

[54] **DIAGNOSTIC MYELOGRAPHY  
 NEEDLE**

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 128/347  
 [51] Int. Cl. .... **A61b 10/00**  
 [58] Field of Search ... **128/2 B, 2 R, 2 F, 2 A, 2.05 D,**  
 128/221, 347, 348, 350, DIG. 5; 27/24 A

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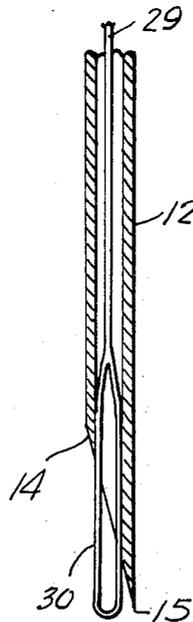
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[57] **ABSTRACT**

A surgical needle for injecting and removing fluid material from channels of the human body such as the spinal canal. The needle is provided with a lumen closed by a stylus during insertion. The stylus is removed for permitting the injection of fluid and a second stylus smaller than the lumen and projecting beyond the end of the needle is inserted to prevent the body tissues from closing the lumen during aspiration of the injected fluids.

**3 Claims, 4 Drawing Figures**



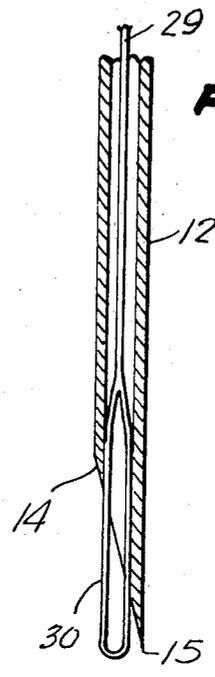
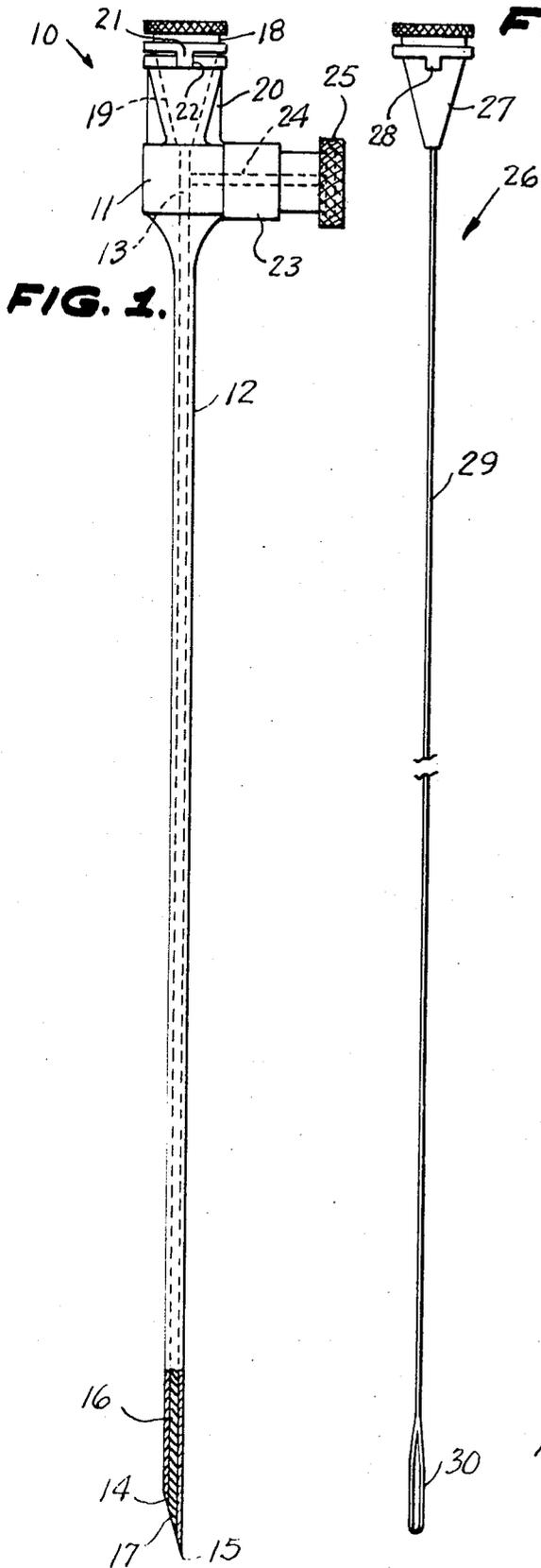
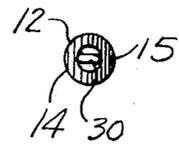


FIG. 4.



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## DIAGNOSTIC MYELOGRAPHY NEEDLE

## BACKGROUND OF THE INVENTION

## Field of the Invention

The present invention relates to surgical needles and particularly to hollow needles which are used for injecting and aspirating fluids from the spinal canal.

## Summary of the Invention

The present invention is directed to a hollow needle normally closed by a stylus during insertion of the needle. The stylus is removed to permit the injection of fluids through the hollow needle and then a second stylus having a diameter substantially less than that of the lumen of the needle is inserted through the lumen to a point beyond the end of the needle to hold the body tissues away from the opening in the needle during aspiration to prevent the tissues from closing the lumen.

The primary object of the invention is to provide a hollow surgical needle for injecting and aspirating fluids from the body having means to prevent the tissues of the body from closing the needle during aspiration.

Other objects and advantages will become apparent in the following specification when considered in the light of the attached drawings.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation of the invention shown partially broken away and in section for convenience of illustration;

FIG. 2 is a side elevation of a stylus;

FIG. 3 is an enlarged fragmentary vertical sectional view of the needle tip with the stylus of FIG. 2 in place therein; and

FIG. 4 is a bottom plan view of the structure of FIG. 3.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings in detail wherein like reference characters indicate like parts throughout the several figures the reference numeral 10 indicates generally a hollow surgical needle constructed in accordance with the invention.

The hollow surgical needle 10 includes a head 11 having an elongate hollow tubular shank 12 integrally formed therewith and extending outwardly therefrom. An axial bore 13 is formed in the head 11 communicating with the hollow shank 12. The hollow shank 12 has its terminal end truncated at 14 to form a sharp needle edge 15 to cut the body tissues while inserting the needle 10 therein.

A stylus 16 is formed to exactly fit the opening through the hollow shank 12 and has its lower end truncated at 17 to exactly align with the truncation 14 of the shank 12. The stylus 16 extends to a tapered plug 18 at the upper end thereof which fits into a tapered socket 19 in the hub 20 on the head 11. A guide key 21 formed on the plug 18 fits into a notch 22 in the hub 20 so as to align the truncated end 17 with the truncated end 14 of the shank 12. A transversely extending hub 23 is formed on the head 11 and has a axial bore 24 extending therethrough communicating with the bore 13 of the head 11. A locking air tight cap 25 is secured to

the hub 23 to maintain the bore 24 sealed when the cap 25 is in place on the hub 23.

A second stylus generally indicated at 26 includes a tapered plug 27 having its exterior shape and size identical to the tapered plug 18 and carrying thereon a key 28, identical to the key 21. A rod 29 is integrally secured to the plug 27 and extends axially outwardly therefrom. The rod 29 has a diameter substantially less than that of the bore 13 and the hollow center of the tubular shank 12 as can be clearly seen in FIG. 3.

The lower end of the rod 29 is reverted to form a loop 30 having a maximum lateral dimension slightly less than the diameter of the bore of the hollow shank 12. The length of the rod 29 is such that when the key 28 is fully engaged in the notch 22 of the hub 20 the loop 30 will project slightly past the needle edge 15 on the shank 12. (See FIG. 3) In forming the loop 30 on the rod 29 the rod is reverted tightly upon itself and is secured with metal bonding such as silver solder welding or the like.

In the use and operation of the invention the following description refers specifically to a myelographic procedure in which opaque oil is injected into the spinal canal and then removed by aspiration. It should be understood that the invention may also be used in the injection and or aspiration of fluids from other points in the body where obstruction of the needle upon aspiration is a problem. The procedure followed in use of the invention is to first insert the stylus 16 in the shank 12 to the position illustrated in FIG. 1 and then close the bore 24 with the cap 25. The needle 10 is then inserted into the body until the truncated end 14 of the shank 12 enters the spinal canal. The stylus 16 is then removed from the shank 12 and a syringe (not shown) is used to inject opaque oil through the hub 20, bore 13 and hollow shank 12 into the spinal canal. The stylus 26 is then inserted in the shank 12 until the loop 30 extends beyond the cutting edge 15 of the shank 12 and the cap 25 is removed to permit the hub 23 to be connected to an aspirating pump (not shown). The function of the loop 30 projecting beyond the end of the shank 12 is to hold the nerve roots or meninges away from the opening in the shank 12 so that when aspirating suction is applied to the shank 12 the meninges will not seal against the opening of the needle and prevent the flow of the opaque oil upwardly through the shank 12. The absence of the loop 30 permits the meninges to engage the end of the needle causing pain to the patient and preventing the complete removal of the opaque oil. It should be noted that the rod 29 and loop 30 loosely fit in the bore of the tubular shank 12 so that fluid may flow easily thereby during aspiration.

Having thus described the preferred embodiment of the invention it should be understood that numerous structural modifications and adaptations may be resorted to without departing from the spirit of the invention.

What is claimed is:

1. A diagnostic myelography needle for injecting fluids into and aspirating fluids from the spinal canal of a living patient, comprising a generally cylindrical head, said head having an axial bore extending therethrough, a socket formed in one end of said head communicating with the axial bore in said head, a hub integrally formed with said head and extending laterally

therefrom, said hub having a closable bore extending therethrough communicating with the bore in said head, an elongate cylindrical shank formed on the end of said head opposite said socket, said shank having an axial bore extending therethrough communicating with the bore in said head, an angularly truncated sharpened cutting needle edge on the end of said shank opposite said head, a plug slidably seated in said socket, cooperating interfitting means on said plug and socket to align said plug and socket and prevent relative rotation therebetween, an elongate rod fixed on said plug to extend through the bore in said shank, said rod having a diameter substantially less than the diameter of the bore in said shank, a restraining element fixed to the distal end of said rod and extending slightly beyond said needle edge of the shank to hold nerve roots and meninges away from the open needle end of said shank and prevent clogging thereof by soft tissues, whereby to

reduce pain to the patient during aspiration of fluids used for diagnosis of inter-spinal lesions.

2. A myelography needle as claimed in claim 1, wherein said restraining element comprises a single loop formed on the distal end of said rod, said loop having its major lateral dimension slightly less than the diameter of the bore of said shank, said rod and said loop having a length such that upon seal seating of said plug in said socket the terminal end of said loop will extend slightly beyond the truncated end of said shank.

3. A device as claimed in claim 1, wherein the cooperating interfitting means on said plug and socket for aligning and preventing relative rotation therebetween comprises a notch formed in said socket and a guide key formed in said plug for engagement in said notch.

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