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EXTENSION TABLE SLIDE MECHANISM

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*Fig. 1.*

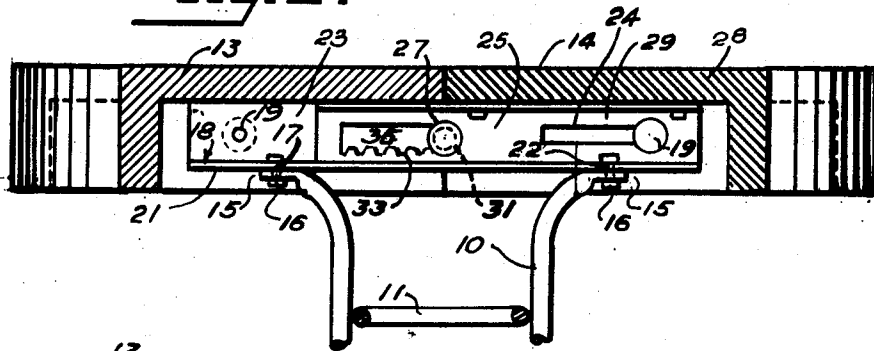


*Fig. 2.*

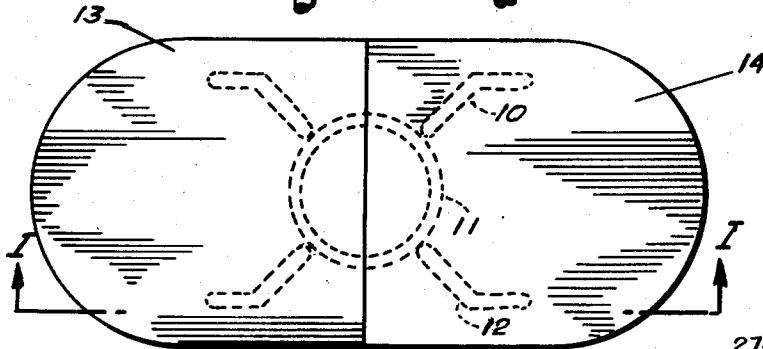
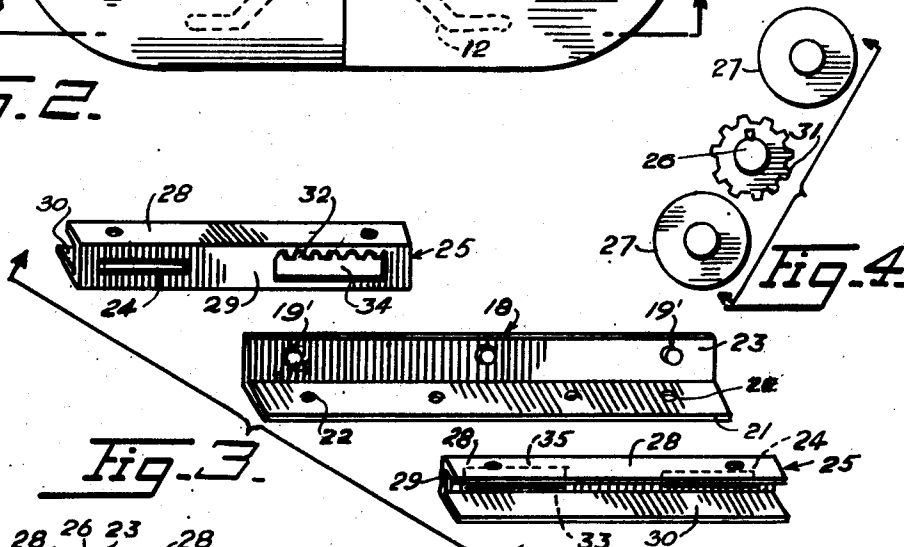


*Fig. 3.*

*Fig. 4.*

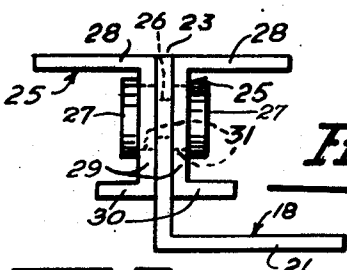
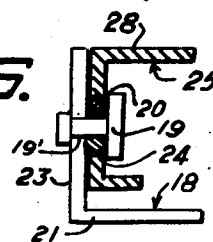


*Fig. 5.*

*Fig. 6.*



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## UNITED STATES PATENT OFFICE

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## EXTENSION TABLE SLIDE MECHANISM

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2 Claims. (Cl. 311-73)

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This invention relates to furniture and more particularly to extension tables and those that have provision for the insertion and removal of an extra table top leaf.

While extension tables have been developed and made heretofore, they lack the simplicity of construction and facile operation that is desirable in the structure of a table of this type for domestic use and further they have used mechanisms of wood in their construction which has seemed impractical to avoid previously. In this invention the construction includes a mechanism of metal or like material for the table top elements of the table that enable the latter to be moved simultaneously with a minimum amount of effort. In extending the table, the elements are moved outwardly from a line of contact positioned where they meet, and leave a space for the insertion of another leaf to make the table top complete for the extra length provided. The mechanism consists of a set of metallic rails under each of the elements, entrained in a stationary set of rails which is secured on to the legs supporting the table in general. The rails are made to include portions in the form of racks running on a set of gears which move the rails oppositely to each other, when actuated.

One object of the invention is to provide a new and improved extension table mechanism that will operate easily and simultaneously to move the table top elements in the same plane and level.

Another object of the invention is to provide a slide mechanism wherein side bars secured along their upper edges to top sections of a table are disposed along opposite side faces of a center bar mounted upon a support and have sliding movement in opposite directions during movement of the top sections towards or away from each other, there being an improved rack and pinion connection between the bars which very effectively causes the movement in opposite directions.

Another object of the invention is to provide such a mechanism wherein the racks are formed along edges of slots formed in overlapping inner end portions of the side bars and a shaft rotatably mounted through the center bar carries pinions disposed in the slots in meshing engagement with teeth of the racks, ends of the shaft carrying washers constituting abutment members which engage outer side faces of the side bars and guide their longitudinal movement along the center bar.

Another object of the invention is to provide a mechanism of this character in which the center bar and the side bars may be formed of sheet

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metal, thus producing a structure which is of light weight and may be manufactured at low cost.

Other objects of the invention will be apparent as it is more fully described.

For a better understanding of the invention, the objects, principles and operation thereof reference is made to accompanying drawings. The drawings, in conjunction with the following description outline a particular form of the invention by way of example, while the claims emphasize its legal scope.

Referring to the drawings:

Figure 1 is a side elevation of an extension table embodying this invention; taken on line 1-1 of Figure 2.

Figure 2 is a plan view of Figure 1 with its table top elements in closed position;

Figure 3 is a view in perspective in exploded form of the rail mechanism used on the embodiment;

Figure 4 is a view in exploded form of the gears, pin and holding washer used in this embodiment.

Figure 5 is an end view in elevation of the rail mechanism and

Figure 6 is a sectional elevation through the rails where the roller supported on the lateral pin of the stationary rail runs in its guide slot in the sliding rail.

Similar reference characters refer to similar parts throughout the views.

In the drawings, an extension table comprises a framework stand having four bent legs 10, held rigidly spaced apart by a ring 11 about midway between the foot portions 12 for resting on the floor and the table top portions 15 for supporting the table top elements 13 and 14. The foot portions and the table top portions are preferably arcuately formed as indicated in the drawings. For aesthetic reasons the legs are made of tubular material, such as stainless steel. They are designed to provide an attractive appearance and stability of structure. The portions 15 are made straight and flattened for an appreciable length and provided with holes 16 through which bolts 17 are placed to hold a pair of stationary rails 18 horizontally above them. The rails 18 are symmetrical in form and are formed with openings 19 through which pass pins 19 having enlarged heads, projecting laterally from the rails on the outside near each end. The rails are preferably made of quasi-angle-iron contour so arranged that one web 21 is disposed horizontally on the portions 15 and provided with holes 22, that align with the holes 16 and have the bolts 17 projected through them to secure the portions 15 and rails 18 securely together. The vertical web 23

of these rails have the pins 19 with rotatable rollers 20 thereon to run on the edges of elongated openings 24 in the sliding rails 25 that travel against and on the stationary rails 18. The openings or slots 24 in connection with the rollers 20 guide the rails 25 in a horizontal direction parallel with the axial plane of the table tops. The rails 25 are of angle cross-section with one web 28 horizontally positioned when normally disposed, and forming an upper flange in which are formed openings to receive screws so that they can be fastened to their respective table top elements 13 and 14 respectively. The other web 29 of each is vertically disposed and extends below the table-top elements, with its lower edge portion bent over and forming a lower flange 30.

In this position the legs hold the stationary rails 18 through the use of the bolts 17. These rails 18 in turn, have their rollers 20 running on the edges of the slots 24, while also carrying a pair of spur gears 31 on their vertical webs 29. These gears 31 engage in rack teeth 32 and 33 formed along edges of slots 34 and 35 respectively in the vertical webs of the rails 25. The rack teeth 32 are on the upper edge of the slot 34 so the upper teeth of the gears 31 will be meshed in them, while at the same time the lower teeth of these gears will mesh in the teeth 33 along the lower edges of the slots 35.

When one of the movable table tops is moved on its set of sliding rails its racks, through their teeth meshed in the teeth of the gears, 31, they rotate the latter on its stationary supporting pin. The gears 31 are rotated so their teeth enmeshed in the racks of the second movable top, rotate and slide the racks and the rails in which they are located so the table top attached will be moved in the opposite direction to that of the first table top. Thus when the table tops are operated on their respective mechanisms, they move together simultaneously towards or away from each other, as the case may be. When separated sufficiently the table tops leave a horizontal space in between them, enough to permit the insertion of an extra table top leaf in between them on the stationary rails 18. In this position the table tops are aligned together and form an extended table, with three table tops in line. The extra leaf is removed to permit the original table tops to be pushed together and form a smaller table. The mechanism operates easily and effectively. It is light and simple in construction. It can be made economically, employing production processes and preferably stamping out the components of the mechanism. The mechanism can be readily mounted on the table top and stand and detached when desirable. The possibilities of a jamming of the mechanism under normal use are reduced to a minimum. While inspection and repairs are facilitated by the accessibility of the components and their lack of loose and complicated parts.

The gears 31 are mounted on the stationary shafts 26 passing through the vertical webs of the rails. They engage on the teeth 32 and 33, in the slots 34 and 35 so they will reciprocate in opposite directions when the gears rotate. The washers 27 and the ends of the shafts 26 retain the gears and rails in position. The rollers 20 in the slots 24 guide the rails as they travel back and forth as well as reduce friction. The stationary rail 18 prevents the gears 31 from moving transversely and holds them in mesh with the teeth of the rack.

While but one form of the invention is disclosed herein, it is not intended to limit the construction of possible structures feasible under this application for patent, as it is appreciated that other forms could be developed and made that employ the same principles and come within the scope of the claims appended herewith.

Having thus described the invention what is claimed is:

1. In an extension table slide mechanism, a support engaging center rail disposed horizontally in a vertical plane, said rail being formed with a center opening and with an opening near each end, top engaging side rails disposed horizontally against opposite side faces of the center rail and having inner and outer end portions formed with longitudinally extending slots, the slot in the inner end portion of one side rail having rack teeth along its upper edge and the slot in the outer end portion of the other side rail having rack teeth along its lower edge, pins mounted through the openings near ends of said center rail and projecting laterally from opposite sides of the center rail and passing through the slots in outer end portions of the side rails and limiting sliding movements of the side rails longitudinally of the center rail, a shaft mounted through the center opening of the center rail and having portions projecting laterally from opposite sides of the center rail and passing through the slots in inner end portions of the side rails and provided with heads engaging outer side faces of the side rails, and gears rigidly carried by said shaft with the said slots in the inner end portions of the side rails and meshing with the rack teeth whereby when either side rail is moved longitudinally the other side rail will move longitudinally in an opposite direction.

2. In an extension table slide mechanism, a center rail extending horizontally in a vertical plane, side rails extending horizontally along opposite side faces of said center rail, said side rails having inner end portions disposed in overlapping relation to each other and formed with longitudinally extending slots, the slot of one side rail having rack teeth along its upper edge and the slot of the other side rail having rack teeth along its lower edge, a shaft rotatably mounted through said center rail intermediate the length thereof with portions projecting laterally from opposite sides of the center rail and passing through the slots and carrying retainer members engaging outer side faces of the side rails, pinions rigidly carried by said shaft within said slots and meshing with the rack teeth and causing the side rails to move longitudinally in opposite directions, and means for limiting longitudinal movement of the side rails.

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