

April 22, 1947.

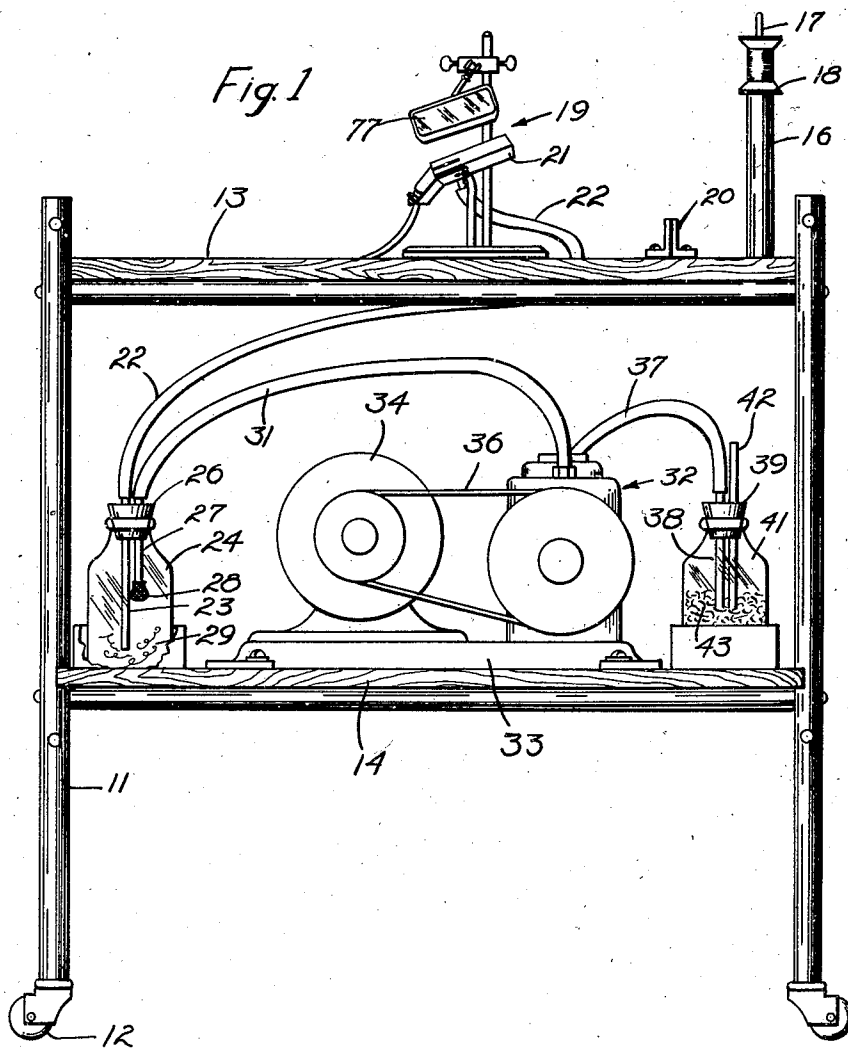
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2,419,495

NEEDLE THREADER

Filed Oct. 26, 1945

2 Sheets-Sheet 1



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2 Sheets-Sheet 2

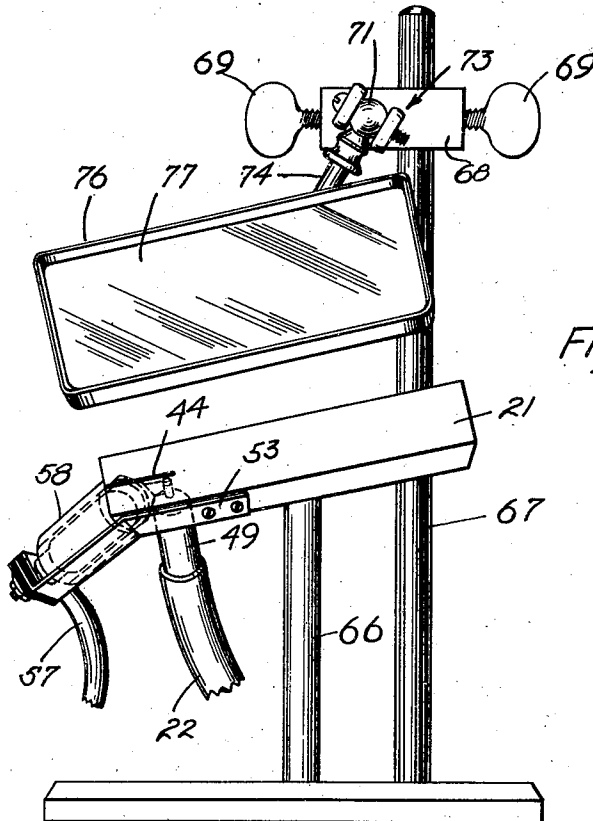


Fig. 2

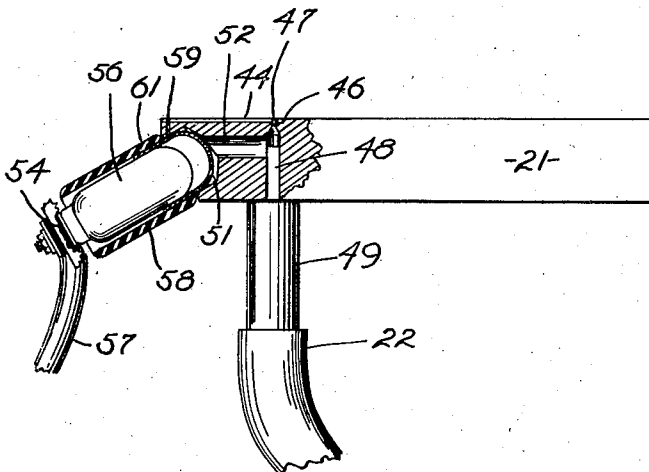


Fig. 3

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2,419,495

NEEDLE THREADER

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Application October 26, 1945, Serial No. 624,700

4 Claims. (Cl. 223-99)

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My invention relates to a needle threader particularly adapted for threading needles for sutures.

An object of my invention is to provide an improved needle threader which is of simple construction, easy to operate, and which enables the carrying out of the threading operation without undue eye strain.

Another object of my invention is to provide a needle threader suitable for use in hospitals for threading suture needles or in tailoring establishments where a large number of needles are required to be threaded, in which the thread is drawn by vacuum through the eye of the needle and a light source is conveniently located so as to aid in the threading operation.

My invention further contemplates the provision of a needle threader in which a vacuum pump is employed to create a sub-atmospheric pressure adjacent the eye of the needle and in which means is provided between the vacuum pump and the eye of the needle for trapping loose threads and preventing them from gaining access to the vacuum pump.

Other objects and advantages of my invention will be set forth in the claims and will be apparent from the following description, when taken in connection with the drawings, in which:

Fig. 1 is a view showing a general assembly of the needle threader of my invention;

Fig. 2 is a perspective view showing the supporting stand for the needle threader and the magnifying glass; and

Fig. 3 is a sectional view taken through the needle support and showing how the light source may be mounted with respect to the support upon which the needle is placed.

As shown in Fig. 1, the needle threader may comprise a frame or stand 11 which may be mounted on casters 12 to enable its convenient transportation from one point to another. The particular needle threader shown in the drawings is adapted for hospital use for threading suture needles, although my invention is by no means limited to this application. It may be employed wherever large quantities of needles are to be threaded.

The stand includes a top platform or table surface 13 and a bottom platform or shelf 14. On the top platform a post 15 is mounted which

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carries a pin 17 for the reception of a spool 18 carrying the suture thread. A thread cutter 20 of any suitable construction may be mounted on the platform in convenient position for use. Supported on the platform 13 is a movable stand, generally indicated by the numeral 19, which carries a support 21 for the reception of the needle to be threaded. A flexible hose 22 extends to the support 21 and through an opening formed in the platform 13.

The end of the hose 22 connects, in air tight relationship, to a glass tube 23 which extends into a bottle 24. The bottle is provided with a rubber sealing stopper 25 which has two openings, one for the reception of the tube 23 and the other for the reception of a second glass tube 27. The end of the glass tube 27 is provided with a strainer 28 for preventing loose threads, indicated at 29, from entering the glass tube 27.

The glass tube 27 is connected, in air tight relationship, to a flexible hose 31 which connects with the intake of a vacuum pump, generally indicated by the numeral 32. The vacuum pump is carried on the platform 14 and has a base plate 33 upon which is mounted also a motor 34 for driving the vacuum pump through a flexible belt 35.

The discharge from the vacuum pump is connected to a flexible hose 37 to the end of which a glass tube 38 is fitted in air tight relationship. The glass tube 38 extends through an opening formed in a rubber stopper 39 which is fitted to a bottle 41. A second glass tube 42 extends through an opening in the stopper into the bottle 41. Waste or other suitable oil collecting material 43 is placed in the bottle through which the air, exhausted by the vacuum pump, is filtered before passing out the tube 42 so as to prevent oil laden air from entering the room in which the needle threading is being carried out.

As shown most clearly in Fig. 2, the needle support 21 has a groove 44 for the reception of the needle. The groove is provided with a stop 45 (Fig. 3) with which the end of the needle is engaged when it is placed in the groove. A fine opening 47 is provided in the needle support at a point, with relation to the stop, so that the eye of the needle may be placed in alignment with the opening. The fine opening connects

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with a bore 48 which is connected to a tube 49 carried by the support 21.

The end of the flexible hose 22 is connected to the tube 49 so that when the vacuum pump 32 is in operation a vacuum or sub-atmospheric pressure is drawn through the hose connections 31 and 32 and through the tube 49, bore 48 and the fine opening 47. Thus when a needle is placed in the groove 44 with its end in engagement with the stop 46, the eye of the needle may be placed in alignment with the fine opening 47 and a flow of air may be created through the eye of the needle and through the opening 47 into the flexible hose 22. A thread held adjacent the eye of the needle will be drawn through the eye so as to thread the needle. Any loose threads which may be drawn in or should the thread break, such loose or broken threads will be deposited in the bottle 24 and not pass through the vacuum pump.

The support 21 is provided with a circular opening 51 which connects with a bore 52 in the support 21. The bore 52 intersects the bore 48 so that light rays (as presently described) passing through the bore 52 will be effective in the bore 48. The operator looking down from above may readily see the eye of the needle, part of the light rays being reflected upward through the needle eye.

A brack 53 is carried by the needle support 21 and supports a socket 54 for the reception of a light bulb 56. The support also carries wires 57 which may be connected to a source of current. The light source 56 may be encased in a preferably rubber sleeve 58 which is open at its ends as shown. Fitted into and sealed with respect to the margins of the circular opening 51 is a cup shaped member 59 which may be of glass or suitable transparent or translucent plastic. The rubber sleeve 58 is fitted over the open end of the plastic cup shaped member 59 as shown. Thus light from the light source 56 passes through the transparent plastic material 59 and through the bore 52.

As previously mentioned, the assembly is supported in position by the bracket 53, with the plastic cup shaped member 59 in frictional engagement with the light bulb 56 as shown at 61. The opening 51 in the support 21 has circular margins adapted to receive the cup shaped plastic member 59 in close fitting sealed air tight relationship. The tube 58 may also be pressed into engagement with the margins of the opening 51 with the sleeve sealing the open end of the cup shaped member externally and the bulb sealing the cup shaped member internally. This arrangement enables the light bulb assembly to be readily removed from the support 21, if desired. However, if desired, the surfaces between the sleeve and the plastic cup shaped member and between the plastic cup shaped member and the light bulb may be sealed by a suitable sealing compound.

It will now be particularly noted, while the light from the light source illuminates the eye of the needle, that the eyes of the operator are protected against receiving any light from the light source other than that which passes through the eye of the needle. This greatly aids in threading the needle, protects the eyes of the operator and yet the needle eye is clearly visible so that the operator may readily position the thread adjacent thereto.

The needle support 21 is mounted on a support tube 66 carried by the stand which also carries

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a second support tube 67. A bracket 68, shiftable along the support tube, is adjustably positioned by thumb screws 69 which engage the tube. An arm 71 is mounted on the adjustable bracket and is provided at its end with an adjustable universal joint, generally indicated by the numeral 73. An arm 74 extends from the universal joint and is secured to a frame 76 which supports a magnifying glass 77. By means of the adjustments above mentioned the magnifying glass may be positioned in accordance with the convenience of the user to assist in locating the eye of the needle.

It is believed that the needle threader of my invention will be understood from the foregoing. The apparatus permits the threading of needles very rapidly without undue eye strain since, while the needle opening is illuminated, the eyes of the user are protected from the glare of the light source.

While I have shown and described the preferred form of my invention, it will be appreciated that various changes and modifications may be made therein, particularly in the form and relation of parts, without departing from the spirit of my invention as set forth in the appended claims.

I claim:

1. A needle threader comprising, in combination, a support for receiving the needle to be threaded, said support having a bore in alignment with which the eye of the needle is placed, means for creating a sub-atmospheric pressure in said bore to draw a thread through the eye of the needle, said support having an opening communicating with said bore, a light source having connections to an external source of current mounted in said opening and sealed with respect to the margins thereof, and means on the discharge side of the vacuum pump for preventing oil laden air from the vacuum pump from being liberated in the room in which the needle threading is being carried out.

2. A needle threader comprising, in combination, a support having a needle receiving groove, said groove having an opening and a stop for locating the eye of the needle in alignment with said opening, means for creating sub-atmospheric pressure in said opening to draw a thread through the eye of the needle and a light source carried by said support in such position with respect to said opening that light rays therefrom pass upward through said opening and through the eye of the needle.

3. A needle threader comprising, in combination, a support having an opening adapted to receive the eye of a needle in alignment therewith, means for creating a sub-atmospheric pressure in said opening to draw a thread through the eye of the needle, said support having a second opening in communication with said first opening, and a light source carried by said support and arranged so that light passes through said second opening and thence through said first opening so as to illuminate the eye of the needle.

4. A needle threader comprising, in combination, a support having an opening adapted to receive the eye of a needle in alignment therewith, means for creating a sub-atmospheric pressure in said opening to draw a thread through the eye of the needle, said support having a second opening in communication with said first opening, a light source carried by said support and arranged so that light passes through said second opening and thence through said first opening so

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as to illuminate the eye of the needle, and means for preventing light rays from said source from reaching the eyes of the person threading needles except through said first opening.

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