

[54] **NEEDLE CARRIER**
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 [58] Field of Search **206/17, 66, 43, 16 R, 206/56 AB, 65 R; 220/23.4**

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[57] **ABSTRACT**

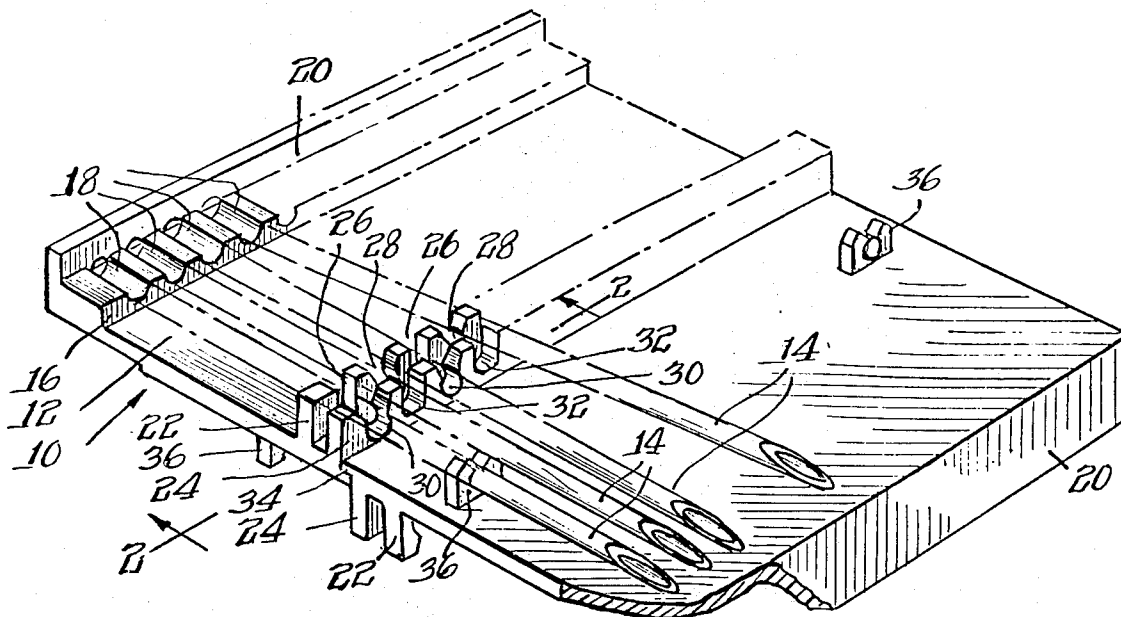
The present invention relates generally to improvements in carriers for elongate needles and more particularly to carriers of elongate needles of the infusion type. An embodiment of the invention disclosed herein includes a base plate having a plurality of transverse needle supports in the form of a plurality of spaced needle accommodating open end recesses. Alternate recesses in at least two of the supports are defined by fingers adapted to yieldably grip the periphery of a needle accommodated thereby. The carriers are preferably disposable and may be arranged in stacked relation.

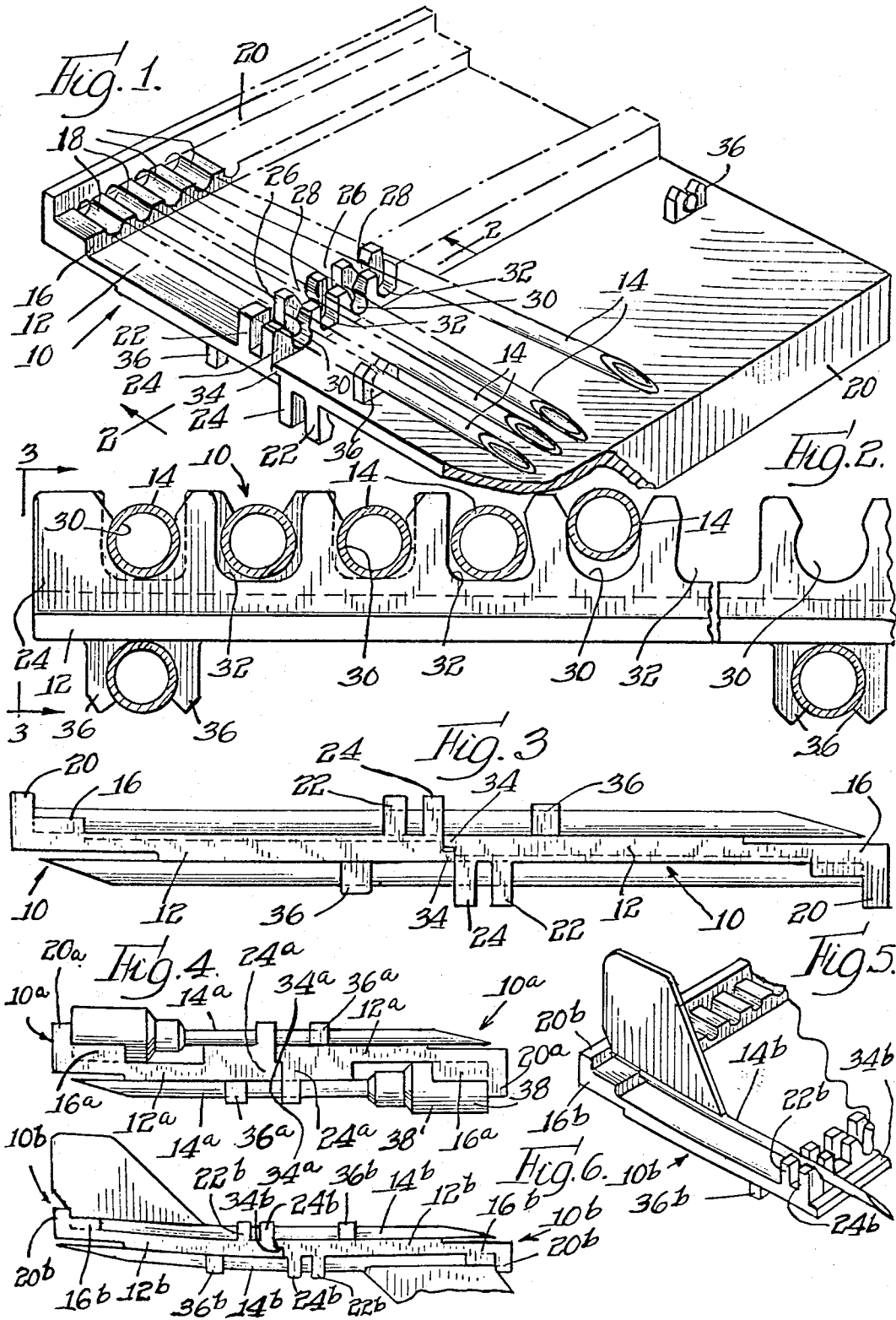
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8 Claims, 6 Drawing Figures





NEEDLE CARRIER

SUMMARY OF THE INVENTION

Heretofore it has been common practice in the manufacture of infusion type needles to employ two pieces of adhesive tape to hold groups of needles together. This method of holding is accomplished prior to grinding the needles thus held, and after grinding the needles must be removed from the tape to permit cleaning, inspection, storage, etc. It has been found that this method of holding needles together in groups does not fully protect the ground points of the needles. In fact it is not uncommon for ground points of needles thus held to become damaged as the result of the point of one needle striking the point of another needle supported by the tape. It is therefore an important object of the present invention to provide an improved carrier or support for a plurality of needles whereby the needles may be maintained in spaced relation for grinding, cleaning, inspection, storage and shipment free from the hazard of potential damage.

More specifically, the invention contemplates the provision of a new and improved carrier which will assure the retention of a group of spaced needles disposed in parallel relation with the points thereof maintained in a predetermined position for grinding, cleaning, storage and ultimate shipment.

The present invention also contemplates a needle carrier of the type referred to above which is of the "throw away" type, namely a readily disposable relatively inexpensive carrier. To this end, it is proposed to provide a needle carrier of light weight plastic material.

It is a further object of the present invention to provide carriers for needles as indicated above which because of the novel and unique design thereof may be nested one with another and conveniently stacked so as to require minimum space for storage and shipment.

BRIEF DESCRIPTION OF THE DRAWING

The foregoing and other objects and advantages will be more apparent from the following detailed description when considered in connection with the accompanying drawings wherein

FIG. 1 is a perspective view disclosing a pair of stacked needle carriers of the type contemplated by the present invention;

FIG. 2 is an enlarged fragmentary transverse sectional view taken substantially along the line 2—2 of FIG. 1;

FIG. 3 is a side elevational view of the carriers shown in FIG. 2, said view being taken substantially along the line 3—3 of FIG. 2;

FIG. 4 is a view similar to FIG. 3 disclosing a modified form of carrier device to accommodate infusion type needles having a fitting at one extremity thereof;

FIG. 5 is a fragmentary perspective view similar to FIG. 1 disclosing a carrier for supporting a plurality of "break away" type of needles; and

FIG. 6 is a side elevational view of the carrier shown in FIG. 5 in assembled interlocked or stacked relation with a corresponding carrier.

DESCRIPTION OF THE PREFERRED EMBODIMENTS OF THE INVENTION

Making reference now to the drawings more in detail, wherein like numerals have been employed to designate similar parts throughout the various figures, it will

be seen that one embodiment of the invention as disclosed in FIGS. 1 and 2 contemplates a needle carrier device designated generally by the numeral 10. The carrier 10 includes a base plate 12 of sufficient width to support a plurality of infusion type elongate needles 14. Needle supporting means 16 projects laterally or upwardly from one margin of the plate 12 and is provided with a plurality of open top or open end recesses 18 for accommodating the trailing extremities of the needles 14. These recesses 18 conform generally with the peripheral contour of the needles. Projecting upwardly from the needle support means or members 16 is an abutment 20 for positioning the trailing extremities of the needles 14.

Spaced from the support means 16 is a second needle support 22, which like the support 16 traverses the entire width of the plate 12, and spaced adjacently with respect to support 22 is a third transverse needle support 24. The needle support 22 is provided with alternate needle accommodating recesses 26 and 28, and the support member 24 is likewise provided with alternate recesses 30 and 32. The recesses 30 of the support member 24 are in axial alignment with the recesses 26 of the support 22, and likewise the recesses 32 of the support 24 are in axial alignment with the recesses 28 of the support 22. The provision of the recesses 32 permits lateral flexing of the fingers which define the recesses 30, and the recesses 26 likewise permit lateral flexing of the fingers defining the recesses 28. In this manner, the peripheral surfaces of alternately positioned needles 14 are yieldably and firmly gripped by the fingers defining the apertures 30 and 28.

Attention is directed to the fact that the carrier 10 is adapted to be interlocked with another identical carrier along a stepped margin 34. When the two carriers are in interlocked relation, as shown in FIGS. 2 and 3, yieldable fingers 36 resiliently impinge the needles and thus cooperate with previously mentioned fingers to secure the carriers together as a combined unit.

FIG. 4 discloses a needle carrier of structural design corresponding generally with the structural features of the previously described carrier 10. Each of the interlocked carriers of FIG. 4 are designated generally by the numeral 10a comprising a base plate 12a, a needle support 16a and a second needle support 24a. Infusion needles 14a are equipped at one extremity with a conventional enlarged fitting section 38. Transverse abutment members 20a correspond structurally and functionally with the previously described abutment sections 20. Steps 34a provide the interlock between the two carriers 10a as previously described. Also, yieldable fingers 36a projecting from one carrier body or plate serve to grip a needle supported by the other carrier at a location intermediate the pointed extremity and the opposite enlarged fitting portion 38.

In FIGS. 5 and 6, needles 14b of the break away type are supported by interlocked carriers designated generally by the numeral 10b. Structural features of the carrier 10b corresponding functionally and structurally with previously described elements are identified by like numerals bearing the suffix "b".

It will be understood that before the above described needle carriers are interlocked as shown in FIGS. 3, 4 and 6, the needles supported thereby will project well beyond the yieldable gripping fingers. In this position, the needles are properly located for grinding as well as for subsequent cleaning, inspection, storage and ultimate

mate shipment. The carriers are preferably of light weight plastic stock having sufficient resiliency to assure firm gripping of the needles by the expandible fingers. By arranging the needle accommodating recesses in the alternate or staggered fashion described above, the required degree of resiliency for firmly gripping the needle peripheries is assured. With a slight modification the carriers may be formed to accommodate needles of varying lengths and cross-sectional shapes.

The invention is claimed as follows:

1. A carrier for elongate needles of the infusion type including a base plate, first support means extending along and projecting laterally of one margin of the plate providing a plurality of first spaced needle accommodating open recesses, each recess shaped to conform generally with the trailing extremities of the needles to be received thereby, second needle support means extending laterally of said plate in substantial parallelism with and spaced from said first support means, said second support means providing a plurality of second open spaced needle receiving recesses disposed in alignment with said first recesses, alternate recesses in said second support means being defined by yieldable fingers adapted to grip the peripheries of needles accommodated thereby, third needle support means extending laterally of said plate in substantial parallelism with and adjacently spaced from said second support means, said third support means having open needle accommodating recesses in alignment with the previously mentioned recesses, alternate recesses in said third support means defined by yieldable fingers adapted to grip the peripheries of needles accommodated thereby said alternate recesses in said second support means being disposed in staggered relation with respect to the alternate recesses in said third support means whereby to assure sufficient yieldability of said fingers to impinge firmly the periphery of a needle associated therewith.

2. A carrier for elongate needles as set forth in claim 1 wherein the pointed extremities of needles supported thereby are positioned in spaced relation beyond said yieldable fingers.

3. A carrier for elongate needles as set forth in claim 1 wherein the margin of the base plate in the vicinity of the needle gripping fingers is provided with means

for interlocking with the corresponding margin of a like carrier.

4. A carrier for elongate needles as set forth in claim 3 wherein resilient fingers project from said plate in a direction opposed to said first mentioned yieldable fingers, for accommodating needles of an interlocked carrier.

5. A carrier for elongate needles as set forth in claim 4 wherein abutment means is provided along the margin of the base plate for locating the trailing extremities of needles associated therewith.

6. A carrier for elongate needles of the infusion type including a base plate, first support means extending along and projecting laterally of one margin of said plate providing a plurality of first spaced needle accommodating open-sided recesses, each recess shaped to conform generally with the trailing extremity of the needle to be received thereby, second needle support means extending laterally of said plate in substantial parallelism with and spaced from said first support means, said second support means providing a plurality of second open-sided spaced needle receiving recesses disposed in alignment with said first recesses, third needle support means extending laterally of said plate in substantial parallelism with and adjacently spaced from said second support means, said third support means having open needle accommodating recesses in alignment with the previously mentioned recesses, alternate recesses in the second and third support means being defined by fingers adapted to yieldably grip the peripheries of needles intermediate the trailing and pointed extremity thereof.

7. A carrier for elongate needles as set forth in claim 6 wherein the margin of the base plate in the vicinity of said third support means is provided with means for interlocking with a corresponding margin of a like carrier.

8. A carrier for elongate needles as set forth in claim 6 wherein needle gripping means is positioned on the side of the base plate oppositely disposed from the first, second and third needle accommodating recesses for gripping the periphery of a needle shank supported by an interlocked like carrier.

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