

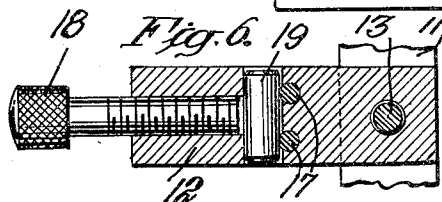
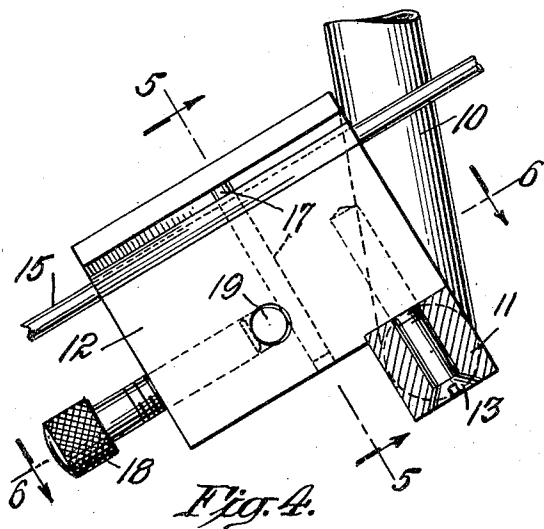
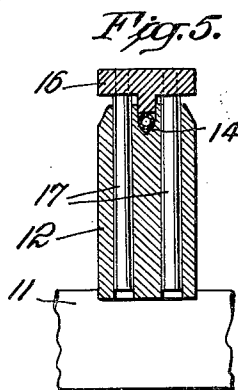
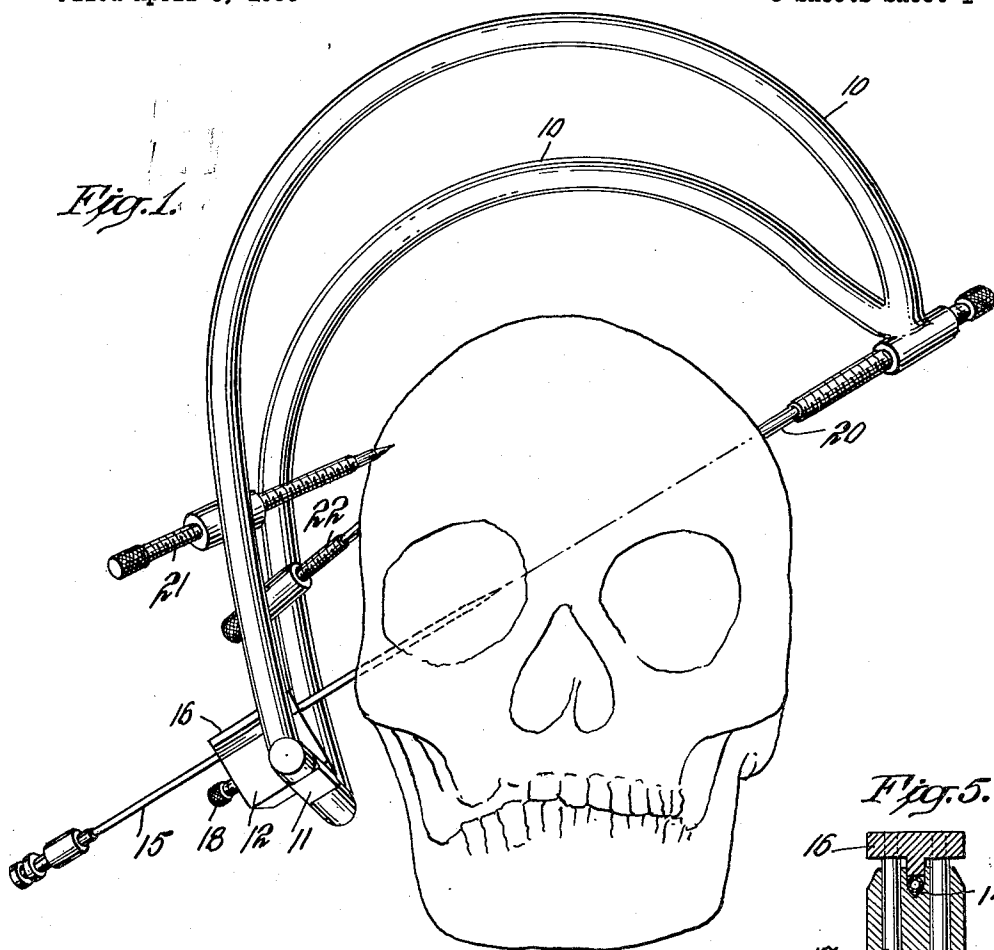
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I. S. COOPER ET AL
PALLIDECTOMY NEEDLE HOLDERS

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3 Sheets-Sheet 1



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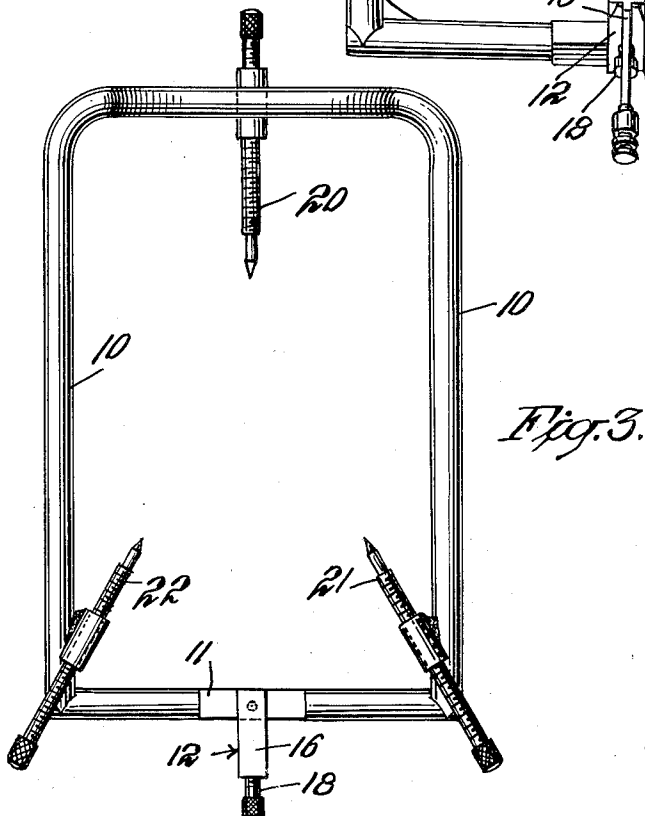
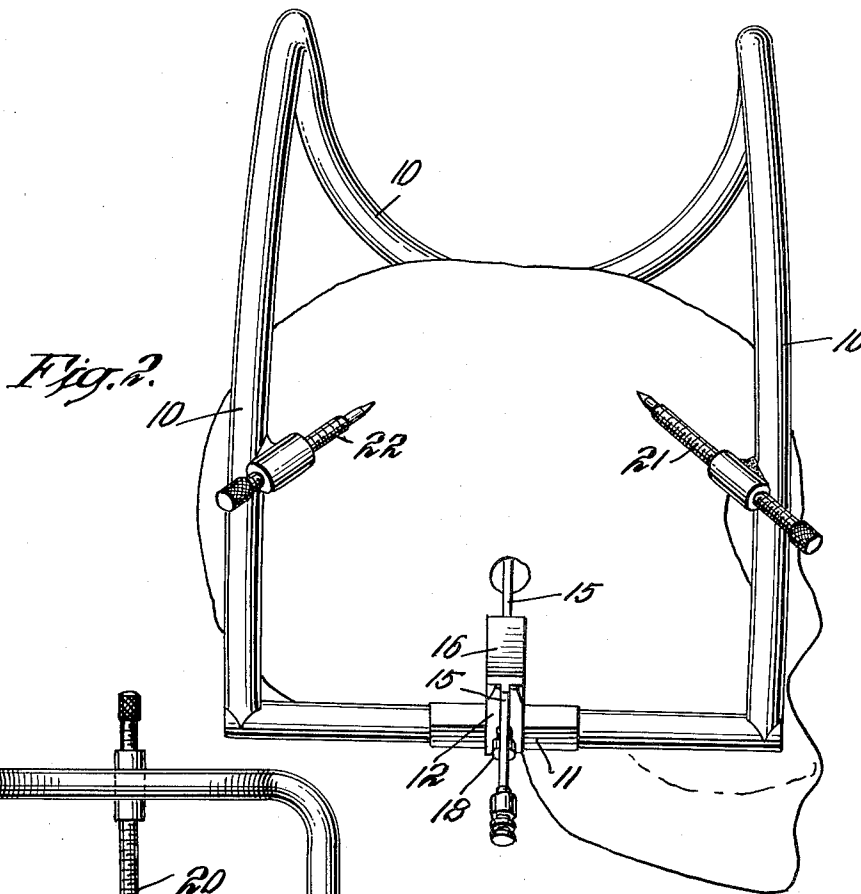
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3 Sheets-Sheet 2



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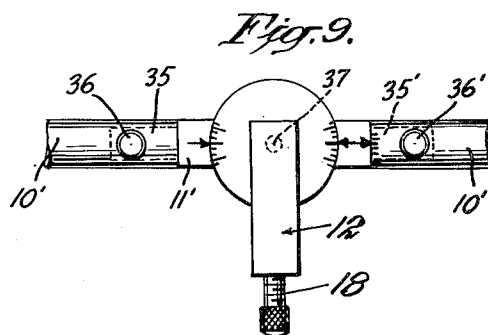
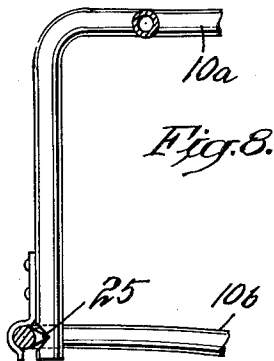
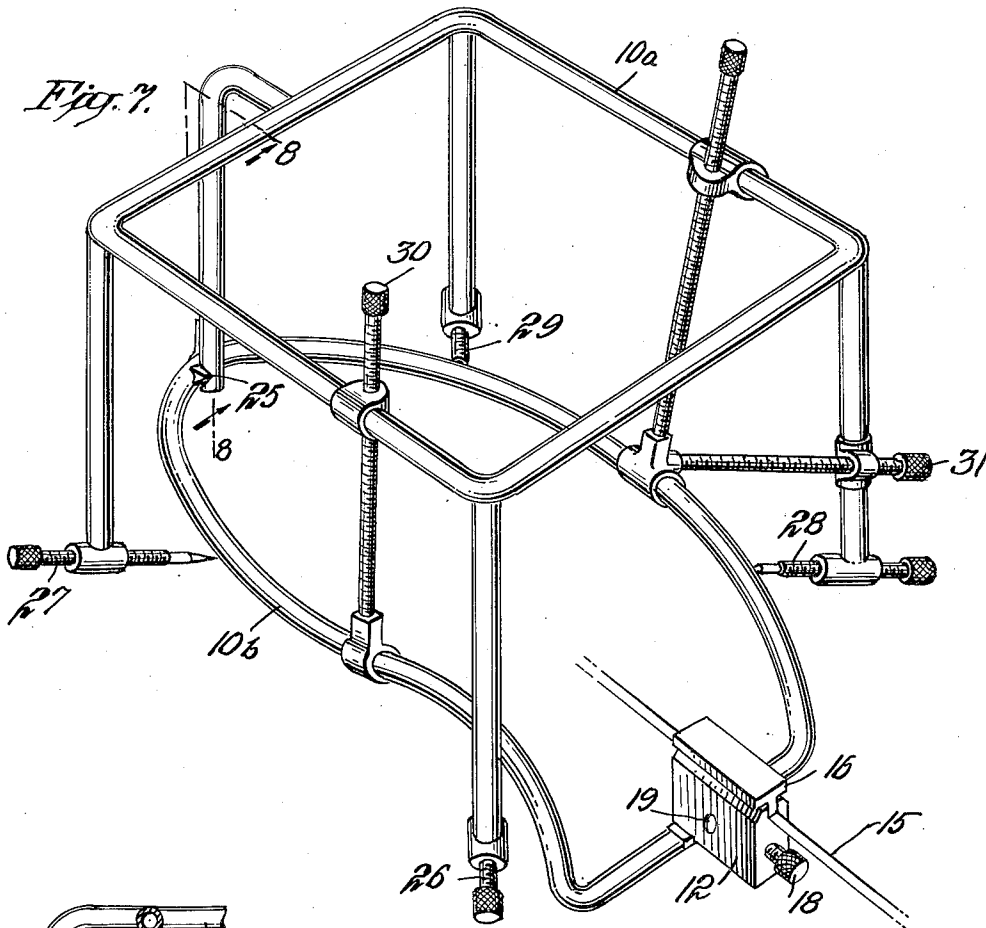
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PALLIDECTOMY NEEDLE HOLDERS

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This invention relates to a pallidectomy needle holder for directing a needle or cannula to a specific part of the brain.

The operation of chemopallidectomy has been found effective in the treatment and cure of Parkinson's disease. The operation consists in the destruction of a small portion of the brain known as the mesial globus pallidus.

Before the operation is performed, pneumoencephalography, with the use of sufficient air to fill and visualize radiographically the lateral and third ventricles, is used to locate the globus pallidus in the patient under treatment, and a line passing directly through the globus is indicated by marks made on the scalp and face. At the lower mark which lies below one of the temples, an incision is made and a trephine opening is made in the skull. It is then necessary to direct the needle passed through this opening towards the mark which has been made in the opposite side of the scalp and to check this direction radiographically. The specific purpose of the present invention is to provide a device for facilitating this.

In order that the invention may be clearly understood, we will describe the needle holder shown in the accompanying drawings in which:

FIG. 1 is a front elevation of the holder applied to a skull and showing the needle partially inserted into the brain;

FIG. 2 is a right-hand side elevation of the device shown in FIG. 1 indicating the position of the skull and the trephine opening therein;

FIG. 3 is a top view of the device shown in FIGS. 1 and 2;

FIG. 4 is an enlarged detail side elevation of the needle guide shown in FIG. 1;

FIGS. 5 and 6 are sections on the lines 5-5 and 6-6 of FIG. 4;

FIG. 7 is a perspective view of a modified needle holder;

FIG. 8 is a vertical section on the plane 8-8 of FIG. 7; and

FIG. 9 is a top view of a modified adjustable needle guide for use in the needle holder of FIG. 1.

The needle holder of FIGS. 1 to 6 has a light open and rigid frame 10 adapted to surround a part of the head and lie at some distance from it. The frame 10 is most desirably made of aluminum.

Secured to a lower bar 11 of the frame 10 is the needle guide 12. This consists of a metal block secured at a flattened face on the bar 11 by a screw 13, and having in its top a groove or channel 14 for guiding the needle or cannula 15. A removable T-shaped cover 16 holds the needle 15 in the groove 14. Two pins 17 secured to the cover 16 pass through bores in the block 12 in which they may be locked by a releasable hand screw 18 in conjunction with a plug 19 which is engaged by the end of screw 18 and forced against pins 17.

In order that the needle holder may be mounted securely on the head, it is provided with at least three inwardly extending scalp-engaging means which are shown as pointed screws 20, 21, 22. The screw 20 serves not only as an attachment means but also as a means for indicating the line passing through the globus. It extends inwardly from the frame 10 directly in line with the groove 14 of the needle guide 12. The screws 21 and

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22 extend in general oppositely to the direction of the screw 20 and are placed at some distance from the needle guide 12 so as to be well clear of the incision.

The manner in which the needle holder of FIGS. 1 to 6 is used is as follows:

The holder is placed about the patient's head with the point of the screw 20 engaging the mark on the scalp which is made during the pneumoencephalography. The holder is then swung about the point of the screw 20 until the needle in the guide 12 is directed toward the trephine opening. The holder is then secured in this position by screwing the screws 21 and 22 firmly in the scalp. After the holder has been mounted on the head, the position of the line between the needle and the screw 20 is checked roentgenographically, and another such check is most desirably made after partial insertion of the cannula.

If these checks fail to show the line of the needle in correct position with respect to the ventricles shown in the roentgenograms, the attachment of the needle holder to the head is released by loosening the screws and its position is readjusted.

The needle holder of FIGS. 7 and 8 differs from that previously described in that it has two light rigid frames 10a and 10b which are connected at a hinge pivot 25. In this form of holder, this pivot 25, rather than one of the fastening screws, lies on the line on which the needle is guided. In this case, the needle guide 12 is mounted so that the needle 15 in its groove 14 is pointed directly at the hinge pivot 25.

In using the holder of FIGS. 7 and 8, the frame is placed about the head with the hinge pivot 25 on the mark which had been made on the scalp. The frame 10a is then secured on the head by screwing the four fastening screws 26, 27, 28, 29 firmly into the scalp. After this has been done, the frame 10b may be swung about the pivot 25 by means of vertical and horizontal adjusting screws 30, 31 in order to direct the needle in the guide 12 into the trephine opening along the proper line.

This device has an advantage over the simpler device of FIG. 1 in that it permits minor adjustment of the needle position without loosening the fasteners from the scalp.

The device shown in FIG. 1 may be modified by giving the needle guide 12 a universal mounting on the bar 11 of the frame as shown in FIG. 9. This is readily done by providing bar 11' with ends 35, 35' of reduced diameter that telescope within the hollow frame 10' to permit the bar 11', and its block 12, to be rotated about a horizontal axis. The bar can be held in selected position on its horizontal axis by lock screws 36, 36'. The block 12 is supported on the bar 11' for movement about the vertical axis indicated by dotted lines at 37. The universal mounting is graduated as shown so that slight but accurate adjustments may be made in the direction of the needle in accordance with the indications of the roentgenograms taken after the needle holder has been secured on the head.

By loosening the hand screw 18 and removing the cover 16, the needle 15 may be freed from the guide 12. After this has been done, the frame may be removed after loosening the holding screws, while leaving the cannula in position. This is important, as in this operation it is sometimes necessary to allow the needle or cannula to remain in the brain for several days after the operation so that additional injections may be made.

What is claimed is:

1. A pallidectomy needle holder comprising a light rigid frame, scalp-engaging means for securely mounting said frame about the head, a block on said frame containing an elongated needle guiding groove, and an easily detachable cover having a tongue adapted to enter said groove for holding a needle in said groove.

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2. A pallidectomy needle holder comprising two light rigid frames, a pivotal connection between said frames, scalp-engaging means for mounting one of said frames about the head, a needle guide on the other of said frames directed towards said pivot, and adjusting screws connected with both of the frames for relative adjustment of said frames about the pivot.

3. A pallidectomy needle holder comprising a light rigid frame, scalp-engaging means for mounting said frame firmly about the head, a block spaced from said scalp-engaging means and mounted on said frame for universal adjustment with respect to said frame, and a needle guiding groove in said block.

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