Dec. 30, 1952 W. M. SHAW 2,623,521

INDICATING STYLET NEEDLE

Filed March 12, 1951

Fig. 1.

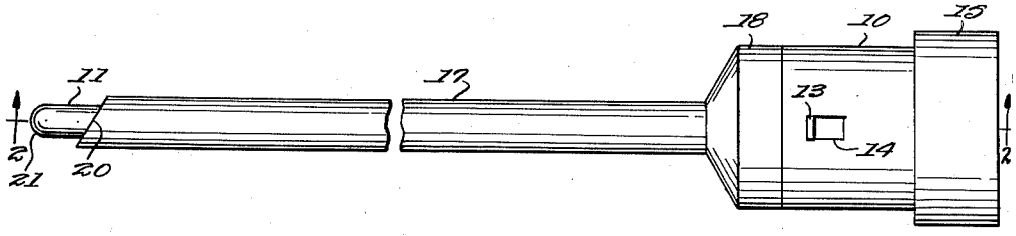


Fig. 2.

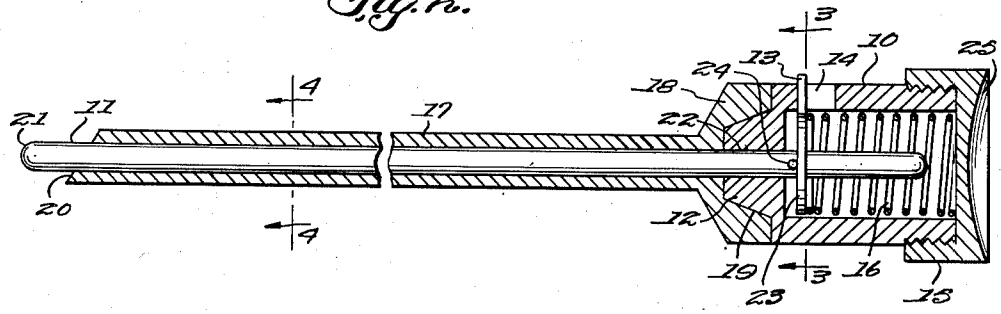


Fig. 4.

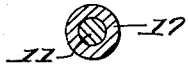


Fig. 3.

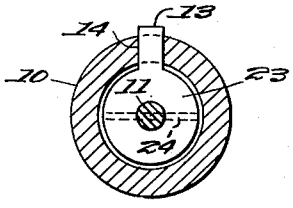
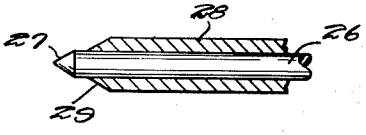


Fig. 5



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2,623,521

INDICATING STYLET NEEDLE

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2 Claims. (Cl. 128—221)

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This invention relates to needles for making injections particularly in the spinal column and in particular includes a needle with an indicating stylet or obturator whereby with the stylet extended through the needle and resiliently urged outwardly by a spring the stylet snaps forwardly as soon as the needle passes through tissue and enters an area containing gas or fluid and thereby indicates at a point in the head of the needle that the point of the needle has entered the said area.

The purpose of this invention is to provide means in a surgical needle for indicating, at the outer end of the needle, when the inner end of the needle passes through tissue and enters an area containing gas or other fluid.

The conventional method of determining the position of the inner end of a needle is to use a tubular needle and watch for fluid to flow from the outer end of the needle to indicate that the inner end of the needle has entered an area in which the fluid is positioned. By this method there is danger of traversing the space completely and puncturing veins lying on the far anterior wall, and thereby causing hemorrhage, or puncturing the posterior ligaments of the vertebral column with the risk of herniation of the nucleus pulposus. With needles having comparatively fine bores it requires considerable time to wait for the fluid to seep out whereby to indicate the entrance of the point of the needle into the spinal space. With this thought in mind this invention contemplates a tubular needle having a stylet slidably mounted therein and resiliently held outwardly by a spring whereby as the point enters the skin and passes through the flesh or tissue the stylet is pressed into the needle compressing the spring and as soon as the end of the needle enters an open area or an area filled with liquid or gas the spring snaps the stylet through the needle and, by means of a projection on the stylet, indicates that the inner end of the needle has entered the area.

The object of this invention is, therefore, to provide means for forming a surgical needle, whereby a stylet slidably mounted therein indicates, at the outer end of the needle, when the inner end of the needle has entered an open area.

Another object of the invention is to provide a surgical needle having a stylet slidably mounted therein in which the stylet and mounting means thereof may readily be removed from the needle.

A further object of the invention is to provide a stylet for surgical needles that is positioned to snap from the sharp end of the needle when the needle enters an area containing fluid, which is of a simple and economical construction.

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With these and other objects and advantages in view the invention embodies a cylindrical casing having a conical shaped nipple extended from one end with a cap threaded on the opposite end and a stylet mounted in said casing, resiliently urged outwardly by a spring, and positioned to extend through a tubular needle with the conical shaped nipple on the end of the cylinder positioned in a similarly shaped opening in the head of the needle.

Other features and advantages of the invention will appear from the following description taken in connection with the drawings wherein:

Figure 1 is a plan view illustrating the improved surgical needle showing the stylet in the extended position.

Figure 2 is a longitudinal section through the needle taken on line 2—2 of Fig. 1.

Figure 3 is a cross section through the head or stylet mounting, being taken on line 3—3 of Fig. 2.

Figure 4 is a cross section through the needle taken on line 4—4 of Fig. 2.

Figure 5 is a detail illustrating a modification wherein the stylet and tube forming the needle are provided with conical shaped outer ends.

Referring now to the drawings wherein like reference characters denote corresponding parts the indicating stylet of this invention includes a cylindrical casing 10 which forms a head, a stylet 11 mounted in the head and extended from a conical shaped nipple 12 on one end of the head, an indicator 13 carried by the stylet and projecting through an opening 14 in the casing 10, a cap 15 threaded on the outer end of the casing, a spring 16 positioned in the casing, and a tubular needle 17 having a rim or head 18 with a conical shaped recess 19 therein.

The stylet mounting of this invention is designed to be used in a needle as indicated by the numeral 17 and needles of this type are provided with cup like heads or rims, as indicated by the numeral 18, to facilitate making injections through the needles. Needles of this type are provided with beveled outer ends as indicated by the numeral 20.

The stylet 11 is provided with a rounded outer end 21 and the opposite end extends through an opening 22 in the cylindrical head or casing 10 and the indicator 13, which extends from a disc 23 is held on the stylet by a pin 24.

The cap 15 is threaded on the outer end of the head 10 and the outer surface of the cap is provided with a recess 25.

In the design illustrated in Fig. 5 the stylet 26 is provided with a pointed outer end 27 and the

stylet is mounted in a sheath or tube 26 which is provided with a beveled or conical shaped outer end 29, thereby forming a needle.

With the parts formed as illustrated and described herein the needle 17, the diameter of which is comparatively small, is forced through the skin and tissue, in which movement the outer end 21 is pressed inwardly, compressing the spring and the parts remain in this position until the beveled end of the needle penetrates the tissue and passes into space or an area in the spinal column in which gas or other fluid is present and as the point of the needle passes through the wall into the said area or space the end of the stylet is released whereby the spring snaps the stylet outwardly to the position shown in Figs. 1 and 2. In this movement the indicator 13 snaps to the position shown in Fig. 2 whereby the doctor or nurse knows that the inner end of the needle has passed through the tissue.

It will be understood that other means may be used for indicating the position or movement of the stylet and it will also be understood that other modifications may be made in the design and arrangement of the parts without departing from the spirit of the invention.

What is claimed is:

1. In a surgical needle, the combination which comprises a tubular needle having a head with a conical shaped socket therein on one end, a cylindrical casing having an opening in one side and having a conical shaped nipple extended from one end positioned to nest in the socket in the head of the needle, a cap threaded on the opposite end of the casing, a stylet extended through

the needle and also through the nipple extended from the end of the casing, an indicator carried by the stylet and extended through the opening in the side of the casing, and a spring in the casing positioned to urge the stylet outwardly through the said needle.

2. In a surgical needle, the combination which comprises a tubular needle having a head with a conical-shaped socket therein on one end, a casing having an opening in one side and having a nipple extending from one end positioned to rest in the socket in the head of the needle, a cap threaded on the opposite end of the casing, a stylet extended through the needle and also through the nipple extended from the end of the casing, an indicator carried by the stylet and extended through the opening in the side of the casing, and resilient means in the casing positioned to urge the stylet outwardly through said needle.

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