

May 4, 1954

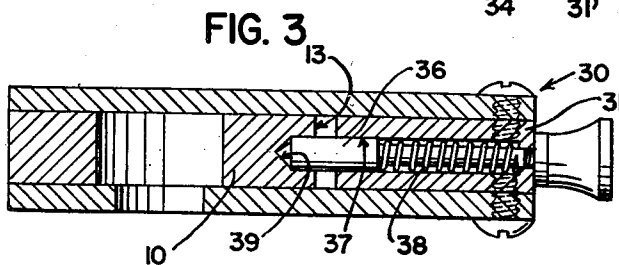
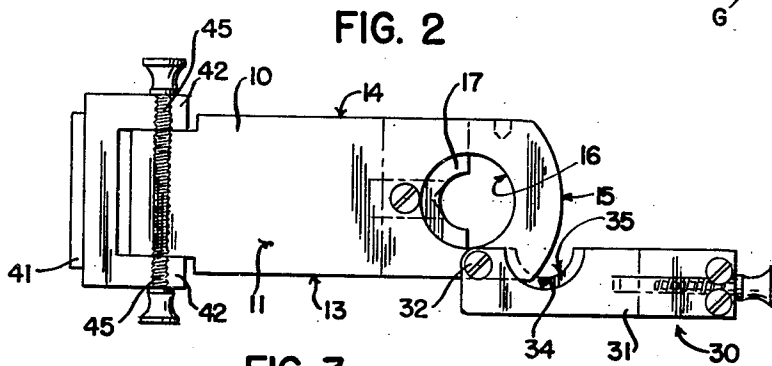
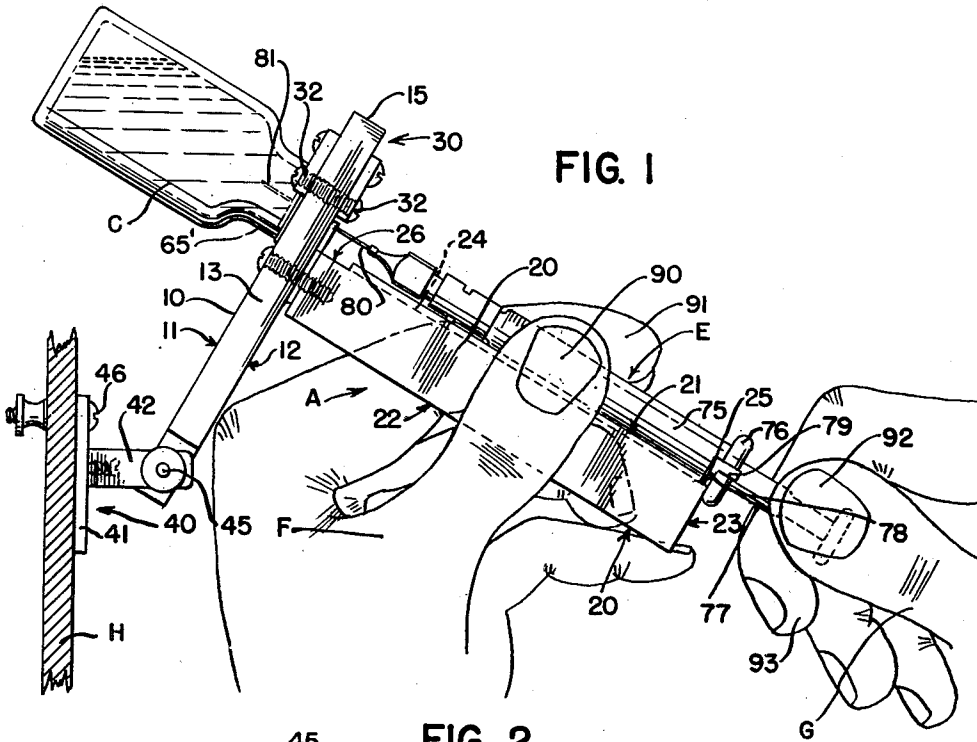
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2,677,372

BOTTLE HOLDER

Filed June 13, 1952

2 Sheets-Sheet 1



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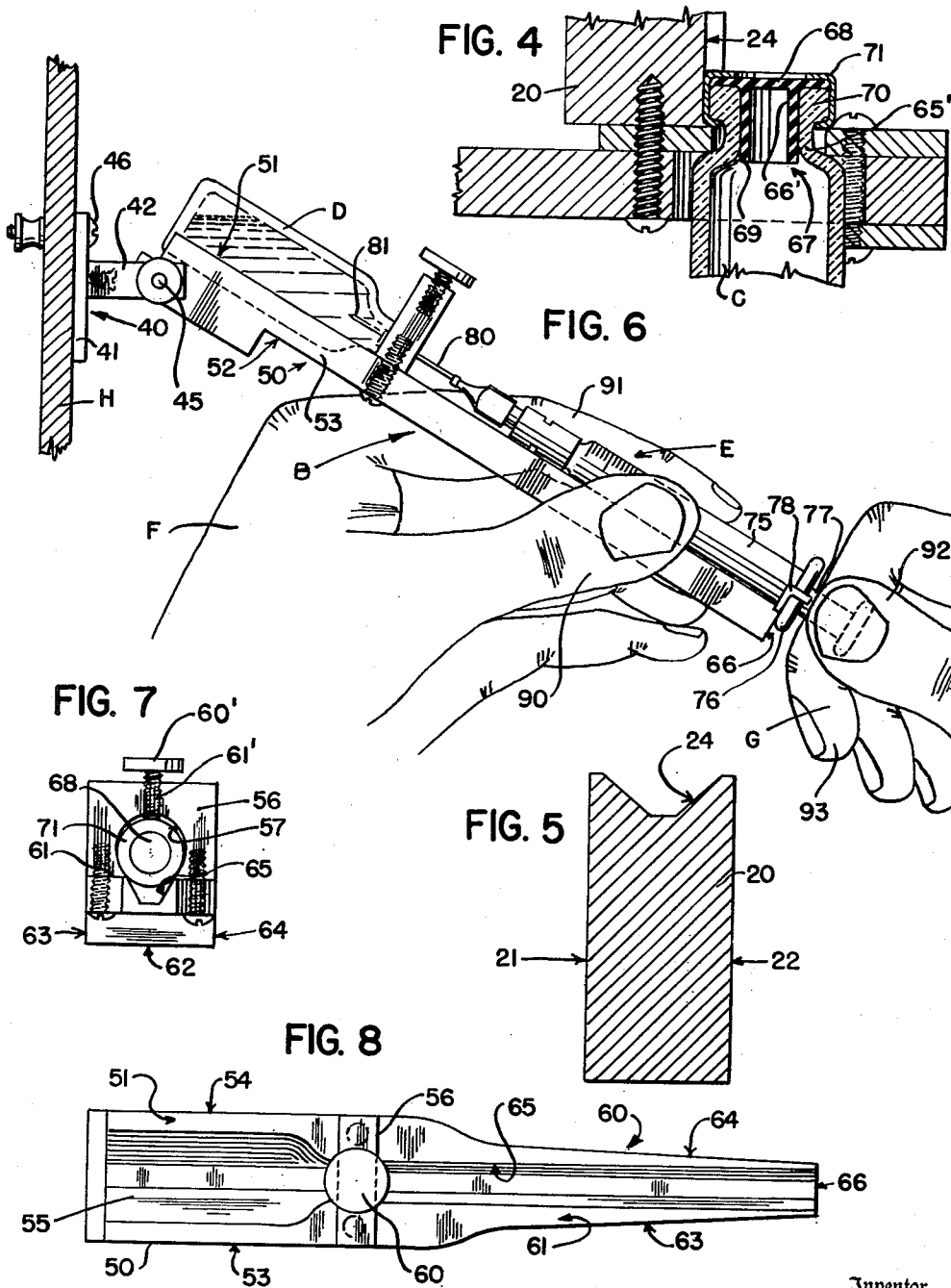
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2 Sheets-Sheet 2



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BOTTLE HOLDER

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This invention relates to supports for mouthed receptacles, such as bottles, and a temporary support for an instrument associated with the receptacle and its contents. An example of such a support is one constructed and arranged to support a closure-sealed bottle by the mouth portion or neck thereof, and to provide a handle for the support and a temporary support and guide for a hypodermic syringe so that the syringe barrel may be moved along the handle and the needle of the syringe will be in a position to puncture substantially the axial center of the closure of the bottle.

An important object of this invention is to provide a support as described in which an opening is provided for the mouth or neck portion of the bottle and is so associated with a guide groove in the handle portion that when the operator grasps the handle portion with one hand, and a syringe is placed in the groove by the other hand, the syringe may be slid along the groove until the needle punctures the closure (usually of resilient rubber) of the bottle so that a volume of the contents may be drawn into the syringe and the needle withdrawn from the closure whereupon the puncture will close. The groove insures that the needle point will not strike the edge of the mouth of nor the support for the bottle and, consequently, the point will not be bent, break off nor be blunted.

Another important object is to provide means whereby the bottle is held immovable during the time it is supported by the support, yet it may be manually readily removed.

Still another important object of this invention is to provide a structure as described which includes a support hung on a horizontal pivot which support will pivot downwardly, due to its weight, with the bottle mouth downwardly whereby the contents of the bottle will gravitate toward the mouth, and the holder and bottle may be tilted to a convenient angle for syringe-extraction of the contents of the bottle.

Furthermore, an important object of the invention is to provide a means for detachably securing receptacles, having mouths of various diameters, to the supports.

Additionally, an important object of the invention is to provide a support which contains no complicated parts, is built sturdily and is relatively inexpensive to manufacture.

Other objects and advantages of the invention will be apparent during the course of the following detailed description of the invention, taken

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in connection with the accompany drawings, and in which drawings:

Fig. 1 is a view in side elevation of one form of the new support in use.

Fig. 2 is a top plan of the support of Fig. 1 with a receptacle securing means in an inoperative position.

Fig. 3 is an enlarged transverse section of the means of Fig. 2 in an operative position.

Fig. 4 is an enlarged fragmentary section of a receptacle secured to the support, which latter is shown in section.

Fig. 5 is a transverse section of the combined handle and guide portion of the new support.

Fig. 6 is a view, somewhat like Fig. 1, of another form of the invention in use.

Fig. 7 is an enlarged transverse section of the receptacle securing means of Fig. 6 in use.

Fig. 8 is a top plan of the support of Figs. 6 and 7.

In the drawings, wherein for the purpose of illustration, are shown two forms of the invention, the letter A designates one form of the new support; the letter B, another form thereof; C and D mouthed receptacles supported by the supports A and B; E, a hypodermic syringe; F and G, hands of an operator of the new supports A and B and the syringe F; and H a wall to support the supports A or B.

The support A of Figs. 1 to 5 inclusive includes a receptacle-holding portion 10, preferably comprising a body of suitable hardened plastic material which may be substantially transparent, having substantially flat upper and lower faces 11 and 12 preferably narrow side edges 13 and 14 and rounded front edge 15. Adjacent the front edge the body is provided with an opening 16, preferably circular, extending from the face 11 to the face 12. At the end of the opening 16 nearest the face 12, there is a narrow arcuate shoulder 17 extending a short distance into the opening and around its edge for substantially 180°. This opening is constructed and arranged to receive the mouth portion 65' of a receptacle C, with a part 45 of the inner bead 70 at the mouth 66' disposed against this shoulder.

In addition, the support A includes a combined or dual-function handle and guide portion 20, comprising an elongated body of, preferably, the same hardened plastic as that of the support portion 10 and rigid with the support portion. It is of a length long enough to be readily grasped by the hand of the operator and to support a hypodermic syringe E substantially as shown in Fig. 1. A suitable length, for example, for the handle

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portion 20 is $3\frac{1}{2}$ inches. The body of the portion 20 has opposite faces 21 and 22, and a free end face 23 which latter forms an abutment or shoulder for the bead 76 at the end of the barrel 75 of a conventional hypodermic syringe E and which bead is conventionally held by two of the fingers of the hand. From the free end face 23 to closely adjacent the juncture of the portions 10 and 20 (the two portions forming right angles) the face 21 is provided with a centrally-disposed longitudinal upwardly opening groove 24 which has downwardly converging side faces to provide a V-shaped groove in a transverse section of the portion 20 as in Fig. 5. Since many hypodermic syringes have a metallic segment 70 encircling a portion of the barrel 75 of the syringe adjacent the end bead or shoulder 76 of the barrel, there is preferably provided a shallow cut-out 25 for this segment at the free end of the portion 20. At the inner or juncture end of the portion 20 there is a deeper cut-out 26 for the bead 70 at the mouth of a conventional receptacle C, such as a bottle and so the groove 24 does not extend quite to the portion 10. The depth of the groove 24, taken with the width thereof, is such that when a syringe E is disposed longitudinally of the groove with its barrel having line contact at the two parallel edges of the groove, the needle point 81 of the syringe will substantially align with the axis or center of the opening 16 in the portion 10. For example, the depth of the groove may be $\frac{3}{8}$ inch, the longitudinal edges of the groove spaced substantially $\frac{1}{4}$ inch apart and the distance from the bottom of the groove to the axis of the opening 16 may be $\frac{3}{8}$ inch.

Means 30 to detachably secure the neck portion of a receptacle to the support A preferably comprises a clamp structure associated with the opening 16 and the shoulder 17. This means includes a bifurcated keeper 31 pivoted at its bifurcated end as by the pivots 32 of Fig. 1, to the body portion 10. One leg of the keeper 31 contains an arcuate cut-out 34 the edge of which extends inwardly of a part of the edge of the opening 16 when the keeper is in an operative position, and the other leg has a cut-out 34 which substantially completes a circle of which the edge of the shoulder 17 forms substantially one-half. Thus, viewed along the groove 24 one first sees the circle formed by the shoulder 17 and cut-out 35 and, viewed from the face 11 of the portion 10 one first sees a portion of the circle formed by the opening 16 and the edge of the cut-out 35 inwardly of a part of the edge of the circle. The axes of both circles substantially align with the point 81 of the hypodermic needle 80. The body of the keeper 30 beyond the legs carries, as best shown in Fig. 3, a spring-urged bolt 36 slidable through an opening 37 the keeper 30 and urged to a bolting position by an expansion spiral spring 38 in a part of the opening 37 and bearing at one end against the bolt. The free end of the bolt is adapted to extend into a suitable socket 39 in the portion 10 at the edge 14 when the keeper 30 is in an operative position. When swung into the inoperative position of Fig. 2, the neck portion of a bottle may be inserted into the opening 16 with a part of the under portion of its bead 70 abutting the shoulder 17 and the keeper 30 then swing into an operative position whereupon the portion of the keeper 30 around the cut-out 34 is in position to abut the rest of the under portion of the bead and the edge of the cut-out 35 encircles a portion of the neck portion

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65' just back of the bead. This retains the bottle substantially rigid with the receptacle-holding portion 10, but removable when the keeper is swung to the inoperative position of Fig. 2. Of course the bottle cannot slip forwardly, partly due to the portion of the bead 70 within the cut-out 26 and partly due to the neck portion retained as described.

A support portion 40 for the receptacle holding portion 10 may be a vertically-disposed plate or body 41 having a pair of parallel arms 42 extending outwardly therefrom and provided with pivot means 45 which may be two suitable pivots extending through openings in the arms 42 and into sockets in the portion remote from the end carrying the portion 11.

Means 46, such as a screw, is provided to secure the support portion 40 to a suitable wall H, such as that of a surgical or medical cart, examination table, desk, or the like. This permits tilting of the receptacle-holding portion 10 into various angular positions with respect to the support portion 40 most convenient for the operator.

The form B of the support as shown in Figs. 6, 7 and 8 is generally like the form A, and includes a receptacle-support portion 50 which may be of hardened plastic having an upper face 51, lower face 52 and parallel side edges 53 and 54. The portion 50 has a depression 55 in its face 51, best shown in Fig. 3 to accommodate a portion of the length of a bottle or vial D.

The portion 50 also includes an offset 56 normal to the portion 50 and containing an opening 57, preferably circular to accommodate the head at the neck or mouth portion of a receptacle, as a bottle.

Associated with the portion 50 is a combined or dual-function handle and guide portion 60 comprising an elongated body of, preferably, the same hardened plastic as that of the portion 50 and is shown as rigid with (being integral with) the latter. It is of a length long enough to be readily grasped by the hand of the operator and to support a hypodermic syringe E substantially as shown in Fig. 6. A suitable length is $3\frac{1}{2}$ inches, altho this may vary. The body of the portion 60 has opposite faces 61 and 62 which are continuations of the faces 51 and 52 and side edges 63 and 64 which merge into the edges 53 and 54. There is a longitudinal groove 65 in the body extending into the face 61 and a forward or free end face 66 into which one end of the groove opens. The other end of the groove 65 extends toward the portion 50 and merges into the depression 55. The groove 65 has downwardly-converging side walls for the same purpose as the side walls of the groove 24 and the function of the groove 65 is the same as that of the groove 24. The groove 65 is adapted to contain a portion of the barrel 75 of a hypodermic syringe E so that the needle 80 thereof will align with the axis of the opening 57 and, consequently, the axis of the mouth of a receptacle D carried by the portion 50.

Means 60' to detachably secure the mouth portion of a receptacle D to the support B preferably comprises a set screw with its screw-threaded shank 61' extending through a suitable screw-threaded opening in the offset 56 extending to the opening 57, and with the free end of the shank adapted to bear against the neck portion 65' of the receptacle to clamp the receptacle in place when it is disposed within the receptacle depression 55.

Since the same support portion 40, pivot means

45 and securing means 46 as for the support A may be employed for the support B, similar reference characters are employed for these parts of both forms.

The receptacle C is shown as a bottle having a neck portion 65' ending in a mouth 66' closed by a resilient rubber closure 67 of a conventional type having a relatively thin rubber disc 68 over the central portion of the mouth 66' and a side wall or skirt 69 extending into contact with the inner surface of the neck portion 65'. The neck portion has a bead 70 and the closure 67 may be held in place by a thin metallic flanged ring 71 of well known shape. In fact, the receptacles C and D and their closures are of well known conventional shape.

Except that it is smaller, the receptacle D is of construction as the receptacle C.

The hypodermic syringe E is of conventional construction including a cylindrical barrel 75 ending in a bead 76 at one end, and with the barrel housing a piston or plunger with an outwardly-extending handle 77 at the beaded end. Next to the bead is a metallic segment 78 encircling a portion of the barrel 75 and having projections 79 extending upwardly and over the bead in order to bear against the handle 77 to frictionally restrain it against accidental movement. The needle 80 is carried by the barrel end and has a point 81.

From Figures 1 and 6 it is thought that the operation of the supports A and B is clear, but it should be pointed out that when the operator desires to charge the hypodermic syringe E from a receptacle C or D carried by the supports A or B, the combined handle and guide portion 20 or 89, as the case may be, is grasped by one hand, as the hand F with the thumb 90 and index finger 91 upon the side faces of the portion 20 or 89, and this portion and the portion 19 or 50, as the case may be, is raised (pivoted) upwardly to a convenient angle to the vertical. The other hand G then disposed the empty syringe E within the groove 24 or 65, as the case may be, with the handle 77 retracted, until the bead 76 abuts the end face 23 or 66, as the case may be, and at which time the needle has penetrated the disc 68, whereupon the thumb 90 and index finger 91 are tightened upon the barrel 75 (while still grasping the portion 20 or 89, as the case may be) and the handle 77 then drawn outwardly by the thumb 92 and index finger 93 of the hand G of the operator. This results in the vacuum within the syringe to cause flow of a volume of the contents of the receptacle into the syringe. When charged, the syringe is drawn along the groove to free the needle from the disc 68 and the syringe may then be removed and the hand F drop the support, which will pivot downwardly. During this time, the receptacle C or D, as the case may be, has remained rigid with respect to the portion 20 or 60.

It is very easy for the operator to tilt the support A or B so that the contents of the receptacle C or D can be withdrawn even when the volume is low.

It should be noted that both grooves 24 and 65 are shallow so that only the lesser portion of the barrel 75 of the syringe E is accommodated therein, with the greater portion of the barrel outwardly of the groove, whereby the thumb 90 and index finger 91 may grasp it readily and firmly.

Receptacles of various sizes may be accommo-

dated by the supports and are quickly attached and detached.

Various changes may be made to the forms of the invention herein shown and described without departing from the spirit of the invention or scope of the claims.

I claim:

1. In combination with a conventional syringe having a cylindrical barrel and a needle, and a receptacle having a mouth portion, a support for the mouthed receptacle, said support including a receptacle-holding portion having an opening for the mouth portion of the receptacle, and an elongated combined handle and guide portion rigid with the holding portion and provided with an elongated groove extending towards a portion of the edge of said opening, the depth of said groove being such that the barrel of the syringe may be moved along said groove and the needle thereof will align with and penetrate substantially the center of said opening.

2. In combination with a conventional syringe having a cylindrical barrel and a needle, and a receptacle having a mouth portion, a support for the mouthed receptacle, said support including a receptacle-holding portion having an opening for the mouth portion of the receptacle, an elongated combined handle and guide portion rigid with the holding portion and provided with an elongated groove extending towards a portion of the edge of said opening, the depth of said groove being such that the barrel of the syringe may be moved along said groove and the needle thereof will align with and penetrate substantially the center of said opening, and means carried by said receptacle-holding portion to detachably secure said mouth portion in said opening.

3. In combination with a conventional syringe having a cylindrical barrel and a needle, and a receptacle having a mouth portion, a support for the mouthed receptacle, said support including a receptacle-holding portion having an opening for the mouth portion of the receptacle, an elongated combined handle and guide portion rigid with the holding portion and provided with an elongated groove extending towards a portion of the edge of said opening, the depth of said groove being such that the barrel of the syringe may be moved along said groove and the needle thereof will align with and penetrate substantially the center of said opening, a support portion for said receptacle-holding portion and pivot means freely pivoting said receptacle-holding portion to said support portion for normally positioning said receptacle-holding portion and receptacle in a substantially vertical position with said mouth portion downwardly.

4. In combination with a conventional syringe having a cylindrical barrel, a needle at one end of the barrel and a bead at the other end of the barrel, and a mouthed receptacle, a support for the mouthed receptacle, said support including a receptacle-holding portion having an opening for the mouth portion of the receptacle, and an elongated combined handle and guide portion rigid with the holding portion and provided with an abutment at one end thereof and an elongated groove extending towards a portion of the edge of said opening and extending to said abutment, the depth of said groove being such that the barrel of the syringe may be moved along said groove and the needle thereof will align with and penetrate substantially the center of said opening, said abutment being constructed and ar-

ranged to provide an abutment for a portion of said bead of said syringe.

5. The combination according to claim 1 characterized in that said groove accommodates a lesser portion of the barrel of said syringe with the greater portion of said barrel outwardly of the groove, whereby the barrel may be held by the fingers of an operator against tipping.

6. The combination according to claim 1 characterized in that said receptacle-holding portion has a part surrounding said opening, and said combined handle and guide portion is disposed with its longitudinal axis normal to the longitudinal axis of said part.

7. The combination according to claim 1 characterized in that said receptacle-holding portion is elongated and has a shoulder extending with said opening for abutment of a part of the free end of said mouth portion and said combined handle and guide portion is disposed with its longitudinal axis normal to the longitudinal axis of said receptacle-holding portion and shoulder.

8. A support according to claim 1 characterized in that said receptacle-holding portion is elongated and the longitudinal axes of said receptacle-holding portion and combined handle and guide portion are coincident, and said groove accommodates a lesser portion of the barrel of said syringe with the greater portion of said barrel outwardly of said groove.

9. A support according to claim 1 characterized in that said receptacle-holding portion is elongated and the longitudinal axes of said receptacle-holding portion and combined handle and guide portion are coincident, said combined handle and guide portion has an end face constructed and arranged to provide an abutment for a portion of the conventional barrel bead of said syringe, and said groove opens to said face.

10. A support according to claim 3 characterized in that said receptacle-holding portion is

elongated and the longitudinal axes of said receptacle-holding portion and combined handle and guide portion are coincident, said pivot means includes a pivot having a longitudinal axis, and said combined handle and guide portion is disposed with its longitudinal axis normal to the longitudinal axis of said pivot.

11. The combination according to claim 1 characterized in that said receptacle has a neck and a bead at its mouth, said receptacle-holding portion has a fixed part and a pivoted keeper, said fixed part has a shoulder extending into said opening for abutment of a portion of the free end of the mouth portion of said receptacle, and said keeper has a cut-out constructed and arranged to extend around a portion of the neck of said receptacle back of said bead.

12. The combination according to claim 1 characterized in that said receptacle has a neck and a bead at its mouth, said receptacle-holding portion has a fixed part and a pivoted keeper, said fixed part has a shoulder extending into said opening for abutment of a portion of the free end of the mouth portion of said receptacle, and said keeper has a cut-out constructed and arranged to extend around a portion of the neck of said receptacle back of said bead, and a cut-out outwardly of the first named cut-out abutting the other portion of the free end of the mouth portion of said receptacle.

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