

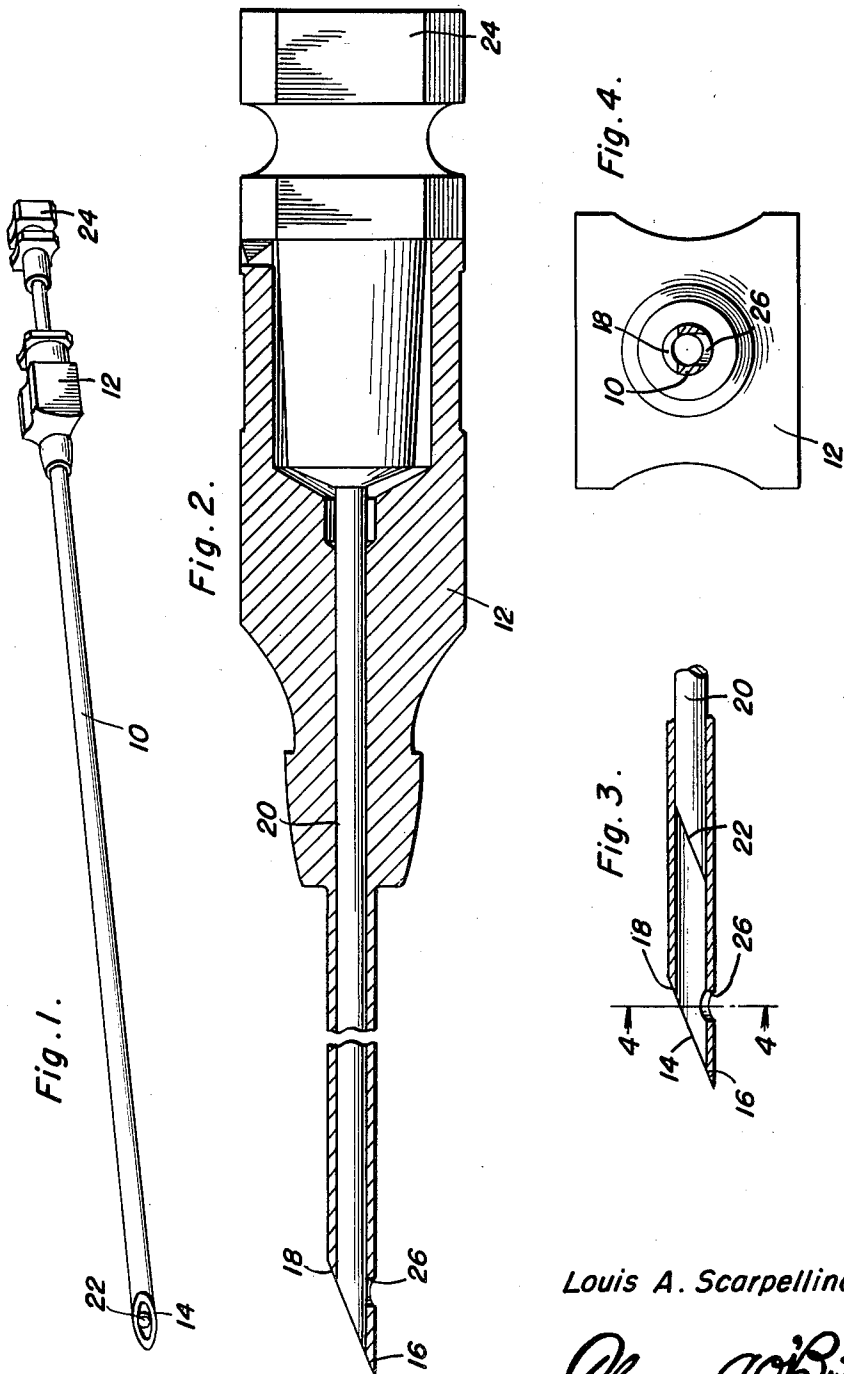
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MYELOGRAPHIC NEEDLE

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MYELOGRAPHIC NEEDLE

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3 Claims. (Cl. 128—221)

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This invention comprises novel and useful improvements in a myelographic needle and more specifically pertains to an improved construction of needle for puncturing the spinal column and injecting heavy contrast media as for example of radium opaque nature for study of the spinal canal, and the subsequent withdrawal of the contrast media therefrom.

The primary object of this invention is to provide an improved spinal puncture needle for more effectively inserting and withdrawing contrast media into and from the spinal canal.

A very important object of the invention is to provide in a needle of the character set forth in the preceding paragraphs, improved means for discharging and withdrawing a fluid medium into and from the spinal canal for examination and study of the same, which will more satisfactorily insure that all of the inserted or injected material will be effectively withdrawn.

The objects of the invention are attained chiefly by providing a puncture needle having a beveled open lower end, together with an additional opening or port in the wall of the needle on the side opposite the beveled open end, to provide an additional means to insure easy insertion and substantially complete withdrawal of the injected fluid medium from the spinal canal.

A still further feature of the invention resides in the provision of a spinal injection needle as set forth in the preceding paragraph, wherein the supplemental opening in the wall of the needle has its upper edge lying substantially in the same lateral plane extending transversely of the needle and perpendicular to the longitudinal axis thereof as that containing the upper edge of the beveled open end of the needle.

These, together with various ancillary features and objects of the invention which will later become apparent as the following description proceeds, are attained by the present invention, a preferred embodiment of which is illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a perspective view of a myelographic needle in accordance with the principles of this invention;

Figure 2 is a vertical central longitudinal sectional view through the needle shown in Figure 1, a part of the needle shank being broken away;

Figure 3 is a fragmentary vertical central longitudinal sectional view similar to Figure 2 but showing the stylet partially withdrawn; and

Figure 4 is a vertical transverse sectional view taken substantially upon the plane of the section line 4—4 of Figure 3.

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Referring now more specifically to the accompanying drawings, wherein like numerals designate similar parts throughout the various views, it will be seen that the principles of the invention may be conveniently embodied in a spinal puncture needle consisting of an elongated tubular or sleeve-like shank 10 which in accordance with conventional practice is of uniform diameter throughout its length and of circular cross-section, this shank at one end being integrally or rigidly attached to a body portion 12 of a conventional design. At its other end, the shank 10 is formed with a point which is provided by severing the shaft by a plane which is inclined at an acute angle to the longitudinal axis of the shaft, thus providing an elliptical beveled opening 14 which is inclined to the axis of the shaft, and which thus has a lower sharp point 16, the lower edge of the shank sloping upwardly from this point to an upper edge 18.

Customary needles incorporate the foregoing construction together with a stylet having a rod-like plunger member 20 which is slidable within the tubular shaft 10 and a continuation of the bore of the same which is formed in the body portion 12, the lower end of this plunger member likewise being beveled as at 22 and lying in a plane which is parallel to that forming the beveled lower portion 14 of the shaft 10.

The stylet, by its presence in the needle serves to impart rigidity to the latter to facilitate its insertion into the spinal canal. Upon removal of the stylet from the needle, the customary heavy contrast media or fluid, which may be of a radium opaque nature or the like, may be readily introduced into the spinal canal for radiographic study and may be subsequently withdrawn.

However, it has been found that in operating the conventional needle, it has been heretofore difficult if not impossible to substantially completely withdraw the injected contrast media. It frequently happens however, that the opening in the needle becomes clogged by the impingement therein of contiguous structures and tissues in the spinal column, thus seriously interfering with the effective withdrawal and/or recovery of the injected heavy media.

In order to more effectively perform the intended function of withdrawing the contrast media when the necessity for the injection of the same has been terminated, the present invention comprises the addition of an auxiliary or supplementary orifice or opening 26 which is disposed in that side of the shaft 10 which is opposite the beveled opening 14.

The positioning of this auxiliary opening is

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critical and it is extremely important to the efficient functioning of the myelographic needle. If the opening 26 is placed too high from the beveled end 14 of the needle, the needle will open into the supernatant spinal fluid which by virtue of its lighter specific gravity will lie above the heavy contrast media, so that the spinal fluid will be withdrawn with or prior to withdrawal of the contrast media. This is particularly undesirable for a number of reasons, and therefore it is essential that the upper end of the opening 26 shall lie not higher than and preferably will lie in the same horizontal transverse plane as the upper edge 18 of the beveled end 14, this transverse plane being perpendicular to the longitudinal axis of the shaft 10.

The doubled-holed needle has the advantage that when once properly inserted into the spinal canal, the auxiliary hole or opening provides a means which will insure that if the first aperture becomes clogged as aforesaid, the auxiliary opening will satisfactorily function to permit the recovery of the injected heavy media, without drawing off the less dense spinal fluid which will be disposed at a level above the injected media in the dural sac.

From the foregoing, the construction and operation of the invention will be readily understood together with the advantages arising therefrom, and further explanation is believed to be unnecessary. However, since numerous modifications and changes will readily occur to those skilled in the art after consideration of the foregoing specification and accompanying drawings, it is not desired to limit the invention to the exact construction shown and described, but all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

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

1. A spinal puncture needle comprising a hollow shaft having an open end terminating in a beveled point whose lower edge lies in a plane inclined at an acute angle to the longitudinal axis

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of the shaft, said shaft having an opening through its wall into the interior of the shaft in the region of the beveled point, and means for causing a flow of fluid through said beveled point, opening and interior of the shaft, the upper portion of the opening and of the beveled point lying in the same transverse plane through the shaft.

2. A spinal puncture needle comprising a hollow shaft having an open end terminating in a beveled point whose lower edge lies in a plane inclined at an acute angle to the longitudinal axis of the shaft, said shaft having an opening through its wall into the interior of the shaft in the region of the beveled point, and means for causing a flow of fluid through said beveled point, opening and interior of the shaft, the upper portion of the opening and of the beveled point lying in the same transverse plane through the shaft which is perpendicular to the longitudinal axis of the shaft.

3. The combination of claim 1 wherein said last means comprises a stylet slidable in said shaft, and extending from the end thereof opposite the beveled point, a knob on the extending end of said stylet.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
938,951	Bell	Nov. 2, 1909
964,950	Allinger	July 19, 1910
1,527,291	Zorraquin	Feb. 24, 1925
2,159,217	Lozier et al.	May 23, 1939
2,389,355	Goland et al.	Nov. 20, 1945

FOREIGN PATENTS

Number	Country	Date
446,818	Germany	June 11, 1927
453,877	France	June 18, 1913