

Nov. 20, 1962

G. R. CHERVENKA
SURGICAL OPERATING TABLES

3,065,344

Filed Oct. 12, 1959

3 Sheets-Sheet 1

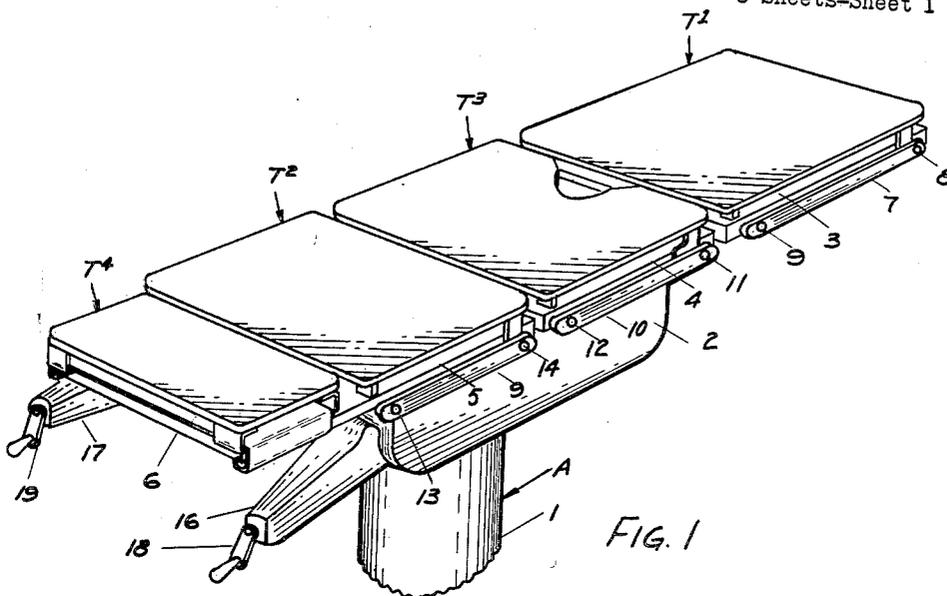


FIG. 1

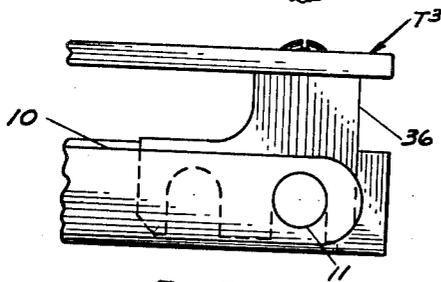


FIG. 3

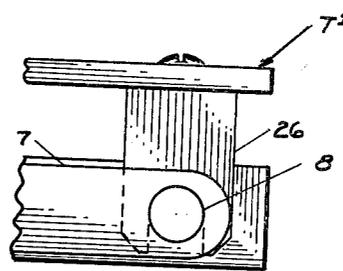


FIG. 2

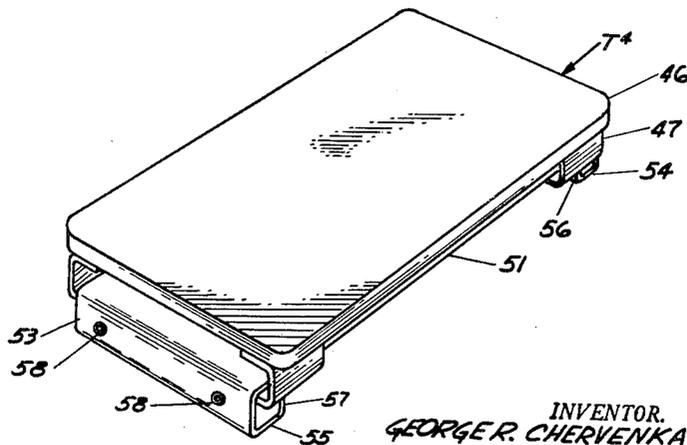


FIG. 4

INVENTOR.
GEORGE R. CHERVENKA
BY *Alfred W. Petuch*
ATTY.

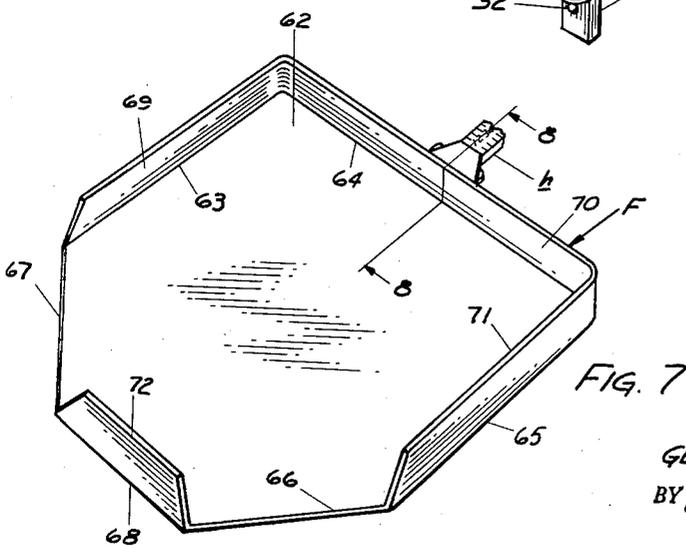
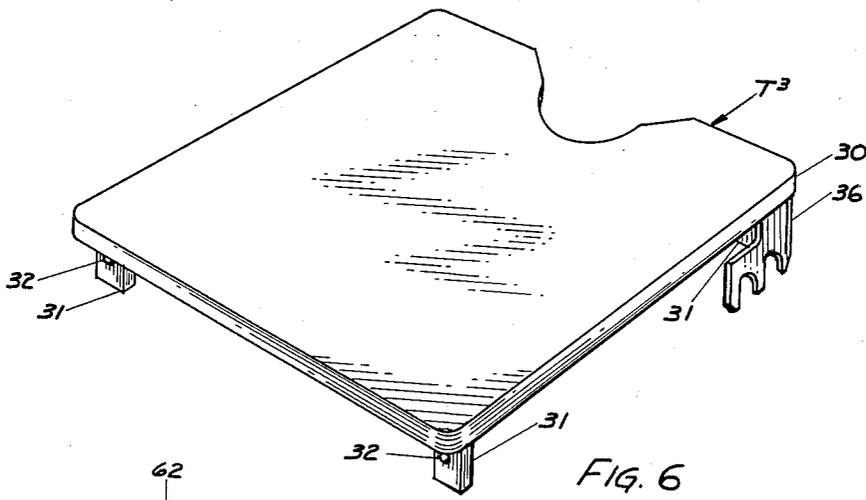
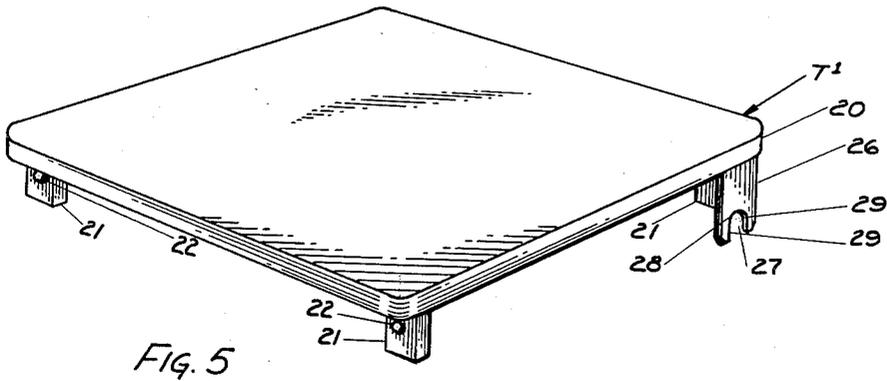
Nov. 20, 1962

G. R. CHERVENKA
SURGICAL OPERATING TABLES

3,065,344

Filed Oct. 12, 1959

3 Sheets-Sheet 2



INVENTOR.
GEORGE R. CHERVENKA
BY *W. P. Petch*

ATTY.

Nov. 20, 1962

G. R. CHERVENKA
SURGICAL OPERATING TABLES

3,065,344

Filed Oct. 12, 1959

3 Sheets-Sheet 3

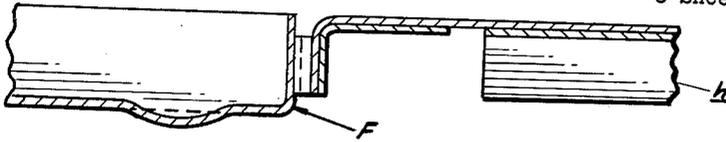


FIG. 8

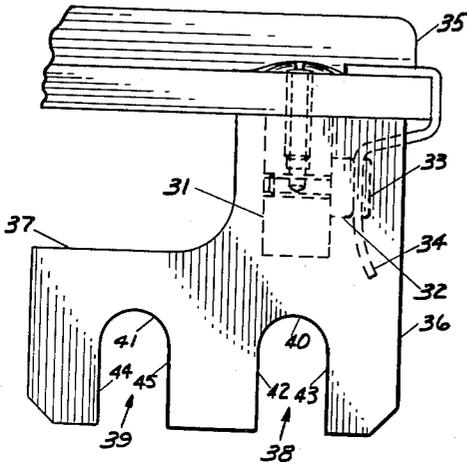


FIG. 9

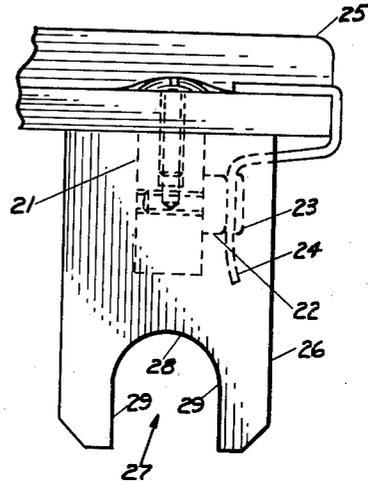


FIG. 10

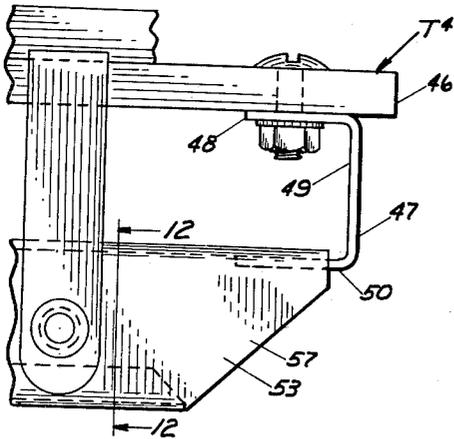


FIG. 11

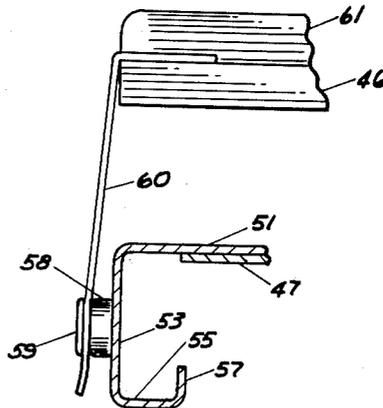


FIG. 12

INVENTOR.
GEORGE R. CHERVENKA
BY *alfred w. Patschert*

ATTY.

3,065,344

SURGICAL OPERATING TABLES

George R. Chervenka, St. Louis, Mo., assignor to Shampaine Industries, Inc., a corporation of Missouri
 Filed Oct. 12, 1959, Ser. No. 845,675
 6 Claims. (Cl. 250-58)

This invention relates in general to certain new and useful improvements in surgical operating tables and, more particularly, to an accessory top which can be utilized for adapting surgical operating tables for roentgenographic pictures.

Most surgical operating tables currently in use in hospitals, medical clinics, and the like, comprise a patient-supporting top member which consists of three transversely articulated sections commonly referred to as the back-section, seat-section, and leg-section. In addition, it is usual practice to supply such operating tables with a removable and transversely articulated head-rest. These various sections ordinarily are employed to support the patient in a prone position. Thus, the patient's head is usually supported by the head-rest, the patient's shoulders and chest are usually supported by the back-section, the lower portion of the patient's abdomen, including the hips and buttocks, are usually supported by the seat-section, and the lower portion of the patient's body, including the thighs, knees, legs, and feet, are usually supported by the leg-section. Moreover, during the course of most types of surgical procedure, these various sections are positioned at different angles, so that the various portions of the patient's body will be held in some prescribed relationship which is most suited to the particular surgical procedure contemplated. In addition to this, it is often necessary, during the course of a surgical operation, to change these various positions. For these reasons, the articulation of the various sections forming the top of the surgical table is an important aspect of the mechanism and cannot be impeded in any way by accessory devices.

On the other hand, it is often necessary, during the course of a surgical procedure, to take an X-ray photograph of some particular portion of the patient's body. For example, in an exploratory operation for the location and removal of a foreign object, the surgeon might find it desirable to have an X-ray photograph if the object has shifted its position since the pre-operative photographs were taken. Similarly, in orthopedic surgery it is often convenient to be able to take an X-ray photograph during the course of the operation. There are many other situations of similar nature.

In smaller institutions, such as medical clinics, small hospitals, and the like, a great deal of the equipment must have a very broad range of utility, inasmuch as such institutions do not have the space or funds for a large number of highly specialized pieces of equipment. In such instances, it is sometimes desirable to use the operating table for taking X-rays. Even in large institutions which have extensive radiological facilities, there are occasions when the radiologist would like to take a particular diagnostic X-ray with the patient's body held in some particular position or positions, and such positions can best be obtained on a surgical operating table.

It is, therefore, the primary object of the present invention to provide means by which it becomes possible to take X-ray pictures of any portion of a patient's body while the patient is supported upon a surgical operating table.

It is another object of the present invention to provide auxiliary or accessory means for fitting up a surgical operating table so that X-ray pictures may be taken thereon whenever need arises, either during the course of a surgical operation or when the particular X-ray photograph requires that the various part of a patient's body be held in some predetermined relative position.

It is also an object of the present invention to provide accessory means of the type stated which are economical in construction, but are nevertheless rugged and durable.

It is a further object of the present invention to provide accessory means of the type stated which can be applied to, and removed from, a surgical operating table very quickly, without the use of tools, and without requiring the services of a skilled mechanic or specially trained technician.

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—

FIG. 1 is a fragmentary perspective view of a surgical operating table equipped with the accessory X-ray top constructed in accordance with and embodying the present invention;

FIG. 2 is a fragmentary side elevational view of one of the forward corners of the leg-section of the operating table showing, in specific detail, the means by which the accessory top member is secured thereto;

FIG. 3 is a fragmentary side elevational view of one of the forward corners of the seat-section of the operating table showing, in specific detail, the means by which the accessory top is secured thereto;

FIG. 4 is a perspective view of the accessory top member adapted for installation upon the head-rest of a surgical operating table;

FIG. 5 is a perspective view of the accessory top member adapted for installation upon the back-section and leg-section of a surgical operating table;

FIG. 6 is a perspective view of an accessory top member adapted for installation upon the seat-section of a surgical operating table;

FIG. 7 is a perspective view of the X-ray cassette inserting frame forming a part of the present invention;

FIG. 8 is a fragmentary sectional view taken along line 8-8 of FIG. 7;

FIG. 9 is a fragmentary side elevational view of the engagement bracket by which an accessory top member is attached to the seat-section of a surgical operating table;

FIG. 10 is a fragmentary side elevational view of the engagement bracket by which an accessory top member is attached to the back-section or leg-section of a surgical operating table;

FIG. 11 is a fragmentary side elevational view of the accessory top member which is adapted for disposition upon the head-rest of a surgical operating table; and

FIG. 12 is a fragmentary sectional view taken along line 12-12 of FIG. 11.

Referring now in more detail and by reference characters to the drawings, which illustrate a preferred embodiment of the present invention, a generally designates a surgical operating table which includes a hydraulic piston-type pedestal 1 and top 2 provided with transversely articulated leg, seat, and back sections 3, 4, 5, respectively. Removably mounted upon the head-end of the back-section 5 is an articulated head-rest 6. The leg-section 3 is conventionally provided along both of its lateral margins with side rails 7, which are held in place by rather large-diameter horizontal studs 8, 9. The seat-section 4 is similarly provided along both of its lateral margins with side rails 10, which are held in place by large-diameter horizontal studs 11, 12. Finally, the back-section is provided along both of its lateral margins with side rails 13, which are held in place by large-diameter horizontal studs 14, 15. The top 2 is provided with rearwardly extending arms 16, 17, which operatively contain the manipulative control handles 18, 19, respectively, by which the various movements and positions of the table can be achieved. Although the present invention is ap-

plicable to any type of surgical operating table, the particular table which is schematically shown in the drawings is of the type more fully described in United States Letters Patent No. 2,416,410 and United States Letters Patent No. 2,647,026, respectively issued February 27, 1947, and July 28, 1953, to H. R. Shampaine, and is, therefore, only described herein in general terms.

Provided for removable disposition upon the leg-section 3 is an accessory top member T¹ which consists of a substantially rectilinear top plate 20 fabricated from a strong, heavy sheet of X-ray permeable material. A number of materials, such as three-quarter inch plywood, pressed cellulosic hardboard, resin-bonded fabrics, and the like, have been found satisfactory for purposes of the present invention. Preferably, though not necessarily, the corners of the top plate 20 are rounded for reasons of convenience and safety. Bolted upon the under face of the top plate 20 adjacent the four corners thereof are four short leg members 21, each of which is provided in one of its outwardly presented faces with a female snap-fastener element or so-called "dot" 22 for engagement with companion-shaped male snap-fastener elements 23 which are rigidly mounted in the lower ends of attachment straps 24 stitched upon or otherwise secured to the under face of a resilient pad 25. The pad 25 is conventionally constructed with an outer envelope or covering made of suitable synthetic sheeting, rubber sheeting, or similar water-proof sterilizable material and is, therefore, not described in specific detail herein.

Also bolted or otherwise rigidly secured upon and depending from the under face of the top plate 20 adjacent the forward two corners thereof are depending attachment brackets 26 formed preferably of metal bar-stock and having a transverse thickness slightly smaller than the transverse distance between the lateral faces of the leg-section 3 and the inwardly presented faces of the side rails 7 so as to fit easily therebetween. On their downwardly presented margins, the attachment brackets 26 are provided with upwardly extending slots 27 having semi-circular top margins 28 and vertical side margins 29 spaced so as to fit snugly, but, nevertheless removably, upon, and embracingly around, the studs 8.

A second accessory top member T² is also provided which is identical in every respect with the previously described accessory top member T¹ and is adapted for similar disposition upon the back-section 5.

Provided for removable disposition upon the seat-section 2 is an accessory top member T³ which consists of a rectilinear top plate 30 likewise fabricated from a strong, heavy sheet of X-ray permeable material. Preferably, though not necessarily, the corners of the top plate 30 are also rounded for reasons of convenience and safety. Bolted upon the under face of the top plate 30 adjacent the four corners thereof are four short leg members 31, each of which is provided in one of its outwardly presented faces with a female snap-fastener element or so-called "dot" 32 for engagement with companion-shaped male snap-fastener elements 33 which are rigidly mounted in the lower ends of attachment straps 34 stitched upon or otherwise secured to the underface of a resilient pad 35. The pad 35 is conventionally constructed with an outer envelope or covering made of suitable synthetic sheeting, rubber sheeting, or similar water-proof sterilizable material and is, therefore, not described in specific detail herein.

Also bolted or otherwise rigidly secured upon and depending from the underface of the top plate 30 adjacent the forward two corners thereof are depending attachment brackets 36 formed preferably of metal bar-stock and having a transverse thickness slightly smaller than the transverse distance between the lateral faces of the seat-section 4 and the inwardly presented faces of the side rails 10 so as to fit easily therebetween. The attachment brackets 36 are integrally provided with extension por-

tions 37 which project in the direction of the head-end of the table A so as to give the attachment brackets 36 substantially greater width in this direction. Formed in and extending upwardly from the downwardly presented margins of the attachment brackets 36 and the integral extension portions 37 are two upwardly extending slots 38, 39, having semi-circular top margins 40, 41, and side margins 42, 43, 44, 45, respectively. The margins 42, 43, and 44, 45, are respectively spaced in such a manner as to fit snugly, but, nevertheless removably, down upon the studs 11. It should be noted in this connection that by optionally engaging either the slots 38, or 39, in the studs 11, it is possible to vary the position of the top member T³ lengthwise with respect to the seat-section 4.

Provided for disposition upon the head-rest section is an accessory top member T⁴ comprising an X-ray permeable top plate 46 of suitable rectilinear shape and size. Bolted or otherwise rigidly mounted upon the under face of the top plate 46 along the forward and rearward transverse margins thereof are depending hanger frames 47, each including inwardly turned horizontal top lips 48, depending vertical legs 49, and a relatively long horizontal bight member 50. Rigidly secured to, and supported by, the hanger frames 47 is a bolt plate 51 integrally provided at its opposite transverse margins with depending vertical side plates 52, 53, which are, in turn, integrally provided at their lower margins with horizontal slide-forming flanges 54, 55, which are, in turn, integrally provided with short upstanding vertical lips 56, 57, all of which are sized and spaced by slidably fitting around the lateral margins of the head-rest 6. Furthermore, the side plates 52, 53 are provided with female snap-fastener elements 58 for engagement with matching male snap-fastener elements 59, which are mounted in the lower ends of attachment straps 60 which are stitched or otherwise suitably secured upon the under faces of pads 61, the latter being substantially similar in construction and function with the previously described pads 25, 35.

Also provided for use with the accessory top members T¹, T², T³, T⁴, is a cassette handling-frame F consisting of a plate-like sheet 62 of metal or other suitable rigid material of generally rectilinear configuration having three rectilinearly intersecting margins 63, 64, 65, and being diagonally cropped across two outer corners in the provision of angular margins 66, 67, and a short cross margin 68. Formed integrally with and extending upwardly from the three rectilinearly intersecting margins 63, 64, and 65, are three connected flanges 69, 70, and 71. Similarly formed with and extending upwardly from the cross margin 68 is a short separate flange 72, all as best seen in FIG. 7. Centrally secured to flange 70 and extending outwardly therefrom is a handle *h* provided on its upper surface with a suitable series of graduations of a type conventionally used by X-ray technicians in connection with the placement of a cassette in proper position beneath the patient. The frame F is of such shape and proportion as to fit conformably around a standard X-ray cassette and is of such vertical height and width as to slide between the under faces of the top plates 20, 30, and 46, as the case may be. Moreover, the frame F can be slid in transversely from either the right or the left-hand side of the operating table or can be slid in longitudinally from either end to place an X-ray cassette beneath either one of the accessory top members T¹, T², T³, T⁴. The frame also may be slipped longitudinally in from the head-end of the head-rest 6 so as to position an X-ray cassette beneath the top plate 46 of the accessory top member T⁴.

In setting up the surgical operating table A for any sort of surgical procedure wherein an X-ray might possibly be desirable or necessary, the several accessory top members T¹, T², T³, T⁴, can be quickly and conveniently installed either with or without pads 25, 35, 61, as may be desired, and the surgical operating table A may then

be draped in the usual manner. If, during the course of the surgical procedure, it may be desirable or necessary to have an X-ray of any particular portion of the patient's body, an X-ray cassette can be placed within the frame F and slipped into the desired position without disturbing the patient or otherwise interfering with the position of the surgical operating table A. A portable X-ray unit of any conventional type can then be moved into position above the patient and the X-ray exposure made in the usual manner. Once the X-ray plate within the cassette has been exposed, it can be quickly and conveniently removed and taken to a development laboratory, again without disturbing the patient or the position of the surgical operating table A.

It should be understood that changes and modifications in the form, construction, arrangement, and combination of the several parts of the surgical operating tables 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. An accessory device for surgical operating tables and the like having a plurality of articulated top sections, said accessory device comprising a flat tubular member formed of X-ray permeable material, said member being provided on its under-face with depending spacer elements adapted to rest upon the upper surface of the surgical operating table and support the tabular member in upwardly spaced relation above said upper surface, and means for releasably securing the tabular element to the surgical operating table.

2. An accessory device for surgical operating tables and the like having a plurality of articulated top sections, said accessory device comprising a flat tabular member formed of X-ray permeable material, said member being provided on its under-face with depending spacer elements adapted to rest upon the upper surface of the surgical operating table and support the tabular member in upwardly spaced relation above said upper surface, said spacer elements being located at spaced positions around the perimeter of said tabular element and being relatively narrow in their horizontal dimensions so as to permit an X-ray cassette to be slid horizontally therebetween from any side of the tabular member.

3. An accessory device for surgical operating tables and the like having a plurality of articulated top sections, said accessory device comprising a flat tabular member formed of X-ray permeable material, said member being provided on its under-face with depending channel-like spacer elements adapted to engage and rest upon marginal portions of the surgical operating table and extending upwardly above the upper surface thereof and support the tabular member in upwardly spaced relation above said upper surface.

4. An accessory device for surgical operating tables and

the like having a plurality of articulated top sections, said accessory device comprising a plurality of flat tabular members, each being formed of X-ray permeable material, each of said members being provided on its under-face with depending spacer elements adapted to rest upon the upper surface of the surgical operating table and support the tabular members in upwardly spaced relation above said upper surface.

5. An accessory device for surgical operating tables and the like having a plurality of articulated top sections, each of said top sections including outwardly spaced side-rail means; said device comprising a plurality of flat tabular members, each being formed of X-ray permeable material, each of said members being provided on its under-face with depending spacer elements adapted to rest upon the upper surface of the surgical operating table and support the tabular members in upwardly spaced relation above said upper surface, and means associated with each tabular member for releasably securing it to said side-rail means.

6. An accessory device for use with surgical operating tables having a plurality of articulated top sections, each of said top sections including side rails extending longitudinally along their lateral faces and held in spaced relation therefrom by horizontal post-like spacer elements; said accessory device comprising a flat tabular member formed of an X-ray permeable material, said member being of generally rectilinear marginal shape and having a width substantially equal to the transverse width of the operating table, said tabular member further being provided at some of its corners with short depending leg members adapted to rest directly upon the upper surface of the operating table and support the tabular member in upwardly spaced parallel relation to the upper surface of said operating table, said tabular member further being provided at either of its corners with depending leg-like brackets, said brackets being provided at their lower portions with downwardly opening recesses for embracing engagement with said spacer elements, said brackets being of such transverse thickness as to fit loosely down into the space between the lateral face of the operating table and the proximate side rail, and said brackets being of sufficient vertical height to maintain parallelism between the tabular member and the upper surface of the operating table.

References Cited in the file of this patent

UNITED STATES PATENTS

1,241,136	Meyer	Sept. 25, 1917
1,599,434	Rose	Sept. 14, 1926
1,980,848	Cass	Nov. 13, 1934
2,568,191	Grimm	Sept. 18, 1951
2,681,839	Limbach	June 22, 1954
2,754,426	Schiring et al.	July 10, 1956
2,828,172	McDonald	Mar. 25, 1958