Nov. 1, 1927. 1,647,224

E. A. HENRICSON

EXTENSION TABLE

Filed Jan. 26, 1923 2 Sheets-Sheet 1

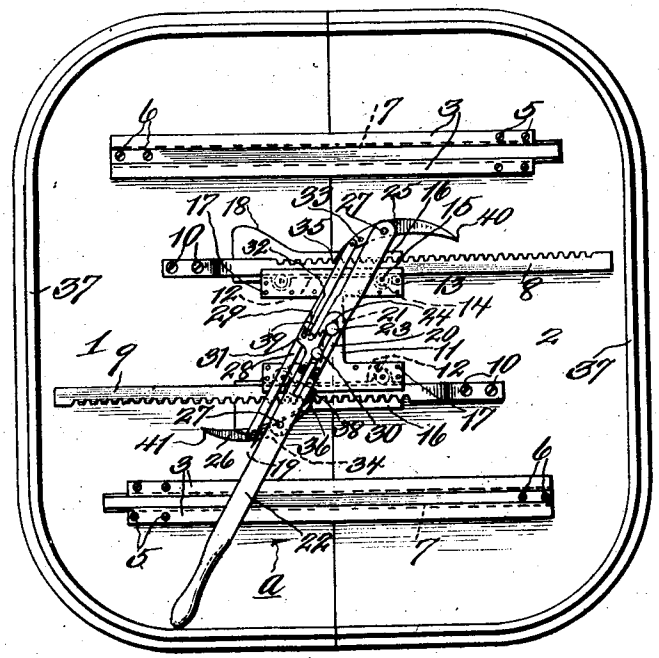


Fig. 1.

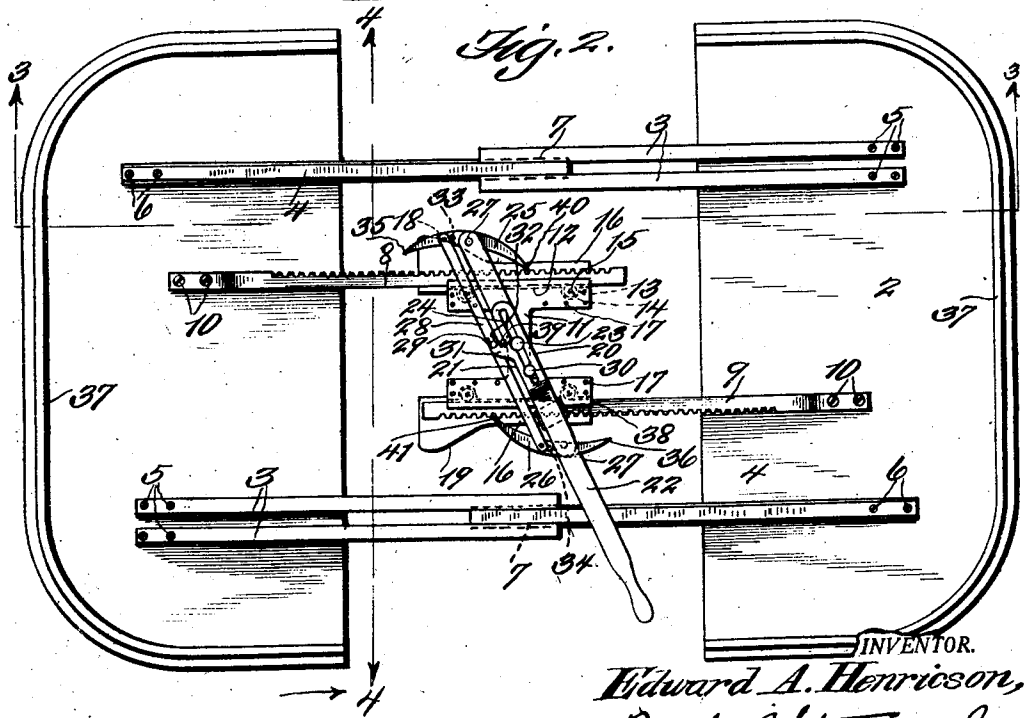


Fig. 2.

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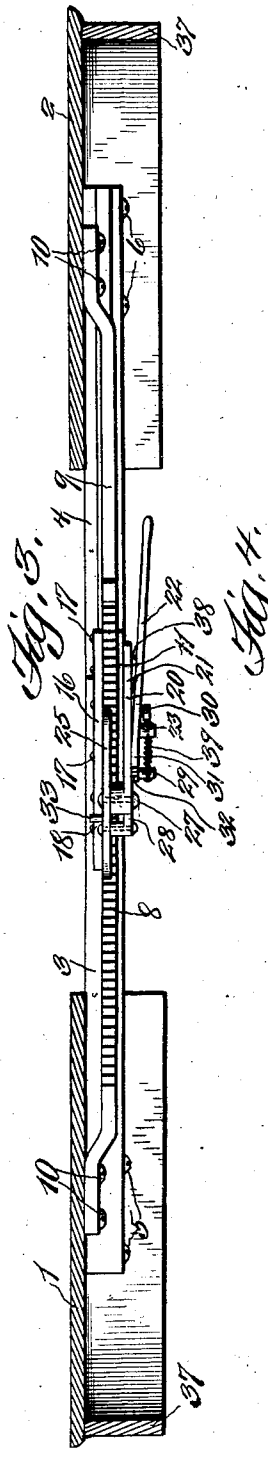


Fig. 5.

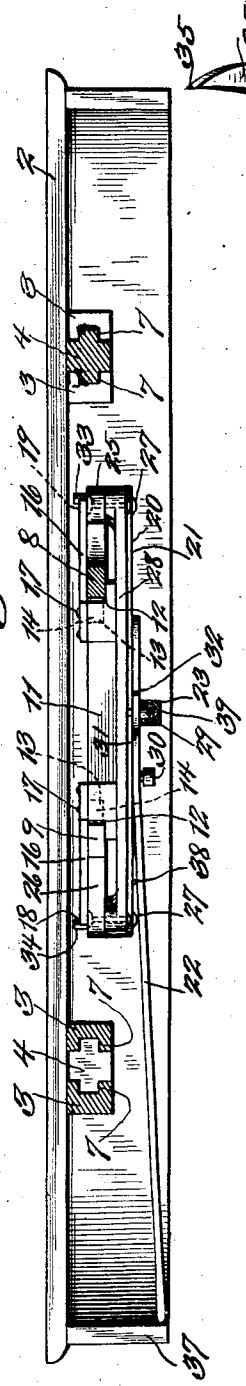


Fig. 4.

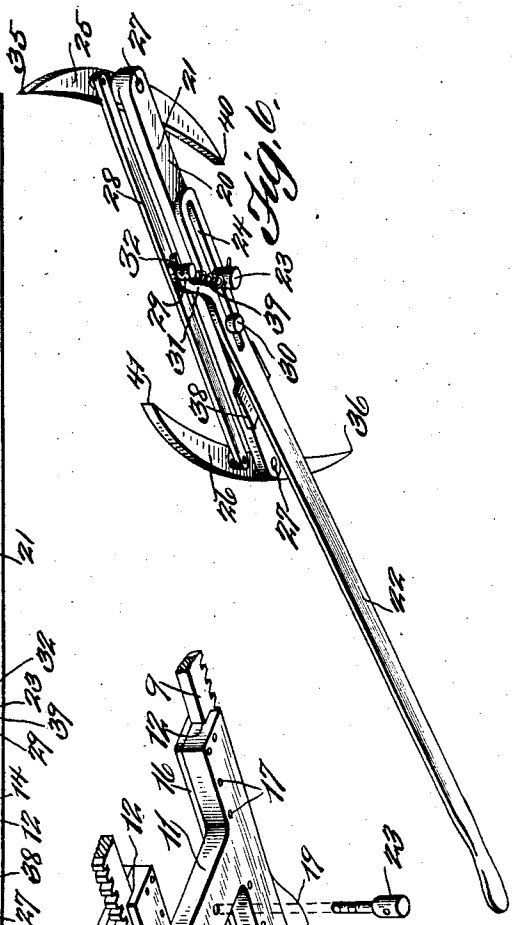


Fig. 6.

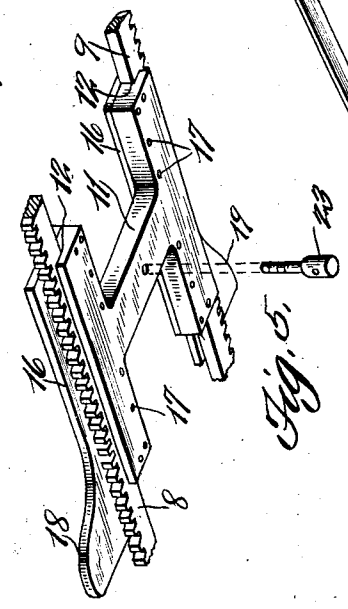


Fig. 5.

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1,647,224

UNITED STATES PATENT OFFICE.

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EXTENSION TABLE.

Application filed January 26, 1923. Serial No. 615,120.

The majority of extension tables now in use are required to be pulled apart, one section in one direction, the other section in the opposite direction, necessitating two persons to achieve the operation, therefore the purpose of the present invention is to provide an improved mechanism to facilitate the extensibility and closing of extension tables, accomplishing the result by one operator.

Another purpose is to provide a mechanism of this kind including a pair of oppositely reciprocating racks guided in a floating frame, with a lever having reversible means cooperating with the racks, whereby said racks may be moved in opposite directions, for separating or closing the table halves or sections.

Still another purpose is to provide means for automatically reversing the reversible means, when the operating lever reaches the limit of its movement in either direction.

A further purpose is the provision of means for locking said reversible means, in order to hold them in engagement with said racks, as the operating lever is moved.

A still further purpose involves means to permit of free and easy reciprocating movements of the racks, and also means for disposing the outer end of a section of the operating lever sufficiently low to clear the depending rim or apron which is usually adjacent the margin of the table, so that the lever may be easily and quickly operated by hand.

It is to be understood that the particulars herein given are in no way limitive and while still keeping within the scope of the invention any desired modification of detail and desired proportions may be made in the apparatus according to circumstances.

The invention comprises further features and combinations of parts as will be hereinafter set forth, shown in the drawings and claimed.

In the drawings:

Figure 1 is a bottom plan view of an extension table showing the application of the improved mechanism for facilitating the extensibility of the two table halves or sections;

Fig. 2 is a similar view showing the two table halves or sections extended;

Fig. 3 is a sectional view on line 3—3 of Fig. 2, also showing the table halves or sections extended.

Fig. 4 is a sectional view on line 4—4 of Fig. 2, more clearly showing the various parts of the mechanism.

Fig. 5 is a perspective view of the floating frame with the racks guided therein.

Fig. 6 is a perspective view of the operating lever and the reversible means for reciprocating the racks.

Referring to the drawings, 1 and 2 designate the two table halves or sections of the table, to which the slides 3 and 4 are secured as at 5 and 6. The slides are tongue grooved or dove-tailed together, as shown at 7, to guide and hold the table sections or halves in alignment, as the sections are separated and closed.

In order to facilitate the separation of the table halves or sections, racks 8 and 9 may be secured to the table halves or sections 1 and 2, in any suitable manner, preferably by screws 10. To connect and guide the racks, as the table sections are moved towards and away from each other, a floating frame 11 is provided, being preferably H-shaped, having its opposite edges rabbeted to seat the racks 8 and 9. These rabbets 12 have pockets 13, wherein anti-frictional rollers 14 are journalled upon pins 15. The rollers are provided for the purpose of facilitating the reciprocating movements of the racks. Plates 16 are secured by any suitable means, preferably by rivets 17, to the frame 11 for the purpose of covering the racks and holding them seated in the rabbets 12. The plates 16, at their corresponding ends, terminate in cams 18 and 19, constituting means to automatically reverse the rack operating means, as will be hereinafter described.

The object is, with the frame 11 stationary to reciprocate the racks 8 and 9 in one or the other direction by means of a lever 20, so as to open or close the table halves or sections. In order to impart intermittent movements to the racks and table halves or sections, the operating lever 20 is given a series of oscillatory strokes. This lever 20 comprises a base section 21 and a handle section 22, which are mounted pivotally on a screw stud 23. Both sections of the lever are aligned parallel, the handle having an elongated slot 24, through which the reduced threaded shank of the screw stud 23 passes. The shank of the stud 23 also engages through the base section of the lever and is threaded into the frame 11, thereby pivotally supporting the lever. Pawls 25 and 26 are mounted on pivots 27, which are

carried by the opposite ends of the base section 21 of the lever. Both ends of each pawl are pointed and are adapted to cooperate with racks. When oscillatory movements are imparted to the lever diagonal opposite ends of both pawls engage with the teeth of the racks 8 and 9, in the manner shrown in Figures 1 and 2, causing the racks to reciprocate step by step, either to separate or close the table sections. To cause the pawls to operate in unison, a bar 28 pivotally connects corresponding end portions of the pawls, and is provided with a centrally disposed headed stud 29. Passing through the slot 24 is a headed stud 30, which insures holding the base and handle sections of the lever in alignment. The shank of the stud 30 is threaded into the base section of the lever.

Projecting from one edge of the slotted end of the handle section of the lever is an arm 31, the end portion of which is provided with a bifurcation 32, which receives the shank of the stud 29, the arms caused to be formed by the bifurcation engaging under the head of the stud serving to maintain the handle in inoperative position as shown in Figs. 1 and 2, and also to prevent outward movement of the bar 28 which would result in the disengagement of the pawls 25 and 26 from the rack bars 8 and 9.

Carried by the pawls, between the pivots 27 and the pivots of the bar 28, are pins 33 and 34, which cooperate with the cams 18 and 19 for the purpose of reversing the pawls.

Supposing the extensible table is closed, as in Figure 1, and it is desired to separate the table halves, the operating lever is first positioned, as in said figure, and upon so placing the lever the pin 34 will engage with the cam 19, causing the pawls 25 and 26 to tilt until their ends 35 and 36 engage the teeth of the racks. The handle end of the handle section of the lever may then be moved in the direction of the arrow *a*, (in Figure 1) the lever being oscillated sufficiently in such manner until the racks have been moved the desired distance and the table halves or sections separated or spaced to receive the necessary extra leaves. However, the lever cannot be oscillated, as long as the bifurcation of the arm 31 remains in engagement with the stud 29 and the extremity of the handle end of the handle section is within the rim or apron 37 of the table. In fact the engagement of the bifurcated arm with the stud 29 keeps the lever well inside of said rim or apron 37. In order to operate said lever, the handle end of the handle section of the lever is first sprung downwardly sufficiently and then drawn or pulled longitudinally outwardly and due to an inclined block or cam 38 (which is carried by the base section 21 of the lever) the handle section of the lever is held sufficiently below the rim or apron 37, whereby the lever may oscillate as previously set forth. The pawl ends 40 and 41 are adapted to be engaged with the rack bars 8 and 9 as will be hereinafter described when it is desired to close the table sections.

It should here be stated that a spring 39, the ends of which are connected with the stud 29 of the bar 28 and the stationary stud 23, serves to yieldably hold said bar 28 in such a position as to normally maintain the rack engaging pawl ends clear of the rack bars. Thus the pawl ends will only be engaged with said rack bars by the action of the cammed surfaces 18 and 19 operating against the pins 33 and 34, respectively, the lever section 22 being movable bodily in either direction to engage the desired pin 33 or 34 with its cammed surface according to whether the table sections are to be closed or opened.

After the sections 1 and 2 have been spread, the handle section 22 will again be slid inwardly to inoperative position as shown in Figs. 1 and 2.

When the table halves or sections are in their open positions and it is desired to close them, the lever is moved until the pin 33 of the pawl 25 engages the cam 18, causing the pawls to oscillate until their ends 40 and 41 engage the racks. Repeated oscillatory movements of the lever in such wise will cause the racks to move sufficiently to close the table halves. The function of the spring 39 in normally tending to maintain the pawl ends 40 and 41 out of engagement with the rack bars at the end of each stroke is very important at this point since otherwise after the table sections 1 and 2 have been closed it would be necessary to crawl under the table in order to disengage the pawls and reverse the position thereof in order to reopen the sections since the ends 40 and 41 would prevent movement of the lever handle 22 in a clockwise direction to engage the pin 34 with its cam surface 19 for engaging the pawl ends 35 and 36 with the rack.

The proportions and arrangement of the various parts may appear, as requiring strokes of considerable distance on the part of the lever and pawls. However, the mechanism may be made with parts so arranged and proportioned that the lift of the pawls will be slight and the strokes of the lever relatively short, hence, no appreciable tendency to keep the pawls out of engagement with the racks will be experienced. Furthermore, the pawls will be frictionally held in engagement with the racks during a working stroke of the lever handle 22. It is obvious, that when the table halves are in their open positions the operator may operate the bar 28 by inserting the hand through the space between the table sections. When the bar 28 is grasped by the hand it may be

shifted and the entire lever oscillated until the table sections are almost closed, then the handle section of the lever may be grasped and operated, as in the first instance. When the table sections are partly open, the bar 28 may be grasped and the entire lever actuated to further open the table halves.

Having set forth the invention, what is claimed is:

1. In an extension table, opposed extensible table halves, means including a pair of parallel movable racks, floating means for extensibly and operatively connecting said halves, and oscillatory means provided with reversible pawls operatively engaging with the racks to move them in one or the other direction, whereby the table halves are separated or closed.

2. In an extension table, opposed extensible table halves, means including a pair of parallel movable racks extensibly and operatively connecting said halves, and oscillatory means provided with reversible pawls operatively engaging with the racks to move them in one or the other direction, whereby the table halves are separated or closed, and means carried by said oscillating means for locking the pawls and preventing movement of the oscillatory means, thereby preventing separation of the table halves.

3. In an extension table, opposed extensible table halves, means including a pair of parallel movable racks extensibly and operatively connecting said halves, and oscillatory means provided with reversible pawls operatively engaging with the racks to move them in one or the other direction, whereby the table halves are separated or closed, means for locking the pawls and preventing movement of the oscillatory means, thereby preventing separation of the table halves, said oscillatory means including a longitudinally movable handle section, which also constitutes a part of the locking means, and means for bending the handle section downward clear of the rim or apron of the table, whereby the handle section may be moved longitudinally for unlocking the pawls and the oscillatory means.

4. The combination with opposed extensible table halves, of a pair of parallel reciprocating racks connected to and movable with said table halves, means floating extensibly and operatively connecting said racks, an oscillatory device mounted on said floating means and provided with double acting pawls engaging with and imparting reciprocating movements to the racks for separating said table halves.

5. The combination with opposed extensible table halves, of a pair of parallel reciprocating racks connected to and movable with said table halves, means extensibly and operatively connecting said racks, an oscillatory device mounted on said means and provided with double acting pawls engaging with and imparting reciprocating movements to the racks for separating said table halves, and means carried by said rack connecting means for reversing the pawls for reversibly engaging with and imparting reciprocating movements to the racks in the opposite directions for closing said table halves.

6. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, oscillatory means provided with reversible pawls operatively engaging with and reciprocating the racks in directions to cause separation of the table halves, and means controlled by said oscillatory means for automatically reversing said pawls for reversibly engaging with and reciprocating the racks in the opposite directions for closing said halves.

7. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, oscillatory means provided with reversible pawls operatively engaging with and reciprocating the racks in directions to cause separation of the table halves, means controlled by said oscillatory means for automatically reversing said pawls for reversibly engaging with and reciprocating the racks in the opposite directions for closing said halves, and means for locking the pawls in either of their positions and preventing movement of the oscillatory means, thereby preventing movement of the table halves.

8. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, oscillatory means provided with reversible pawls operatively engaging with and reciprocating the racks in directions to cause separation of the table halves, means for automatically reversing said pawls for reversibly engaging with and reciprocating the racks in the opposite directions for closing said halves, means for locking the pawls in either of their positions and preventing movement of the oscillatory means, thereby preventing movement of the table halves, said oscillatory means including a longitudinally movable handle section, which also constitutes a part of the locking means, and means for bending the handle section downward clear of the rim or apron of the table, whereby the handle section may be moved longitudinally for unlocking the pawls and the oscillatory means.

9. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, an oscillatory operating lever mounted on said means, double acting pawls carried by the opposite ends of said lever for cooperating

with and reciprocating said racks in one direction for separating said table halves, means connecting said pawls to cause them to move in unison, and a handle section mounted for longitudinal movement on and for operating said lever.

10. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, an oscillatory operating lever mounted on said means, double acting pawls carried by the opposite ends of said lever for cooperating with and reciprocating said racks in one direction for separating said table halves, means connecting said pawls to cause them to move in unison, and a handle section mounted for longitudinal movement on and for operating said lever, said handle section clearing the rim or apron of the table to prevent collision with the latter.

11. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, an oscillatory operating lever mounted on said means, double acting pawls carried by the opposite ends of said lever for cooperating with and reciprocating said racks in one direction for separating said table halves, means connecting said pawls to cause them to move in unison, a handle section mounted for longitudinal movement on and for operating said lever, and means carried by the handle section and cooperating with said connecting means to lock said pawls.

12. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, an oscillatory operating lever mounted on said means, double acting pawls carried by the opposite ends of said lever for cooperating with and reciprocating said racks in one direction for separating said table halves, means connecting said pawls to cause them to move in unison, a handle section mounted for longitudinal movement on and for operating said lever, and means for automatically reversing said pawls, whereby said pawls may engage with and reciprocate said racks in opposite directions for closing said table halves.

13. The combination with opposed extensible table halves, of means including a pair of parallel movable racks extensibly and operatively connecting said halves, an oscillatory operating lever mounted on said means, double acting pawls carried by the opposite ends of said lever for cooperating with and reciprocating said racks in one direction for separating said table halves, means connecting said pawls to cause them to move in unison, a handle section mounted for longitudinal movement on and for operating said lever, said handle section being engageable with the rim or apron of the table to prevent movement of the lever, means for bending the handle section downward clear of the rim or apron of the table when the handle is moved longitudinally, whereby said lever may oscillate, and means for automatically reversing said pawls, whereby they may engage with and reciprocate said racks in opposite directions for closing said table halves.

14. The combination with opposed table halves or sections, of a compound pawl and rack mechanism operatively and extensibly connecting said halves or sections, whereby said halves may be extended or closed, said mechanism including an oscillatory operating lever, a support therefor, and cam means carried by said support for reversing said pawls.

15. The combination with opposed table halves or sections, of a compound pawl and rack mechanism operatively and extensibly connecting said halves or sections, whereby said halves may be extended or closed, said mechanism including an oscillatory and extensible operating lever, and means effective upon lengthwise movements of said lever for locking said pawls and means for locking said mechanism.

16. The combination with opposed table halves or sections, of a compound pawl and rack mechanism operatively and extensibly connecting said halves or sections, whereby said halves may be extended or closed, means for locking said mechanism, means for unlocking said locking means, and means for automatically reversing the pawls, when said locking means is released.

In testimony whereof I affix my signature.

EDWARD A. HENRICSON.