example polyester or polythene. For example the paper is of 80 grammes per square meter bleached kraft sulphate paper covered with a coating of polythene of about 23 grammes per square meter.

When a forms assembly as shown in Figs. 1 and 2 is to be used for requesting details of blood or other fluid tests to be carried out a sample of blood is taken from the patient and inserted in a capsule 15 into the bag made by the backing sheet and transparent web and closed on three sides in that particular form length. The barrier sheet is then removed and the form length is folded about the fold perforation line 9 so that the exposed line of adhesive 10 covers the inner edge of the bag and retains the capsule in the bag. The position of the line of adhesive when the form length is folded has half of its area covering the printed data area and the other half covers the edge of the bag. The folded over form length may be supported on a cross bar or filing post extending through the apertures 13 to facilitate transportation to a laboratory as is shown in Fig. 4 and as is more fully described in the specification of our European Application for Patent No. 84305878.3 (139413).

It will be noted that the capsule 15 is contained within the bag formed by the continuous web 2 and the transparent sheet 5 and may be removed from the bag by detaching at the line of adhesive 10. Alternatively the bag may be forced against an immovable surface to force the capsule to burst the bag.

Because the laminated plastics material paper sheet 2 has the property of being partially rigid and because the transparent sheet 5 is of non stretch modified polyester or polythene material as hereinbefore described a container inserted into the bag will be retained up right as shown in Fig. 4. This compares with a bag of known plastics material which is sufficiently flacid to permit the container to be inserted into the plastics material in a non upright position in the bag as suspended and as shown in Fig. 5. Because the container is retained

in a substantially upright position as shown in Fig. 4 there is little likelihood of a sample seeping out of the container in the bag even if it is not efficiently sealed. If desired duplicate form sheets may be included in the assembly. Such a construction is shown in Figs. 3 and 4 of specification of European Application no 84305878.3 (139413).

Such an assembly operates in the same way as the assembly shown in Figs 1 and 2 except that additional copy sheets corresponding to the printed data area are provided as may be required. When a forms assembly as described is to be used the requested details for example of a medical test are entered on a forms record and a sample (for example of blood) is taken and inserted into a container which in turn is placed in the bag or envelope of the forms records 25. The bag or envelope is then closed and the forms record 25 is placed on the record retainer with the aperture in the forms record engaged on the lower limb 23. In the record retainer described there are three separate record retainers so one retainer may be used to receive sample tests relating to for example HAEMATOL- OGY, another for MICRO BIOLOGY and the third for CLINICAL CHEMISTRY.

When enough forms records are mounted on the record retainer, the record retainer is carried by the horizontal carrying portion to the tray where the upper limb engages a selected one of the sleeves 34. When the sleeves are engaged the tray with the record retainer is carried to the appropriate laboratory for testing where the records are dealt with and further information about the samples are recorded on the forms records and they are further processed.

By virtue of the forms assembly according to the present invention the container is retained with the information recorded on the sheet and there is little chance that any of the sample will be spilled. Also an effective seal is obtained between the plies of the bag part to provide a more effective moistureproof or leakproof bag than heretofore.

Claims

1. A forms assembly primarily intended for use for example in hospitals for recording details of a medical test comprising a backing sheet 1 with a first part having a data area 4 intended to receive information about a medical sample 15 and a second part comprising a bag 5a for the sample 15 whereby the first part of the backing sheet 1 which is part of a continuous web is capable of receiving information written thereon and the assembly includes a transparent sheet 5 secured on three sides to the second part of the backing sheet 1 to form the bag 5a with an open mouth to contain the

sample 15 and the assembly having a fold line 9 about which fold line the assembly may be folded, a line of adhesive 10 is provided adjacent to the mouth of the bag which line of adhesive is provided on the opposite side of the fold line to contact the mouth of the bag 5a when the assembly is folded, whereby the mouth of the bag 5a is directed towards the fold line.

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Characterised in that the side of the backing sheet and the side of the transparent sheet, both to be contacted by the line of adhesive are of plastics material so that a suitable bond may be made between the backing sheet and the transparent sheet and the line of adhesive.

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2. A forms assembly according to claim 1 characterised in that the backing sheet is a paper sheet laminated with or coated with plastics material.

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3. A forms assembly according to claim 2 wherein the plastics material is polyester film or polythene.

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4. A forms assembly according to any one of the preceding claims wherein the transparent web 5 is of non stretch polyester film which retains its shape whereby a container inserted into the bag is retained upright when the bag is suspended.

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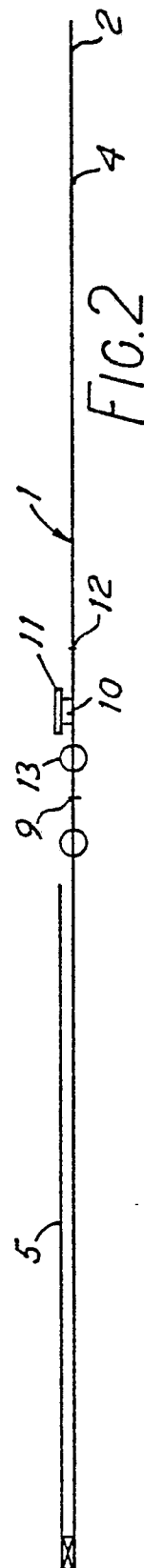
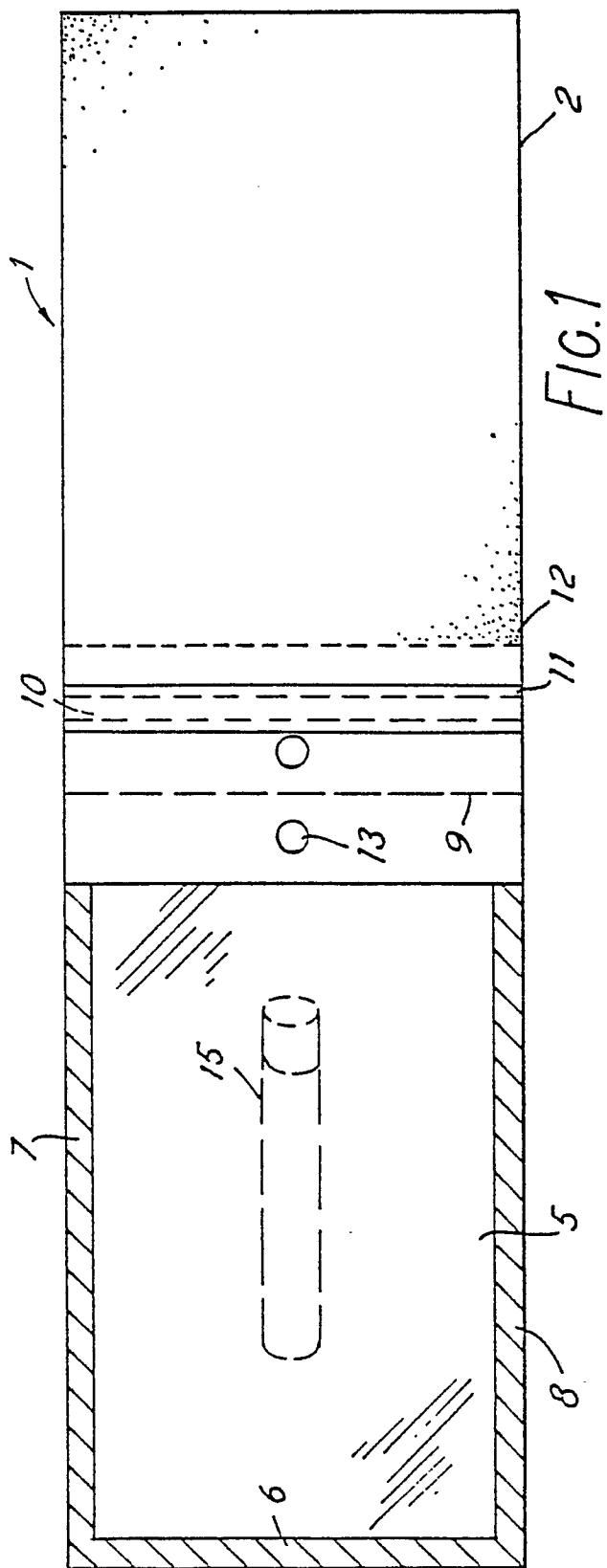


FIG. 3

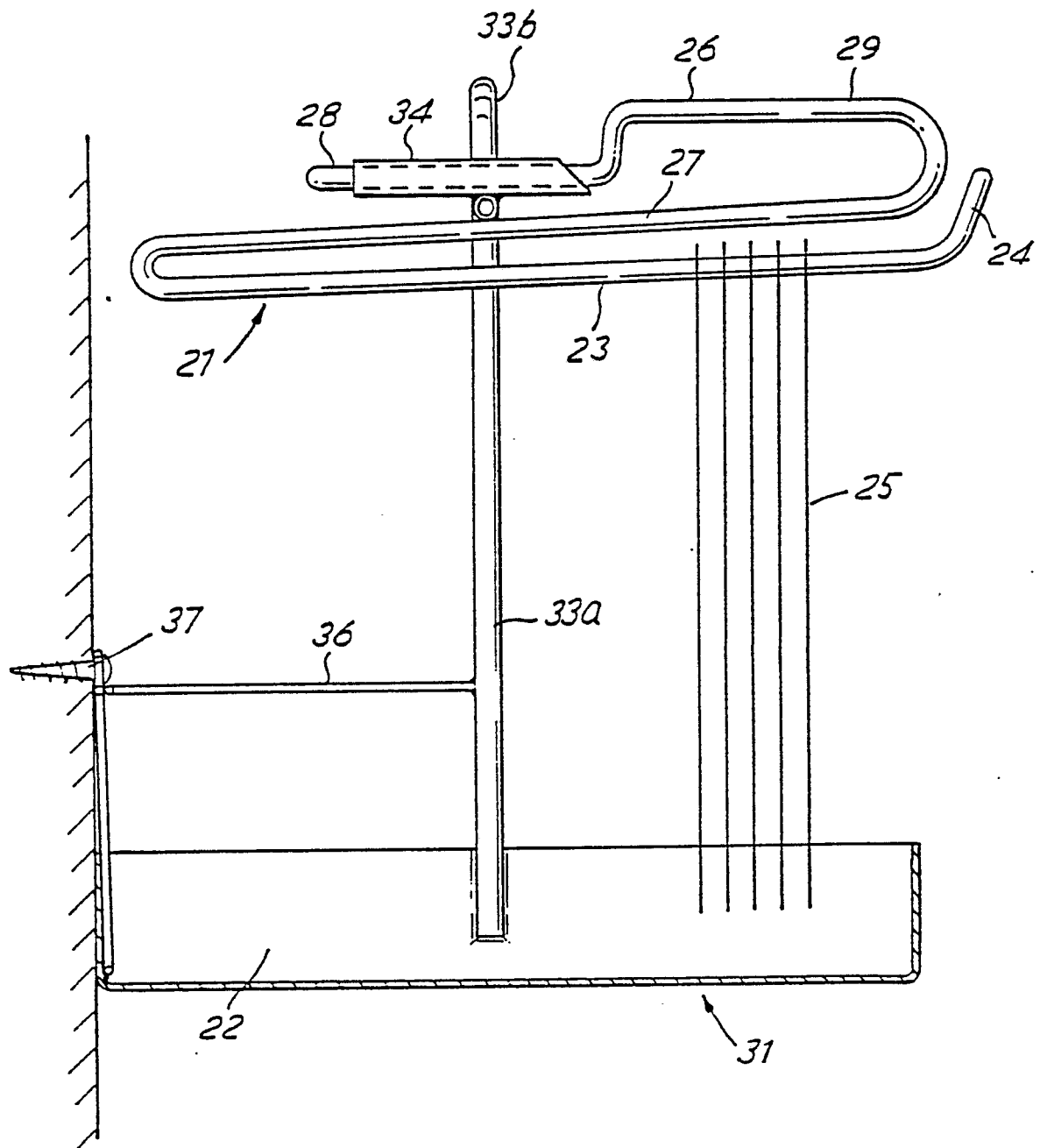


FIG. 4