July 5, 1938. J. A. O'NEILL 2,122,722

INSULIN BOTTLE HOLDER

Filed July 17, 1936 3 Sheets-Sheet 1

Fig. 1.

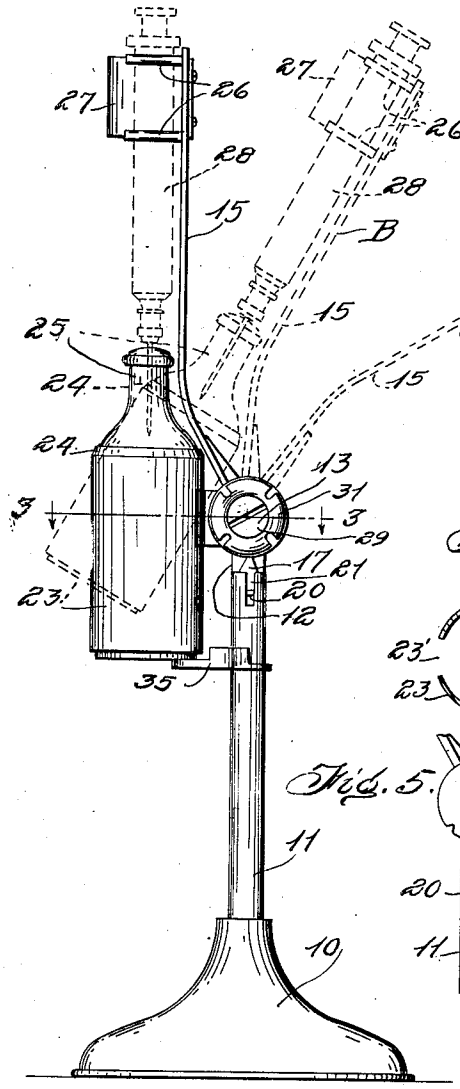


Fig. 2.

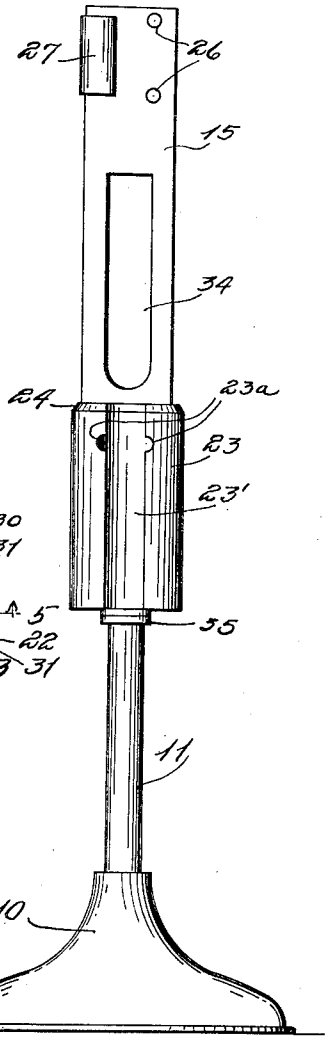


Fig. 3.

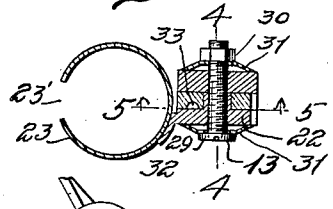


Fig. 5.

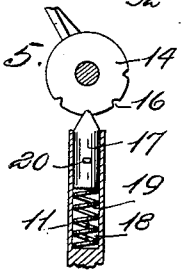


Fig. 4.

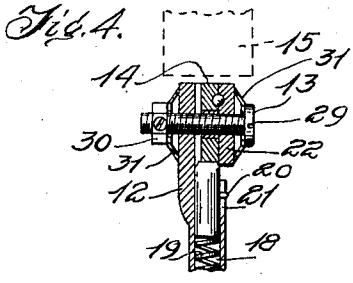
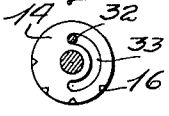


Fig. 5a.



Inventor
John A. O'Neill,
By
Attorney

July 5, 1938. J. A. O'NEILL 2,122,722

INSULIN BOTTLE HOLDER

Filed July 17, 1936 3 Sheets-Sheet 2

Fig. 6.

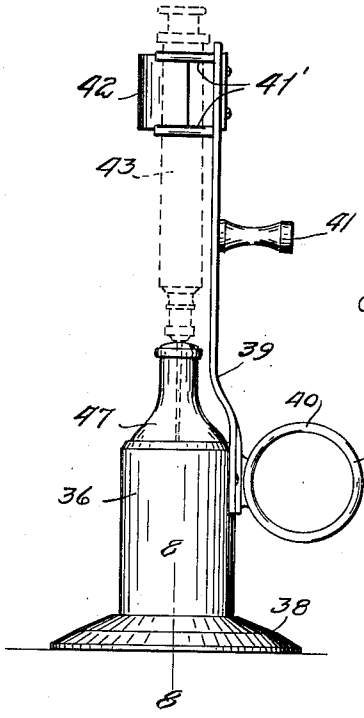


Fig. 7.

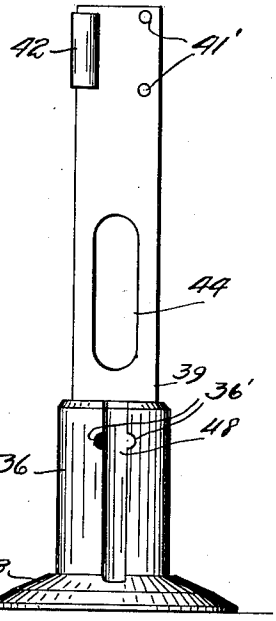


Fig. 14.

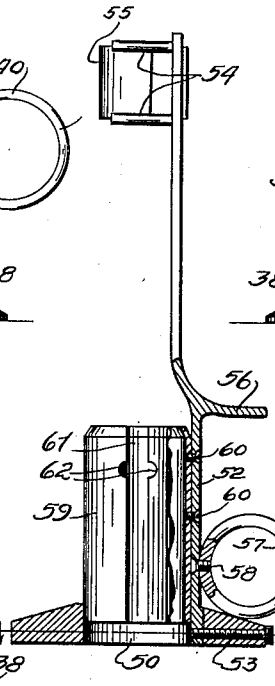


Fig. 9.

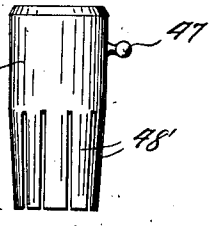


Fig. 8.

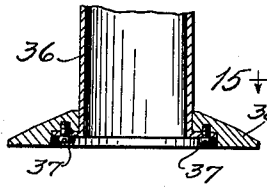
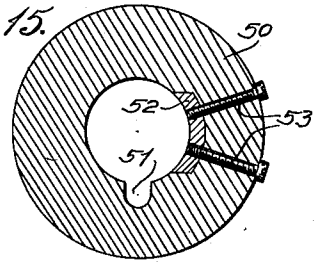


Fig. 15.



Inventor

John A. O'Neill,

By

Attorney

July 5, 1938. J. A. O'NEILL 2,122,722

INSULIN BOTTLE HOLDER

Filed July 17, 1936 3 Sheets-Sheet 3

Fig. 10.

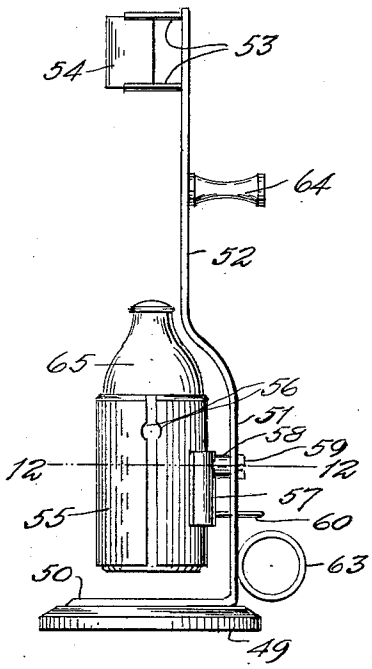


Fig. 11.

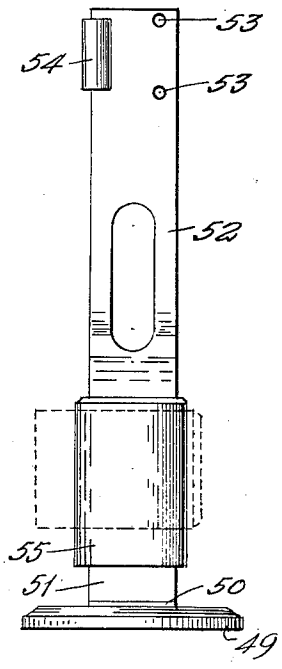


Fig. 12.

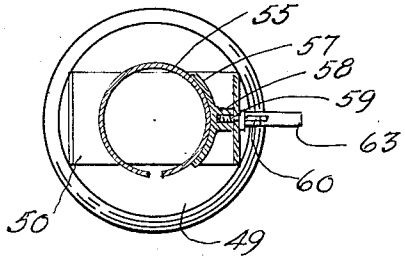
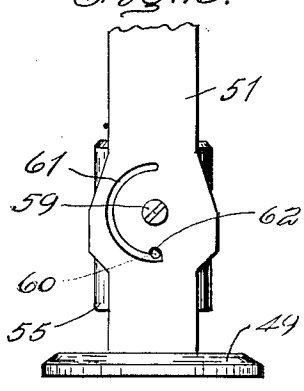


Fig. 13.



Inventor

John A. O'Neill,

By

Attorney

Patented July 5, 1938

2,122,722

UNITED STATES PATENT OFFICE

2,122,722

INSULIN BOTTLE HOLDER

John A. O'Neill, Florence, Ala.

Application July 17, 1936, Serial No. 91,207

14 Claims. (Cl. 128—215)

This invention relates to surgical appliances and has special reference to a holder for a hypodermic syringe and a vial holding the medicament to be drawn into said syringe.

One important object of the invention is to provide a device of this character in which the syringe and vial will be held removably in such position that the needle of the syringe may be inserted through a closure of the vial axially thereof and without danger of breaking the needle.

A second important object of the invention is to provide a device of this character wherein a hypodermic syringe may have longitudinal movement in guides on an arm but, when in position for withdrawal from said guides, the arm is so arranged that the needle cannot be pressed thereon by any tilting movement as in withdrawal.

A third important object of the invention is to provide supporting means whereon a vial support and a hypodermic support are so mounted that they may be tilted in order that, when the contents of the vial become partially exhausted the liquid therein may be still positioned around the point of the needle.

A fourth important object of the invention is to provide a device of this character wherein the support for the hypodermic may be tilted in relation to the vial.

A fifth important object of the invention is to provide a vial holder in such a device and a base therefor on which the vial holder may be angularly adjusted and held in the desired adjusted position.

A sixth important object of the invention is to provide a device of this character with an adapter for holding a vial of smaller size than that for which the regular vial holder is provided.

A seventh important object of the invention is to provide a form of the device wherein the vial holder and syringe holder are permanently aligned but which is equipped with means for manually grasping the device so that by movement of the hand it may be shifted into various angular positions in accordance with the quantity of material in the vial.

An eighth important object of the invention is to provide a device of this kind having a bottle holder so arranged, by improved means, that the holder may be swung to permit ready introduction and removal of the bottle.

With the above and other objects in view as will be hereinafter apparent, the invention consists in general of certain novel details of construction and combinations of parts hereinafter fully described, illustrated in the accompanying drawings and specifically claimed.

In the accompanying drawings like characters of reference indicate like parts in the several views, and:

Fig. 1 is a side elevation of one form of the invention wherein the vial holder and other parts are tiltable with respect to the base, the first showing in full lines the normal position of the device, in one dotted line position a shifting of the vial holder and hypodermic holder together, and in a second dotted line position of part of the figure the shifting of the syringe holder angularly with relation to the vial holder.

Fig. 2 is a front elevation of the device with the vial and syringe omitted.

Fig. 3 is a section on the line 3—3 of Fig. 1.

Fig. 4 is a vertical detail section on the line 4—4 of Fig. 3.

Fig. 5 is a detail section on the line 5—5 of Fig. 3.

Fig. 5*a* is a detail showing a stop arrangement for the syringe holder.

Fig. 6 is a side elevation of a modified form of the invention.

Fig. 7 is a front view of the modified form of the invention.

Fig. 8 is a detail section on the line 8—8 of Fig. 7.

Fig. 9 is a side elevation of a further adapter for small size vials, the adapter being for use with either of the forms previously described.

Fig. 10 is a side elevation of a third form of the invention with the syringe omitted.

Fig. 11 is a front elevation of this third form.

Fig. 12 is a section on the line 12—12 of Fig. 10.

Fig. 13 is a fragmentary elevation of the lower rear part of this third form.

Fig. 14 is a side elevation partly in axial section of a further form of the invention.

Fig. 15 is a section on the line 15—15 of Fig. 14.

In the form of the invention shown in Fig. 1 there is provided a relatively heavy base 10 and upwardly from this base extends a standard 11 cut away at one side of its upper end so that there is provided a bearing member 12 at the other side of the upper end. Through this bearing member extends a screw 13 and on this screw is rotatably mounted a disc 14 carrying an arm 15. In the periphery of this disc is provided a series of spaced notches which are engageable by a stop plunger 17 seated in a tubular portion 18 of the stem 11 and urged upwardly into engagement with the disc 14 by a spring 19. A pin 20 extends from the plunger 17 through a guide slot 21

formed in the tubular end 18 opposite the bearing part 12. Also mounted on the screw 13 is a disc or hub 22 which carries a vial holder 23 consisting of a split cylinder having its upper end contracted as at 24, the cylinder being of slightly less internal diameter than the vial 25 which it is intended to hold. The shoulder 24 engages the shoulder of the vial and establishes its relation to the vial holder 23, the vial being pushed up through the open bottom of the holder. The arm 15 is provided at its free end on one side with a pair of fixed stops 26 and on its other side with a spring member 27 adapted to hold the barrel 28 of a hypodermic syringe in alignment with the axis of a vial holder, the arm 15 being properly bent for this purpose. The screw 13 has on one end a head 29 and on its other end a nut 30 and beneath the head and nut are spring discs 31 so that proper spring pressure is kept between the parts. The hub member 22 is provided with a boss 32 which engages in a semi-circular slot 33 formed in the disc or hub 14. The relative movement of the vial member and the arm 15 is thus limited by the engagement of the boss 32 with the ends of the slot 33. It will be observed from Fig. 2 that the member 15 is provided, adjacent the vial holder, with a longitudinal slot 34. On the standard 11 is fixed a shelf 35 and when the parts are in the full line position shown in Fig. 1 the bottom of the vial rests on this shaft. As also seen from Fig. 1 the vial holder and the syringe holder are normally in vertical position. This is when the vial is filled with the medicinal substance. The syringe can then be slid into position and the needle pushed down into the substance whereupon the plunger of the syringe may be drawn up and the required amount of medicament drawn into the syringe. The syringe may then be raised in its guides until the point is free from the closure of the vial whereupon the arm 15 may, by movement of the pin 29 downwardly by the thumb nail, or the like, be freed from the vial holder and brought into the dotted line position shown at A or in any other convenient dotted line position. When in this position the needle point will lie opposite the slot 34 and thereby the syringe may be tilted and swung out of the holders composed of the members 26 and 27 and thus freed for use on the patient without the needle contacting in any way with the hands or anything extraneous to the medicament and vial closure. When the contents of the vial lessen so that they cannot be reached by the needle the vial holder and arm 15 are both tilted into some such position as shown in the dotted line B or even entirely up-side-down alongside of the standard 11. Of course, in the latter position the last of the contents of the vial can be drawn into the hypodermic.

In the forms shown in Figs. 6 and 7 there is provided a slotted vial holder 36 which is secured by screws 37 within a base 38. Extending up from this vial holder is a fixed arm 39 having a thumb ring 40 at one end and a finger grip 41 at its other end. This arm carries at its free end a pair of fixed posts 41′ and a spring member 42 between which may be grasped the hypodermic syringe 43. This form of the invention also has a slot 44 in the arm 39 for the same purpose as the slot 34. Obviously this arrangement cannot be tilted on the base but by the insertion of the operator's thumb through the ring 40 and grasping the finger piece 41 it may be tilted to any position for extracting the contents of the vial 45.

In the device shown in Fig. 9 there is simply provided an adapter which may be used for holding smaller bottles than those ordinarily supposed to be held in the vial holders of the two forms above described. In this case the adapter has a cylindrical upper end 46 of suitable size to fit within the vial holder of either form and this adapter is provided with a pin or lug 47 for guiding into the slot 43 of the vial holder 36 or the slot 23′ of the vial holder 23. However, the lower end of this adapter 46 is provided with a series of inwardly sprung spring fingers 48′ which grasp the smaller size vial and hold it centrally of the adapter. Thus a small vial can be inserted in this adapter and the adapter and vial together inserted in either of the vial holders 23 or 36 and the vial will be held centrally for the insertion of the hypodermic needle.

Notches 23a in the first form and 36′ in the second form are provided to grip the pin 47, the pin and slots being, of course, properly sized.

In the form of the invention shown in Figs. 10 to 13 there is provided a base 49 on which is secured, by any suitable means such as brazing or the like, the foot 50 of a standard 51 having an inwardly offset portion 52. On the upper end of this standard is carried a pair of pins 53 and a spring clamp 54 corresponding to the members 41′ and 42 of the second form of the invention.

At 55 is a split bottle holder having its proximal edges provided with opposed notches 56 as in the other forms so that the pin 47 of the adapter may be seated therein. Soldered or otherwise secured to this bottle holder is a saddle 57 which is provided with a boss 58 bearing against the standard 51 and pivotally secured thereto by a screw 59. This boss is here shown as located at the upper end of the saddle and from the lower end of the saddle projects a spring pin 60 which extends through a slot 61 in the standard 51, the slot being arcuate and extending around the pin or screw 59. At the lower end of this slot 61 there is provided a notch 62 into which this spring pin 60 springs upon the bottle holder being arranged in vertical position. Thus the bottle holder is latched in such vertical position but may be released by springing the pin out of the notch and turning the holder on its pivot. Obviously other such notches may be provided to hold the bottle holder in other desired positions. A thumb ring 63 and finger post 64 are also provided in this form of the invention for convenience in handling.

In this form of the invention the base may be of heavy and solid form since, by raising the syringe in the guide formed by the parts 53 and 54 to free the needle from the bottle 65, the latter may be tilted to allow it to be removed and a fresh supply put in the holder, one tilted position of the holder being shown in dotted lines in Fig. 11.

In the form of the invention shown in Figs. 14 and 15 there is provided a base 49 having a central opening 50 at one side of which is a notch 51. In this notch is seated the lower end of a standard 52 which is secured to the base by screws 53 extending radially through the base 49. This standard 52 has its upper end offset toward the vertical center line of the base. At its top this standard is provided at one side edge with a pair of integral fingers 54 corresponding to the fingers 41′ of Fig. 6 and with a gripping spring 55 corresponding to the spring 42 of that figure. These parts hold the syringe as before.

A finger piece **56** is formed integrally with the standard **52** at the curve of the offset portion. Just above the base is a thumb ring **57** which is secured to the standard **52** by a screw **58**.

A bottle or vial holder **59** is secured to the standard **52** by screws **60** and its lower end is received in the opening **50**. At one side this holder **59** is provided with a longitudinal slot **61** having confronting notches **62** in its edges. The slot and notches correspond in function to the similar parts in the other forms and the base is provided with a notch **63** registering with the slot **61** to permit the passage of the head of the pin **47** on the adapter.

This device is used in exactly the same manner as in the form shown in Figs. 6 to 8.

With this construction the standard **52** and the fingers **54** and **56** may be die cast or otherwise formed integrally and thus make the device cheap to manufacture.

There has thus been provided a simple and efficient device of the kind described and for the purpose specified.

It is obvious that minor changes may be made in the form and construction of the invention without departing from the material spirit thereof. It is not, therefore, desired to confine the invention to the exact form herein shown and described, but it is desired to include all such as properly come within the scope claimed.

Having thus described the invention, what is claimed as new, is:

1 In a device of the kind described, a vial holder, an arm attached thereto and extending above said vial holder, a spring clip constituting a support for a hypodermic syringe mounted on the free end of said arm and having its axis aligned with the axis of the vial holder, and hinge means connecting said arm and vial holder.

2. In a device of the kind described, a vial holder, an arm attached thereto and extending above said vial holder, a spring clip constituting a support for a hypodermic syringe mounted on the free end of said arm and having its axis aligned with the axis of the vial holder, said arm being slotted between the spring clip and the vial holder whereby tilting of a hypodermic syringe in the spring clip will avoid contact of the needle of such syringe with the arm, and hinge means connecting said arm and vial holder.

3. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, and a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder.

4. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, and means for selectively holding the vial holder in a series of tilted positions.

5. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, and a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, said arm being provided with a longitudinal slot between the vial holder and the spring clip whereby to prevent contact of the hypodermic needle when tilting the syringe to remove it from the spring clip.

6. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, and means for selectively holding the vial holder in a series of tilted positions, said arm being provided with a longitudinal slot between the vial holder and the spring clip whereby to prevent contact of the hypodermic needle when tilting the syringe to remove it from the spring clip.

7. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, and a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, said arm being mounted to swing toward and away from the vial holder.

8. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, and means for selectively holding the vial holder in a series of tilted positions, said arm being mounted to swing toward and away from the vial holder.

9. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, and a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder, said arm being provided with a longitudinal slot between the vial holder and the spring clip whereby to prevent contact of the hypodermic needle when tilting the syringe to remove it from the spring clip, said arm being mounted to swing toward and away from the vial holder.

10. In a device of the kind described, a support including a base and a standard, a vial holder pivoted to the upper end of said standard to swing in a vertical plane, an arm pivoted to the upper end of said standard to swing in the same vertical plane, a spring clip carried by the free end of said arm and adapted to hold a hypodermic syringe with the axis of the syringe in alignment with the vial holder in a series of tilted positions, said arm being provided with a longitudinal slot between the vial holder and the spring clip whereby to prevent contact of the

hypodermic needle when tilting the syringe to remove it from the spring clip, said arm being mounted to swing toward and away from the vial holder.

11. In a device of the kind described, a base, a support extending upwardly from said base, a vial holder carried by the lower part of said support, and a holder for a hypodermic syringe carried by the upper part of said support and arranged to hold a syringe in axial alignment with the vial holder, the connection of the vial holder to the support being a pivotal connection whereby the vial holder may be swung out of and into alignment with the axis of the syringe.

12. In a device of the kind described, a base, a support extending upwardly from said base, a vial holder carried by the lower part of said support, a holder for a hypodermic syringe carried by the upper part of said support and arranged to hold a syringe in axial alignment with the vial holder, the connection of the vial holder to the support being of pivotal connection whereby the vial holder may be swung out of and into alignment with the axis of the syringe, and means to latch the vial holder in at least one position.

13. In a device of the kind described, a base, a support extending upwardly from said base, a clamp at the upper end of the support for slidably and removably securing a hypodermic syringe, a vial holder pivoted to the lower part of said support, and a spring pin projecting from said vial holder, said support having an arcuate slot extending around the pivot of the vial holder through which said pin passes to limit the movement of the vial holder on its pivot.

14. In a device of the kind described, a base, a support extending upwardly from said base, a clamp at the upper end of the support for slidably and removably securing a hypodermic syringe, a vial holder pivoted to the lower part of said support, and a spring pin projecting from said vial holder, said support having an arcuate slot extending around the pivot of the vial holder through which said pin passes to limit the movement of the vial holder on its pivot, and said slot having a notch at one point wherein the pin springs to releasably hold the vial holder from pivotal movement.

JOHN A. O'NEILL.