

June 18, 1946.

W. C. FREELAND
NEEDLE SHARPENING DEVICE

2,402,245

Filed Aug. 6, 1945

2 Sheets-Sheet 1

FIG. 1.

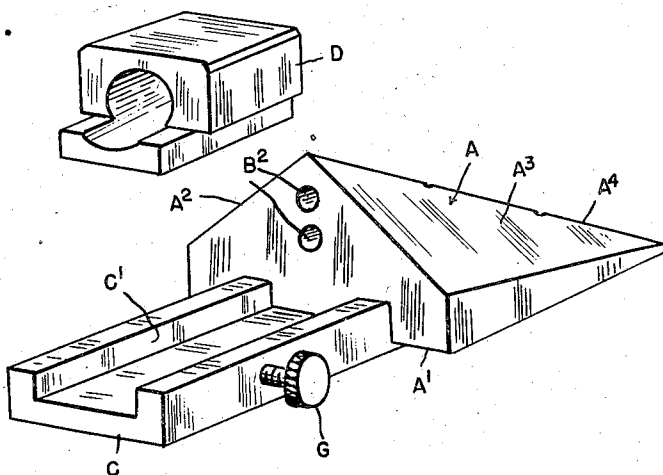


FIG. 4.

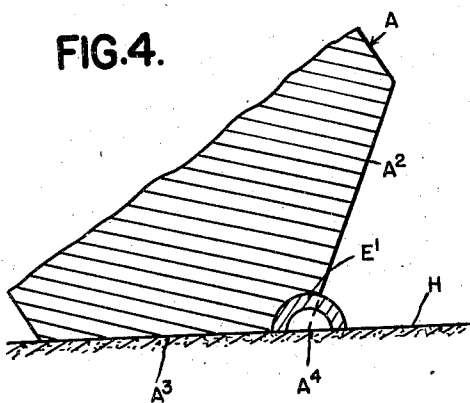
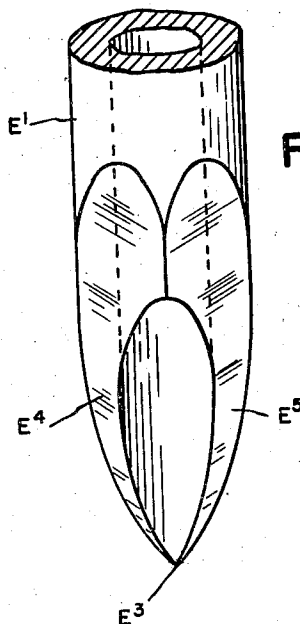


FIG. 5.



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FIG. 3.

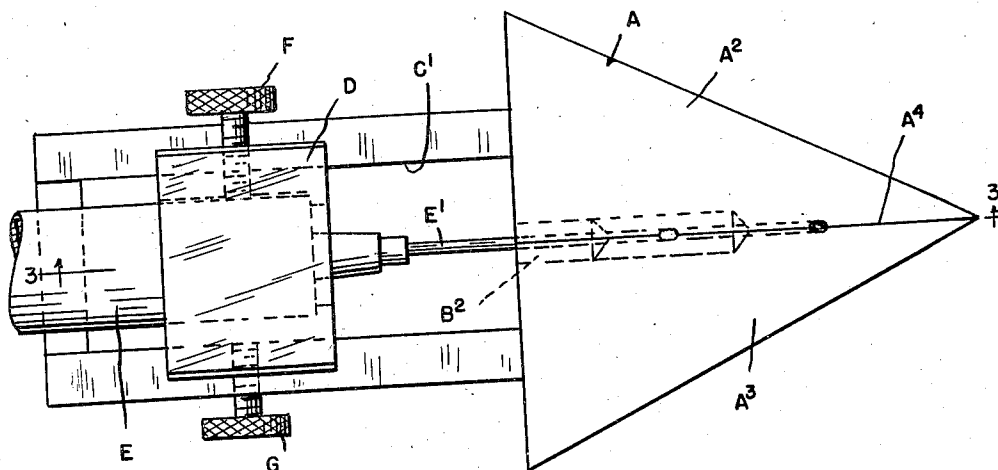
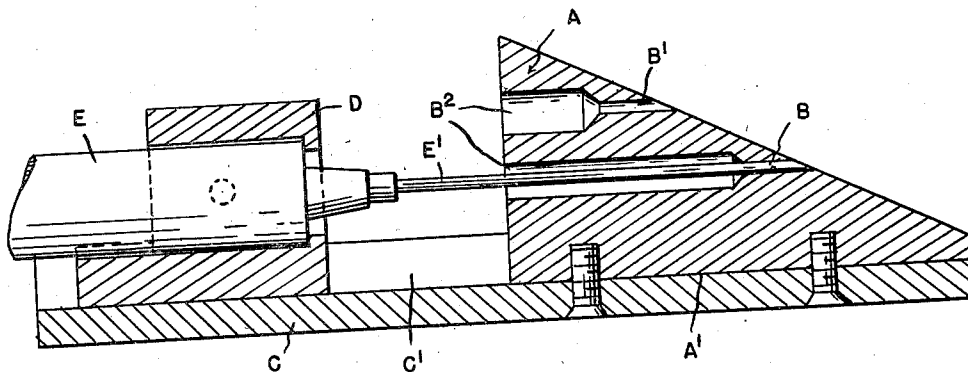


FIG. 2.

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2,402,245

NEEDLE SHARPENING DEVICE

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6 Claims. (Cl. 51—221)

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The invention relates to means for sharpening needles and more particularly hypodermic needles.

It is the object of the invention to obtain a construction which will sharpen the needle to a point of predetermined shape.

It is a further object to obtain a construction which in its use requires no particular skill on the part of the operator.

It is a further object to obtain a construction in which the needle can be sharpened without the necessity of detaching the same from the syringe. With these and other objects in view the invention consists in the construction as hereinafter set forth.

In the drawings:

Fig. 1 is a perspective view of the needle holder and adapter showing the latter detached;

Fig. 2 is a plan view showing a syringe and attached needle in engagement with the holder;

Fig. 3 is a vertical longitudinal section on line 3—3, Fig. 2;

Fig. 4 is an enlarged cross sectional view through the block A with a needle E' in position to be sharpened on an abrasive member;

Fig. 5 is an enlarged elevation of the sharpened needle.

Hypodermic needles are usually pointed by grinding the end portion at an oblique angle to the needle axis. Such grinding may be in a single plane but a sharper point is produced if the needle is ground in two planes to form the apex of the point at the intersection of said planes. This will produce a symmetrical shape with respect to the axis of the needle which will penetrate the flesh without tendency towards lateral deflection. It is the primary object of my invention to obtain a holder for the needle which, first, will hold it rigid during the grinding operation and, second, will guide the abrasive member to form a symmetrical point thereon, the construction being as follows. A is a block having a base surface A' and upper faces A² and A³, which latter are at a predetermined angle to each other and intersect in a line A⁴ extending obliquely with respect to the base longitudinally thereof. Actually the intersecting faces A² and A³ form a ridge along the line A⁴. B is a needle receiving bore extending longitudinally through the block A parallel to the base thereof in a median plane between the faces A², A³, which contains the line A⁴. The axis of the bore intersects this line A⁴ so that the openings through the faces A² and A³ respectively are symmetrical. To adapt the device for receiving different gauge needles, a plurality of said bores may be passed

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through the block and, as specifically shown in Fig. 3, a second bore B' is arranged vertically above the bore B. Each of these bores preferably has a counterbore portion B² so that the portions B and B' are restricted in length to receive needles of minimum length. The block A is preferably mounted on a base member C which extends in rear of said block. This rearwardly extending portion has a channel C' therein for receiving an exchangeable longitudinally adjustable member D. The member D constitutes an adapter for engaging either the needle or the syringe to which the needle is attached and aligning the needle with the bore B or B' corresponding thereto. As shown in Figs. 2 and 3, the adapter D engages the body E of a syringe and a clamping screw F is provided to hold the two in rigid relation to each other. There is also provided another clamping screw G in the channeled base C for holding the member D after proper longitudinal adjustment of the same.

With the construction as above described, the operator desiring to sharpen a hypodermic needle before use thereof is not required to detach it from the syringe. He first selects an adapter D for fitting the syringe and registering the needle E' thereof with its corresponding bore, such as B. The adapter is then moved longitudinally in the channeled base C so as to project the outer end of the needle slightly beyond the faces A², A³. The clamping screw G is then tightened which will hold the needle rigidly in this position. The sharpening is effected by a suitable abrasive member or hone H, which can be reciprocated in contact with the projecting portion of the needle successively parallel to the faces A² and A³ of the block A. When the needle is ground down to the planes of said faces, the apex E³ of the point will be in the line A⁴ and the ground portions E⁴ and E⁵ in rear thereof will be symmetrical as shown in Fig. 5.

It is obvious that the operation just described requires very little skill on the part of the operator and can be performed very quickly. Also, that the sharpened point will always be symmetrical and of the desired shape.

What I claim as my invention is:

1. A sharpener for hypodermic needles comprising a block having intersecting faces at a predetermined angle to each other, said block being provided with a needle receiving bore located in a median plane between said faces and at an oblique angle to the line of intersection thereof, and means for rigidly holding a hypodermic needle in said bore to project slightly beyond

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said faces whereby the grinding off of said projecting portion to the planes of said faces will produce a symmetrical sharpened point.

2. A sharpener for hypodermic needles comprising a block having a base portion and faces above the same at a predetermined angle to each other and intersecting in a line extending at an oblique angle to said base portion, said block having one or more needle receiving bores extending therethrough parallel to said base portion and in a median plane between said faces passing through the line of intersection thereof, and means secured to said base portion for holding a hypodermic needle rigidly in said bore to project slightly beyond said faces.

3. A sharpener for hypodermic needles comprising a block having a base portion and faces above the same at a predetermined angle to each other and intersecting in a line extending at an oblique angle to said base portion, said block having one or more needle receiving bores extending therethrough parallel to said base portion and in a median plane between said faces passing through the line of intersection thereof, an exchangeable adapter for holding a hypodermic needle to register the same with one of said bores, said adapter being longitudinally adjustable on said base portion to project the needle slightly beyond said faces, and clamping means for rigidly holding the adapter in its adjusted position.

4. A sharpener for hypodermic needles comprising a block having a base portion and faces above the same at a predetermined angle to each other and intersecting in a line extending at an oblique angle to said base portion, said block having one or more needle receiving bores extending therethrough parallel to said base portion and in a median plane between said faces passing through the line of intersection thereof, and an adapter for engaging a syringe to which a hypodermic needle is attached and for register-

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ing the latter with one of said bores, said adapter being adjustable on said base portion to insert said needle in said bore and to project the same slightly beyond said faces.

5. A sharpener for hypodermic needles comprising a base member, a block secured to a forward portion of said base member and having faces at a predetermined angle to each other intersecting in a line extending at an oblique angle to said base member longitudinally thereof, said block having one or more needle receiving bores extending longitudinally therethrough parallel to said base member and in a median plane between said faces passing through the line of intersection thereof, the portion of said base member in rear of said block having a channel therein and an exchangeable adapter for engaging a syringe to which a hypodermic needle is attached, said adapter being slidable in said channel and fashioned to register the needle with one of said bores, means for clamping said syringe in said adapter, and means for clamping the adapter to said channel after adjusting the same to insert the needle through said bore and to project slightly beyond said faces whereby said needle is held rigidly in relation to said faces during a grinding operation.

6. A sharpener for hypodermic needles comprising a base member having a channel portion, a block on said base member in line with said channel portion and having intersecting faces forming a ridge, said block also having a needle receiving bore in line with said channel and intersecting said ridge, and means for holding a hypodermic needle in said bore so that an end of said needle projects slightly beyond said ridge and may be ground down to the planes of said intersecting faces to produce a symmetrical sharpened point, including a member adjustable longitudinally of the channel portion of said base member.

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