Feb. 18, 1930. D. C. STRAUS 1,747,799

RETRACTOR

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Fig. 1

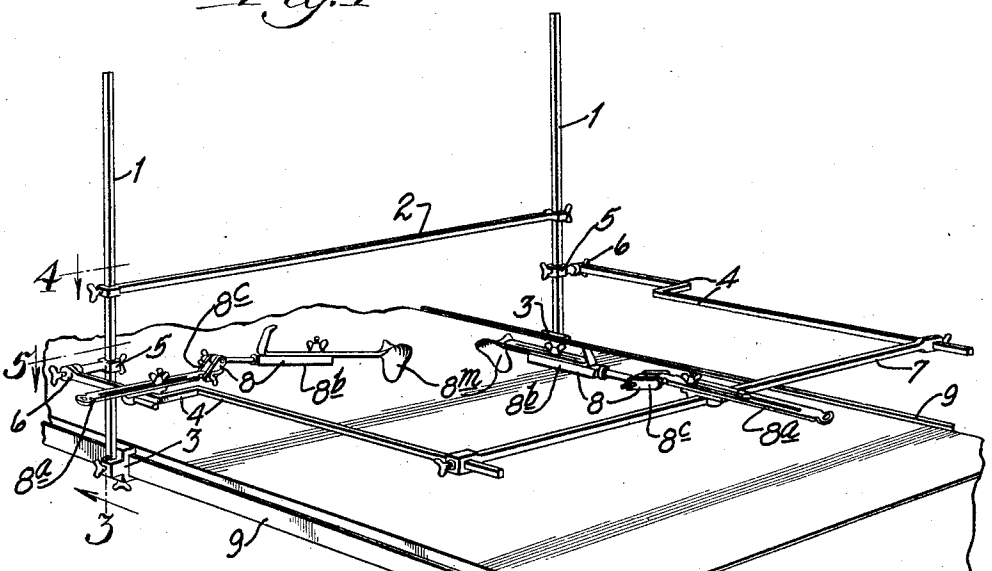

Fig. 2

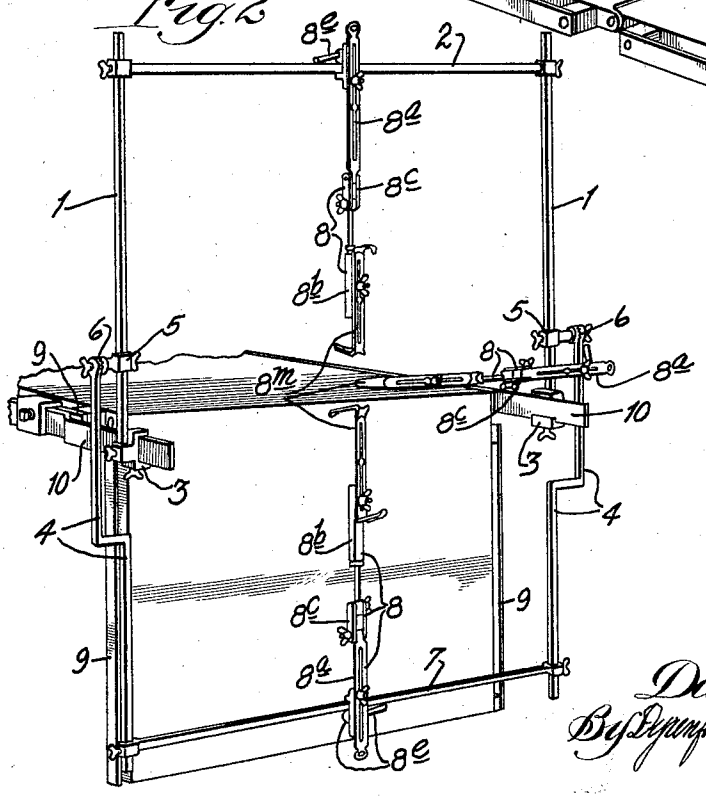

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Fig. 3

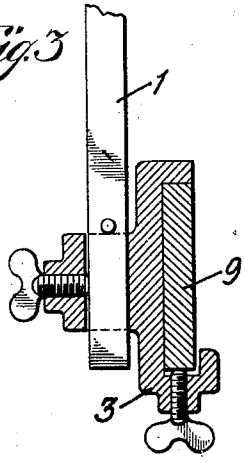


Fig. 4

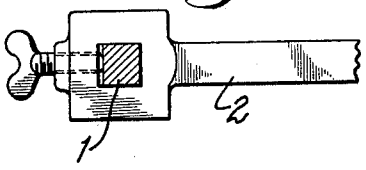


Fig. 5

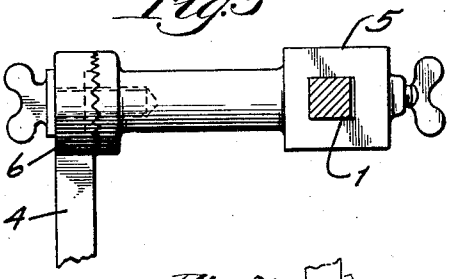


Fig. 7

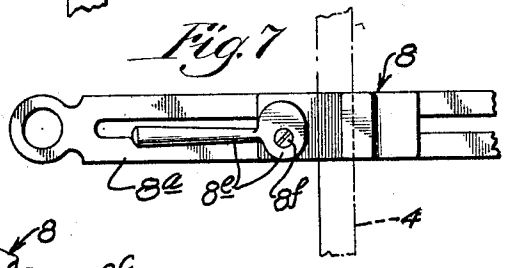


Fig. 6

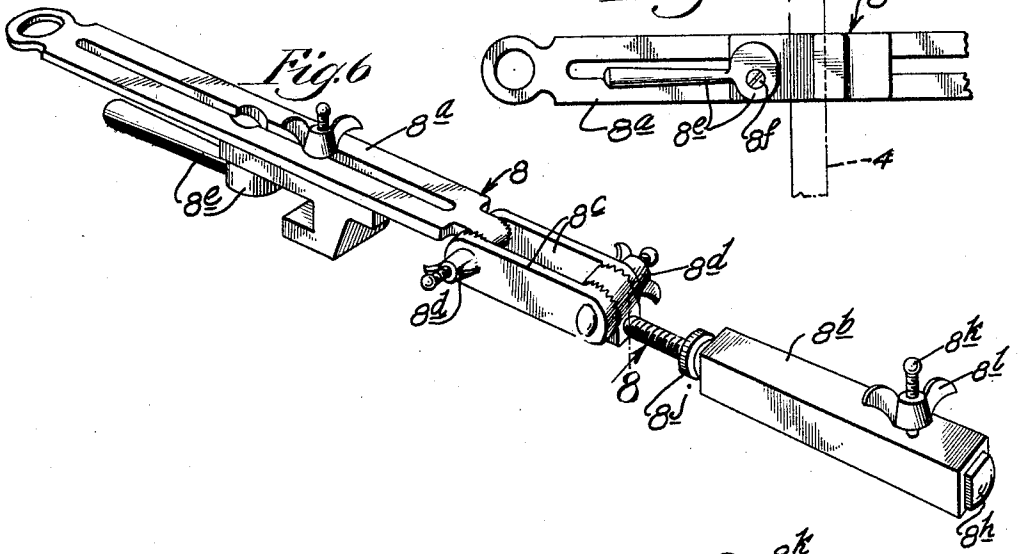
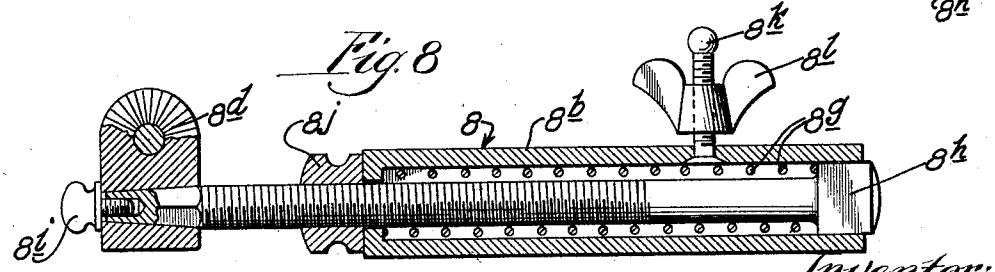


Fig. 8



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UNITED STATES PATENT OFFICE

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RETRACTOR

Application filed September 14, 1928. Serial No. 306,056.

This invention relates to an improvement in retractors and has for its object the production of a self-retaining retractor mechanism designed to eliminate the need of assistants for holding the retractors during an operation. Retractors held in the hands of an assistant are often unsatisfactory because the hands and arms of the assistant are often in the way and also because the assistant frequently tires so that uniform tension on the retractor instrument is not maintained. Further objects and advantages of the invention will more fully appear as I proceed with my specification.

A convenient embodiment of my invention is illustrated in the accompanying drawings, in which—

Fig. 1 shows the device in perspective mounted on the operating table; Fig. 2, also a perspective view, shows the device as applied to the end of an operating table; Figs. 3, 4 and 5 are detailed sections taken as indicated in Fig. 1 showing various sections of the forms of frame connections used; Fig. 6 is a perspective view of the retractor handle; Fig. 7 is a bottom plan view of a portion of the retractor handle; and Fig. 8 is a section of a portion of the retractor handle taken on line 8 of Fig. 6.

Referring in detail to the drawings, 1 designates a square vertical frame having an adjustable cross-bar 2 joining its vertical upright portions. A detail of the adjustable connection between the vertical upright and the cross-bar 2 is shown in Fig. 4. The frame 1 is slidably secured to the operating table by means of brackets 3 which are mounted on side-bar strips 9 extending along each side of the table as shown. Any ordinary form of connecting bracket may be used which will permit the frame to be moved in a vertical plane and which will also permit the frame to be moved horizontally along the side-bar strips on the operating table. A section of a convenient form of bracket is shown in detail in Fig. 3.

A horizontal right angled frame 4 is supported on the vertical frame 1 as shown, though if desired it may be independently supported from the side-bar strips 9 by suitable bracket connections. The bracket connection 5, shown in detail in Fig. 5, affords a suitable connection between the two frames. The frame 4 is adapted to pivot at 6, a detail of a convenient pivot clamp connection being shown in Fig. 5. In performing operations on the head, or the extremities, the vertical frame 1 may be moved upon an extension 10 secured to the side-bar strips 9 and projecting beyond the end of the table, as shown in Fig. 2. The horizontal frame 4 is pivoted or swung downwardly into parallelism with the vertical frame 1, as shown in Fig. 2. The frame 4 has an adjustable horizontal cross-member 7 corresponding to the cross-member 2 of the vertical frame.

The two frames combinedly constitute a rigid and adjustable support which may be shifted in practically any position upon the operating table. The side frame members of both the vertical and horizontal frames may be of varied lengths to suit the particular operation in question.

An improved form of retractor 8 is designed to be used in conjunction with the frame construction just described. The handle portion of the retractor, shown in detail in Figs. 6, 7 and 8, comprises a slotted member 8^a and a hollow rectangular member 8^b joined together by a link 8^c. The link is provided at each end with adjustable screw clamps 8^d which permit adjusting of the handle in fixed position at any desired angle.

The eccentric clamp 8^e, secured to the underside of the member 8^a by the bolt 8^f, serves as a mounting means for adjustably and demountably mounting the retractor 8 on the vertical or horizontal supporting frames 1 and 4, as the case may be.

A section of the portion 8^b of the retractor is shown in detail in Fig. 8. The body-portion is hollow and contains a coil-spring 8^g which surrounds the shank of a square headed bolt 8^h. The bolt 8^h projects longitudinally through the body-portion of the member 8^b and extends through and is connected to a portion of the screw clamp 8^d by means of the threaded cap 8^i. The tension of the spring 8^g may be adjusted by means of the tension screw control 8^j. The member 8^b carries a

bolt 8^k and wing-nut 8^l for securing thereto the retractor blade 8^m which is slotted and has a portion of the slot enlarged to permit the wing-bolt to be inserted therethrough. The retractor blade may be single or double and may have any desired form of hook as the particular operation may require. It is adjustable independently of the handle-portion of the retractor.

The improved form of retractor in combination with the new type of mounting frame admits of retraction in any desired direction and under any degree of tension. The retractor handle is adjustably and demountably secured to the mounting frame and is also itself jointed to permit adjustment at any angle relative to the mounting frame. In addition, the retractor blade is itself adjustably and demountably mounted independently of the retractor handle. The entire combination eliminates the need of any assistant to hold the retractor instruments and is adapted for use upon operations on the head, or extremities, or upon the throat, chest or abdomen, as the case may be.

The foregoing detailed description has been given for clearness of understanding only, and no unnecessary limitations should be understood therefrom, but the appended claims should be construed as broadly as permissible, in view of the prior art.

What I regard as new, and desire to secure by Letters Patent, is:

1. In combination with an operating table having slides at the sides thereof, a retractor, including a vertical frame slidably mounted on said slides, a horizontal frame carried by said vertical frame, and a retractor member adjustably and demountably mounted on said horizontal frame.

2. A retractor including; a vertical frame with a vertically adjustable cross-bar; means for attaching the vertical frame to an operating table; a horizontal frame carried by said vertical frame; a retractor member; and means for adjustably and demountably mounting said retractor member on said horizontal frame.

3. A retractor as claimed in claim 2 in which the retractor member may be mounted on the horizontal frame or on the cross-bar of the vertical frame.

4. A retractor as claimed in claim 2 in which the horizontal frame is vertically adjustable on the vertical frame.

5. A retractor including; a vertical frame provided with a vertically adjustable cross-bar; a retractor member; means for adjustably and demountably mounting said retractor member on said cross-bar; means for attaching said vertical frame to an operating table; a second frame swingably mounted on said first mentioned frame, said second frame adapted to be swung from horizontal position to vertical position; a second retractor member; and means for adjustably and demountably mounting said second retractor on said swingable frame.

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