(No Model.) 2 Sheets—Sheet 1.

# R. C. LONGFELLOW.

## SURGICAL TABLE.

No. 363,751. Patented May 24, 1887.

FIG_1_

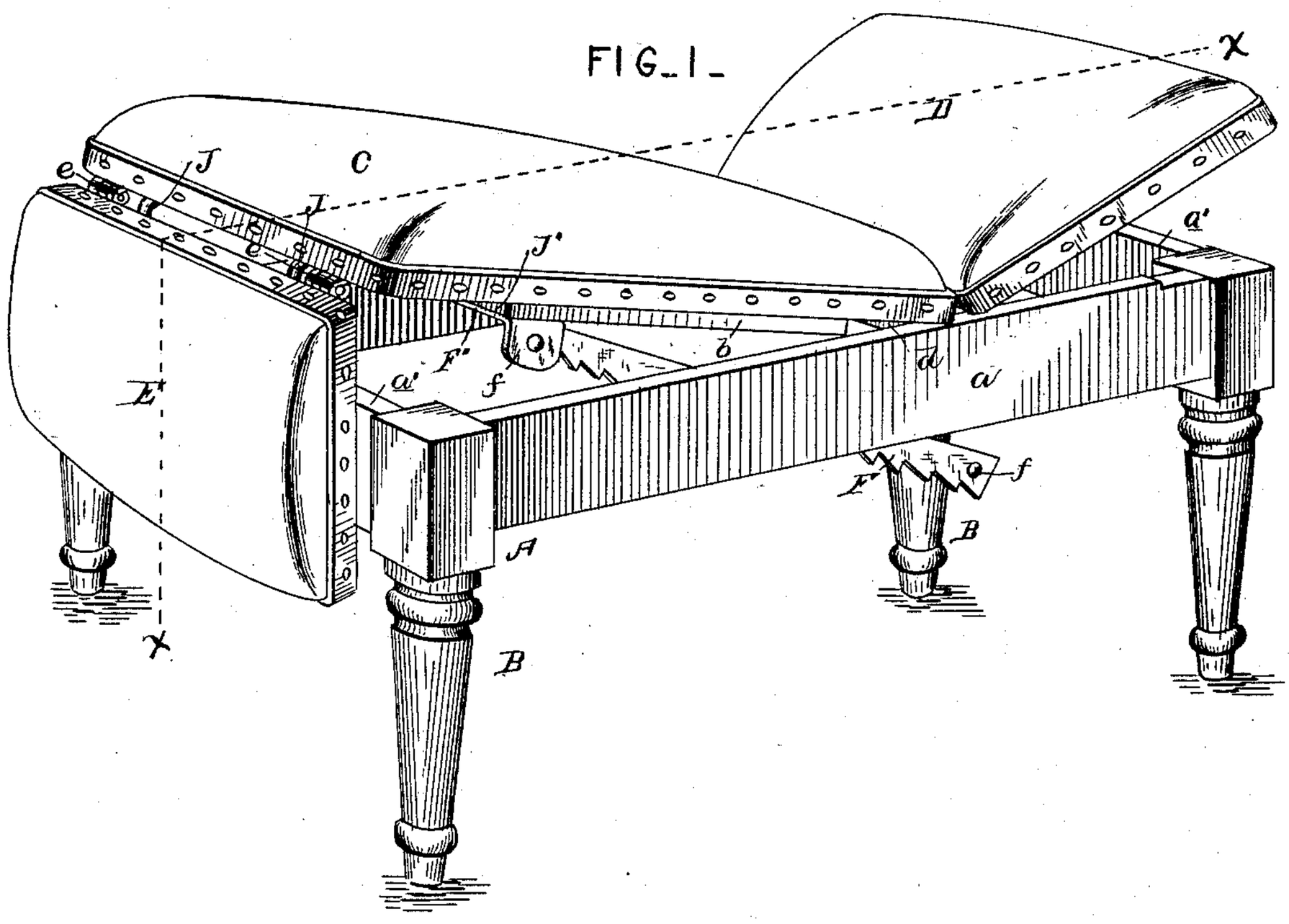



FIG_2_

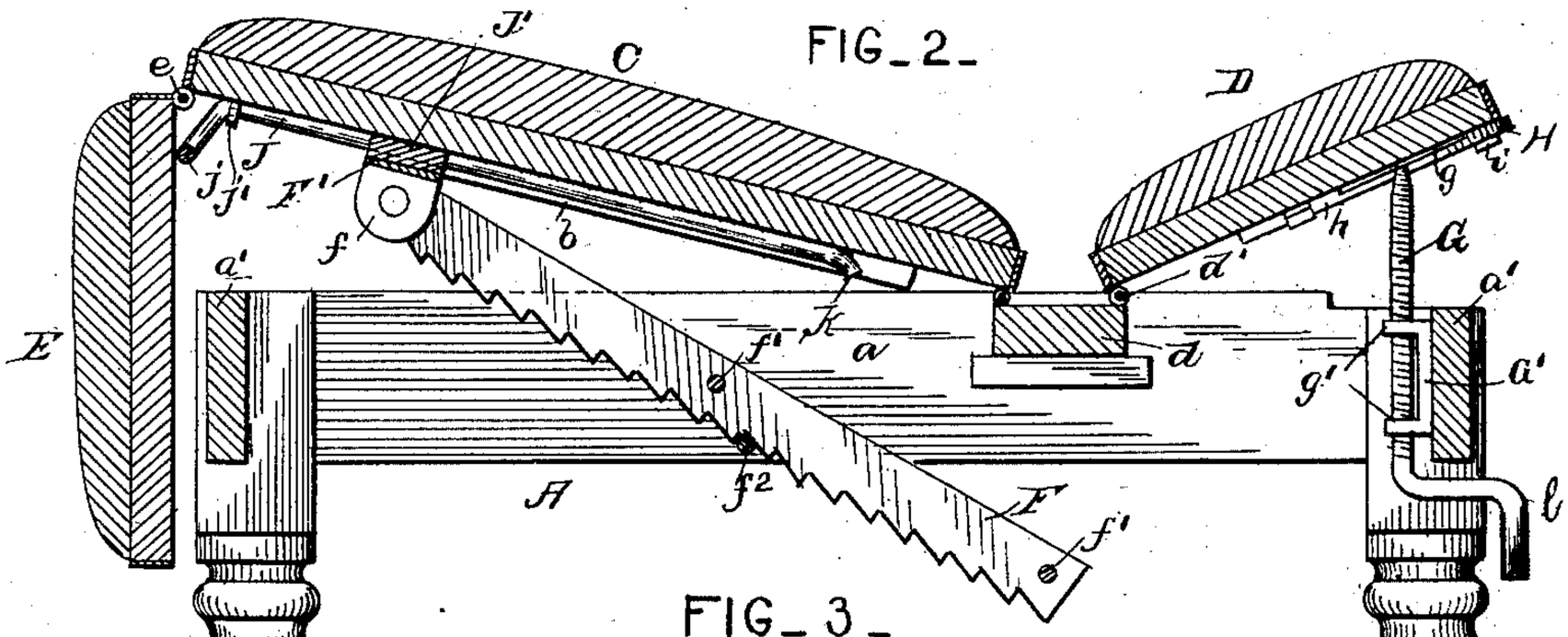



FIG_3_

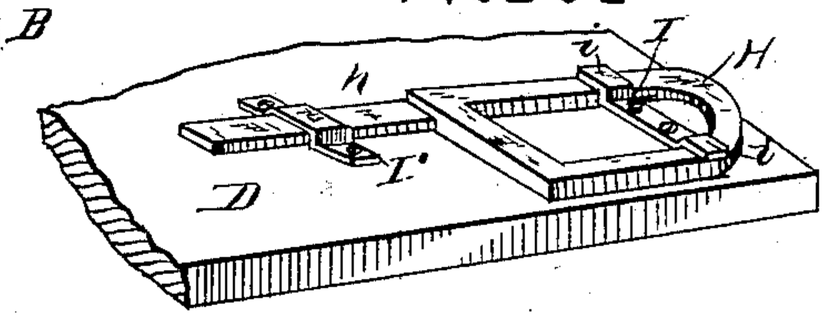
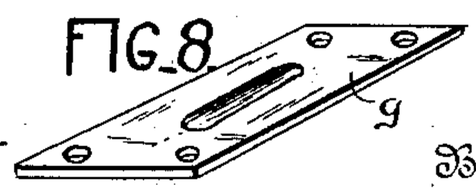



FIG_8




Witnesses
W. T. Gill.
H. A. Burnham

Inventor
Robert Capon Longfellow
By his Attorneys
C. A. Snow & Co

N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

# R. C. LONGFELLOW.

## SURGICAL TABLE.

No. 363,751. Patented May 24, 1887.

FIG_4_

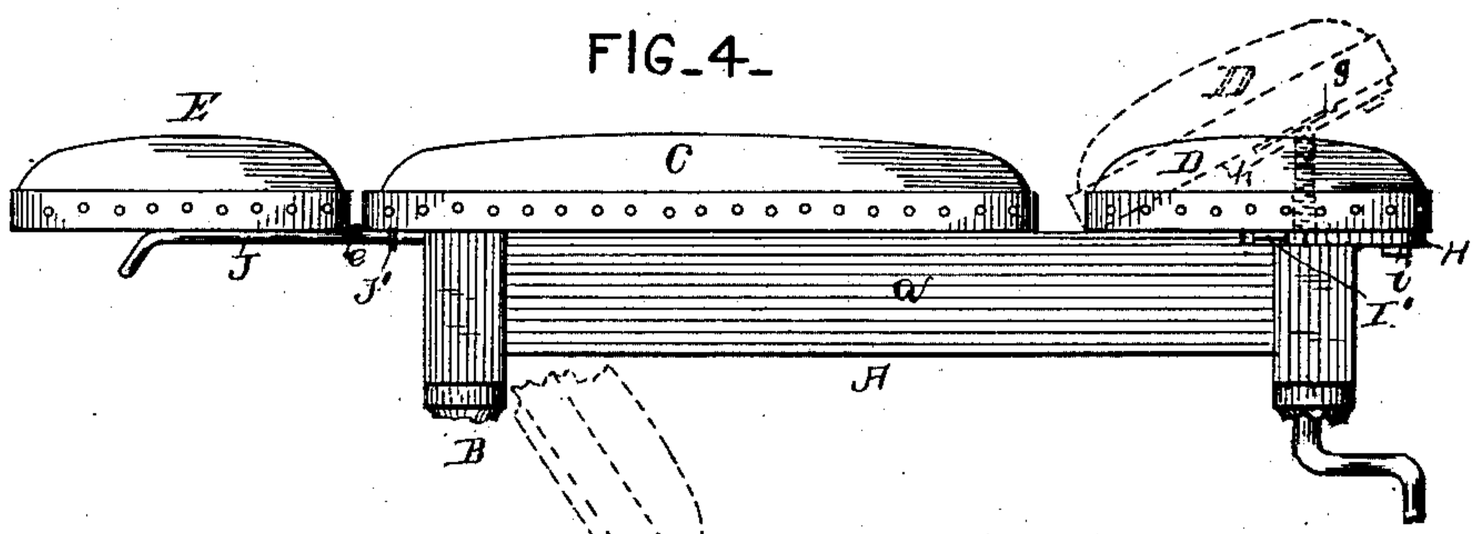



FIG_5_

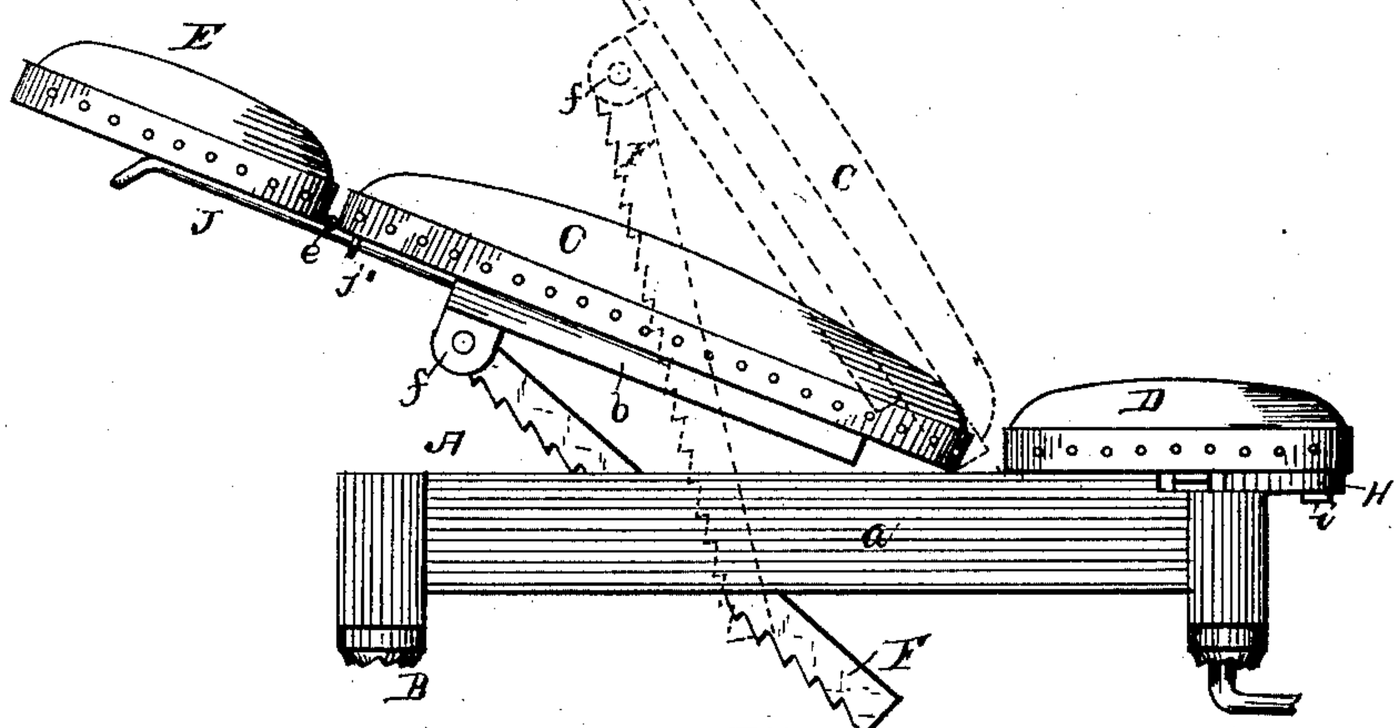



FIG_6_

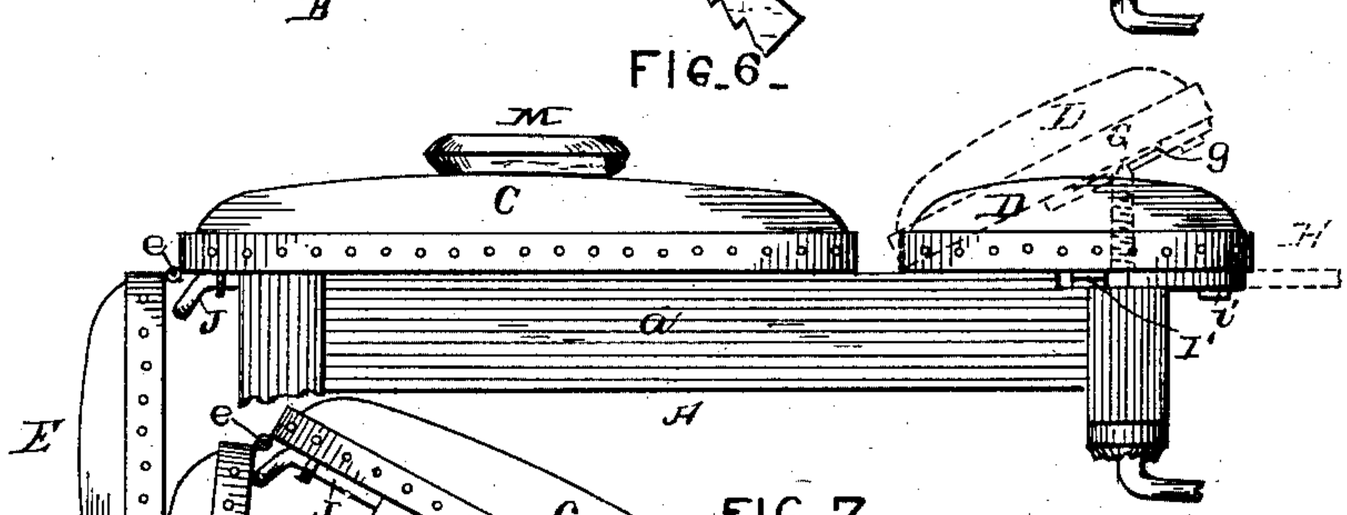



FIG_7_

Witnesses

W. T. Gill

W. T. Bernhard

Inventor

Robert Caples Longfellow

By his Attorneys

C. A. Snow & Co

N. PETERS. Photo-Lithographer, Washington, D. C.

# UNITED STATES PATENT OFFICE.

ROBERT CAPLES LONGFELLOW, OF FOSTORIA, OHIO.

## SURGICAL TABLE.

SPECIFICATION forming part of Letters Patent No. 363,751, dated May 24, 1887.

Application filed April 14, 1886. Serial No. 198,836. (No model.)

*To all whom it may concern:*

Be it known that I, ROBERT CAPLES LONGFELLOW, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented new and useful Improvements in Surgical Tables, of which the following is a specification.

My invention relates to improvements in surgical tables; and it consists of the peculiar and novel construction and combination of the various parts for service, substantially as hereinafter fully set forth, and particularly pointed out in the claims.

The primary object of my invention is to provide a table which is especially adapted to the wants of the surgeon, gynecologist, and physician, and which can be almost instantaneously adjusted to any desired position for making any class of examinations or performing operations on the patient while he is on the table or before he occupies the same.

A further object of my invention is to provide an improved table of the class named, which shall combine in a single article the various requisites of simplicity, strength, and durability of construction, cheapness of manufacture, and thorough effectiveness of operation.

My improved surgical table presents a neat and ornamental appearance and makes a handsome piece of office furniture, and it can be adjusted in a minimum of time to the desired position which is most favorable to making the examination required or performing the operation on the patient, and the table can be adjusted while the patient occupies the table, so that in case any dangerous symptoms arise during the course of the operation he can be readily inverted to the required position which is most favorable to his speedy recovery, as in the case when anæsthetics are administered and any dangerous symptoms are indicated the extremities of the patient can be inverted to cause a flow of blood to the head, all as will be hereinafter fully set forth.

In the accompanying drawings, Figure 1 is a perspective view of my improved surgical table. Fig. 2 is a longitudinal sectional view of the same on the line *x x* of Fig. 1. Fig. 3 is a detached perspective view of the adjustable stirrup, showing the means for supporting the same. Figs. 4, 5, 6, and 7 are views in side elevation of my improved surgical table, showing the same in its different adjusted positions. Fig. 8 is an enlarged perspective view of the bearing-plate for the adjusting-screw detached from the head-section.

Referring to the drawings, in which like letters of reference denote corresponding parts in all the figures, A designates the frame of my improved surgical table, which is made of the required length, preferably sixty-four (64) inches in practice, and comprises the parallel side rails, *a*, and the transverse rails *a'*, connecting the side rails together at the ends thereof, all of which are suitably secured very rigidly and firmly together in any preferable manner. The frame A is preferably made rectangular in form, and the frame is supported by legs or standards B, which elevate the frame at a suitable height above the floor or other place, so that it is most convenient to the surgeon or physician who is to operate on the patient who occupies the table.

C designates the adjustable body-section proper, which is hinged or pivoted at one end to a transverse bar or rod, *d*, that connects the side rails, *a*, of the table-frame A at or near the foot-section D of the table, and the said body-section C rests on the said cross-bar *d* and in its normal position on one of the end rails, *a'*, of the table-frame, beyond which it extends for a short distance, as clearly shown. The foot-section D of the table is hinged at its inner edge to the transverse strip or bar *d*, as at *d'*, and the said inner edge of the head-section rests on the transverse bar *d*, while the outer edge thereof rests normally on one of the end rails of the table-frame A, beyond which it extends for a short distance.

E designates a head that is hinged or pivoted at the outer free end of the body-section C proper, and this head is carried by the said adjustable body-section C, and is adapted to be adjusted in alignment therewith or be dropped down, as may be required in the operations or examinations of the patient.

The body-section C is provided on its lower face with two longitudinal strips or cleats, *b*, which are arranged near the side edges thereof, and which lie within the side rails, *a*, of the table-frame A when the body-section C rests thereon; and the body-section C is further provided with a pair of hinged rack-bars,

F, which are connected pivotally at one end with depending lugs *f*, that are formed integral with a transverse plate or bar, F′, which is suitably secured to the ends of the longitudinal strips or cleats *b* of the said top. The transverse plate or bar F′ is arranged across the body-section C, near the free end thereof, and the depending lugs of the said plate are arranged near the side edges of the body-section C.

The rack-bars F, which are pivotally connected to the said depending lugs, are likewise arranged near the side edges of the body-section C to equalize the strain and weight thereon at the edges thereof, and the said rack-bars are connected and braced by cross rods or bars *f*′, that are suitably secured thereto, the teeth of the rack-bars engaging a rod or bar, $f^2$, that is secured in the side rails of the table-frame, and thereby supported in place and in the path of the rack-bars.

The body-section C can lie in a horizontal position and rest on the edges of the table, or it can be adjusted or turned to a vertical position, or nearly so, as shown in dotted lines in Fig. 5, or to any angle or position intermediate of its horizontal and vertical positions to support the patient in such positions as may be most convenient and desirable in making examinations, performing operations, &c.

The foot-section D of the table can also be adjusted to any desired or convenient position, and at an angle to the table-frame and the top thereof, and independently of the same. The foot-section D is provided with a socket-plate, *g*, that is rigidly secured thereto near its free edge, and it is adapted to receive the free upper end of a vertically-disposed adjusting-screw, G, that is journaled in the perforated lugs *g*′, having interior threads, of a bracket-plate, G′, that is suitably secured rigidly to one of the end rails of the table-frame at or near the middle thereof, so as to support the foot-section in a level position and without undue strain on the screw and its bearings. This adjusting-screw permits of a very minute adjustment of the foot-section to elevate or lower the same to any desired adjustment, and the foot-section can be raised instantly without hinderance from the binding-screw, inasmuch as the foot-section is not connected to the binding-screw, but merely rests thereon and is thereby supported.

The foot-section D is provided with adjustable stirrups H, which are provided with an open frame, and a longitudinal arm, *h*, that projects outwardly therefrom and in alignment with one of the side bars thereof, as clearly shown in Fig. 3. These stirrups are arranged at opposite side edges of the adjustable foot-section and near the outer free end thereof, and they are maintained on the foot-section by means of two socket-plates, I I′, which are suitably secured to the foot-section by means of screws or other suitable devices. The plate I has two angular arms or lugs, *i*, that engage the parallel side bars of the open frame of the stirrup, and the plate I′ is provided with a central depressed portion which embraces the longitudinal arm of the said stirrup. These socket-plates permit the stirrups to slide freely and independently of each other, and the stirrups can be extended beyond the edges of the foot-section or be withdrawn within the same, as may be required.

The head E of the body-section C is hinged thereto, as at *e*, as hereinbefore described, and when it is desired to maintain the said head in alignment with the body-section C, sliding or extensible rods J are employed to support the said head. These sliding rods J are connected at their outer ends by a transverse rod or bar, *j*, and the said rods are arranged at or near the side edges of the said head to firmly support the latter and equalize the strain thereon. These extensible rods are guided in staple-like guides, *j*′, that are suitably secured to the adjustable body-section C, and the bodies of the said rods work or slide in grooves cut or formed in the upper edges of a transverse or cross bar, J′, that is suitably secured to the body-section C at the ends of the longitudinal strips thereof, the inner ends of the extensible supporting-rods being bent to form lips *k*, that abut against said cross-bar J′ when the rods are drawn out, and serve as stops which limit the outward movement of the rods and prevent them from becoming accidentally detached from the table, as will be very readily understood.

The operation of my invention is obvious from the foregoing description, taken in connection with the drawings.

When it is desired to adjust the body-section C at an angle to the frame, the outer free end of the body-section is elevated and the rack-bars swing downwardly by gravity, turning on their pivots, and engage the transverse bar $f^2$, while at the same time they slip freely over the said rod $f^2$, when the table-top is being elevated, and automatically engage the bar when the body-section has been elevated a sufficient distance, thus relieving the operator of the trouble of adjusting the said rack-bars in elevating the body-section, as it is frequently necessary to instantaneously elevate the body-section when dangerous symptons arise in performing operations on patients who are under the influence of anæsthetics. To lower the body-section C, it is only necessary to disengage the rack-bars from the cross-bar $f^2$ and allow the body-section to fall by its own weight. To adjust the foot-section vertically, it is only necessary to rotate the adjusting-screw in the required direction, and to enable the ready adjustment of the foot-section and the rotation of the screw the latter is provided with a crank or handle, *l*, at its lower free end. The head can be arranged in alignment with the body-section C by merely sliding the extensible rods out from the body-section and beneath the said head-section to support the latter, and when the head is to be dropped, so that it is out of the way when it is unnecessary to employ the same, the extensible rods are forced under the

body-section and the head will drop, as clearly shown in the drawings.

At their outer or connected ends the rods J are bent down at an obtuse angle to their bodies, and the elbow strikes against the outer of the staples *j'* when the rods are pushed in. In this position the cross-bar *j* forms a rest, against which the head-section E bears when the body-section C is elevated, as shown in Figs. 2 and 7. By this arrangement the lower edge of the head-section, when the latter is not extended, is prevented from striking the frame during the lowering of the body-section and causing annoyance, inconvenience, and delay to the operator.

From the foregoing it will be observed that the body-section and foot section can be adjusted at any desired angle to the table-frame and to each other and independently of each other, and, further, that the head is carried by the free outer end of the body-section, and that it can be thrown out of operative position without affecting the adjustment of the body-section or the foot-section.

My improved table can be adjusted for use in a variety of positions, and in Figs. 4, 5, 6, and 7 I have shown views showing the various positions which it is important and necessary that a table of this class should assume in order to adapt it to the wants of the medical profession.

In full lines in Fig. 4 of the drawings I have shown the body-section, the foot section, and head all in alignment with each other and occupying positions in a horizontal plane which are most suitable for operations on the body or examinations thereof, and, if desired, a pillow, M, can be employed or omitted, as may be necessary. In dotted lines in the same figure I have shown the foot-section adjusted or elevated at an angle to the body-section and head, which are in alignment with each other and in a horizontal position, or approximately so, and this adjustment of the parts is especially desirable in that class of operations or examinations where it is required that the patient's head shall be elevated higher than would be attained by the use of the pillow M.

In full lines in Fig. 5 of the drawings I have shown the body-section and head adjusted at an angle to the foot-section, which lies in a horizontal position, and the said body-section and head are arranged and held in alignment with each other. When the table is thus adjusted, it meets the demands of the administration of chloroform, ether, or any anæsthetic producing cerebral anæmia during anæsthesia. The head in this position must be lower than the extremities, so that a flow of blood will be favored toward the head, and, should any dangerous symptons arise while the patient is under the influence of the anæsthetic, the body-section can be instantaneously elevated to the position shown in dotted lines in the said Fig. 5, so that the patient will be in a position most favorable to his or her speedy recovery. This adjustment of the body-section and the head is very important, as it saves the trouble and labor of dragging the patient from the table and holding him head downward to establish a flow of blood toward the head.

In Fig. 6 of the drawings I have shown the table adjusted for gynecological examinations, or in the speculum position. The stirrups can be pulled out and the pillow moved to suit the patient's head, the foot-section and the body-section C being in alignment with each other and in horizontal planes, and the head being dropped and thereby adjusted out of the way. In dotted lines in Fig. 6 of the drawings I have shown the body-section adjusted for those gynecological examinations in which it is desirable to raise the pelvis higher than the level of the table, and in this position the foot-section is adjusted or elevated at an angle to the body-section C, which lies in a horizontal position, while the head is adjusted out of the way.

Fig. 7 shows the foot-section in a horizontal position, while the body-section C and the head are arranged in alignment with each other and at an angle to the head-section, and this adjustment of the table is valuable in operations on the eye, face, or any other operation or examination which may be desirable to make. In Fig. 7 in dotted lines I have shown a position which is very valuable and desirable in making examinations to determine the existence of pelvic or uterine tumors, or in detecting early pregnancy. In the said dotted-line position the body-section is represented at an angle to the frame A with the head adjusted out of use, while the foot-section is shown elevated at an angle to the top and to the frame A.

It will thus be seen from the foregoing description that I provide an extremely simple and cheap surgical table, which can be almost instantaneously adjusted to any required position to adapt it to operations or examinations to be performed on patients under the most favorable adjustments and positions; and I attach special importance to the fact that the foot-section and the body-section can be adjusted instantaneously and independently of each other without affecting their relative positions.

The foot-section, body-section, and head can be ornamented in any desired or durable manner to present a neat and attractive appearance, and to thus provide a handsome article of office furniture; and other changes in the form and proportion of parts can be made without departing from the principle or sacrificing the advantages of my invention.

The function of the extensible stirrups that are carried by the adjustable head-section is to provide means for supporting the legs and feet of the patient when she occupies the position termed the "speculum" position. The top and the head-section are adjusted to bear on the table-frame, or assume a horizontal position, and the stirrups are then withdrawn,

so that they project or extend beyond the head-section, after which the patient is laid on the table, and her feet or the heels are placed in the openings in the stirrups, so that the limbs are separated, as is required in this position. The stirrups are very securely and rigidly held in place, and, as the heels of the patient fit in the openings in the stirrups, the feet are prevented from slipping, as will be readily understood.

I am aware that prior to my invention an invalid-bed has been provided with a movable foot-section, to the free end of which is permanently connected the upper end of a vertically-inclined adjusting-screw that works in a fixed bearing on the bedstead, the upper end of the said screw passing freely through the foot-section and having fixed disks on opposite sides of the foot-section.

I am also aware that an invalid-bedstead has been provided with a horizontal adjusting-screw, which is supported in suitable bearings on the bedstead, and a traveling nut is fitted on this screw, the lower end of a link being pivoted to the nut and the upper end of the link being permanently pivoted to a hinged foot or head section of the bed-bottom to hold said head or foot section.

I am also aware that an invalid-bed has been provided with a hinged head-section, to which is pivoted the upper ends of gravitating rack-bars the teeth of which engage fixed pins in the bedstead to hold the rack-bars and head-section in their adjusted positions.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a surgical table, the combination, with a frame, of the adjustable body and foot sections independently hinged to the table at their proximate ends, the gravitating rack-bars connected with the body-section and adapted to automatically engage a suitable fixed stop when the body-section is elevated, and thereby hold the same in its adjusted position, and an elevating-screw carried by the frame and bearing against the free end of the foot-section for holding the same in its adjusted position, the foot and body sections being capable of vertical movement independently of each other and without interference from their supporting devices, substantially as and for the purpose described.

2. The combination, with the frame having the cross-rods $f^2$ and the foot-section, of the body-section hinged to the frame and adjustable at an angle thereto, the transverse plate secured on the body-section and having the depending lugs, the gravitating rack-bars pivoted to the lugs and carried by the body-section, the head-section hinged to the free end of the body-section, and the extensible rods supported on the body-section and adapted to be withdrawn from the latter to support the head-section in alignment with the said body-section, substantially as described.

3. In a surgical table, the combination of a frame having the body-section, a foot section hinged at one end to the frame, a socket-plate rigidly affixed to the under side of the foot-section, a vertically-adjustable screw resting at its upper end in the socket of the plate, and the bracket affixed to the inner side of the frame and having the aligned threaded openings in which the screw works, the foot-section not being connected to the screw so as to be capable of being elevated instantaneously by hand without interference from the screw, as set forth.

4. In a surgical table, a frame having a body-section, the foot-section hinged at its inner end to the frame, the adjusting means for elevating the free end of the foot-section, and the extensible stirrups permanently connected to the foot-section near its free end, and each having the open frame formed by the two sides and the transverse bars connecting the sides to leave an opening for the reception of the heel of the patient, as and for the purpose described.

5. In a surgical table, the combination, with the frame, the body-section hinged thereto, the foot-section, also hinged to the frame, of the foot and body sections having independent pivots, the gravitating rack-bars for the body-section, the adjusting-screw for the foot-section, said screw merely bearing against the same and not connected thereto, as set forth.

6. In a surgical table, the frame, in combination with the body-section hinged thereto, the foot-section, also hinged to the frame, but independently of the body-section, the head-section hinged to the body-section, the gravitating rack-bars for the body-section, the adjusting-screw for the foot-section, and the sustaining means for the head-section.

7. In a surgical table, the combination of a carrying-frame, a foot-section hinged at one end thereto, an adjustable body-section hinged at one end directly to the table in close proximity to the hinged end of the foot-section, the gravitating rack-bars pivoted at one end to each side of the body-section and free at their outer ends to drop down when the body-section is elevated, and automatically hold the body-section against retrograde movement, a head-section hinged to the outer end of the body-section and adapted to be elevated in alignment therewith, and the extensible rods carried by the body-section and adapted to be withdrawn therefrom to support the head-section in line with the body-section, substantially as described, for the purpose set forth.

8. In a surgical table, a frame and a foot-section, in combination with an adjustable body-section hinged at one end to the frame and adapted to be elevated at its free end, the head-section hinged to the outer end of the body-section and adapted to be elevated in line therewith, the guides carried by the top on its under side, and the extensible rods working in the guides beneath the body-section to support the head section in its elevated position, substantially as described, for the purpose set forth.

9. In a surgical table, the combination, with a frame having a foot-section, of an adjustable body-section hinged at one end to the frame, a head-section hinged to the outer end of the body-section on its under side and near the edges thereof, and the extensible rods working in the guides for sustaining the head-section in line with the body-section, and having the lips *j k* at opposite ends to limit the play of the same, substantially as described, for the purpose set forth.

10. The combination of a frame, an adjustable foot-section, a body-section hinged at one end directly to the frame, a head-section hinged to and carried by the body-section at its free end and adjustable in line therewith, and the extensible rods supported on the body-section and adapted to be withdrawn to hold the head-section in an elevated position, substantially as described, for the purpose set forth.

11. In a surgical table, the combination, with the frame, body and foot sections hinged thereto, and a head-section hinged to the free end of the said body-section, of the staples *j* in the under face of said body-section, the extensible rods J, engaged by said staples and provided with elbows at their outer ends adapted to rest against the outer ends of said staples when the rods are in their normal positions, and the cross-bar *j*, connecting the lower ends of said elbows and resting against said head-section, as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

ROBERT CAPLES LONGFELLOW.

Witnesses:
JACOB M. SCHATZEL,
W. H. H. LEECH.