

May 5, 1964

K. CONSTANT

3,131,812

HYGIENIC SYRINGE DEVICES

Original Filed April 18, 1960

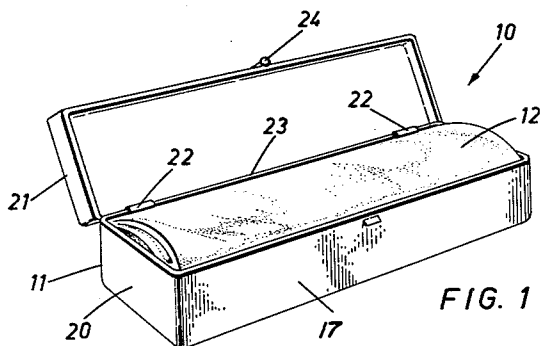


FIG. 1

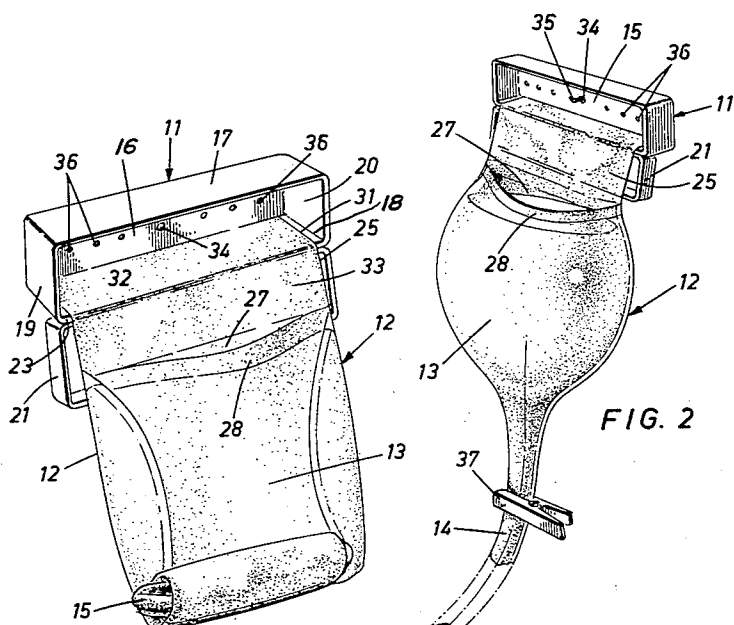


FIG. 2

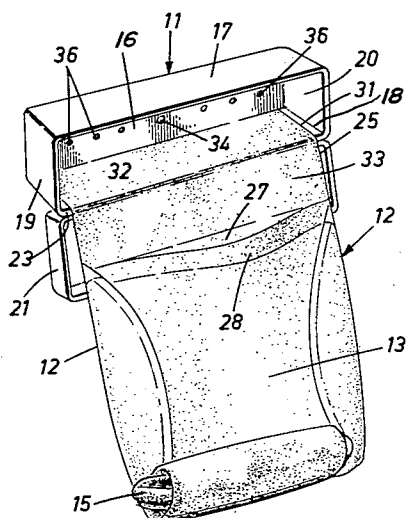
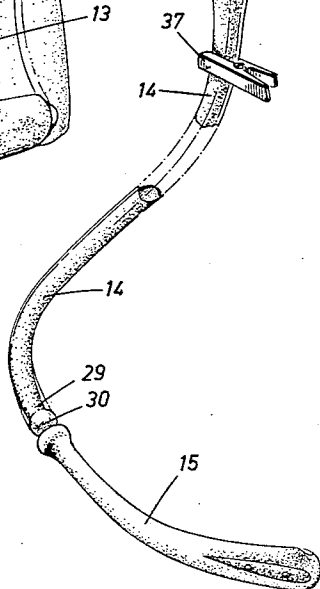


FIG. 3



Inventor
KAY CONSTANT

by: *Kay Constant*

Attorney

1

3,131,812

HYGIENIC SYRINGE DEVICES

Kay Constant, Los Angeles, Calif., assignor to
William Smith, Los Angeles, Calif.

Continuation of application Ser. No. 22,849, Apr. 18, 1960. This application Oct. 1, 1962, Ser. No. 227,157
9 Claims. (Cl. 206-69)

This invention relates to improvements in hygienic syringe devices and is a continuation of my copending application, Serial Number 22,849 filed April 18, 1960, 10 and now abandoned.

The purpose of this invention is to make hygienic syringe devices readily available and easily carried, and in particular, to provide a syringe device in the form of a small compact package suitable for dispensing from machines automatically and which can be fitted conveniently into a piece of luggage or into a handbag. 15

Another very important object is to provide a syringe device which is economically manufactured in order that it may be discarded after a single application if desired. 20

Still another important object is to provide a device which can be readied for use and subsequently restored into its small compact form with a minimum of manipulation.

It is also an object to provide a syringe device having a strong, durable construction resistant to solutions which it is adapted to handle. 25

The principal feature of this invention resides in providing an hygienic syringe device comprising in combination, a casing or receptacle, having at least one substantially rigid wall portion and a syringe unit including a flexible collapsible bag portion having a top opening and a tubular portion leading from that bag portion, the tubular portion having a nozzle formation at the lower end, the bag portion and tubular portion being foldable into the receptacle along with the nozzle formation, and at least a portion of the edge of the bag surrounding the top opening being secured to the rigid wall portion of the receptacle, the latter rigid wall portion constraining the top opening against collapsing under fluid pressure, and as well orienting the syringe unit in relation to the receptacle, which is advantageous in both packaging and unpacking the syringe unit. 30

Another important feature of this invention resides in providing a syringe unit having a plane of symmetry arranged in relation to and secured to the receptacle, so that the syringe unit can be quickly rolled into a neat, tight, uniform package for deposit within the receptacle. 35

Another feature of the invention resides in using the receptacle for the purpose of suspending the syringe unit when it is to be used. 40

A further important feature resides in selecting heat sealable plastic material in the fabrication of both the receptacle and the syringe unit, whereby the two components can be joined by heat sealing means. 45

These and other objects and features will be found in the following specification, to be read in conjunction with the sheet of drawings in which:

FIGURE 1 is a perspective view of the combination of a receptacle and syringe unit constructed in accordance with the invention, with the syringe unit rolled up and deposited within the receptacle; 50

FIGURE 2 is a perspective view of the receptacle and syringe unit of FIGURE 1, with the syringe unit suspended from the receptacle for use; whereas, 55

FIGURE 3 is a view of the device of FIGURE 1, partially unrolled.

With reference to FIGURE 2 of the drawings, the syringe device generally designated at 10 comprises a casing or receptacle 11 and a syringe unit 12 which includes a bag portion 13, a tube portion 14 and nozzle formation 15. 60

2

The casing 11 comprises an elongated bottom wall 16, front and rear side walls 17, 18, respectively, end walls 19, 20 and a cover or lid 21, hinged by suitable hinge formations 22 to the upper edge 23 of rear side wall 18. Preferably the cover is provided with well known snap lock type of fitting indicated at 24 which is releasable under pressure of the finger and which locks the cover member securely in place.

The receptacle 11 may be of any suitable lightweight material but preferably it is of a plastic material which can be moulded.

The syringe 12 is adapted to be constructed of suitable waterproof material which is impervious to solutions that are to be used. The preferred substance is sheet plastic, for example polyethylene, which is heat sealable. This latter characteristic enables the device to be made very economically.

The bag portion 13 and the tubular portion 14 are preferably formed from blanks having substantially identical perimetral outline, which are arranged in superimposed registration, the blanks being preferably cut from heat sealable sheet plastic, and sealed continuously along their side edges to define a leak proof receptacle.

Preferably, one of the blanks making up the bag portion 13 and tubular portion 14 is provided with a flap extension 25 which is adapted to be connected to the receptacle 11.

The upper edge of the bag portion 13 defining the top opening 27 and the juncture of the superimposed blanks is preferably reinforced for strength by means of a flexible strip 28 sealed to the upper edge and encircling the top opening.

The lower end 29 of the tubular portion 14 is fitted over extension 30 of nozzle formation 15 and is otherwise sealed, to provide a leak-proof joint in any suitable manner. 35

As illustrated in FIGURE 2, flap extension 25 has an extent substantially of the order to present an edge portion 31 to the inner surface 32 of the rear wall 18 of receptacle 11. The edge portion 31 is adapted to be sealed or connected to the rear wall 18 preferably against separation.

It is, therefore, of importance in the selection of material, especially plastics, to choose a plastic substance for receptacle 11 to which the substance of the syringe unit 12 could be sealed, as for example, by heat sealing means.

In the preferred embodiment, also, the edge portion 31 and the inner surface 32 of the wall 18 are coextensive not only to insure a good connection, but in the fabrication of the device serves as a means for readily assembling the syringe 12 within its receptacle.

The depending portion 33 of the flap extension 25 has a length sufficient to locate the open end or mouth 27 of the bag 13 at a distance below the rear wall 18, which facilitates both filling of the syringe device with liquid and also, lends stability to the structure. 55

It is pointed out that the unit is adapted to be suspended when it is being used, and preferably the bottom wall 15 of the receptacle 11 is provided with central aperture 34 to receive a hook formation at 35. Also, the bottom wall 15 is provided preferably with a series of apertures 36 to allow circulation of air within the receptacle when the syringe unit has been packaged after use.

When the bag portion 13 is filled with a solution, a spring clamp such as that illustrated at 37 will be used to clamp the tubular portion 14 to control fluid flow.

It will be appreciated that when the bag portion 13 is filled with liquid the top opening 27 because of the thinness of the material, tends to become unstable and collapse. It is, therefore, essential to provide lateral support to maintain the top opening of the bag 13 against 60

70

3

distortion and consequent spilling. This is accomplished by the connection of flap extension 25 to the rear wall 18 of the receptacle 11 and to some extent is enhanced by the stiffness of the cover 21 which lies behind the extension 25.

The illustration of FIGURE 2 discloses the article in position and ready for use whereas FIGURE 3 is a view of the syringe portion partially rolled up for deposit within the receptacle 11. From the view of FIGURES 2 and 3, it will be seen that the bag portion 13 and tubular portion 14 are generally symmetrical about a line taken centrally thereof. Also, it is emphasized that the plastic sheet material out of which the bag 13 and tube 14 are formed is preferably pliable as well as thin and stores in a small space. The symmetrical nature of the syringe and the aspect of pliability dictates a fold pattern such as that indicated in FIGURE 3, which when rolled upon the nozzle formation 15 arranged transversely, forms a neat tight package which is readily disposed within the receptacle 11 as indicated in FIGURE 1.

While alternatives have not been described, it will be apparent to those skilled in the art that variation in the details of structure and modification in relation to size and arrangement may be undertaken without departing from the spirit and scope of the invention as defined in the appended claims.

What I claim is:

1. The combination of a casing having at least one stiff substantially planar wall portion with an appended syringe unit including a flexible collapsible fluid retaining bag formation having an upper fluid receiving opening and a lower depending fluid dispensing tube, said bag formation and tube being foldable into said casing for storage, said bag formation consisting essentially of a front wall panel, rear wall panel of flexible waterproof material both having a like configuration and extent and arranged in superimposed flatwise disposition to one another and joined along their common bounding peripheral edges to define a fluid retaining portion and leaving their upper edge portions unsecured to define said upper fluid receiving opening, said stiff planar wall portion of said casing having an extent at least of the order of the extent of the unsecured edge portion of said rear wall panel bounding said upper fluid receiving opening and means securing said latter mentioned edge portion of said rear wall panel only substantially throughout its extent in flatwise relation to said stiff planar wall portion, whereby said flexible collapsible bag formation is rendered substantially stable under forces imparted thereto by a body of fluid disposed therein.

2. The combination of a casing, having at least one substantially rigid wall portion with an appended syringe unit comprising a flexible collapsible fluid retaining bag formation and depending tube formation, said fluid retaining bag formation having an upper fluid receiving opening and said tube formation terminating in a lower fluid dispensing opening, said bag formation and tube formation being foldable into said casing for storage, characterized in that said bag formation and tube formation consist of a front wall panel and a rear wall panel only, having a like configuration and extent and arranged in superimposed flatwise disposition to one another and joined along their common bounding peripheral edges to define a fluid retaining portion and tubular portion and leaving the uppermost and lowermost edges of said front and rear walls unsecured to define said upper fluid receiving opening and said lower fluid dispensing opening, said substantially rigid wall portion of said receptacle having an extent of the order of the extent of the unsecured edge of said rear wall panel bounding said upper fluid receiving opening, and means securing said latter edge only throughout substantially its entire extent in flatwise relation to said substantially rigid wall portion of said casing whereby said flexible collapsible fluid retaining bag formation and depending tube formation under

4

forces imparted by a body of fluid disposed therein is rendered substantially stable.

3. The combination comprising: a casing including at least one stiff substantially planar wall portion with a depending integral syringe unit including a flexible collapsible fluid retaining bag formation having an upper fluid receiving opening and a lower depending fluid dispensing tube, said bag formation and depending tube being foldable into said casing for storage, characterized in that said bag formation consists essentially of a front wall panel and a rear wall panel of thin flexible waterproof material, said front and rear wall panels being arranged in superimposed flatwise disposition to one another and joined along their common bounding peripheral edges to define a fluid retaining receptacle and leaving their uppermost edge portions unsecured to define said upper fluid receiving opening, said stiff planar wall portion of said casing having an extent at least of the order of the extent of the unsecured edge portion of said rear wall panel bounding said upper fluid receiving opening and means securing said latter-mentioned edge portion substantially throughout its extent in flatwise relation to said stiff planar wall portion.

4. The combination according to claim 3 wherein said means securing said edge portion of said rear wall panel to said stiff planar wall portion of said casing comprises a connecting panel of thin flexible material of a dimension to provide a substantial separation between said stiff planar wall portion and said upper fluid receiving opening of said bag portion.

5. The combination according to claim 4 in which said connecting panel is constituted by an extended length of the wall panel defining the rear wall of said bag portion.

6. The combination of a casing having at least one stiff substantially planar wall portion of heat sealable sheet plastic material, with a depending integral syringe unit including a flexible collapsible fluid retaining bag formation having an upper fluid receiving opening and a lower depending fluid dispensing tube, said bag formation and depending tube being foldable into said casing for storage, characterized in that said bag formation comprises essentially a front wall panel and a rear wall panel of thin flexible heat sealable sheet plastic material, said front and rear wall panels being arranged in superimposed flatwise disposition to one another and heat sealed together along their common bounding peripheral edges at the sides and bottom thereof to define a fluid retaining receptacle, and leaving their uppermost edge portions unsecured to define said upper fluid receiving opening, said stiff planar wall portion of said casing having an extent at least of the order of the extent of the unsecured edge portion of said rear wall panel bounding said upper fluid receiving opening, and a panel of heat sealable sheet plastic material securing said latter-mentioned edge portion substantially throughout its extent in flatwise relation to said stiff planar wall portion of said casing, said latter-mentioned panel being heat sealed to said stiff planar wall portion.

7. The combination according to claim 3, wherein said fluid retaining bag formation and tube formation are defined by panels of heat sealable sheet plastic material.

8. The combination according to claim 3, wherein at least said stiff planar wall portion of said casing is of heat sealable plastic.

9. The combination according to claim 7, in which said means securing the edge portion of the rear wall panel bounding said fluid receiving opening to said rigid wall portion comprises a flexible panel of heat sealable sheet plastic material extending between and secured to said latter edge and said stiff planar wall portion of said casing.

References Cited in the file of this patent

UNITED STATES PATENTS

1,039,877

Allan ----- Oct. 2, 1912