

[54] **INTRAVENOUS NEEDLE ASSEMBLY**

[72] Inventors: **George K. Burke; Kenneth Raines**, both of Bethlehem, Pa.

[73] Assignee: **Burron Medical Products, Inc.**, Bethlehem, Pa.

[22] Filed: **May 5, 1970**

[21] Appl. No.: **34,800**

[52] U.S. Cl. **128/214, 128/221**

[51] Int. Cl. **A61m 5/32, A61m 5/00**

[58] Field of Search **128/214, 214.2, 214.4, 221, 128/348, 349**

[56] **References Cited**

UNITED STATES PATENTS

3,064,648	11/1962	Bujan	128/214 R
3,538,915	11/1970	Frampton et al.	128/221 X
D217,795	6/1970	Spaven et al.	128/214 R UX

2,725,058 11/1955 Rathkey.....128/221

Primary Examiner—Richard A. Gaudet

Assistant Examiner—J. C. McGowan

Attorney—Shoemaker and Mattare

[57]

ABSTRACT

An intravenous needle assembly for administering medication into a patient comprising a cannula having a hub portion from the opposite sides of which extend a pair of hub wing sections. The hub wing sections are adapted to flex in either direction around said hub into abutting contact with one another to form a gripping handle for holding the cannula while it is being inserted into the vein of the patient. The wing portions include interlocking means thereon which serve both to lock the wing portions together in an upright position thereby preventing them from slipping relatively to one another and also to provide a roughened surface on the outside of said wing portions thereby lessening the danger of the fingers of the person handling said needle assembly from slipping on said wing portions.

13 Claims, 8 Drawing Figures

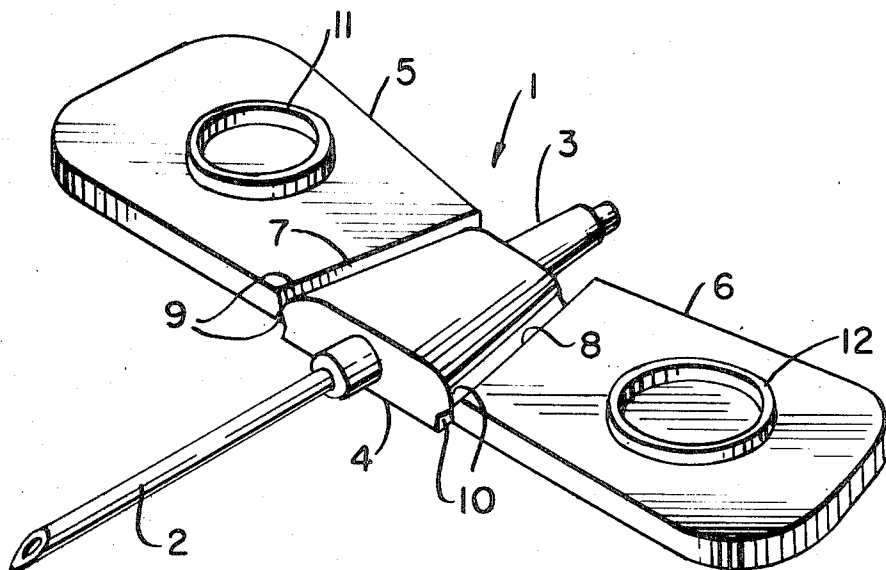


FIG. 1.

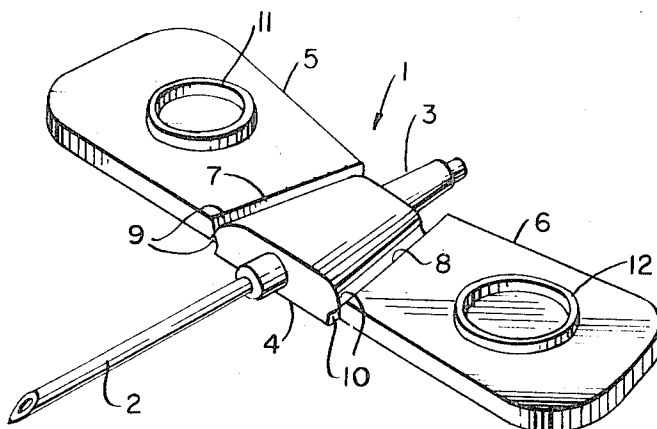


FIG. 2.

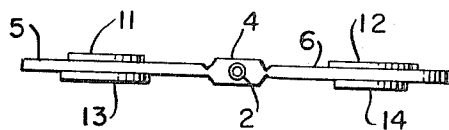


FIG. 4.

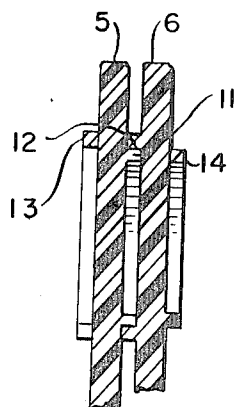


FIG. 3.

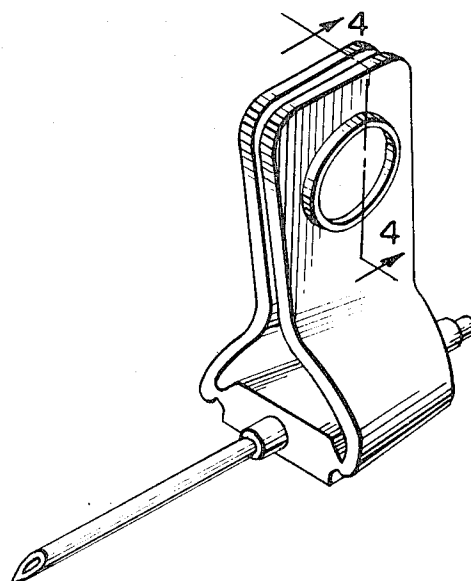
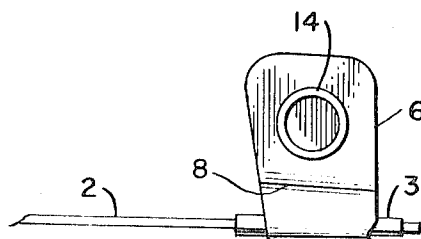


FIG. 5.



INVENTORS

GEORGE K. BURKE &
KENNETH RAINES

BY *Shoemaker and Mattare*

ATTORNEYS

FIG. 6.

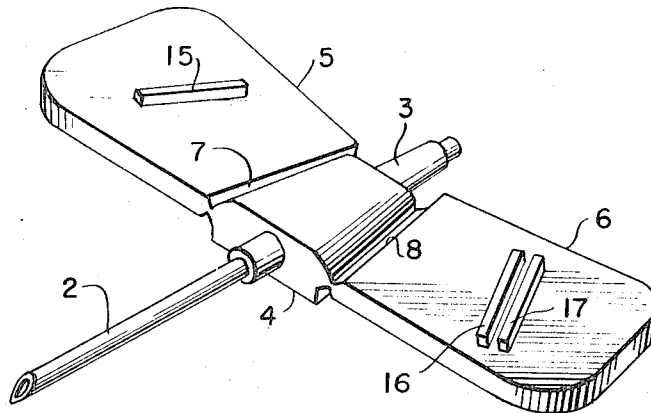


FIG. 7.

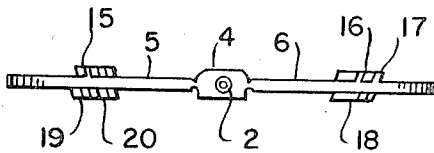


FIG. 9.

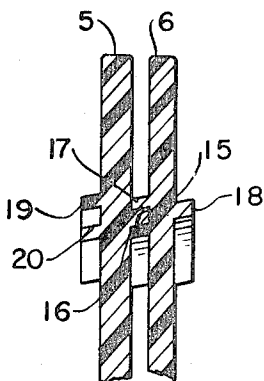


FIG. 8.

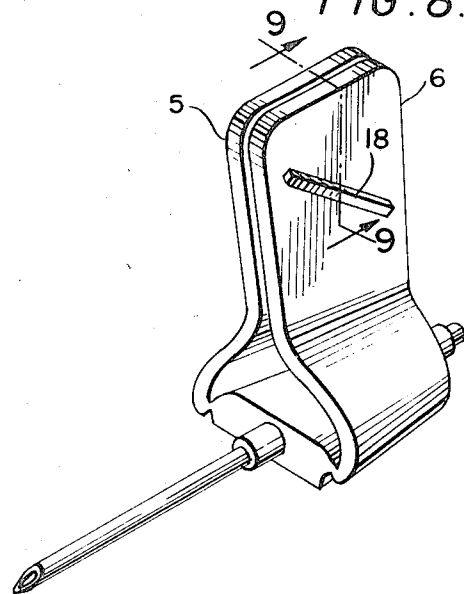
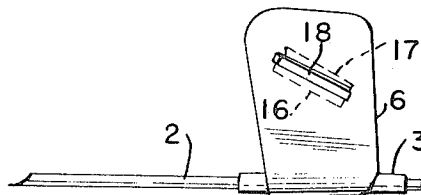


FIG. 10.



INVENTORS

GEORGE K. BURKE &
KENNETH RAINES

BY *Shoemaker and Mattare*
ATTORNEYS

INTRAVENOUS NEEDLE ASSEMBLY

BACKGROUND OF THE INVENTION

This invention relates to a needle assembly for intravenous administration of medicaments into a patient and, more particularly relates to a needle assembly for the intravenous administration of fluids into a scalp vein of an infant.

Heretofore known needle assemblies of this type have been constructed with a handle portion on the cannula extending upwardly therefrom and which is used to hold the needle when the needle is inserted into the patient. Such needle assemblies are expensive and are also difficult to secure in position after the needle has been inserted into the vein. A more recent development in needle assemblies of this type is exemplified in U.S. Pat. No. 3,064,648, wherein a pair of oppositely extending hub wing portions are provided on the cannula for gripping the cannula to insert the point thereof into the vein of the patient and also for providing a means for securing the cannula in position once the needle is inserted. The needle assembly disclosed in this patent, although representing an improvement over the prior art intravenous needle assemblies, suffers from several serious disadvantages. For example, the wing portions 18 and 18' tend to slip relatively to one another and also, are difficult to grasp when, for example, the fingers of the person using the needle assembly are covered with a lubricating material, such as powder or liquids or the like. Accordingly, accuracy and speed are difficult to accomplish with the intravenous needle assembly of the type described in U.S. Pat. No. 3,064,648.

The present invention is an improvement over the device described in the aforementioned patent, and solves the problems encountered therein. Specifically, the oppositely extending hub wing sections of the present invention are provided with interlocking means on the opposite sides thereof which are adapted to interlock when the wings are bent either upwardly or downwardly to maintain the wings securely in position, and the interlock means on the opposite sides of the wings, when the wings are interlocked, serve to provide a roughened surface which prevents the fingers of the person handling the needle assembly from slipping on the wings. Thus, very accurate and quick handling of the intravenous needle assembly is readily accomplished.

OBJECTS OF THE INVENTION

It is an object of this invention to provide an intravenous needle assembly having means thereon enabling the needle assembly to be grasped and handled in a secure and safe manner.

It is another object of this invention to provide an intravenous needle assembly wherein the hub of the cannula is provided with oppositely extending wing portions which are adapted to be folded together to define a handle for gripping the needle assembly to insert the cannula into the vein of the patient.

It is a further object of this invention to provide an intravenous needle assembly as described above wherein the wing portions include interlocking means thereon for locking the wings together and for providing a roughened surface to aid in the grasping of the wings in a secure manner.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a top perspective view of one form of an intravenous needle assembly according to the present invention.

FIG. 2 is a front view in elevation of the needle assembly shown in FIG. 1.

FIG. 3 is a top perspective view of a needle shown in FIG. 1 with the oppositely extending wing portions folded upwardly and secured together by the interlock means.

FIG. 4 is a sectional view taken along the line 4-4 in FIG. 3 and showing the manner in which the interlocking means interengage.

FIG. 5 is a side view in elevation of the needle assembly shown in FIG. 3.

FIG. 6 is a top perspective view of a second form of the intravenous needle assembly according to the present invention.

FIGS. 7, 8, 9 and 10 are views of the second form of the invention corresponding to FIGS. 2, 3, 4 and 5 of the first form of the invention.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to the drawings, wherein like reference numerals refer to like parts throughout the several views, the intravenous needle assembly is indicated generally at 1 in FIG. 1 and comprises a sharpened cannula 2 having a hub portion 3, which includes an enlarged body part 4 and from the opposite sides of which extend a pair of hub wings 5 and 6, the wings 5 and 6 being joined to the body part 4 along areas of reduced thickness or lines of weakened union 7 and 8, formed by recesses or notches 9 and 10 in the upper and lower surfaces of the oppositely extending hub wings. These weakened areas 7 and 8 permit the wing sections 5 and 6 to be folded upwardly into the position shown in FIG. 3 or if desired, the wing portions 5 and 6 could be folded oppositely to that shown in FIG. 3 and joined below the cannula means. The lines of weakened union 7 and 8 or areas of reduced thickness may be formed substantially parallel to the axis of cannula 2 so that the wing sections 5 and 6 fold substantially vertically over the body 4 or the areas of reduced thickness may be formed at an angle to the axis of cannula 2 as shown in FIG. 1 so that the wing sections 5 and 6 will be slightly forwardly inclined when they are folded upwardly over the body 4 as seen in FIG. 3 and FIG. 5.

In order to lock and maintain the wing sections 5 and 6 together against relative slippage therebetween when they are folded into the position shown in FIG. 3, a locking projection in the form of a raised circular rib is formed on the opposite surfaces of each of the wing sections 5 and 6. As seen most clearly in FIG. 4, the circular projection of rib 11 on one surface of wing section 5 fits snugly within the circular projection or rib 12 on the facing surface of the other wing section 6 to lock the wing sections 5 and 6 together. Corresponding circular projections or ribs 13 and 14 are formed on the wing sections 5 and 6, respectively, on the opposite sides thereof from ribs 11 and 12 and when the wing sections are locked together, as shown in FIGS. 3 and 4, these projections 13 and 14 serve as gripping surfaces to prevent the fingers of a person using the needle assembly from slipping on the locked-together wing sections. Conversely, if the wing sections are folded in the opposite direction and locked together with projections 13 and 14 interlocked, the ribs 11 and 12 would then serve as a roughened surface to prevent the fingers from slipping on the locked-together wing sections.

As seen best in FIG. 4, the outside diameter of the rib or projection 11 on the surface of wing section 5 is substantially the same as, or slightly less than, the inside diameter of the circular rib or projection 12 on the opposing facing surface of wing section 6 and the outside diameter of projection 14 is substantially the same as or slightly less than the inside diameter of projection 13 so that a secure and tight interlocking fit is effected between the opposing ribs or projections when the wing sections are folded together.

After the cannula 2 has been inserted into the patient, the wing sections 5 and 6 may be folded downwardly with the wings extending laterally from opposite sides of body 4 substantially as shown in FIG. 1 to conform to the shape of the body part into which the cannula is inserted and when thus positioned, the needle assembly can be secured to the body part by placing a strip of adhesive tape or the like directly over the wing sections 5 and 6.

That form of the invention illustrated in FIGS. 6 through 10 is identical to the invention shown in FIGS. 1 through 5, except that the interlocking projections on the opposite wing sections 5 and 6 comprise elongate ribs rather than the circular ribs or projections, such as 11 and 12, in FIGS. 1 through 5.

As seen most clearly in FIGS. 6 and 9, the interlocking ribs in this form of the invention comprise a first elongate rib 15

formed on one surface of wing section 5 and disposed at an angle to the axis of cannula 2. A pair of spaced parallel ribs 16 and 17 are formed on the corresponding surface of the opposite wing section 6 and are arranged such that when the wing sections are folded upwardly to the position shown in FIGS. 8 and 9, rib 15 fits snugly between ribs 16 and 17 locking the wing sections 5 and 6 together as in the FIG. 1 embodiment. Corresponding ribs 18 and 19 and 20 are formed on the opposite surfaces of wing sections 5 and 6 for locking the wing sections together when they are folded in the opposite direction about body part 4 and for serving as a roughened gripping surface when the wing sections are locked together as shown in FIGS. 8 and 9.

The interlocking ribs need not take the specific shapes described but could assume any other configuration which would provide an effective interlock between the two wing sections. Moreover, the interlocking means need not take the form of a projection on each wing section but could comprise a projection on one wing and a socket on the other, or it could comprise a tacky or adhesive surface means which would interlock and maintain the wing sections together against relative movement and also serve to prevent the fingers of a person using the assembly from slipping on the wings. Also, the areas of reduced thickness could be disposed parallel to the axis of the cannula or at an angle other than that shown or could be eliminated entirely, if desired.

The wing sections and body are preferably molded about the cannula to form an integral unit although they may be formed of a heat sealable or solvent sealable flexible plastic material, such as polyvinyl chloride, polyethylene and polypropylene and secured to the cannula by means other than molding.

As this invention may be embodied in several forms without departing from the spirit or essential characteristics thereof, the present embodiment is therefore illustrative and not restrictive.

We claim:

1. An intravenous needle assembly comprising:
a cannula having a pointed end;
a hub means on the other end of said cannula; and
a pair of flexible wing sections normally extending laterally from opposite sides of said hub means in a direction substantially perpendicular to the axis of said hub means and joined thereto along areas or lines of reduced thickness disposed at an angle with respect to the axis of the cannula and diverging toward said pointed end so that said flexible wing sections may be readily folded relative to said hub means about said lines of reduced thickness and brought into abutting contact with one another in a forwardly inclined vertically disposed position to define a wedge-shaped handle means to be grasped for inserting said cannula into the vein of a patient.
2. An intravenous needle assembly as in claim 1, wherein said wing sections have interlocking means on at least one surface thereof, the interlocking means on one wing section adapted to engage with the interlocking means on the other wing section when the wing sections are folded together to lock and maintain the wing sections together.
3. An intravenous needle assembly as in claim 2, wherein said interlocking means comprises a projection on at least one wing section.
4. An intravenous needle assembly as in claim 2, wherein an interlocking means is provided on each surface of each wing section.
5. An intravenous needle assembly as in claim 2, wherein

said interlocking means comprises a circular rib on each wing section, the outer diameter of the rib on one wing section being substantially the same as the inner diameter of the circular rib on the other wing section so that when the wing sections are folded together, the circular rib on said one wing section is snugly fitted within the circular rib on the other wing section to lock the wing sections together against relative movement therebetween.

6. An intravenous needle assembly as in claim 4, wherein the interlocking means on each surface of each rib section comprises a circular rib, the outer diameter of the circular rib on one side of one wing section being substantially the same as the inner diameter of the circular rib on the corresponding surface of the other wing section.

7. An intravenous needle assembly as in claim 2, wherein said interlocking means comprises an elongate rib on at least one surface of one wing section and a pair of spaced-parallel elongate ribs on one surface of the other wing section, said one rib adapted to fit snugly between said spaced-parallel ribs when said wing sections are folded together to lock said wing section against relative movement therebetween.

8. An intravenous needle assembly as in claim 7, wherein the other surface of said one wing section includes a pair of spaced parallel elongate ribs thereon and the other surface of said other wing section includes an elongate rib thereon corresponding to the ribs on said one surface of said wing sections, said ribs on said other surface of said wing sections adapted to interlock when said wing sections are folded in the opposite direction relative to said hub means.

9. An intravenous needle assembly as in claim 7, wherein said ribs are disposed at an angle to the axis of said cannula.

10. An intravenous needle assembly comprising:
a cannula having a sharpened end;
a hub means on the other end of said cannula;
a pair of flexible wing sections normally extending laterally from opposite sides of said hub means; and
releasable interlocking means on both surfaces of each of said wing sections, the interlocking means on adjacent surfaces of the wing sections adapted to interengage and interlock said wing sections against relative movement therebetween when said wing sections are folded together about said hub means and the interlocking means on the opposite surfaces of the wing sections defining roughened finger-gripping surfaces.

11. An intravenous needle assembly as in claim 10, wherein said interlocking means comprises a circular rib, the outside diameter of the circular rib on one wing section being substantially the same as the inside diameter of the circular rib on the confronting surface of the other wing section, said circular rib on said one wing section adapted to fit snugly within the circular rib on the other wing section to lock said wing sections together, the circular ribs on the other surface of each wing section defining the gripping means for securely gripping the folded-together wing sections.

12. An intravenous needle assembly as in claim 10, wherein said interlocking means comprises an elongate rib formed on at least one surface of one wing section and a pair of spaced-parallel elongate ribs on at least one surface of the other wing section, said one elongate rib adapted to fit snugly between said parallel-spaced ribs when said wing sections are folded together about said hub means.

13. An intravenous needle assembly as in claim 12, wherein said elongate ribs are disposed at an angle relative to the axis of said cannula.

* * * * *