

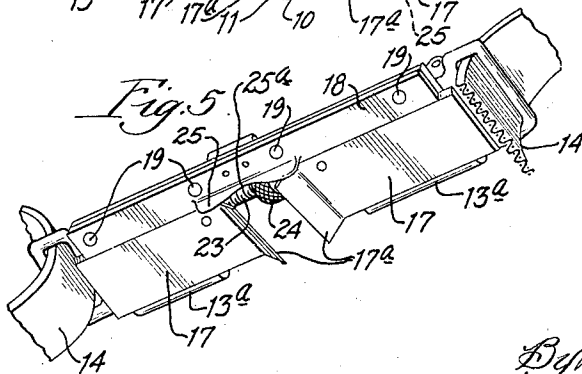
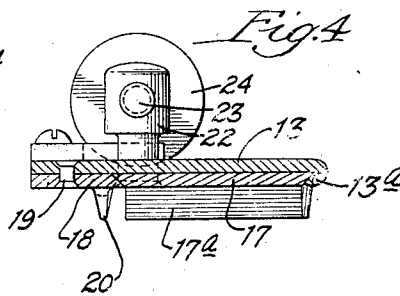
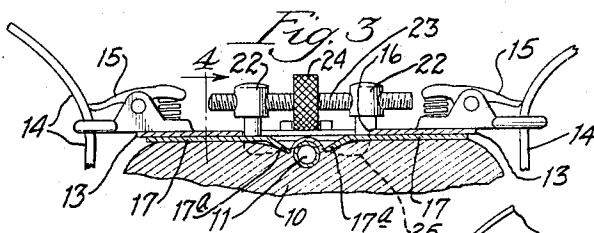
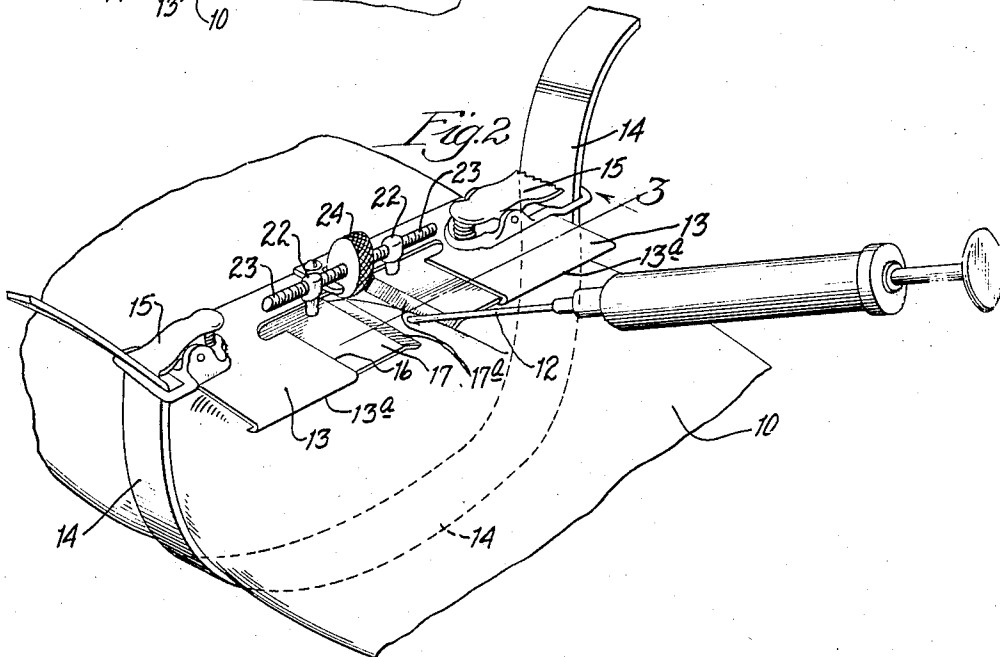
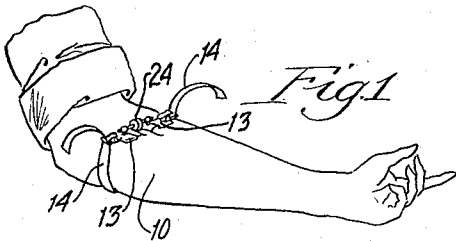
Sept. 22, 1931.

R. E. TYVAND

1,824,516

VEIN RETAINER

Filed May 5, 1930



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UNITED STATES PATENT OFFICE

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VEIN RETAINER

Application filed May 5, 1930. Serial No. 449,943.

This invention relates to improvements in vein retainers and, more especially, such a device or instrument adapted for use in intra-venous therapy or surgery.

For example, in drawing blood from a vein or injecting medicative fluids, or the like, into a vein, it is frequently necessary or desirable to fix or to hold the vein in place under the skin in order to permit the insertion of a hypodermic needle or other instrument.

One of the features of my invention is the provision of such a device that is simple in construction, easy to operate, and adapted for a variety of applications.

Other features and advantages of my invention will appear more fully as I proceed with my specification.

In that form of device embodying the features of my invention shown in the accompanying drawings—

Figure 1 is a view in perspective, showing the instrument in use on a patient's forearm; Fig. 2 is a similar view, on an enlarged scale, showing insertion of a hypodermic needle into the vein; Fig. 3 is a view taken as indicated by the line 3 of Fig. 2; Fig. 4 is a view taken as indicated by the line 4 of Fig. 3; and Fig. 5 is a view in perspective of the underside of the instrument.

As shown in the drawings, 10 may indicate any part of the body, here shown, for example, as a patient's forearm. Numeral 11 indicates one of the veins that is to be fixed, retained, or held in place under the skin in order to permit any work thereon, for example, the insertion therein of a hypodermic needle 12.

My improved device includes a substantially rectangular supporting-plate 13 with means for holding the same on a part of the body, said means here shown as including a flexible strap 14 adapted to be passed around the forearm 10 or other part of the body and secured at both ends to the plate 13 by means of suitable buckles or clamps 15, 15 of well-known construction.

The supporting-plate 13 is provided at one side with a rather deep square recess or notch 16. On the under side of the plate, at

each side of this notch 16, there is slidably mounted a flat retaining finger 17 having its forward edge bent downwardly, as indicated by 17^a. The slides for the finger 17 are made in the following manner. One edge of the plate 13 is bent downwardly and inwardly, as indicated by 13^a, and the opposite edge carries a strip 18 secured thereto by the rivets 19. The inner edges of the strip 18 and the bent-back flange 13^a are undercut, as indicated by 20 and 21, respectively. The edges of the retaining finger 17 are correspondingly beveled so that these fingers 17 are adapted to slide toward or away from each other.

In order to adjust the sliding movement of the finger 17, and place them in the desired positions, each of the fingers 17 is provided with an upwardly projecting post 22 having a threaded hole therethrough accommodating one end of a double threaded screw 23 adapted to be rotated by the knurled thumb nut 24. It will be seen that rotation of the nut 24 will draw the fingers 17 toward or away from each other.

The underside of the plate 13 is also provided with a transversely arranged downwardly extending edge having a notch therein adapted to lie across the vein being retained and serve to restrict or shut off the flow of blood therein and, also, to assist in centering the device over the vein. This part is here shown as formed on the underside of the strip 18, as indicated by 25. The notch therein is indicated by 25^a. It will be seen that the center of the notch 25^a is substantially in line with a median line between the edges 17^a, 17^a of the fingers. In applying the device, the edge 25 is preferably placed on the heart side of the vein so that flow of blood toward the heart will be restricted by this edge 25, causing the vein to swell up or expand between the retaining fingers 17, 17.

In the use of the device, the plate 13 is fastened to the desired part of the body and adjusted until the vein lies between the edges 17^a, 17^a of the retaining fingers which previously have been sufficiently separated to fully expose the vein. The notch 25^a in the edge

25 may be used to assist in centering the plate with respect to the vein. As stated above, the edge 25 may also serve to restrict or shut off flow of blood in the vein. When the device is properly centered and adjusted, the nut 24 is turned to move the retaining fingers 17, 17 toward each other. The downwardly turned edges 17^a press into the flesh more or less and move toward the vein until the same is properly held and retained between them. The extent to which the fingers are tightened and the degree to which they are forced into the flesh will depend upon local conditions. For example, in Fig. 3, there is illustrated more or less diagrammatically, the position that the fingers might take when the vein is being retained, or fixed, for work thereon.

While I have shown and described certain embodiments of my invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of my invention as disclosed in the appended claims, in which it is my intention to claim all novelty inherent in my invention as broadly as possible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. A device of the character described for fixing a vein in position under the skin, including; a supporting-plate; means for holding the supporting-plate on a part of the body; a pair of retaining fingers with downwardly turned ends carried by the plate; and means for causing relative sliding movement of said fingers toward or away from each other.

2. A device of the character described for fixing a vein in position under the skin, including; a supporting plate; means for holding the supporting plate on a part of the body; a pair of flat retaining fingers with downwardly turned edges carried by the plate; and means for causing relative sliding movement of said fingers toward or away from each other.

3. A device as claimed in claim 1, with a plate having a transverse downwardly extending edge adapted to lie across a vein being retained.

4. A device as claimed in claim 2, with a plate having a transverse downwardly extending edge adapted to lie across a vein being retained.

5. A device as claimed in claim 1, with a plate having a transverse downwardly extending edge adapted to lie across a vein being retained, said edge being notched to assist in centering the device with respect to the vein.

6. A device as claimed in claim 2, with a plate having a transverse downwardly ex-

tending edge adapted to lie across a vein being retained, said edge being notched to assist in centering the device with respect to the vein.

7. A device of the character described for fixing a vein in position under the skin, including; a supporting-plate; means for holding the supporting plate on a part of the body; a pair of retaining fingers slidably mounted on the plate; and means for moving said fingers toward or away from each other.

8. A device as claimed in claim 7, in which the retaining fingers are flat with their forward edges downwardly bent.

9. A device as claimed in claim 7 with a plate having a transverse downwardly extending edge adapted to lie across a vein being retained.

10. A device as claimed in claim 7 with a plate having a transverse downwardly extending edge adapted to lie across a vein being retained, said edge being notched to assist in centering the device with respect to the vein.

In witness whereof, I have hereunto set my hand this 17th day of July, 1929.

RAYMOND E. TYVAND.