June 27, 1933. M. WURM 1,915,346

EXTENSION TABLE

Filed July 7, 1930

FIG. 1.

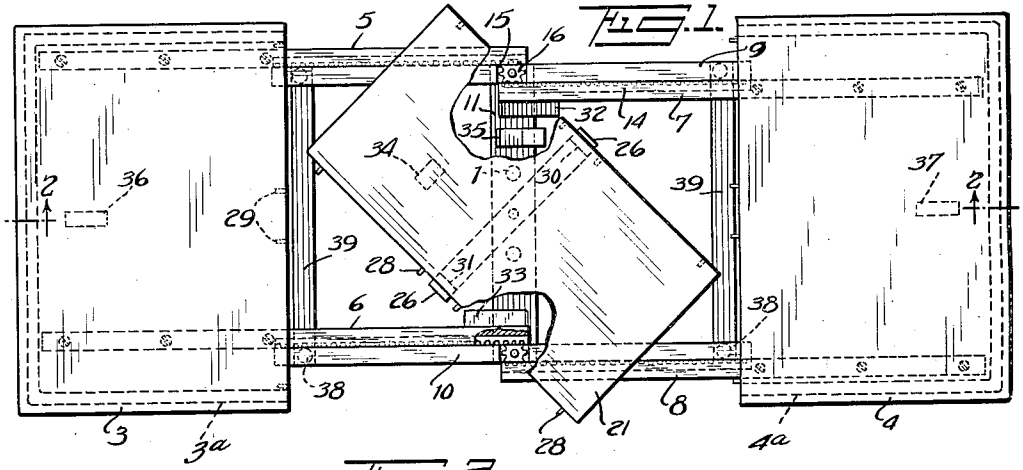


FIG. 2.

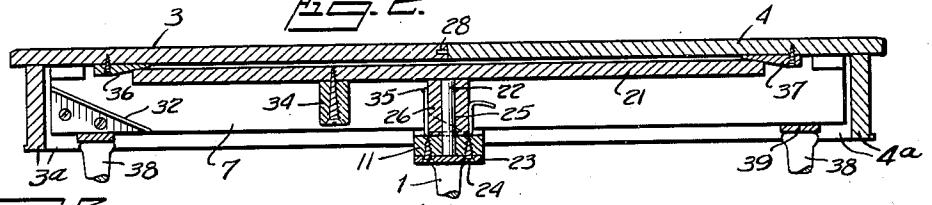
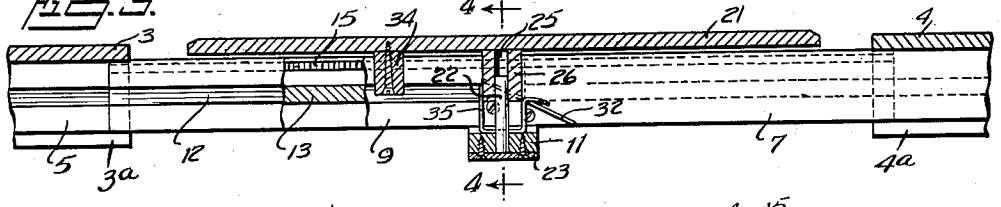


FIG. 3.



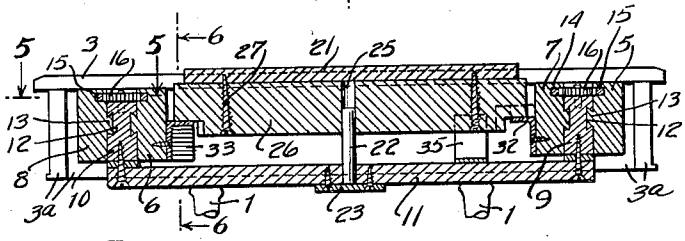


FIG. 4.

FIG. 7.

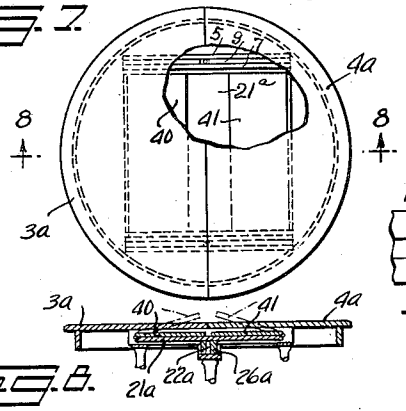


FIG. 8.

FIG. 5.

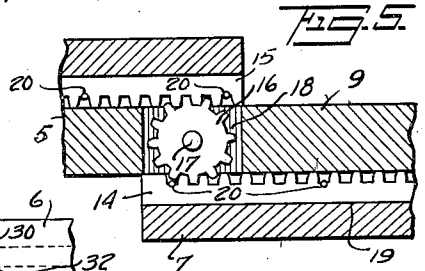
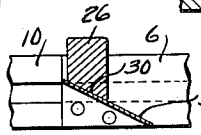


FIG. 6.



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UNITED STATES PATENT OFFICE

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EXTENSION TABLE

Application filed July 7, 1930. Serial No. 466,162.

My invention relates in general to extension tables and more particularly to that type in which the main or permanent table-top is movable in the horizontal plane to permit of an adjustable filler-leaf being raised from below into said plane adjacent said table-top, in order to extend at will the superficial area of the top and then to be removed from said temporary position and stored beneath the table-top.

Some of the important advantages possessed by my improvements are that the structure will fit any type of base or table; that they permit of the use with a divided table-top of a whole filler-leaf or non-sectional filler formed in one-piece from end to end, although the sectional type may also be used; that the filler-leaf is vertically adjustable, up and down, to raise it into and lower it below the plane of the table-top; that the filler-leaf may be turned on a vertical axis to bring it into and out of parallelism with said table-top, so that the filler-leaf may be made in a single non-folding piece and moved as such into service position and then returned to stored position; that the filler-leaf has capacity of central parallel vertical guiding to bring it into service position with the table-top and remove it therefrom into storage position; that the filler-leaf is automatically raised from its lowered position into the plane of the table-top by the horizontal shifting movement of the latter in the direction to open it, and is likewise automatically lowered into position below the plane of the table-top by the reverse horizontal movement of the latter to close it; that upon completion of the horizontal shifting movement of the table-top in opening it, the filler-leaf, which is thereby brought up from below, is then given an initial turning movement in the direction in which it is to be manually turned, the filler-leaf being firmly balanced in its ascent and descent; that the equalizing slides of the table-top have the operating racks and pinions concealed within grooves in the slides and are held by vertical pins, without the use of screws; that the filler-leaf when stored below the table-top is held against wobbling by means of pressure exerted on the leaf through means controlled by the table-top when it is moved into closed position; that the filler-leaf is prevented from turning on its axis when stored; that the filler-leaf is stopped when turned through a quarter circle into parallelism with the table-top; that the automatic action of the filler-leaf is accomplished through the simple means of coacting bevels and inclined-members operatively arranged between said filler-leaf and the movable top-member. Other important advantages derived from the use of my invention will appear hereinafter from the detailed description made in connection with the illustrations herein.

I have illustrated types of my invention in the accompanying drawing, wherein;

Figure 1 shows a top-plan view of an extension table embodying my improvements, with the table-top members moved apart and a filler-leaf elevated into the plane thereof and partly turned on the vertical axis of rotation of the filler-leaf, which position is assumed when the filler-leaf is being manually turned into parallelism with the table-top, and also when being turned back out of parallelism therewith when returning the leaf into its stored position.

Figure 2 shows a central vertical sectional view of the structure shown in Fig. 1, with the filler-leaf lowered into stored position and the table-top members closed above it, the plane of the section being indicated by the line 2—2, in Fig. 1.

Figure 3 shows a similar view to Fig. 2, but with the table top members slid apart and the filler-leaf disposed in the plane thereof and standing at right-angles thereto ready to be turned manually into parallelism therewith, or to be lowered into the stored position of Fig. 2. In this view a portion of one of the table-top slides is broken away in order to expose to view the concealed rack.

Figure 4 shows a central vertical sectional view of the structure of Fig. 3, but with the plane of the section at right-angles thereto, as indicated by the line 4—4, in Fig. 3.

Figure 5 shows an enlarged detail view of one of the equalizing slides in horizontal sec-

tion on the plane indicated by line 5—5, in Fig. 4.

Figure 6 shows a detail view of one of the inclined members carried by a slide and the bevel controlled by the filler-leaf and cooperating with said inclined member to effect the automatic raising and lowering of the filler-leaf.

Figure 7 shows on a reduced scale, a top-plan view of a round top table with a modified form of filler-leaf, a portion of the table top being broken away to show the filler leaf beneath it.

Figure 8 shows a central vertical sectional view of the structure of Fig. 7, the plane of the section being indicated by the line 8—8, in Fig. 7.

Referring to the drawing, in which like numerals of reference indicate like parts throughout 1, 1, are central legs disposed on a transverse plane of a rectangular shaped table having two top-members 3 and 4, which slide horizontally toward and away from each other in contracting and extending the top, by means of slides 5 and 6, attached to the member 3, and the slides 7 and 8, attached to the member 4, the respective slides being arranged to slide on the sides of the two parallel guides 9 and 10, which are fixed to the bridge or stretcher 11.

The guides 9, 10, are provided upon their respective sides with longitudinal dovetailed grooves 12, for receiving the correspondingly dovetailed tongues 13, of the respective slides, as shown particularly in Figs. 3 and 4. These slides are of the equalizing type, having upon their inner faces concealed racks 14, 15, each in mesh with the interposed pinion 16, turning on a vertical arbor 17, and arranged in a recess 18, in the guide. See Figs. 1, 3, 4 and 5. The racks are sunk in grooves 19, in the slides and are held in place by pins 20, driven vertically through the slides and lying between the rack-teeth, so that I avoid the use of numerous screws used generally in equalizing slides. The housing thus afforded the racks serves also to prevent them from rusting. By this means, the top members 3 and 4, move in unison and the same distance each, when slid in either direction.

The adjustable filler-leaf 21, is in one-piece and is rectangular in shape, with its long dimension equal to the width of the table-top members between which it is introduced to extend the superficial area of the top. The leaf is provided with a central vertical axis of rotation and is constructed and arranged to be turned to and fro in the horizontal over a range of substantially ninety degrees, so that it may be turned from a position of right-angles to that of parallelism to the top-members 3 and 4. The leaf is adjustable vertically on its axis of rotation so that it may be raised into the plane of the table-top members and then lowered below said plane to its storage level. By virtue of this arrangement, I am enabled to employ a non-folding filler-leaf in conjunction with a divided top table structure.

In the present construction, the central turning means of the filler-leaf 21, comprises a cylindrical upright arbor 22, which is fixed to a base plate 23, secured by screws 24, to the under side of the bridge 11, through which the arbor passes and extends into a socket 25, upon the under side of the filler-leaf in the center thereof. The socket 25, is arranged in the center of a cross-bar 26, which is secured by screws 27, to the under side of the filler-leaf, transversely thereof and with the ends of the bar projecting slightly beyond the side edges of the filler-leaf and extend to the inner sides of the respective slides 6 and 7, when the leaf is at right-angles to the top members, and thus serve to give clearance between one of said slides 6, and the aligning pins 28, which project from one edge of the leaf and engage the sockets 29, in the edge of the top member 3.

In addition to serving as a mounting for the pivotal socket 25, the cross-bar functions as the lifting and lowering means for the filler-leaf and for this purpose it is provided at its respective ends with the bevels 30, 31, whose planes of inclination are disposed in opposite directions and cut the plane of the filler-leaf transversely thereof. The bevel 30, cooperates with the inclined member 32, carried by the slide 7, and the bevel 31, likewise cooperates with the inclined member 33, carried by the slide 6, so that the inclined members 32, 33, move in opposite directions when the table top members 3 and 4, are slid back and forth. The table top members 3 and 4, are provided with the usual aprons 3^a and 4^a, respectively, depending below the under sides thereof, and the entire guiding means for the movements of the filler-leaf 21, are disposed between the under side of the filler-leaf and substantially the plane containing the lower edges of said aprons, so that the guiding means are practically concealed.

When the filler-leaf is in its lowermost position and the table-top members 3 and 4, are closed above it, the inclined members 32, 33, are furthest apart, one at each end of the table, as indicated in Fig. 2. As the top members are moved apart, the inclined members 32, 33, travel toward the center of the table and as the top-members fully uncover and expose the filler-leaf, the inclined members gradually engage the under sides of the bevels 30, 31, and slide under the same with a wedging action which gradually raises the lifting bar 26, and elevates the filler-leaf to the level of the top members 3 and 4, as indicated in Figs. 3, 4 and 6. While the bevels are still in engagement with the inclined members, the filler-leaf remains at right-angles to the top members and at substantially

the level thereof. Then the leaf is manually turned in a direction corresponding to the movement of the hands of a clock, as indicated in Fig. 1, and when turned a quarter of a circle into parallelism with the top members, the movement is there stopped by means of a projection 34, on the underside of the leaf colliding with the bracket 35, which is mounted upon the upper side of the bridge 11. Considering this turning of the leaf in connection with Fig. 6, the lifting-bar 26, would move to the right hand side of that figure, away from the inclined member 32, which then remains at rest. When the bevels reach the high points on the inclined members, as shown in Figs. 3, 4 and 6, that is the extreme limit of movement of the slides, and when the slides stop with a sudden action sufficient impetus is imparted to the bevels to cause them to jump away from the inclined members and thereby give to the filler-leaf its initial movement in the direction in which it is to be manually turned, for at this time the filler-leaf is raised clear of the slides and their guide, as shown in Figs. 1, 3 and 4. The intermediate position of the filler-leaf as it stands in the level of the plane of the table top members, is shown in Fig. 1, which position is assumed when the leaf is being manually turned from its right-angular position, (see Fig. 3,) into parallelism with the top members when the latter are to be closed against the filler-leaf to extend the table top, and also when the leaf is being turned back from such parallelism into the right-angular position, prior to lowering the filler-leaf. When the filler-leaf is turned back to its right-angular position and the top members are slid toward each other to contact the table, the movement of the slides 6 and 7, carry the inclined members from beneath the bevels and thereby gradually lower the filler-leaf to its storage level, as indicated in Fig. 2. The coaction of the bevels and inclined members gives parallel vertical raising and lowering movement to the filler-leaf, likewise the central vertical pivot of the leaf, and such means further provides a firm balanced action of the respective parts.

When the filler leaf is in its lowered position, the lifting-bar 26, takes in between the two vertical arms of a U-shaped bracket 35, on the bridge 11, one arm being longer than the other. When the lifting-bar rises it is also guided by this bracket and when the leaf is raised to its level of turning, the long arm of the bracket still engages the lifting bar and thereby prevents the leaf from being turned in the wrong direction.

Upon the under side of the top members 3 and 4, are fixed inclined pieces 36 and 37, respectively. These pieces engage the edge of the ends of the filler-leaf 21, when the leaf is in stored position and the top members are slid together, and this wedging action gives a pressing action on the filler-leaf sufficient to prevent its wabbling.

The respective ends of the table are provided with legs 38, which are secured to brace pieces 39, secured between the guides 9 and 10, although they may be otherwise mounted.

In order to adapt my improvements to a round top or a square top table, it is only necessary, so far as the filler leaf is concerned, to provide the respective ends or the respective side edges with folding sections. In Figs. 7 and 8, I show this modification in a round top table wherein 3^a and 4^a, are the table top members slidable towards and away from each other and 21^a, is the filler-leaf with hinged folding end sections 40, 41. The arbor 22^a, which is carried by the bridge member, enters a socket in the cross-bar $26a$, the same as in the construction shown in the other figures. The main part 21^a, is of sufficient length to reach from the center of one fixed guide to the other to afford support thereto when placed in position between the top members to extend the table. The folding ends are then swung over upon the guides and their slides.

By virtue of the simple construction of having the slide-racks arranged in grooves in the slides and retained therein by means of driven in members, such as pins, which pass vertically across the front of the racks and take in between adjacent teeth thereof, I avoid the use of the usual nails or screws.

I wish to be understood as not limiting my invention to the specific construction of the various different parts thereof, as it is evident that modifications may be made in the same, without, however, departing from the spirit of my invention.

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

1. An extension table having a horizontally movable table-top, a vertically adjustable filler-leaf movable into and also below the plane of said table-top, said filler-leaf being mounted to turn on a vertical axis, connections intermediate between said table-top and filler-leaf serving to actuate automatically the latter by the to or fro horizontal movement of said table-top and cause said filler-leaf to be raised or lowered.

2. An extension table having a horizontally movable table-top provided with slides moving therewith, a vertically adjustable filler-leaf movable into and also below the plane of said table-top, inclined members reciprocated by said slides and controlling the lifting and lowering of said filler-leaf, said filler-leaf having connected bevels arranged on the central transverse line thereof cooperating with said inclined members in the automatic lifting and lowering of said filler-leaf.

3. An extension table having a horizontal-

ly movable table-top provided with slides moving therewith, a vertically adjustable filler-leaf movable into and also below the plane of said table-top, inclined members with their inclines extending in longitudinally opposite directions and reciprocated by said slides and controlling the lifting and lowering of said filler-leaf, said filler-leaf being provided on its transverse central line with bevels inclined in longitudinally opposite directions in correspondence with said inclined members and cooperating therewith in the automatic lifting and lowering of said filler-leaf.

4. An extension table having a horizontally movable table-top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for adjusting it below and in the plane of said table-top, connections intermediate between said table-top and filler leaf causing the horizontal movements of said table-top to automatically raise said filler-leaf into position to be manually turned into parallelism with said table-top and back into right-angular position therewith.

5. An extension table having a horizontally movable table top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for adjusting it below and in the plane of said table-top, connections intermediate between said table-top and filler-leaf causing the horizontal movements of said table-top to automatically raise said filler-leaf into position to be manually turned into parallelism with said table top and impart to said filler-leaf its initial turning movement in the direction of the manual turning.

6. An extension table comprising a horizontally movable table-top, a vertically adjustable filler-leaf having a subjacent transverse bar pivoted centrally of said filler-leaf so that it may be turned on a vertical axis, said bar having bevels inclined in opposite directions, and correspondingly inclined members moving horizontally in response to the movement of said table-top and engaging said bevels in such movements and serving to raise and lower said filler-leaf on its pivotal axis.

7. An extension table having a horizontally movable table top, a bridge, a filler-leaf mounted on said bridge so as to turn on a vertical axis and adjustable vertically for raising it into the plane of said table top and lowering it beneath said plane, and means for preventing the turning of said filler-leaf beyond its position of parallelism with said table-top, said means comprising a projection on the under side of said filler-leaf and a fixed piece on said bridge adapted to engage said projection when said filler-leaf is shifted into parallel position with said table-top.

8. An extension table having a horizontally movable table-top, a bridge, a filler-leaf mounted on said bridge so as to turn on a vertical axis and adjustable vertically to raise it into the plane of said table top and lower it beneath said plane, and means for preventing turning of the filler-leaf when the same is in lowered position, said means comprising a fixed piece on the under side of said filler-leaf and spaced-apart members on said bridge to receive between them said fixed piece on the filler-leaf when the latter is depressed.

9. An extension table including horizontally movable table top members provided with equalizing slides having racks embedded in the slides and pinions cooperating with said racks, said racks being secured in place by means of retaining-pins located between the rack-teeth and driven in the slides.

10. An extension table including a horizontally movable table top, a filler-leaf adjustable into and below the plane of said table top, and one or more wedging means mounted on said table-top with the wedging surface engaging said filler-leaf to prevent its wabbling when in lowered position and the said table top is closed above it.

11. An extension table having a horizontally movable table-top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for adjusting it below and in the plane of said table-top, connections intermediate between said table-top and filler-leaf causing the horizontal movements of said table-top to automatically raise said filler-leaf into position to be turned into parallelism with said table-top and back into right-angular position therewith, the said connections comprising an inclined part on said filler-leaf and a subjacent inclined part connected with and moving in response to the movements of said table-top, the said inclined parts being inclined in opposite directions and adapted to engage each other so that the outward movement of said table-top causes its connected inclined part to travel under the filler-leaf inclined part and lift the same substantially into the plane of said table-top, and guiding means for preventing the filler-leaf from turning during the lifting movement thereof.

12. An extension table having a horizontally movable table-top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for moving it below and into the plane of said table-top, connections intermediate between said table-top and filler-leaf causing the horizontal movements of said table-top to automatically raise said filler-leaf into position to be turned into parallelism with said table-top and back into right-angular position therewith, the said connections comprising an inclined part on said filler-leaf and a subjacent inclined part connected with and moving in response to the movements of said table-top, the said inclined parts sloping in opposite directions and adapted to engage each other so that the

outward movement of said table-top causes its connected inclined part to travel under the inclined part of said filler-leaf and lift the same substantially into the plane of said table-top and the inward movement of said table-top causes its inclined part to travel from under that of said filler-leaf and permit the lowering of the same.

13. An extension table having top-members provided with slides and movable towards and away from each other, a filler-leaf mounted to turn and to reciprocate vertically on a vertical axis and provided with bevels near opposite edges thereof, said bevels being inclined in opposite directions, inclines disposed upon the respective inner slides of said top-members and sloping in opposite directions so as to engage said bevels and cause the filler-leaf to be raised when said top-members are moved apart and lowered when they are moved towards each other.

14. In an extension table, oppositely arranged horizontally sliding top-members movable towards and away from each other and provided with horizontal guides, and slides attached to each top-member and slidingly mounted upon said guides, one slide of each top-member being disposed upon the inner side of the adjacent guide and the other slide of each top-member being disposed upon the outer side of the adjacent guide, so that one slide of a top-member lies to the inside of its guide while the other lies to the outside of its guide.

15. An extension table having a bridge, a horizontally movable table top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for moving it below and into the plane of the table top, a projection on the underside of said filler-leaf, and subjacent means carried by said bridge for receiving said projection and serving as a guide in the vertical movement of said filler-leaf.

16. An extension table having a horizontally movable table top, a filler-leaf mounted to turn on a vertical axis and adjustable vertically for moving it below and into the plane of said table top, a projection on the underside of said filler-leaf, subjacent means for receiving said projection and serving as a guide in the vertical movement of said filler-leaf, said means comprising spaced members for receiving between them said projection and one of said members being higher than the other to prevent the filler-leaf from being turned in one direction.

17. An extension table comprising a horizontally movable table top, a vertically adjustable filler-leaf having a transverse bar secured thereto and mounted so that the leaf may be turned on a vertical axis, said bar having bevels inclined in opposite directions, correspondingly inclined members moving horizontally in response to the movements of said table top and engaging said bevels in such movements and serving to raise said filler-leaf on its pivotal axis, and subjacent guiding means for receiving said bar and guiding the same vertically.

18. An extension table having a horizontally movable table top, a vertically adjustable filler-leaf mounted to turn on a vertical axis, means providing intermediate connections between said table-top and filler-leaf serving to actuate automatically the filler-leaf by the horizontal movement of said table-top and cause said filler-leaf to be raised into the plane of said table-top.

19. An extension table provided with a bridge, a horizontally movable table top provided with slides moving therewith, a vertically adjustable filler-leaf movable into and also below the plane of said table top and having a vertical guide and a guide-way therefor mounted between said bridge and the underside of said filler-leaf centrally thereof, said filler-leaf being provided with bevels arranged on its transverse central line and inclined in longitudinally opposite directions, and inclined members having their inclines extending in longitudinally opposite directions in correspondence with said co-operating bevels and connected with and reciprocated by said slides and serving to automatically lift and lower said filler-leaf on its guiding means.

20. An extension table having a table top movable horizontally and provided with slides, a vertically adjustable filler-leaf provided with centrally arranged vertical guiding means, connections intermediate between said filler-leaf and said slides for raising said leaf into the plane of the table top and lowering the leaf below said plane by the horizontal movement of the slides, the parts of said connections which are carried by the slides being constructed and arranged to travel beneath said filler-leaf in the movements of said slides and serving to balance said filler-leaf by contact therewith during such movements.

21. An extension table provided with a bridge, a horizontally movable table top provided with slides moving therewith, a vertically adjustable filler-leaf movable into and also below the plane of the table top and having a vertical guide and a guide-way therefor mounted between said bridge and the underside of said filler-leaf centrally thereof, said filler-leaf being provided with inclines disposed on its central transverse line and sloping in longitudinally opposite directions, and inclined members with their inclines extending in longitudinally opposite directions in correspondence with said inclines of the filler-leaf and connected with and reciprocated by said slides beneath said filler-leaf when the latter is lowered, the upper ends of said inclined members acting to contact with and balance

said filler-leaf during the reciprocation of the slides.

22. In an extension table, oppositely arranged horizontally sliding top members movable towards and away from each other and provided with slides, a filler-leaf mounted to turn on a vertical axis and adjustable vertically into and also below the plane of said top members, and means arranged on said slides and disposed beneath said filler-leaf for balancing the same when in lowered position.

23. In an extension table, oppositely arranged horizontally sliding top members movable towards and away from each other and provided with slides, a filler-leaf mounted to turn on a vertical axis and adjustable vertically into and also below the plane of said top members, means arranged on said slides and disposed beneath said filler-leaf for balancing the same when in lowered position and said means including a member fixed upon each slide and adapted to travel beneath said filler-leaf in the outward and inward movements of the slides and in contact with said filler-leaf.

24. An extension table provided with a bridge, a horizontally movable top-member, an adjustable filler-leaf having means for vertical guiding for adjusting said filler-leaf below the level of said top-member and also in the plane thereof, said guiding means comprising a guide arranged upon the underside of said filler-leaf and a fixture including a base-plate mounted upon the underside of said bridge and provided with a vertical arbor which passes upwardly through said bridge and engages said guide on the filler-leaf.

25. An extension table having a main top section and a leaf section movable one toward and from the other in a horizontal plane, and one movable vertically toward and from the horizontal plane of the other, and means causing the first named motion in one direction to cause the movement into the common plane, the leaf being mounted for movement on a vertical axis to bring said means into and out of operable engagement.

26. An extension table comprising a frame with side-bars and having a leaf section and a main top section movable one toward and from the other in a horizontal plane, and one movable vertically toward and from the horizontal plane of the other, and means causing the first named motion in one direction to cause the movement into the common plane, the leaf having one dimension such that the leaf spans the side-bars and a transverse smaller dimension such that the leaf may lie between the said side-bars, said leaf being mounted also for movement on a vertical axis to bring said leaf into and out of parallelism with said side-bars.

27. An extension table having horizontally movable top members provided with suitable slides, a vertically adjustable filler-leaf movable into and below the plane of said top members, and inclined members reciprocated by said slides for controlling the lifting and lowering of said filler-leaf, said filler-leaf being also mounted for turning movement on a vertical axis to bring said filler-leaf into and out of position for operable engagement with said inclined members.

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