Oct. 2, 1945. W. L. MERMIS 2,386,134

SURGICAL FIXTURE

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FIG. 1.

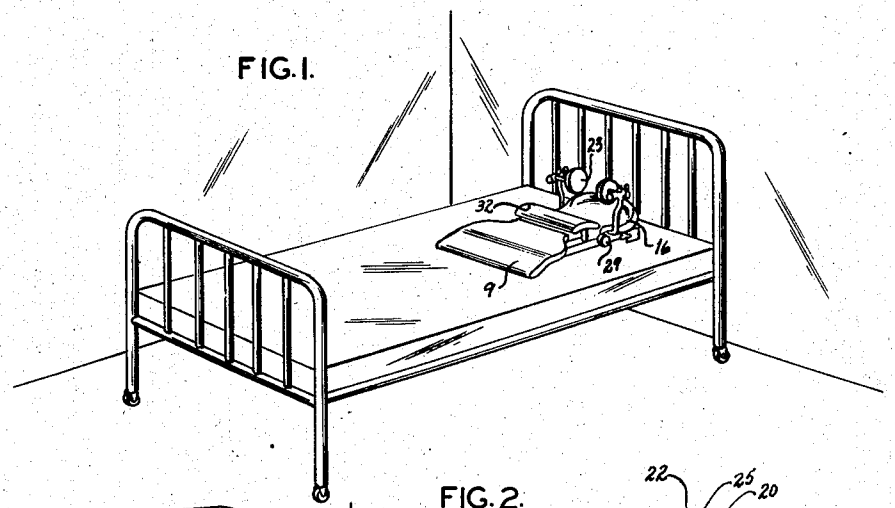


FIG. 2.

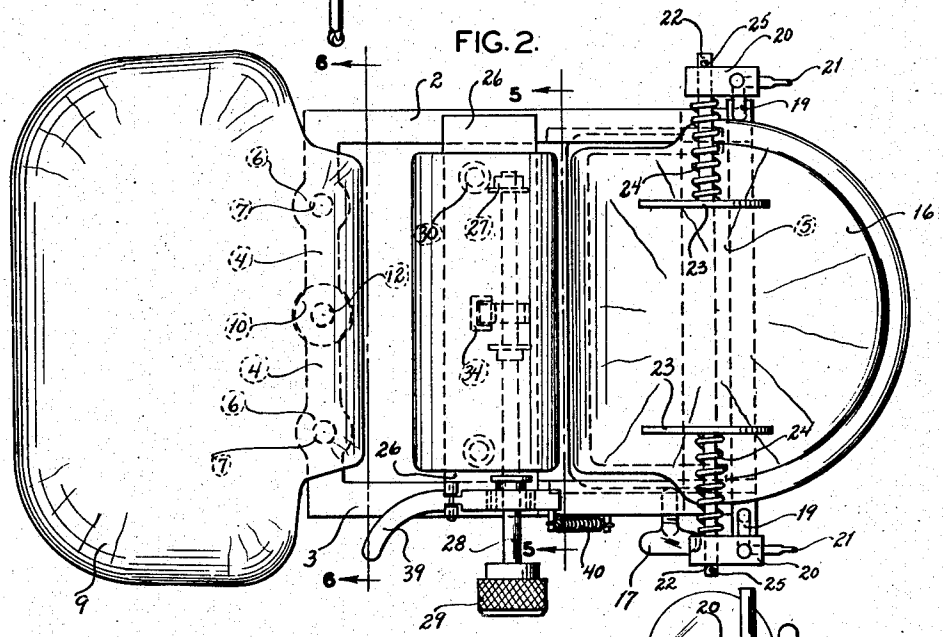
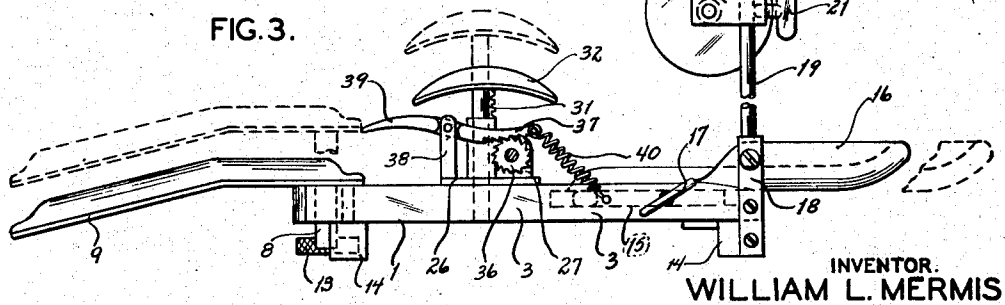


FIG. 3.



INVENTOR.
WILLIAM L. MERMIS
BY Alfred W. Pitchaff
ATTORNEY.

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FIG. 4.

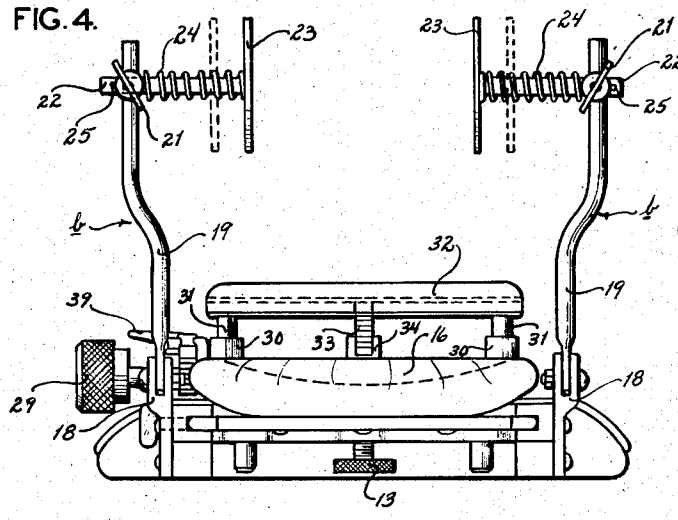


FIG. 7.

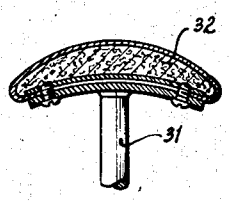


FIG. 8.

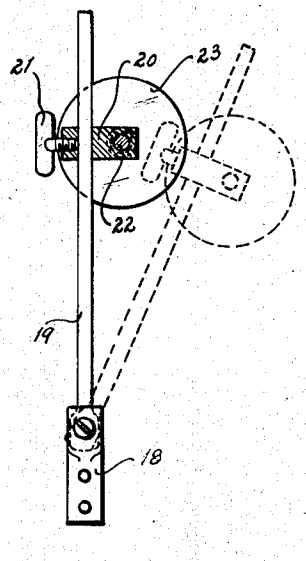


FIG. 5.

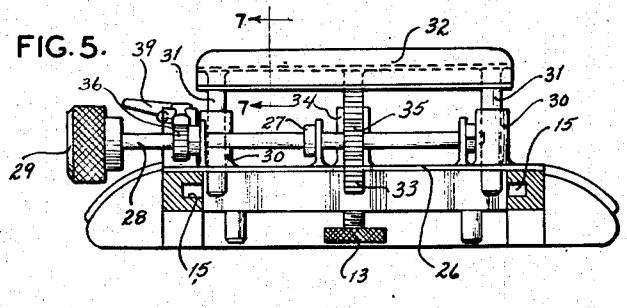


FIG. 6.

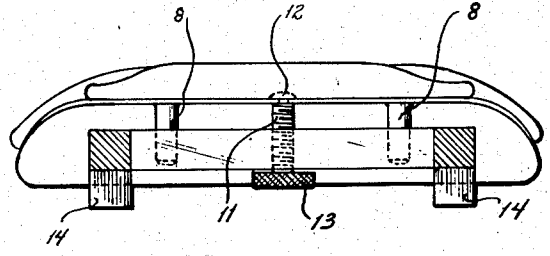
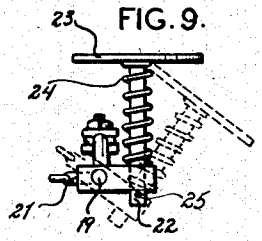


FIG. 9.



INVENTOR.
WILLIAM L. MERMIS
BY
Alfred W. Ketchaft
ATTORNEY.

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SURGICAL FIXTURE

William L. Mermis, Youngstown, Ohio

Application July 31, 1944, Serial No. 547,391

5 Claims. (Cl. 128—1)

This invention relates in general to surgical fixtures and, more particularly, to a fixture or holding device adapted to position and hold the head, neck, and shoulders of a patient during a nasal or throat operation, such as a tonsillectomy, sinus surgery, or bronchoscopy.

The present invention has for its primary objects the provision of a device of the type stated which is simple and rugged in construction and can be quickly and accurately adjusted to the various desired positions in which the patient must be placed for the surgical procedures to be employed.

It is a further object of the present invention to provide a device of the type stated which will securely hold the patient in the desired position and will not accidentally shift during the course of the operation.

It is an additional object of the present invention to provide a device of the type stated which is compact and entirely portable, so that it may be used with equal facility in the hospital operating room as an accessory to standard operating tables, in the physician's office or examining room, or carried into the private sickroom by rural practitioners, for example.

And with the above and other objects in view, my invention resides in the novel features of form, construction, arrangement, and combination of parts presently described and pointed out in the claims.

In the accompanying drawings (two sheets):

Figure 1 is a perspective view of a surgical fixture constructed in accordance with and embodying the present invention, illustrating the manner in which it may be placed upon and used with a hospital bed;

Figure 2 is a top plan view of the surgical fixture;

Figure 3 is a side elevational view of the surgical fixture;

Figure 4 is an end elevational view of the surgical fixture;

Figures 5 and 6 are vertical sectional views taken along the lines 5—5 and 6—6, respectively, of Figure 2;

Figure 7 is a fragmentary sectional view taken along the line 7—7 of Figure 5; and

Figures 8 and 9 are side elevational and top plan views, respectively, of a preferred form of head support forming a part of the present invention.

Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of the surgical fixture of the present invention, 1 designates a rectangular frame constructed preferably of steel bars of suitable gauge and thickness and consisting of two spaced parallel side rails 2, 3, and two transverse or cross rails 4, 5. The cross rail 4 is provided with two equally spaced bosses 6, each of which is provided with a vertical bore 7 for shiftably accommodating slide rods 8, which are, in turn, provided at their upper ends with a suitably padded back-supporting panel 9. The cross rail 4 is further provided, midway between the bosses 6, with a boss 10 vertically bored and threaded for accommodating a height-adjustment screw 11 provided at its upper end with a swivel head 12 rotatably mounted in the back-supporting panel 9, and at its lower end the height-adjustment screw 11 is provided with a relatively large knurled knob 13 by which it may be manually turned for raising and lowering the back-supporting panel 9 with respect to the frame 1. It should furthermore be noted in this connection that the frame 1 at its four corners is provided with short depending legs 14 having sufficient height to provide adequate clearance for the screw 11 and slide rods 8 when the back-supporting panel 9 is in its lowermost position.

Slidably mounted in opposed parallel ways 15 formed in the inner vertical faces of the side rails 2, 3, is a head-supporting member 16 cupped or dished somewhat on its upper face and suitably upholstered or padded for comfortably accommodating the head of the patient. Threaded in and extending through the side rail 3 and projecting into the way 15 thereof, is a wing screw 17 for endwise abutting engagement against a lateral margin of the head-supporting member 16 for optionally locking it in any position of lengthwise adjustment, as best seen in Figures 2 and 3.

Riveted or otherwise fixed upon the opposite outer side faces of the side rails 2, 3, are upwardly presented bifurcated arms 18 for swingably accommodating vertical posts 19, the latter being, at approximately their mid points, provided with outward off-set bends, as at *b*. Rotatably and slidably mounted upon the upper end of each post 19, is a support block 20 threadedly provided with a wing screw 21 by which it may be releasably held in any desired position of adjustment, and slidably mounted in, and extending horizontally through, the block 20 in forwardly spaced relation to the post 19, is a head support rod 22 provided at its inner end with a circular head-engaging disk 23. Mounted around the rod 22 between the disk 23

and the block 20, is a spiral spring 24 for normally urging the rod 22 and its associated disk 23 inwardly and, at its opposite end, the rod 22 is provided with a transverse stop pin 25 for limiting such inward movement, all as best seen in Figures 4, 8, and 9.

Fixed upon and extending horizontally between the side rails 2, 3, intermediate the back-supporting panel 9 and head-supporting member 16, is a cross plate 26 provided upon its upper face with a plurality of laterally spaced, aligned shaft bearings 27 for rotatably supporting a horizontal shaft 28, which extends outwardly over the side rail 3 and is provided with a large knurled knob 29. Also upon its upper face, the cross plate 26 is provided with two transversely aligned vertical bosses 30, which are vertically bored for slidably accommodating slide posts 31 extending therethrough and at their upper ends, in turn, provided with a transversely extending suitably padded neck-support 32. Fixed in the under face of the neck-support 32 and extending downwardly therefrom midway between the slide posts 31, is a vertical rack 33 projecting through a suitable clearance aperture 34 formed in the cross plate 26 and engaging a pinion 35 fixed upon the shaft 28. Also fixed upon the shaft 28 just above the side rail 3, is a toothed ratchet wheel 36 for engagement with a horizontal ratchet bar 37 swingably mounted on a vertical support post 38 and provided with a forwardly extending outwardly curved handle portion 39. At its opposite end, the ratchet bar 37 is pinned to one end of a spiral spring 40, which is, in turn, at its other end, pinned to the side rail 3 for normally urging the ratchet bar 37 into operative engagement with the ratchet wheel 36.

In operation, the surgical fixture may be placed upon a hospital bed or other similar structure, as shown in Figure 1, and the patient placed thereupon in a reclining position with his head suitably cradled in the head-supporting member 16 and his shoulders and upper back resting upon the back-supporting panel 9. It will, of course, be obvious that the height of the back-supporting panel 9 with reference to the frame 1 may be suitably adjusted by manually turning the height-adjustment screw 11, depending upon the size and physical conformation of the particular patient and the requirements of the particular operation being performed. Similarly, the head-supporting member 16 may be shifted lengthwise with respect to the frame 1 to any selected position of adjustment, depending upon the size of the patient and the requirements of the operation to be performed.

Thereupon, the knob 29 is turned, rotating the shaft 28 and, by means of the pinion 35 and rack 33, the neck-support 32 is raised, so that the patient's neck will be elevated and the head will be thrown backwardly. In this position, the patient's chin will be sharply elevated and the mouth thrown open so as to place the oral cavity in fully exposed and readily accessible position for the performance of a tonsillectomy, bronchoscopy, or similar surgical procedure. It will, of course, be apparent that the neck-support 32 is retained in upwardly adjusted position by means of the ratchet wheel 36 and ratchet bar 37.

With the patient's head in such adjusted position, the head-support posts 19 are swung forwardly or backwardly and the blocks 20 are both rotated with respect to and shifted vertically along the posts 19, as the circumstances of the case may require, so that the head-support disks 23 will resiliently engage the temples of the patient and thereby hold the patient's head comfortably, but nevertheless firmly, in the desired position. After the operation has been completed, the neck-support 32 may be lowered by depressing the ratchet bar handle 39, releasing the ratchet wheel 36, and thereby allowing the neck-support 32 to drop to its lowermost position under its own weight. In this connection, it should be noted that the physician or surgeon may during the operation manually lower the neck-support 32 by firmly grasping the knob 29 and then releasing the ratchet bar 37, whereupon he may manually rotate the shaft 28 to raise or lower the neck-support 32 to some new and different position suitable for that particular stage of the surgical procedure.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the surgical fixture may be made and substituted for those herein shown and described without departing from the nature and principle of my invention.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

1. A surgical fixture for use in supporting a human patient during the performance of surgical procedures and examinations, said fixture comprising a frame, a back-supporting panel mounted upon one end of the frame for vertically adjustable movement with respect thereto, a head-supporting member mounted upon the other end of the frame for horizontally shiftable adjustment in relation thereto, and a neck-supporting and positioning member mounted upon the frame between the back-supporting panel and the head-supporting member for vertical adjustment with respect to the frame.

2. A surgical fixture for use in supporting a human patient during the performance of surgical procedures and examinations, said fixture comprising a frame, a back-supporting panel mounted upon one end of the frame for vertically adjustable movement with respect thereto, a head-supporting member mounted upon the other end of the frame for horizontally shiftable adjustment in relation thereto, a neck-supporting and positioning member mounted upon the frame between the back-supporting panel and the head-supporting member for vertical adjustment with respect to the frame, and manually operable means mounted on the frame for shifting the neck-supporting and positioning member.

3. A surgical fixture for use in supporting a human patient during the performance of surgical procedures and examinations, said fixture comprising a frame, a back-supporting panel mounted upon one end of the frame for vertically adjustable movement with respect thereto, a head-supporting member mounted upon the other end of the frame for horizontally shiftable adjustment in relation thereto, a neck-supporting and positioning member mounted upon the frame between the back-supporting panel and the head-supporting member for vertical adjustment with respect to the frame, manually operable means mounted on the frame for shifting the neck-supporting and positioning member, and ratchet means co-operable with the manually operable means for releasably holding the latter and the associated neck-supporting and posi-

tioning member in any selected position of adjustment.

4. A surgical fixture for use in supporting a human patient during the performance of surgical procedures and examinations, said fixture comprising a rectangular frame having spaced parallel side rails and front and rear transversely extending cross rails, a back-supporting panel having depending slide members shiftably mounted in the front cross rail, a height-adjustment screw swiveled at its upper end in the back-supporting panel and extending threadedly through the front cross rail, said screw further being provided on its lower end with a knob for facilitating manual operation, said side rails being provided upon their opposed faces with horizontal slideways, a head-supporting member slidably mounted in the ways and extending upwardly and rearwardly therefrom over the rear cross rail, and a neck-supporting and positioning member mounted for vertically adjustable movement upon the frame intermediate the back-supporting panel and head-supporting member.

5. A surgical fixture for use in supporting a human patient during the performance of surgical procedures and examinations, said fixture comprising a rectangular frame having spaced parallel side rails and front and rear transversely extending cross rails, a back-supporting panel having depending slide members shiftably mounted in the front cross rail, a height-adjustment screw swiveled at its upper end in the back-supporting panel and extending threadedly through the front cross rail, said screw further being provided on its lower end with a knob for facilitating manual operation, said side rails being provided upon their opposed faces with horizontal slideways, a head-supporting member slidably mounted in the ways and extending upwardly and rearwardly therefrom over the rear cross rail, a cross plate mounted at its ends on and extending horizontally between the side rails intermediate the back-supporting panel and the head-supporting member, a neck-support having depending slide means mounted shiftably in and extending vertically through the cross plate, a horizontal shaft rotatably mounted in the cross plate, a pinion fixed upon the shaft, a vertical rack rigidly mounted on and depending from the neck-support for meshing engagement with the pinion, a ratchet wheel fixed upon the shaft, and a spring-pressed ratchet bar releasably engaged with the ratchet wheel.

WILLIAM L. MERMIS.