





# UNITED STATES PATENT OFFICE.

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## OPERATING-TABLE OR SIMILAR STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 788,277, dated April 25, 1905.

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*To all whom it may concern:*

Be it known that I, GEORGE L. POLL, a citizen of the United States, and a resident of Greater New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Operating-Tables or Similar Structures, of which the following is a specification.

10 This invention relates to means for supporting the hinged or pivoted sections of operating-tables and invalid-chairs, the more prominent object being to provide novel means for the purpose stated which will be capable of  
15 automatically retaining each of the hinged members in any position to which it may be swung on its pivotal connection, the engagement thus resulting being rendered the more positive by the weight of the section itself and  
20 additionally by pressure imposed thereon. The novel engaging means are so conditioned that mere pivotal movement in the proper direction will suffice to effect the disengagement of the same, and thus permit the supported  
25 section to drop by gravity and be conveniently arrested and held in any desired position.

With the above purposes in view the invention comprises an operating-table or invalid-  
30 chair, one or more of the pivotal sections of which is provided with a relatively extended guide on which is slidingly mounted a sleeve containing a slot and carrying a pivoted cam adapted when turned to clamp the guide  
35 through said slot, and thereby rigidly maintain said sleeve and cam at any point along said guide to which they have been moved, the cam having a swinging connection with a  
40 fixed fulcrum or bearing on the structure whereby when the pivoted section is raised the consequent changed relation between the guide and the cam will disengage the latter from said guide and cause the sleeve to slide along the guide and accommodate itself and  
45 its cam to the position which the section is adjusted, the termination of such adjusting movement resulting in the weight of the section cooperating with the cam connection to automatically reengage the cam with the guide  
50 and rigidly support the section in the required position. The mere movement of the cam

connection on its fulcrum or bearing will release the cam and permit the free gravital descent of the pivotal section. By suitably disposing the cam connection or by employing  
55 an operating device in connection therewith the release of the cam can be conveniently effected from a point external to the table or chair. The cam disengagement and free sliding movement of the sleeve upon raising the  
60 pivotal section are such that the effect required to lift such section is not noticeably greater than if said sleeve and cam were not present. Moreover, the capacity of the cam  
65 for automatic frictional engagement not only insures the instantaneous retention of the section in the raised position, but admits of nice adjustments of said section.

There are other important features connected with the invention which, in addition  
70 to those previously alluded to, are clearly set forth in the subsequent detailed description.

In the accompanying drawings, forming part of this specification, Figure 1 is a vertical longitudinal section of an operating-table  
75 embodying my invention, the plane of the section through the intermediate pivoted section being considerably at one side of the longitudinal center, as indicated by the broken line 1 1, Fig. 2, while the plane of section of the  
80 remainder of the view coincides with the longitudinal center of the structure. Fig. 2 is an inverted plan view of the intermediate pivoted section, dotted lines representing the shaft revolubly bearing in the main or sup-  
85 porting frame and designed to actuate the cam connections for disengaging the cams. Fig. 3 is a longitudinal detail sectional view, on an enlarged scale, of one of the sleeves and its cam in operative relation with a portion  
90 of a guide. Fig. 4 is a detail side view, slightly enlarged, of the features employed for limiting the downward range of movement of the head-section and for contributing to support the latter in a horizontal position. 95

Similar reference characters are employed to designate corresponding parts in the several figures wherein they occur.

The main or supporting frame, which may be of any approved construction, is disclosed  
100 in Fig. 1 as being of skeleton character, comprising a side member A at each side, (but



one being shown,) shaped to present the forward vertical and rear inclined legs  $a$   $a'$  and upper horizontal rail  $a^2$ , transverse as well as longitudinal stay-rods  $a^3$   $a^4$ , together with front and rear cross-braces  $a^5$   $a^6$ , all serving to present a light, rigid, and durable frame. For facilitating the shifting of the structure from one point to another the legs  $a$  will be mounted on casters  $a^7$ , thus permitting the supporting-frame to be slightly elevated at its rear and rolled on the casters.

Rigidly at each upper rear corner of the supporting-frame is an obliquely-disposed ear  $a^8$ , to which is pivotally attached one of the rear angular extensions  $b'$  of the approximately rectangular frame  $B'$  of the intermediate section B, which when the structure is in the form of an operating-table will comprise sections of glass separated at their inner contiguous edges to provide a longitudinal opening, as is well understood by those familiar with this class of constructions. I have simply shown this intermediate section as embodying the rectangular metal frame  $B'$  aforesaid, having the upper facing-plates  $b^2$   $b^3$  separated at their adjacent inner portions to provide the extended longitudinal opening  $b^x$ , through which to discharge into the inclined trough or chute E, detachably suspended in position. Centrally-located parallel bars  $B^2$ , spanning the frame  $B'$ , have the inner separated portions of the plates  $b^2$   $b^3$  folded down and under the same to aid in holding such plates and finish off the section B at its central extended opening.

A rear or back section C, considerably longer than the section B, comprises a frame  $C'$ , having parallel side bars and outer and inner cross-bars  $c$   $c'$ , the side bars being extended forwardly beyond the inner cross-bar  $c'$  to form tongues  $c^2$ , which are externally pivoted to the upper parts of the angular extensions  $b'$  of the section B immediately adjacent to the rear cross-bar of the frame of the latter. Laterally-projecting lugs  $b^4$ , externally on the extensions  $b'$ , act as stops to limit the descending movement of the section C to and contribute to support the same in a horizontal position. With a view of providing adequate top surface to the section C the plate  $c^3$ , which covers and is secured to the frame  $C'$ , is forwardly extended beyond the inner cross-bar  $c'$  and is bent to form a transverse flange  $c^4$ .

Integrally at the front of the section B are depending side hangers  $B^y$ , the upper edge of each of which is notched to form a bearing for a laterally-projecting stud  $d$ , (dotted lines, Fig. 1,) externally at the upper rear portion of a plate  $D'$  at each side. Each of these plates  $D'$  occupies a position at the inner side of the contiguous hanger. The front or foot section D embodies a rectangular frame and plate-covering, the side bars of the frame being extended to form tongues  $d'$ , each of which is pivotally attached on the inner upper part

of the plate  $D'$  at its particular side. The plates  $D'$  are steadied and arranged to move in unison by a transverse brace  $d^2$ , which connects them together at their lower portions. The rearward swing of the plates  $D'$  is limited by a stop  $b^5$  on the inner side of each hanger  $B^2$ .

Beneath the section B, near each side thereof, is a longitudinal guide  $f$ , one end of which is secured to the rear cross-bar of the frame of said section, while the forward end portion is turned outwardly and fastened to the adjacent side bar of said frame. Slidingly mounted on each guide is a sleeve F, having an under longitudinal slot  $f'$ , at the sides of which are depending ears  $f^2$ . Pivotally mounted between the ears of each sleeve is a cam  $F'$ , having a shank  $f^3$  so disposed that the nearer it approaches a position at a right angle to the axis of the sleeve the more intimately will its periphery be brought in clamping relation with respect to its guide. Movement of the shank in the opposite direction will operate to relax said clamping action. Efficient results will be obtained by having the shanks  $f^3$  of the cams  $F'$  generally extend rearward at about the angle indicated in Figs. 1 and 3. Both cams  $F'$  are adapted to be moved in unison by means of a yoke  $G'$ , having a front contraction  $g$  at each side and in each of which contractions is pivotally attached the butt  $f^4$  of the cam-shank at that side. The rearwardly-extending side members  $g'$  of the yoke are connected to turn with a transverse shaft G, revolvably supported in bearings  $a^9$ , suspended from the side rails  $a^2$  of the main or supporting frame. A conveniently-accessible portion or portions of this shaft has means  $g^2$ , by which the shaft can be turned in its bearings by hand.

Short legs  $B^3$ , depending from the section B at each side of the central opening therein, are recessed at their lower ends to engage and rest on the upper forward stay-rod  $a^3$  to support the forward part of the section when in a horizontal position and prevent the same from descending below such plane.

The section C is represented as having a single longitudinal guide  $h$  centrally located and secured to the cross-bars  $c$   $c'$ . The sleeve H on this guide and pivoted cam  $H'$  are functioned similar to the sleeve and cam previously described, the shank  $h'$  of the cam, however, being disposed at an angle, but in an opposite direction, by reason of the disposition of the cam-releasing connection. This latter is formed by a pair of bars  $h^2$ , the downwardly-inclined forward portions of which are pivotally attached to the lower rear ends of the extensions  $b'$  of the section B, the upper rear converged parts of said bars  $h^2$  having pivoted between them the butt of the cam-shank  $h'$ .

The arrangement and operation of the sleeve I on the guide  $i$ , carried by the section D,



and of the cam I', carried by said sleeve, will be readily comprehended when it is stated that the butt of the cam-shank z' is pivoted between the converged ends of the bars z'', the other diverging ends of which are pivotally attached on the inner sides of the lower portions of the plates D'.

From the description thus far it will be appreciated that by swinging upward either of the sections B, C, or D on its fulcrum the cam of the section so swung will by reason of its yoke or bar connections, as the case may be, and also on account of the distinct fulcrum of such yoke or bar connections be so moved as to be held in a relaxed position relative to its guide, with the result that during such upward movement the sleeve will freely slide along its guide to accommodate itself and connected parts to the changing position of the section. When the latter has attained the desired adjustment, its weight will through the coacting thrust exerted by the cam connection cause the cam to turn in its ears and frictionally but firmly clamp its guide, and thereby positively support the section in the adjustment stated. By simply manipulating the shank connection of any of the cams to slightly swing the shank toward its particular section its cam will be turned to release its clamping engagement with its guide, and its said section can descend to any desired extent by gravity.

Manifestly the three sections B, C, and D can be disposed and retained in alinement with each other whether in a horizontal or inclined plane.

The controlling principle of the invention will be present whether a single guide-sleeve, cam, and its operating devices are employed or a plurality of such guides, sleeves, &c., are adapted.

With obvious modification the novel structure can be arranged as an invalid-chair.

I do not desire to be understood as limiting myself to the particular construction and arrangement of parts shown and described, but reserve the right to all modifications within the scope of my invention.

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

1. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a guide a slotted sleeve slidably mounted on said guide, a pivoted cam carried by said sleeve and adapted to swing within the slot, and a connection disposed in a plane parallel with the plane of movement of the cam pivotally attached both with respect to the cam and a fulcrum independent of the pivotal connection of the swinging section.

2. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a guide, a slotted sleeve slidably mounted on said guide, a pivoted cam carried by said sleeve and adapted to swing within the slot, a connection pivotally attached both with respect to the cam and a fulcrum, the latter independent of the pivotal connection of the swinging section and said connection disposed in a plane parallel with the plane of movement of the cam, and means for actuating said connection by hand.

3. In a structure of the character described, the combination of a main or supporting frame, a swinging section provided with a plurality of guides, slotted sleeves slidably mounted in said guides, a pivoted cam carried by each sleeve and adapted to swing within the slot thereof, a connection having a common pivotal attachment with said cams to unitarily move the same and disposed in a plane parallel with the plane of movement of the cam, said connection also having a pivotal fulcrum independent of the pivotal connection of the swinging section.

Signed at New York, in the county of New York and State of New York, this 19th day of March, A. D. 1904.

GEORGE L. POLL.

Witnesses:

WILLIAM PAXTON,  
CHAS. L. WOLF.