May 21, 1940. C. F. VANCE 2,201,414

EXTENSION TABLE

Filed April 20, 1936 4 Sheets-Sheet 1

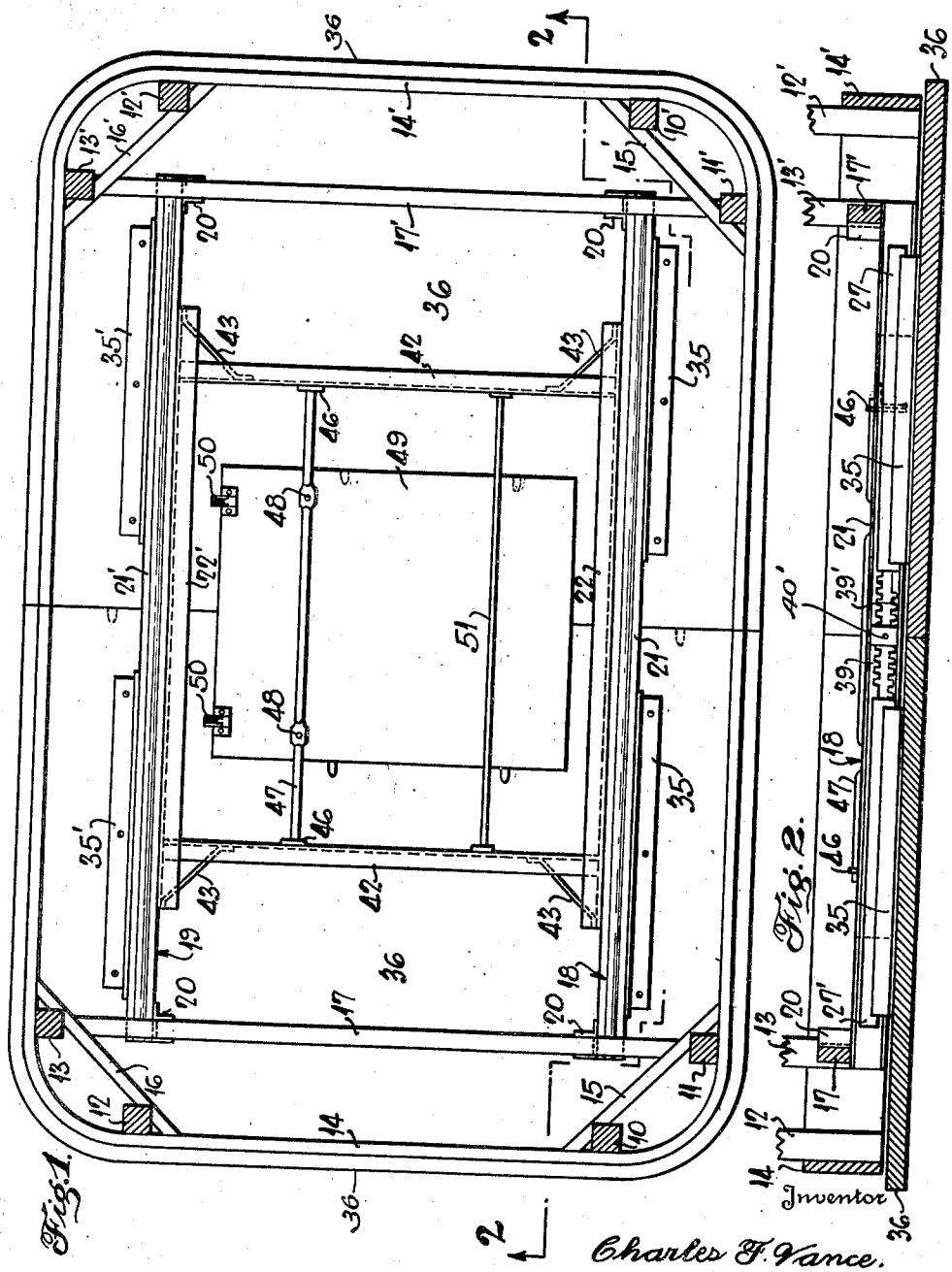


Fig. 1.

Fig. 2.

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EXTENSION TABLE

Filed April 20, 1936 4 Sheets-Sheet 2

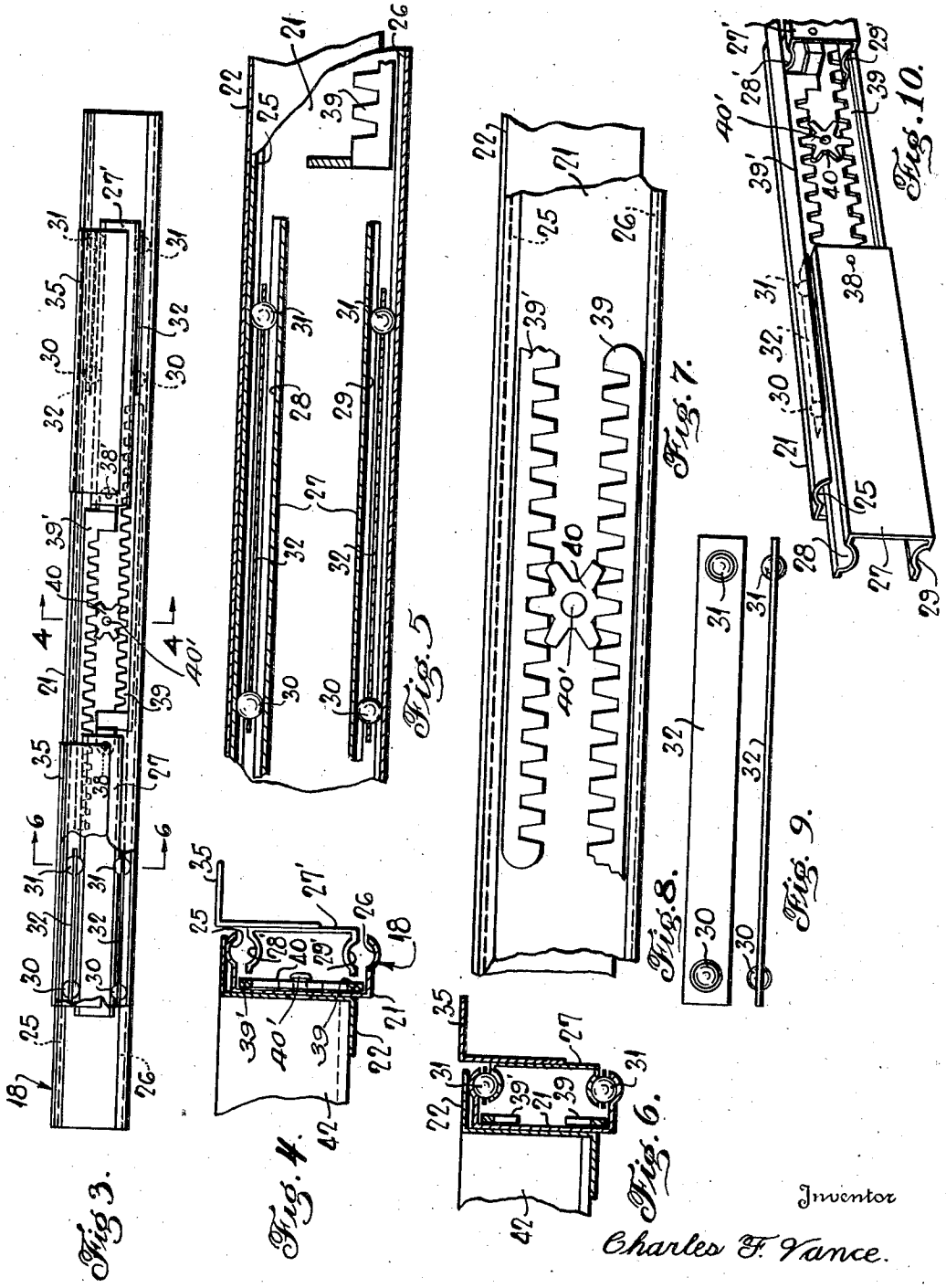


Fig. 3.

Fig. 4.

Fig. 5

Fig. 6.

Fig. 7.

Fig. 8.

Fig. 9.

Fig. 10.

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EXTENSION TABLE

Filed April 20, 1936 4 Sheets-Sheet 3

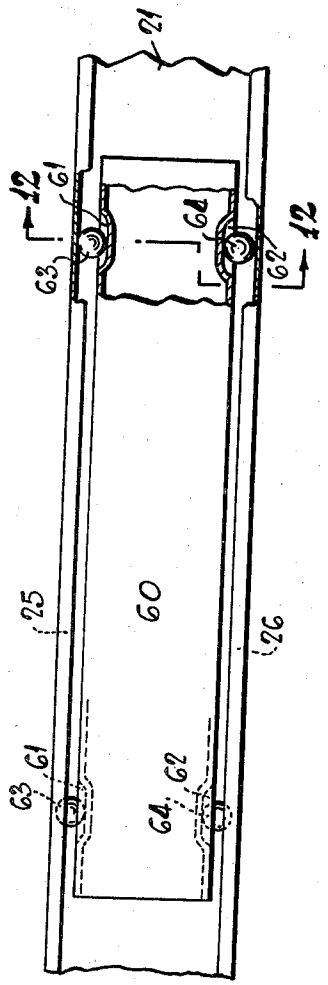


Fig 11

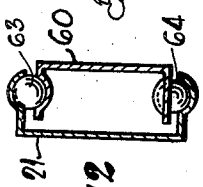


Fig 12

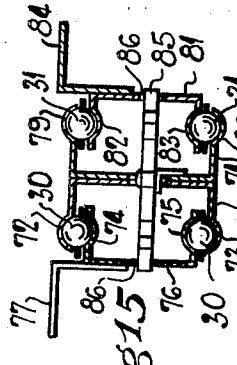


Fig 15

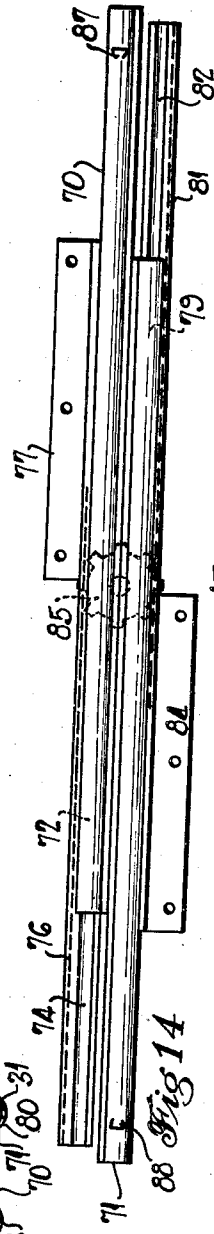


Fig 14

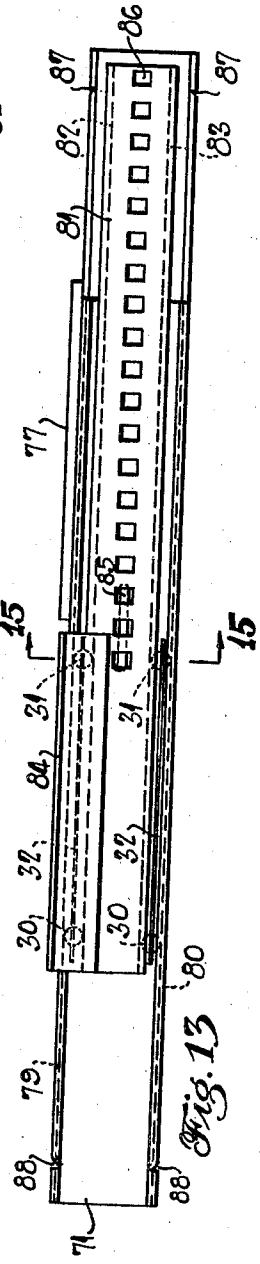


Fig. 13

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EXTENSION TABLE

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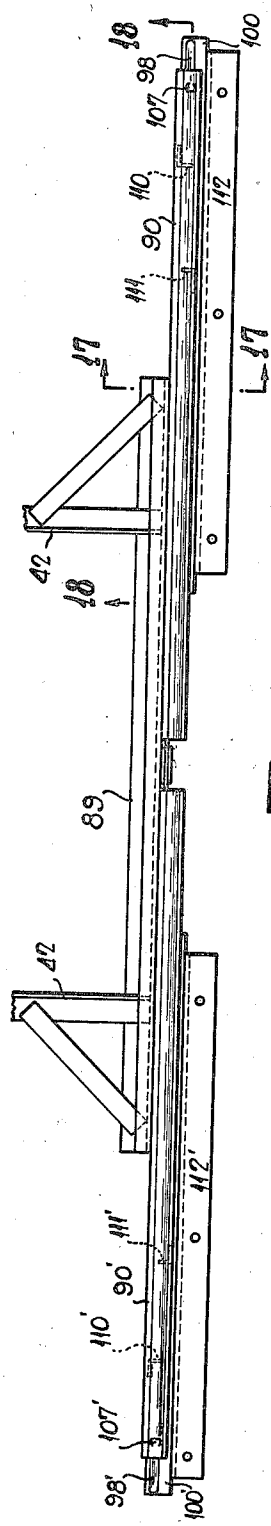


Fig-16

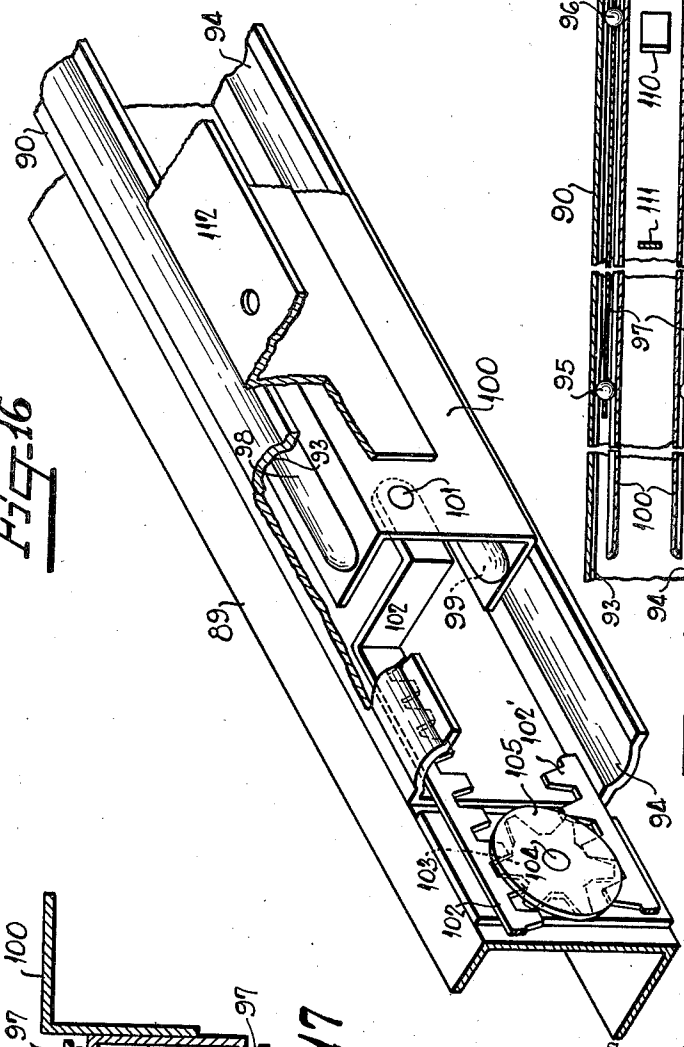


Fig-18

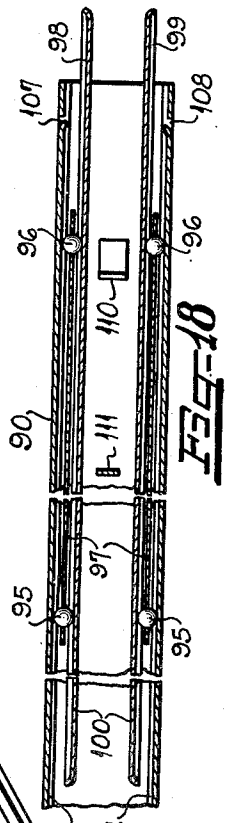


Fig-19

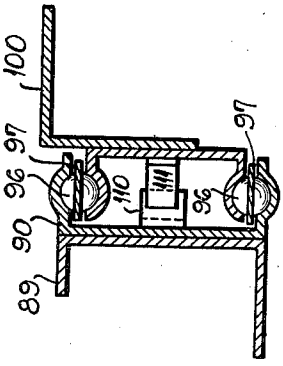


Fig-17

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Patented May 21, 1940 2,201,414

UNITED STATES PATENT OFFICE

2,201,414

EXTENSION TABLE

Charles F. Vance, Winston-Salem, N. C.

Application April 20, 1936, Serial No. 75,435

1 Claim. (Cl. 311—48)

This invention relates to an extension table and more especially to an extension table having a unit assembly structure which can be secured to a table frame. The structure is adapted to support a table top comprising extensible top sections on each end thereof with an intermediate foldable leaf secured between the top sections and adapted to fold between the top sections when the top sections are moved to folded position.

It is an object of this invention to provide an extension table having a unit slide assembly, said assembly being adapted to support on each end thereof a leaf which is adapted to be extended. The unit assembly has a pivoted foldable leaf member adapted to occupy a plane disposed below the plane occupied by the extensible leaf members when they are moved to folded position. The leaf member is adapted to be swung into position and unfolded to occupy the central portion of the table when the extensible leaf sections are moved to extended position.

It is another object of this invention to provide a unit assembly for extension tables having channel members provided with slides which are preferably supplied with ball bearing members so that the slides operate very easily and therefore have no tendency to become locked.

It is still another object of this invention to provide a unit assembly for extension tables having a pair of parallel channel members adapted to receive ball bearing slides mounted thereon and with an equalizer disposed between the slides having racks adapted to engage opposite sides of a pinion disposed in a vertical plane.

It is a further object of this invention to provide a unit assembly for extension tables comprising a unit member having parallel channel members with the channels having open portions disposed on the outside of the channel members with slides mounted in said channel members and adapted to support a table leaf.

Some of the objects of the invention having been stated, other objects will appear as the description proceeds, when taken in connection with the accompanying drawings, in which:

Figure 1 is a sectional bottom plan view of a table showing the invention;

Figure 2 is a sectional elevation taken along line 2—2 in Figure 1;

Figure 3 is an elevation looking at the outside of one of the slide assemblies and showing portions thereof broken away;

Figure 4 is a vertical sectional view taken along the line 4—4 in Figure 3;

Figure 5 is a longitudinal sectional view along a portion of one of the sides showing the ball bearing and ball cage arrangement;

Figure 6 is a vertical sectional view taken along the line 6—6 in Figure 3;

Figure 7 is an elevation of the central portion of one of the slides and showing portions of the rack and pinion equalizing arrangements;

Figure 8 is a plan view of one of the ball cages and showing the balls in position;

Figure 9 is an edge view of Figure 8;

Figure 10 is an isometric view showing a portion of one of the channel members with a portion of the two slides therein and showing the rack and pinion equalizing arrangements;

Figure 11 is an elevation of a modified form of the channel and slide and showing portions thereof broken away;

Figure 12 is vertical sectional view taken along line 12—12 in Figure 11;

Figure 13 is an elevation of a portion of one of the channels and a slide member showing a slightly modified form;

Figure 14 is a top plan view of Figure 13;

Figure 15 is a vertical sectional view taken along the line 15—15 in Figure 13;

Figure 16 is a top plan view of one side of slightly modified form of a channel and the slides therein;

Figure 17 is a cross sectional view taken along line 17—17 in Figure 16;

Figure 18 is a longitudinal sectional view taken along line 18—18 in Figure 16;

Figure 19 is an isometric view of a portion of the structure shown in Figures 16 to 18 inclusive.

Referring more specifically to the drawings, the numerals 10, 11, 12 and 13 denote suitable supports or legs for an extension table to which is secured a fascia member 14, said fascia member having diagonal struts or braces 15 and 16 secured to the inner surface thereof at the corner of the table. These struts 15 and 16 are also connected to supports 10 to 13 inclusive. Secured to the diagonal members 15 and 16 is a transverse strut 17 to which is secured rails 18 and 19 of the extension assembly by any suitable means such as angle members 20. The rails 18 and 19 are identical in all respects except that they are located in an opposite-hand position with relation to the table. Therefore like reference characters will be applied to corresponding parts with a prime notation added.

In Figure 1 it will be noted that the rail 18 is

formed from two pieces namely, U shaped member 21 which is secured to transverse struts 17 and 17' and a Z-bar 22, which is welded to the intermediate portion of member 21 to act as a bracing reinforcement. The U shaped member 21 has a suitable trackway therein in which slides are adapted to operate to which the table tops are secured. The U shaped members 21 and 21' have their ends secured to transverse struts 17 and 17' by any suitable means such as angle members 20. The strut 17' is connected to diagonal members 15' and 16', said diagonal members, in turn, being secured to the leg members 10' to 13' inclusive and also to fascia member 14', all of which are identical to the parts described for the other side of the table.

The longitudinal U-shaped member or track 21 has raceways 25 and 26 in the upper and lower flanges thereof, this raceway being substantially semi-circular in cross-section. Suitable U-shaped slides 27 and 27' are adapted to have their flanges fit between the flanges in trackway 21. Since the members 27 and 27' are identical with the exception of being opposite hand, only the member 27 will be described and like reference characters will be given to like parts in member 27' with a prime notation added. Member 27 has corresponding substantially semi-circular sectioned raceways 28 and 29 in the upper and lower flanges thereof which are disposed opposite the raceways 25 and 26 respectively. A pair of balls 30 and 31 are adapted to fit in the raceways previously described, in order to afford an easy relative movement between the track 27 and the track 21. The balls 30 and 31 are held in spaced relation to each other by any suitable means such as a perforated bar 32, said bar being adapted to fit between the flanges of the U-shaped members 21 and 27 and hold the balls in spaced relation within the raceways.

The members 27 and 27' have secured to the vertical sides thereof suitable angle members 35 to which end leaves 36 are secured. The trackways 21 likewise have pivotally secured thereto as at 38 and 38' suitable racks 39 and 39' which engage the opposite sides of a suitable pinion 40, said pinion being located midway between the ends of U-shaped trackway 21, and is preferably rotatably supported by the stud 40', which extends through adjacent bars 21 and 22 of the outer and inner frames of the table, and is a means at such points at least of securing said frames together as illustrated in Fig. 4. It is evident that when one of the end leaves 36 is moved in one direction that the other table top will be moved in the opposite direction since the two racks 39 and 39' engage the same pinion on opposed sides thereof.

The Z-bars 22 and 22' are held in spaced relation to each other by any suitable means such as angle struts 42. In order to hold the members 42, 22 and 22' in their proper position suitable braces 43 are provided at each end of the members 42. The struts 42 have secured thereto suitable lugs 46 which project downwardly beneath the table and have rotatably mounted in the lower end thereof a rod 47, said rod having secured to its intermediate portion as at 48 a collapsible table top section comprising two members such as 49 which are pivoted to each other by any suitable means such as hinges 50.

Another rod 51 is disposed between the members 42 for normally supporting the free end of the collapsed table top section comprising members 49, when the section is in the position shown in Figure 1.

By referring to Figure 2 it will be noted that the table leaves or top sections 36 are movable since they are connected to the angle members 35 whereas, the members 10 to 17 inclusive, as well as members 21 are in a stationary position. When the table leaves 36 are pulled to an extended position the collapsed intermediate table top section 49 can be unfolded and fitted in its proper position in the center of the table.

Figures 11 and 12 show a slightly modified form in which instead of having the members 27 with upper and lower continuous raceways 28 and 29, a U-shaped track member 60 is provided in lieu thereof said member having suitable cavities 61 and 62 in the upper and lower edges thereof in which are adapted to fit suitable balls 63 and 64 respectively. These balls also fit in suitable raceways 25 and 26 in the member 21. In this form the balls 63 and 64 are held in practically the same relative position with relation to the member 60 at all times since they are placed in suitable cavities. When a type of construction similar to this is provided, it is not necessary to have a spacer bar 32 such as shown in Figures 8 and 9.

Figures 13, 14 and 15 show a modified form of construction of the side rails of an extension table which is particularly adaptable for use on large tables having a very wide extension. In this form a pair of U-shaped members 70 and 71 are provided having horizontally extending flanges with the backs of their vertical web being secured to each other. The horizontal flanges of member 70 have raceways 72 and 73 respectively in the upper and lower flanges in which are adapted to fit a ball assembly comprising members 30, 31 and 32 such as shown in Figure 9. These balls are also adapted to fit in suitable raceways 74 and 75 disposed in the horizontal flanges of a U-shaped movable rack member 76. Welded to the vertical web of U-shaped member 76 is an angle member 77 to which the table top is secured.

The member 71 is identical in structure to the member 70 said member having upper and lower raceways 79 and 80 respectively in the flanges thereof in which the ball assembly shown in Figures 8 and 9 is adapted to fit. Another member 81 similar to member 76 just described, has upper and lower raceways 82 and 83, which raceways cooperate with raceways 79 and 80 to accommodate the ball assembly.

Angle member 84 is welded to the vertical web of U-shaped member 81 which cooperates with angle member 77 in supporting the top sections of the table. However, it should be stated that the angle member 77 supports one edge of the table top on one side of the table whereas the angle member 84 supports one edge of the table top on the other end of the table.

Rotatably mounted midway the ends of channel members 70 and 71 is a pinion 85 which is adapted to be engaged by racks 86 cut in the vertical web of U-shaped members 76 and 81. Since the racks 86 in members 76 and 81 engage the pinion on opposed sides an equalizing effect is obtained, that is, the movement of angle member 77 in one direction will produce a movement in the opposite direction of angle member 84.

The raceways 72 and 73 in member 70 are closed as at 87 to prevent the ball assembly from escaping therefrom. Likewise raceways 79 and 80 of member 71 are closed as at 88 to pre-

vent the escapement of the ball assembly from these raceways.

Figures 16 to 19 inclusive show another modified form in which an intermediate U-shaped section 89 has welded to each end thereof suitable trackways 90 and 90', both of said trackways 90 and 90' being identical, therefore, like reference characters will apply with the prime notation added to the trackway 90'.

The trackway 90 has upper and lower horizontal flanges in which are located suitable raceways 93 and 94, which raceways are adapted to accommodate a suitable ball assembly comprising balls 95 and 96 disposed in a bar 97. The balls 95 and 96 are also adapted to fit in another pair of raceways 98 and 99 disposed in the upper and lower horizontal flanges of U-shaped slide member 100. The member 100 has pivotally secured thereto as at 101 a rack 102 said rack 102 being adapted to engage a pinion 103. The pinion 103 is rotatably mounted on a bolt 104 which bolt has also mounted thereon a washer 105 which is approximately of the same diameter as that of the pinion 103. This washer assists in holding the rack member 102 in mesh with the pinion 103 at all times.

It will be noted by referring to the drawings that the raceways 93 and 94 are closed as at 107 and 108 to prevent the ball assembly comprising members 95, 96 and 97 from escaping from the ends thereof. Likewise the right-hand end of raceways 98 and 99 are closed to prevent the balls from escaping from the right-hand of these raceways. The left-hand ends of the raceways 97 and 98 are closed in a similar manner to that shown in the right-hand end of this member. It is not necessary to close the left-hand ends of the raceways 93 and 94 since the left-hand ends of the raceways 98 and 99 are closed and also since the slide 100 cannot be closed far enough to cause the ball assembly to escape from the upper and lower grooves 93 and 94.

The U-shaped track member 90 has a suitable angle lug 110 welded to the vertical web portion thereof which is adapted to engage another angle member 111 which is welded to the movable trackway 100 when the member 100 has been extended a predetermined amount, the lug 110 and angle member 111 constituting stops, which, when they come together, prevent further extension of the table. Secured to the vertical web of slide 100 is an angle member 112 to which the table top is attached.

In the drawings and specification there has been set forth a preferred embodiment of the invention, and although specific terms are employed, they are used in a generic and descriptive sense only, and not for purposes of limitation, the scope of the invention being set forth in the appended claim.

I claim:

An extension table including a main supporting frame, channels extending from end to end thereof and having their ends rigidly secured to the opposite ends of the frame, and constituting a part of the main supporting frame, slides telescopically connected with the outer ends of the channels, table leaves secured to these slides, and an inner frame of rectangular form fitted between the channels, the adjacent sides of which inner frame are rigidly secured to the inner sides of the central portions of the channels, whereby to brace and reinforce the latter throughout the width of the space between the table leaves when they are extended.

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