Nov. 8, 1932. B. BENSON 1,887,114

EXTENSION TABLE

Filed July 2, 1930 2 Sheets-Sheet 1

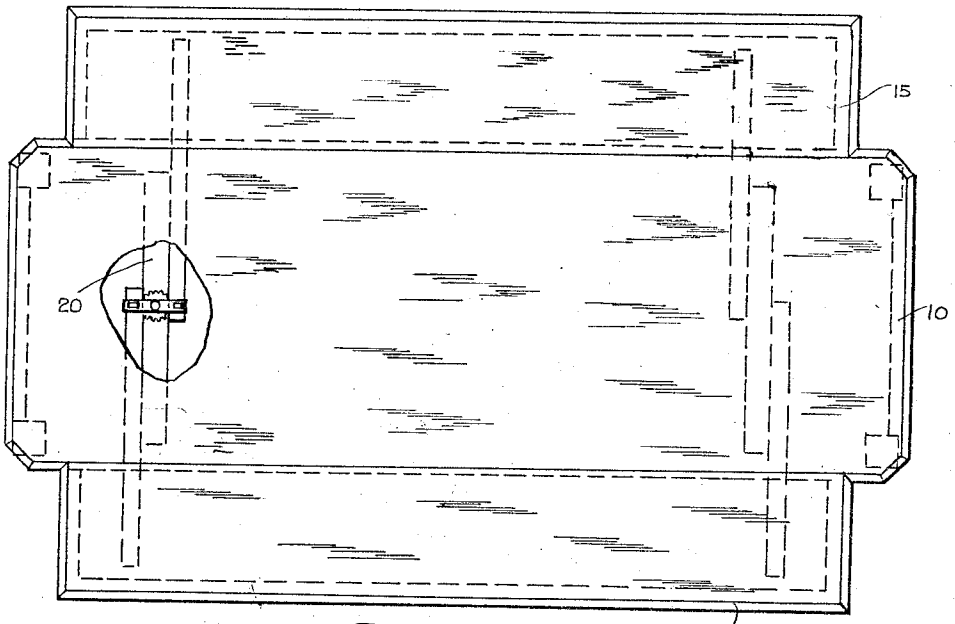


FIG 1

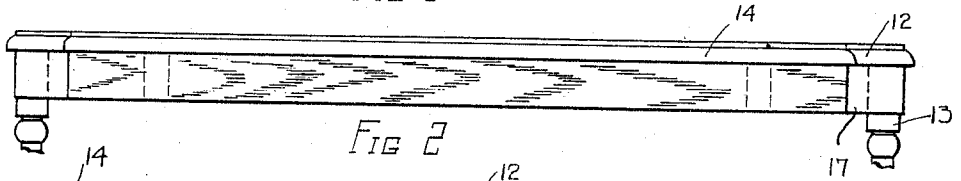


FIG 2

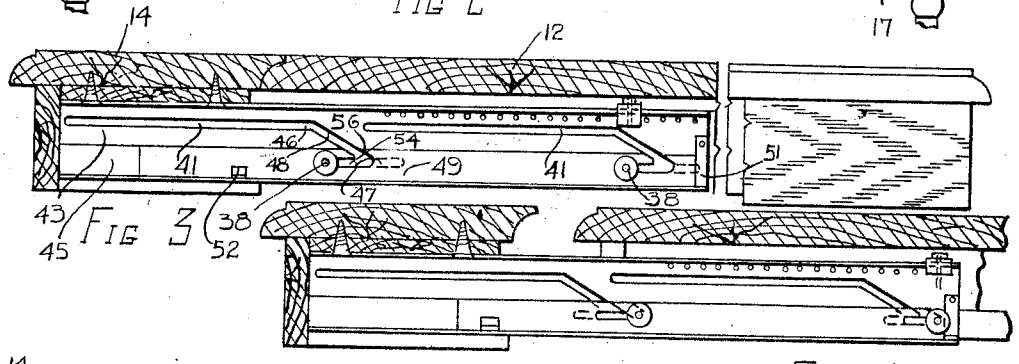


FIG 3

FIG 4

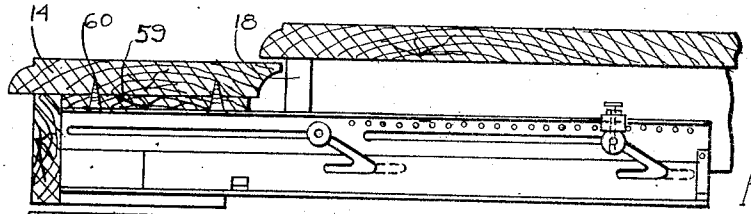


FIG 5

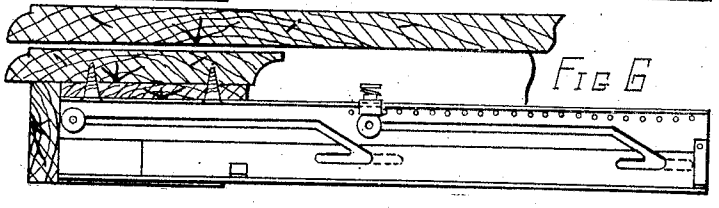


FIG 6

INVENTOR

Bennie Benson

By Richmond S. Hayes

His Attorney

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EXTENSION TABLE

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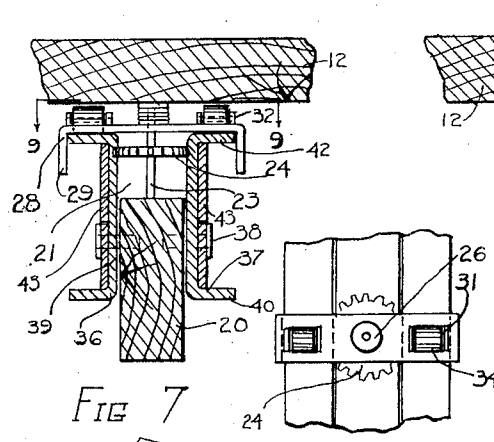


FIG 7

FIG 9

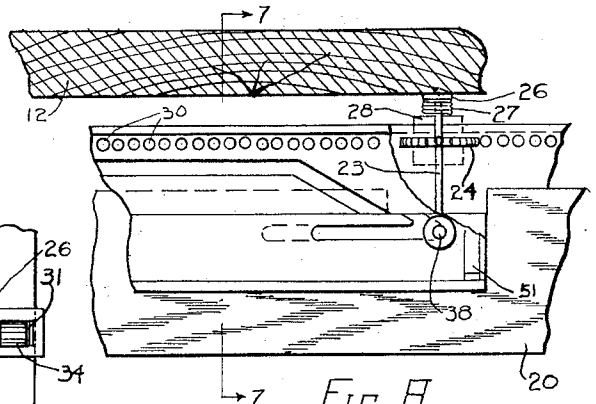


FIG 8

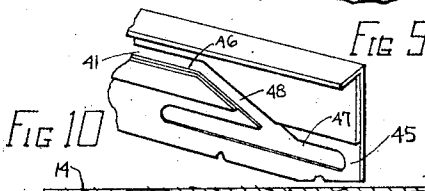


FIG 10

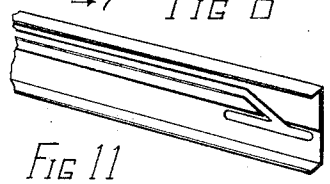


FIG 11

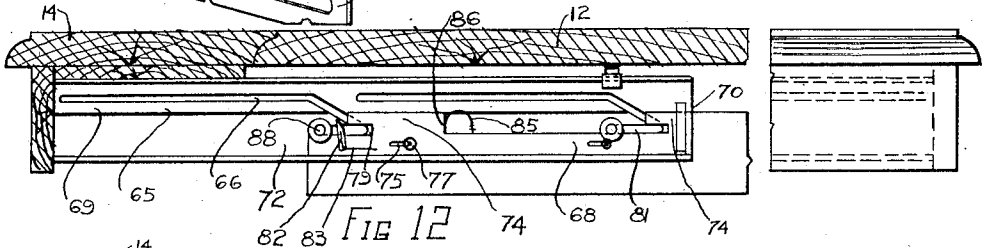


FIG 12

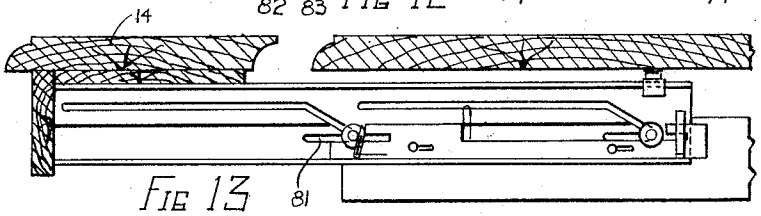


FIG 13

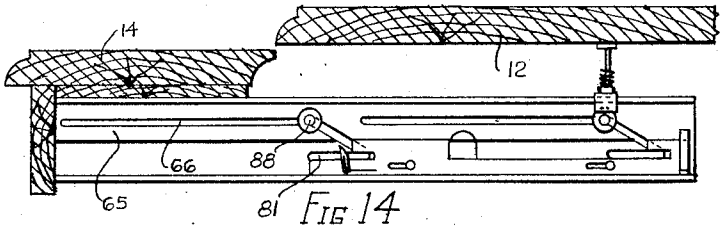


FIG 14

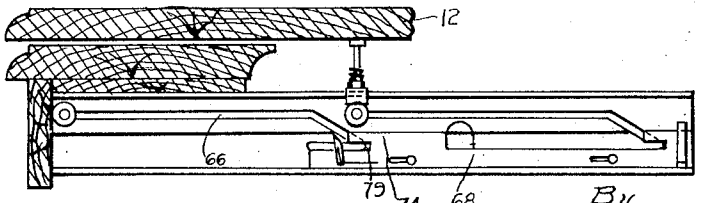


FIG 15

INVENTOR

Bennie Benson

By Richmond S. Hayes

His Attorney

Patented Nov. 8, 1932

1,887,114

UNITED STATES PATENT OFFICE

BENNIE BENSON, OF JAMESTOWN, NEW YORK

EXTENSION TABLE

Application filed July 2, 1930. Serial No. 465,313.

This invention relates to an improvement in extension leaf tables and more particularly to the method and means for extending and retracting the leaves.

The preferred embodiment of this invention discloses a table having a fixed top beneath which are mounted leaves which may, by manipulation of a single leaf, be drawn from beneath and raised into the same plane with said top.

Although devices of the same general class have been produced, it is believed this invention is an improvement over present structures in that no manual adjustment, other than the extension or retraction of one of the leaves, need be made to cause both leaves to engage the table top or to move to concealment therebeneath.

The principal object of this invention is to provide a table having extension means by which to raise table leaves from a concealed position beneath the table top into the same plane and in engagement with said top.

Another object of this invention is to provide an automatically reversing slide by which to move table leaves into engagement with a table top or to concealed position.

Other and further objects of the invention will be apparent from a consideration of the following specification which is taken in conjunction with the accompanying drawings, and in which

Fig. 1 is a plan view of a table with leaves extended, parts being broken away to disclose certain details of construction;

Fig. 2 is a side elevation of the structure shown in Figure 1;

Fig. 3 is an enlarged transverse sectional view, showing the leaves extended and in engagement with a table top;

Figs. 4 and 5 show two positions of the extended leaf during its travel from engagement with the table top, as shown in Figure 3, to retracted position beneath said top as shown in Figure 6;

Fig. 7 is an enlarged vertical sectional view taken through the table slides substantially as indicated at 7—7 in Figure 8;

Fig. 8 is an enlarged fragmentary view showing further details of construction;

Fig. 9 is a fragmentary plan view of the table slides showing the method of retaining said slides in operable engagement with each other and is taken substantially on the line 9—9 of Figure 7;

Fig. 10 is a fragmentary perspective view of one of the slides;

Fig. 11 is a fragmentary perspective view of the plate mounted on each slide;

Fig. 12 is a transverse vertical sectional view of a modification of this invention, showing the leaves in extended position and in engagement with a table top; and

Figs. 13 and 14 show two positions of the leaf when being moved from extended to retracted position beneath the table top as shown in Figure 15.

Referring to the drawings, a table 10, of which this invention forms a part, is comprised of a top 12, legs 13 and leaves 14 and 15. Enclosing the table mechanism are the usual rails which are joined to the undersfaces of the leaves 14 and 15 and to the table top 12. The rails 17 of the top 12 terminate along each longitudinal side of the table a short distance from the legs 13 in order to provide an opening 18 into which the leaves may move when retracted.

Permanently joined to the under face of the top 12, and transversely disposed thereto, are supporting rails 20. These rails are preferably located adjacent the ends of the table and are adapted to support the movable elements which in turn support leaves 14 and 15. These rails may be secured to the under face of the table top or to cross supporting members in accordance with the type of table with which this structure is used or in any other practical manner. It will be noted, however, that the rails 20 (see Figure 7) are spaced a slight distance from the top 12 to produce a gap or opening 21. Mounted in this opening and supported on each of the rails 20 is a shaft 23, having a horizontal sprocket or gear 24 mounted thereon. The sprocket 24 is of a diameter greater than the width of the rail 20. Upon the upper end of the shaft 23 is secured a plate 26. Beneath this plate is located a spring 27, the lowermost coil of which bears against a channel plate

28, from which flanges 29 project downwardly. In the horizontal portion of the channel 28, openings 31 are formed by producing pairs of upstanding flanges 32. These flanges have openings through which pins are passed to support rollers 34. The rollers are of a diameter such that the upper surface bears against the under face of the top 12 and the lower surface against the movable slides. The purpose of this arrangement is to prevent any variation in the space between slides and table top and also to so tie the slides to each other that they operate without any relative lost motion.

The rails 20, mounted beneath the top 12, are each adapted to support extension slides 36 and 37. These slides are mounted, one on each side of the rail, and operably engaged therewith by means of pins 38, two of which are provided to support each slide. A number of perforations 30, in the vertical wall 39 of each slide, are engaged by the sprocket 24, by means of which the slides are caused to move simultaneously and in opposite directions. The wall 39 terminates in lower and upper flanges 40 and 42. In the wall 39 are two identical tracks 41 through which extend the supporting pins 38. Secured to or forming part of the wall 39 is a portion 43 which extends the full length of the slide and by which is defined one edge of a longitudinally extending recess 45. Each track 41, for the purpose of description, is formed by parallel vertically spaced slots 46 and 47 which are connected by an inclined slot 48. One end of the upper slot 46 is connected with the center of the lower slot 47 by the slot 48. It will be noted that the upper slot 46 is cut through both the vertical wall 39 and the portion 43 of the slide whereas the lower slot 47 is cut only through the vertical wall. The connecting slot 48 is obviously cut through both the reinforcing portion and the vertical wall of the slide.

Mounted in the recess 45 is a sliding plate 49. This plate is held in place by an end-bracket 51 and a flange 52, both of which are removably joined to the slide. The plate 49 is provided with two slots 54 which are parallel with and adjacent the lower flange 40 of the slide. Corresponding ends of these slots open into angularly disposed slots 56 which are open-ended along the upper edge of the plate 49. The angle of the slots 56 is identical with the angle of the slots 48 formed in the slide proper and when said plate is moved to the position, shown in Figure 3 of the drawings, these slots coincide to produce the continuous track 41 along which the pin 38 travels in a manner to be later set forth.

Mounted on the upper flange 42, and adjacent the extendable end of the slide, is a block 59 upon which one of the table leaves is mounted. The leaf is secured through the block to the flange 42 of the slide. In any suitable manner, as by screws 60, the slide ends are concealed from view by a vertical skirt or rail secured to the under face of the leaf.

The operation of the device is as follows. Referring to Figure 3, it will be noted that the leaf 14 is extended into engagement with the top 12. The pins 38 are adjacent corresponding ends of the slot 54 in the plate 49 and slot 47 of the slide proper. To disengage and lower the leaf to the position shown in Figure 6, it is necessary to withdraw said leaf from engagement with the top 12, a distance such that the pins 38 will be moved to the beginning of the angle slots 48 and 56. Since there is a certain amount of weight to the leaf and slide, said elements will drop as the pins 38 travel upwardly into one end of the slots 46. By reason of the angularity of the connecting slots, the leaf 14 will have moved inwardly as it drops to a position substantially as shown in Figure 5. Inasmuch as the leaf is now beneath the lower edge of the top 12, it may be moved inwardly to occupy a concealed position beneath said top, as shown in Figure 6.

A somewhat different movement of the slide elements takes place when the leaf is extended. To raise the leaf into engagement with the table top, it is pulled outwardly, moving it from the position shown in Figure 6 to that shown in Figure 5. Further outward pull causes the leaf to be raised as the pins 38 move downwardly through the slots 48 and 56. After the leaf has been raised to the plane of the top 12, a still further outward pull is exerted which causes the pins 38 to move toward the ends of the slots 47 which extend beyond the slots 54 formed in the plate 49. Since the plate 49 is movable relative to the slide, such action causes said plate, by contact with pins 38, to move to the position shown in Figure 4 thus closing the angular slots 48 and 56 in the vertical wall of both slide and plate. The leaf may now be moved inwardly to engage the table top and the pins 38 will travel to the end of the slots 54 in the plates 49. Since the slot 47 extends beyond the slots 54, by reason of movement of the plate 49, said plate is caused to move relative to the slide to again assume the position shown in Figure 3, namely, with the angular slot 56 coinciding with the slot 48. It will be noted that during the process of moving the leaf into engagement with the table top, the angular slot 48 is closed, but as said leaf is brought into engagement with the top, said slot is opened preparatory to permitting the pin 38 to travel upwardly therethrough into the slot 46 when it is desired to retract the leaf.

Operation of but one slide has been described for the reason that the other slide, located on the opposite side of the rail 20, func-

tions in the same manner, at the same time and through movement of one leaf. This is due to the fact that the slides are connected for reverse operation through the sprocket 24.

It is obvious that as little room as possible between the top of the leaf and the under face of the table top is desirable and at the same time these two elements must not contact or the surface of the leaf will be marred. To prevent marring the leaves and to insure a uniform opposite movement of slides is the function of the channel 28. The rollers 34, mounted on said channel, prevent contact of the leaf with the table top as well as assisting in the smooth operation of the device.

In the drawings Figures 12 to 15 show a slight modification of the above described invention. In this instance, slides 65 are formed, being identical with the slides 36 and 37 above described, and are each provided with two tracks 66. To form a guide for the movable plate 68, a plate 69 is secured to or formed integral with the upper portion of the vertical wall 70 in the slide by which a longitudinal recessed opening 72 is formed. The plate 68, mounted in the recess 72, is provided along the upper edge with spaced projections 74. In the lower portion of the plate longitudinally extending closed slots 75 are made. Secured to the vertical wall 70 of the slide 65 are pins 77, the ends of which project through the slots 75 and control the travel of the plate 68 relative to the slide 65. At one end of each of the spaced projections 74 an open-ended longitudinally extending slot 79 is formed. As will be noted by referring to Figure 12, the slots 79 are in the same plane with the lower portions 81 of the tracks 66. Adjacent the end of each slot 79, and pivotally mounted therebeneath, is a dog 82, which is yieldably supported in upright position by means of the spring 83. The dog 82 is adapted to open and close the slot 79 during certain stages of the movement of the slide 65. Secured to the wall 70 of the slide 65 is a compression spring 85. This spring is adapted to engage the shoulder 86 of the projection 74, causing the plate 68 to normally remain in the position shown in Figure 12. The slide 65 is operably engaged with the rail 20 by pins 88 in a similar fashion to that described above relative to the slides 36 and 37.

The slides 65 support the table leaves 14 in a manner identical with that described in connection with the previous modification. Referring to Figure 15, it will be noted that the table leaf 14 is in retracted or concealed position. The plate 68 occupies the position such that the projections 74, above the slots 79, close the downwardly inclined portions of tracks 66. As the leaf is withdrawn, the pins 88 travel to the other end of the tracks 66, moving downwardly toward the portion 81, striking the projections 74 and causing the plate 68, of which said projections form a part, to move and uncover the entrance into the portion 81. The travel of the leaf thus far has been outwardly and upwardly into the same plane with the table top 12. The pins 88 now lie within the beginning of the portions 81 and slots 79. By reason of the tension of the spring 85 on the plate 68, said plate, after moving to permit entrance of the pins 88 into slots 79, travels to the position shown in Figure 12, thus closing the upwardly inclined exit from the portion 81 of the track. Consequently, as the leaf is moved inwardly to engage the table top, the pins 88 must travel to the end of portions 81 and in so doing, dogs 82 are depressed and allowed to return to normal position once the pins are past.

The leaf 14 may be retracted by withdrawing it from engagement with the table top. This outward movement causes pins 88 to strike the dogs 82 which in turn strike the portions 74 of the plate 68, moving said plate a distance equal to the length of the slots 75, which distance is sufficient to uncover the inclined openings into the tracks 66 (see Figure 13). When this point is reached, the leaf is moved inwardly and drops down to the position shown in Figure 14 as the pins travel upwardly in the tracks 66. The leaf 14 now being below the level of the table top may be moved to concealed position as shown in Figure 15.

Although applicant has shown but two modifications of his invention, and in connection with an extension leaf table, it is obvious that this method of raising and lowering members may be applied to various structures and applicant therefore contemplates any use of his device as may be consistent with the spirit and scope of the invention as defined in the hereunto annexed claims.

Having thus set forth my invention what I claim as new and for which I desire protection by Letters Patent is:

1. A table having a rail supported top, movable leaves, slides secured to and supporting said leaves, a sprocket engaging adjacent of said slides for producing reverse directional motion, means preventing disengagement of said slides with said sprocket and rollers carried by said means, said rollers being adapted to reduce the frictional contact of said slides with said means.

2. A table having a fixed top, movable leaves beneath said top, rails secured to said top, slides operably engaged with said rails, a sprocket mounted upon each of said rails and engaged with adjacent of said slides, said sprocket being adapted to cause reverse directional motion of said slides, a channel plate having flanges engaging adjacent slides, and rollers in said plate, said rollers contacting with and permitting free movement of said slides relative to said plate.

3. In an extension leaf table having a supporting rail, a slide engaged with and mov-

able relative to said rail, walls defining spaced tracks in said slide, walls defining a slot connecting said tracks, and means adapted to close said slot during movement of said leaf from one position to another.

4. In an extension leaf table having a supporting rail, slides, walls defining upper and lower connecting tracks in said slides, pins carried by said rail, said pins being projected into said tracks and adapted to support said slides, means actuated by said pins, said means being adapted to prevent travel of said pins from one track to the other during a part of the operation of moving said leaves from one position to another.

5. In an extension leaf table, a fixed rail, a slide adjacent said rail, a longitudinally extending recess in said slide, walls defining upper and lower tracks in said slide, a plate mounted in said recess, pins carried by said rail, said pins being adapted to actuate said plate whereby to close the connection between said tracks during a part of the operation of manipulating the table leaves.

6. In an extension leaf table having a fixed top, a rail spaced from and secured to said top, reversely disposed slides adjacent opposite faces of said rail, walls defining upper and lower tracks in each of said slides, pins carried by said rail, said pins being projected into said tracks and supporting said slides, and means actuated during the travel of said slides, said means being adapted to close the connection between said upper and lower tracks during a part of the operation of manipulating the table leaves.

7. In an extension leaf table having a fixed rail, a slide, a recess formed longitudinally of said slide, walls defining upper and lower tracks in said slide, a plate in said recess, open-ended tracks in said plate in horizontal alignment with the lower tracks in said slide, and means adapted to move said plate relative to said slide whereby to close the connection between said upper and said lower tracks during a part of the operation of said slide.

8. In an extension leaf table having a fixed rail, a slide adjacent said rail, walls defining upper and lower connecting parallel tracks in said slide, a pin carried by said rail projecting into one of said tracks and supporting said slide, a plate carried by said slide, means in said plate engageable by said pin, whereby the connection between said upper and lower tracks is closed during certain steps of the operation of the device by movement of said plate relative to said slide.

9. In an extension leaf table having a fixed rail, slides mounted on said rail, pins carried by said rail and supporting said slides for movement relative thereto, a sprocket mounted on said rail operably engaged with said slides, means preventing disengagement of said slides with said sprocket, and further means actuated by said pins, said further means elevating said slides during outward movement thereof.

10. In an extension leaf table having a fixed rail, a slide, walls defining connected upper and lower parallel tracks in said slide, pins carried by said rail projecting into one of said tracks and supporting said slide, a plate mounted on said slide, walls defining open-ended slots in said plate, said slots, when said slide is in position of rest, coinciding with the lower track of said slide whereby to permit uninterrupted movement of said pins relative to said slide.

11. In an extension leaf table having a fixed rail, a slide, a pin carried by said rail supporting said slide, a plate carried by said slide, walls defining an open-ended slot in said plate, said pin being adapted to enter said slot and move said plate relative to said slide during a part of the operation of extending said slide.

In testimony whereof I have affixed my signature.

BENNIE BENSON.