Dec. 22, 1931. O. K. MITCHELL ET AL 1,837,826

VERTICALLY AND ANGULARLY ADJUSTABLE TABLE

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Fig. 1.

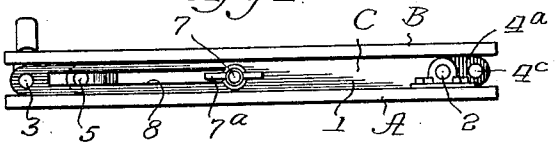


Fig. 2.

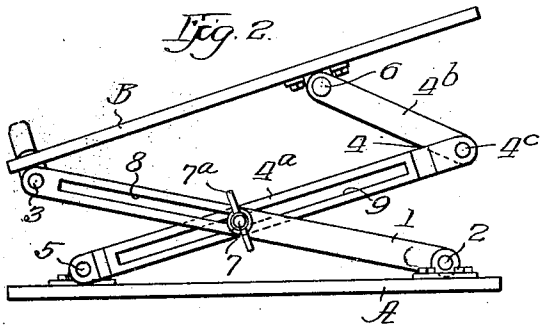


Fig. 3

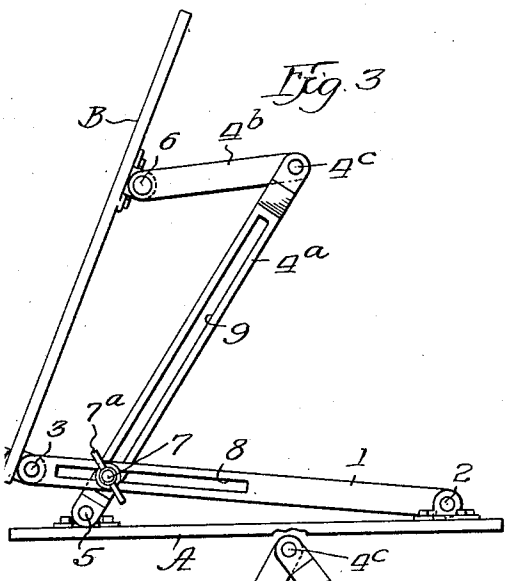


Fig. 5

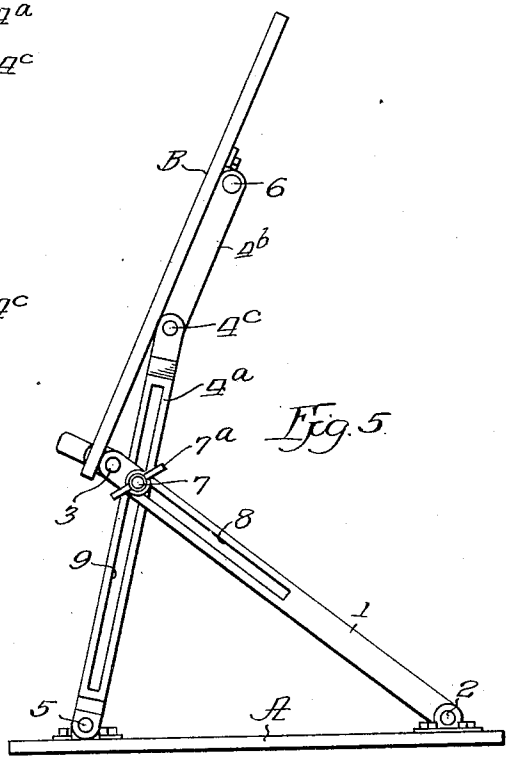
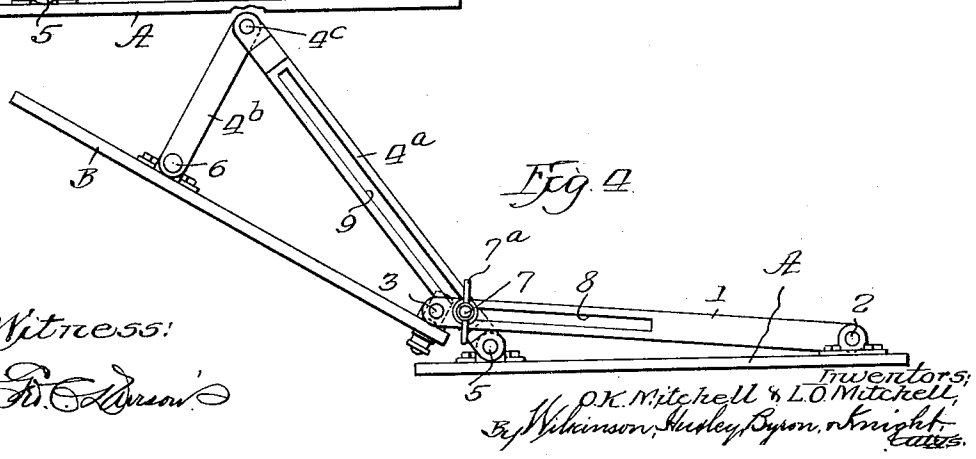


Fig. 4



Witness:

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VERTICALLY AND ANGULARLY ADJUSTABLE TABLE

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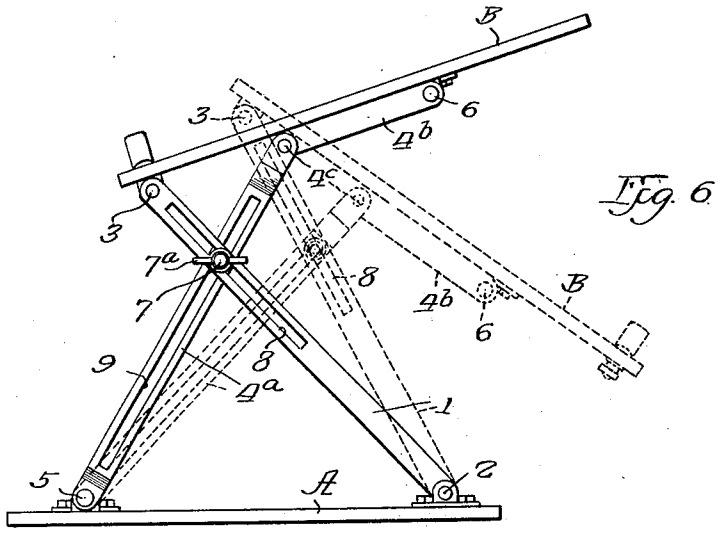


Fig. 6

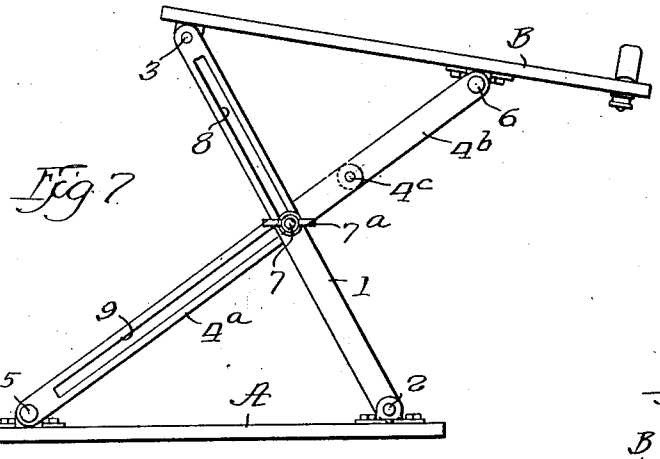


Fig. 7

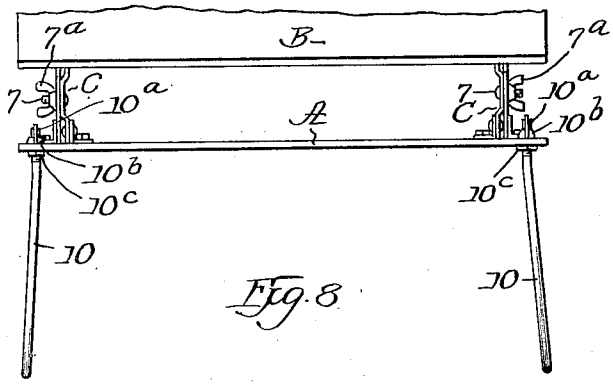


Fig. 8

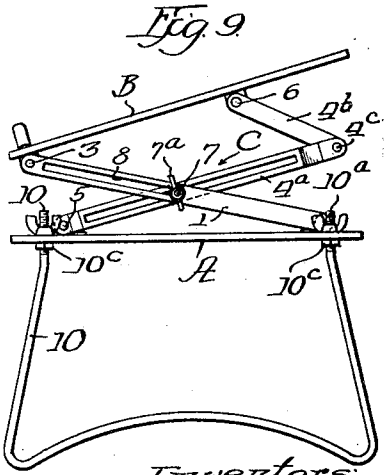


Fig. 9

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Patented Dec. 22, 1931 1,837,826

UNITED STATES PATENT OFFICE

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VERTICALLY AND ANGULARLY ADJUSTABLE TABLE

Application filed April 11, 1928. Serial No. 269,143.

This invention relates to tables of the class in which a table member is supported above a base member with adjustment both vertically and angularly in relation to the base member, through means of two systems of crossed links arranged in parallel vertical planes extending from front to rear of the table, having their upper and lower ends pivoted, respectively, to front and rear portions of the said members and having the links of each system movable both longitudinally and transversely of each other.

It has heretofore been proposed by the present inventors to have one link of each system unitary in construction and fixedly pivoted at its lower end to the rear portion of the base member and at its upper end to the front portion of the table member, so that said link would act as a master link in defining an arcuate path for the table member and to have the other link of each system pivoted at its lower end to the forward portion of the base member and at its upper end to the rear portion of the table member, but made of two parts relatively movable so that, while serving as a stay link to fix the table member at different angles of elevation or depression, it will also accommodate itself to changing distances between its pivots upon the base member and the table member. The specific means for rendering the stay link extensible heretofore disclosed, consisted in a pair of link members sliding one upon the other, in the direction of the length of the link, but held in alignment at all times, and means to clamp the two sliding members at different stages of their adjustment, and thereby fix the length of the stay link after each adjustment and hold the table member at the selected angle.

The object of the present invention is to provide a construction of stay link for use in link systems of the kind described, which while comprising two parts relatively movable to permit the link to respond to changing distances between its pivots upon the base member and table member, will, by reason of the peculiar relationship of its two parts, be capable of affording a wider range of adjustment to the table member and of entering into a variety of additional supporting relationships to the table member; also to adapt such an extensible stay link to be secured in its different positions of adjustment by a single securing means in each link system; also to have this securing means serve to fix any crossing point assumed by the stay link and the master link. Accordingly, the present invention proceeds upon the principle of constructing the stay link in each system, of two stay link members pivoted together at their ends and at a point intermediate of the ends of the complete stay link, the pivot between said stay link members being such that they can assume different angular relations by movement in the vertical plane of the link system; one member, hereinafter referred to as the stay link extension member, being preferably relatively short, so that its point of articulation in the complete stay link will be beyond the range of crossing points assumed by the two links of the system and leave the other member, referred to hereinafter as the stay link body member, to serve as the means for fixing the link in different positions to which it may be adjusted.

In the accompanying drawings—

Figure 1 is an end view of a table in which the present novel link system is embodied, the parts being in the positions which they assume when the table is folded.

Figure 2 is an end view, with the table raised and elevated an initial distance above the base and there secured by clamping means, one of which will be used in each link system.

Figure 3 is an end view showing the table member at a greatly increased angle of elevation, but with a minimum height adjustment.

Figure 4 is an end view showing the table member, without material increase in height, angularly adjusted by the offsetting effect of the stay link extension member, to a point sufficiently beyond the elevation of Figure 3 to enable the normal under surface of the table member to serve as a support for reading matter while the upper surface of the base member is rendered conveniently avail-

able, simultaneously, for writing purposes.

Figure 5 is an end view showing an angle of elevation which is approximately that of Figure 3, but with a materially greater height adjustment permitted by approximately straight alignment of the two stay link members and effected by the radius action of the master link, the stay link extension in this instance lying inwardly from its pivot on the under surface of the board.

Figure 6 is an end view showing by full and dotted lines, two positions permitted by the offsetting effect of the stay link extension member on the lower side of the stay link body member while lying inwardly along the underside of the table member from its pivot thereon, and which is readily attained by decreasing the angle of elevation from the position of Figure 5 and simultaneously causing the master links to increase their radius movement; the decrease of angle in the dotted line position having proceeded to a condition of depression rather than elevation, and consequently presentation of what is normally the rear portion of the table member, in position to serve as the front portion, and with the convenience of offsetting of the table member in a horizontal direction beyond the base member.

Figure 7 is an end view showing a position intermediate of the full and dotted line positions of Figure 6, and in which the normal rear portion of the table member is presented for use as the front portion and in an overhung position; and

Figures 8 and 9 are, respectively, a front view and an end view showing the application of supporting legs to the base member and the relative positions of the two link systems, the height and angle of elevation of the table member corresponding substantially to that shown in Figure 2.

A represents the base member, B the table member, and C the two parallel link systems arranged at either end of the table and connecting said members together.

Each link system comprises a master link 1 having its lower end stationarily pivoted at 2 to the rear portion of the base member A, and its upper end stationarily pivoted at 3 to the front portion of the table member B, and a stay link 4 having its lower end stationarily pivoted at 5 to the front portion of the base member A and its rear end stationarily pivoted at 6 to the rear portion of the table member B. Stay link 4 comprises two members, namely, stay link body member 4*a* and stay link extension member 4*b*, which said members are pivoted together at 4*c*. Links 1 and 4 cross each other between the base member and the table member, and are pivoted together at their crossing points through means of a bolt 7, but said bolt is received in slots 8 and 9 of the respective links a sufficient distance to permit the crossing point of the links to shift agreeably to changes in height and angular positions assumed by the table-member relatively to the base member; said bolt having means, such as a wing nut 7*a* for tightening it and clamping the crossed links together whenever a desired adjustment of the table is attained. At relatively low heights of table member adjustment, such, for instance, as those shown in Figures 2, 3, and 4, as well as in adjustments of depression such as shown in Figures 6 and 7, extension member 4*b* of the stay link 4 has moved to substantial angles to the body member 4*a*, and in the two figures last named lies along the under surface of the table member inwardly from its pivot on the table member. By this capacity to move from positions to and even beyond perpendicularity to and on opposite sides of the body member 4*a*, and to extend inwardly as well as outwardly from its pivot on the table member, the stay link is adapted to impart a variety of new positions of use to the table member. In some of these, for instance, those of Figures 5, 6, and 7, the stay link body member 4*a* enters into abutment against the table member B in limiting the angular relation between it and its extension member 4*b*.

With supporting link systems as herein described, locking means at all pivotal connections of the link system with the two members A and B are dispensed with. It is also unnecessary to have any locking means at the pivotal connection between the body member 4*a* and the extension 4*b* of the stay link. The single clamping connection 7, 7*a* in each system is all that is needed to maintain any adjustment attainable.

If it be desired to use the table for the sick bed or in other positions where ample support is available on either side of the user, legs 10 may readily be applied in the form of bail-shaped iron rods having their ends 10*a* protruded through the base member B, and there secured by single nuts 10*b*, shoulders such as may be provided by nuts 10*c* on the underside of the base member being employed to cooperate with the nuts in clamping the base member.

We claim:

1. A table comprising a base member, a table member, and master links crossed with stay links connecting said members together; both classes of links being pivoted at their lower ends to the base member and the links, at their crossings, being movable each upon the other longitudinally as well as transversely; each stay link comprising two link members pivoted respectively to the base member and the table member and pivotally connected together with freedom to move angularly one upon the other in the plane of the link.

2. In a table, a base member, a table member, master links pivoted at their lower ends to the rear portion of the base member and at their upper ends to the forward portion of the table member, and stay links pivoted at their lower ends to the forward portion of the base member and at their upper ends to the table member in rear of the pivots of the master links on said table member; said stay links each comprising two link members pivotally connected together with freedom of relative angular movement in the plane of the stay link; and said stay links crossing said master links with freedom of movement longitudinally and transversely in the planes of the links, in the various adjustments of the table member, and means being provided for releasably securing the crossed links immovably together in their different positions of adjustment.

3. In a table, a base-member, a table member, and link systems connecting said members together; each link system comprising a master link pivotally connected at its respective ends with the rear portion of the base member and the front portion of the table member, and a stay link pivotally connected at its respective ends to the forward portion of the base member and to the table member at a point inward from the rear margin of the table member; said master link and stay link crossing each other between said members with freedom of one link to move both longitudinally and transversely of the other link, and having means for releasably securing them against movement at any crossing point assumed by them; and each stay link comprising a body link member, and an extension link member pivotally connected together with freedom of relative angular movement between said link members in the plane of the link.

4. In a table, a base member, a table member, and link systems connecting said members together; each link system comprising a master link pivotally connected at its respective ends with the rear portion of the base member and the front portion of the table member, and a stay link pivotally connected at its respective ends to the forward portion of the base member and to the table member at a point inward from the rear margin of the table member; said master link and stay link crossing each other between said members with freedom of one link to move both longitudinally and transversely of the other link, and having means for releasably securing them against movement at any crossing point assumed by them; and each stay link comprising a body link member, and an extension link member pivotally connected together with freedom of relative angular movement between said link members in the plane of the link; said extension member being received by the pivotal connection on the table member and being adapted to assume a position which offsets the table member from the stay link body member in both directions transverse to said body member.

5. A table, comprising a base member, a table member above said base member, and link systems in parallel vertical planes connecting said members; each link system comprising a master link, master link pivots uniting the lower and upper ends of the master link, respectively, to the rear portion of the base member and the front portion of the table member, a stay link crossing the master link between said base and table members, and stay link pivots uniting the lower and upper ends of the stay links, respectively, to the base member forward of the master link pivot on the base member, and to the table member in rear of the master link pivot on the table member; said links, at their crossings, being each movable upon the other both transversely and longitudinally and each stay link comprising two pivotally connected link members, namely, a stay link body member which is received by the stay link pivot on the base member, and a stay link extension member that is received by the stay link pivot on the table member.

6. A table as described in claim 5, in which the upper ends of the master links, upon which the front of the table member is pivoted, extend laterally from the stay link body members at the points of intersection of the links, the stay link extension members extend laterally from the same sides of the stay link body members in fixing the angle of adjustment of the table member and the stay link extension members being adapted to swing vertically about their pivots on the stay link body members, and the master links being slidable both transversely and longitudinally of their lengths, relatively to the stay link body members, in regulating the height of the table member.

Signed at Chicago, Illinois, this 9th day of April, 1928.

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LEONARD O. MITCHELL.