

Jan. 16, 1940.

H. V. KELLER
IRONING TABLE

2,187,607

Filed Oct. 19, 1936

2 Sheets-Sheet 1

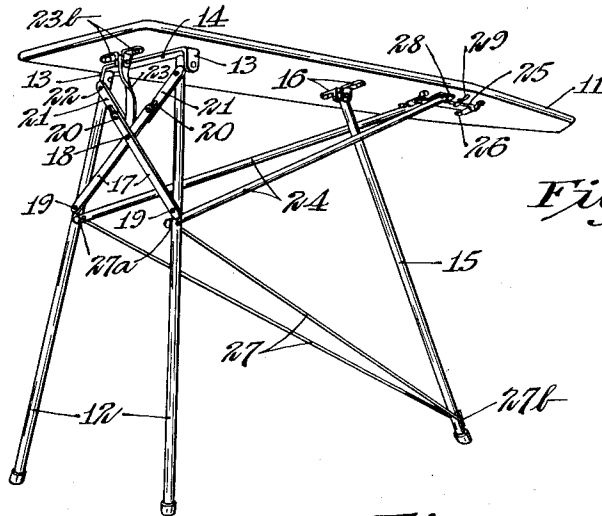


Fig. 1

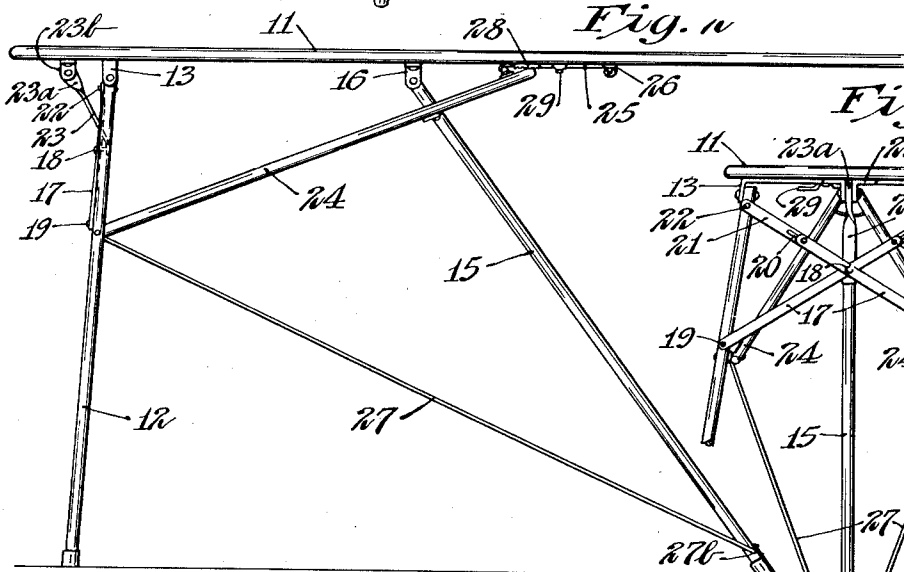


Fig. 2

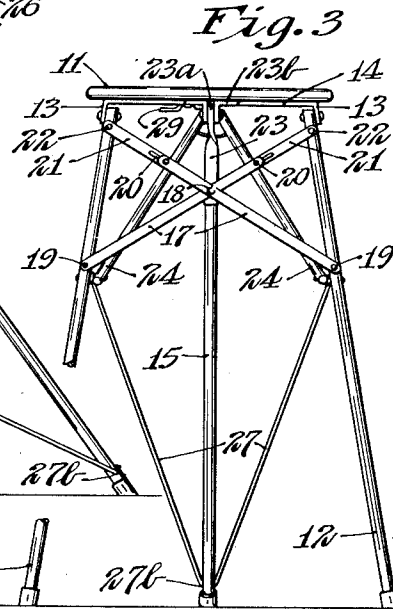


Fig. 3

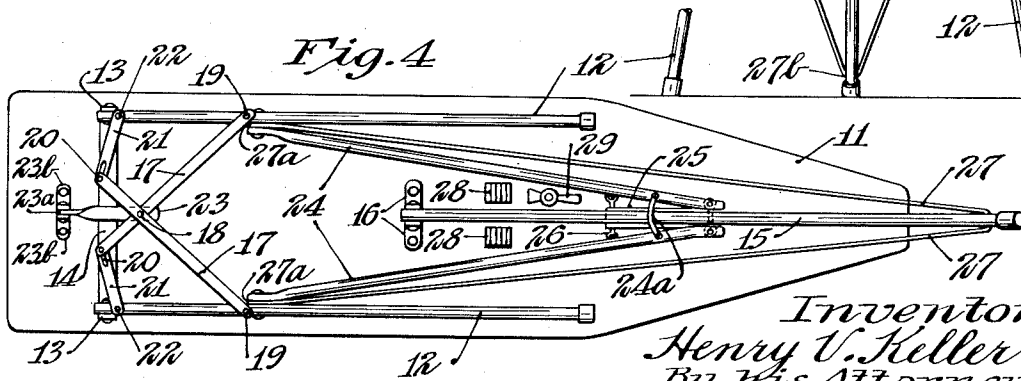


Fig. 4

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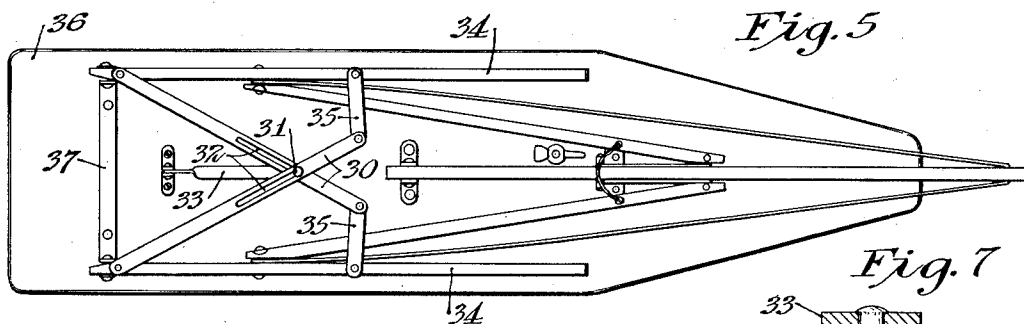
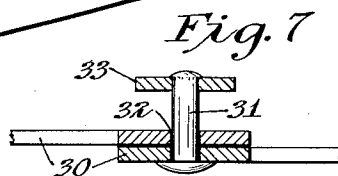
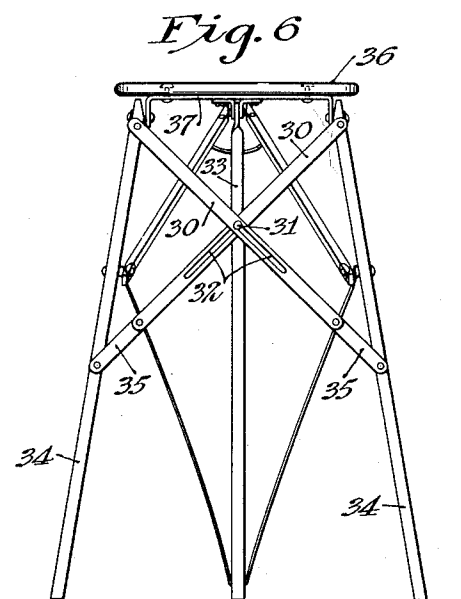
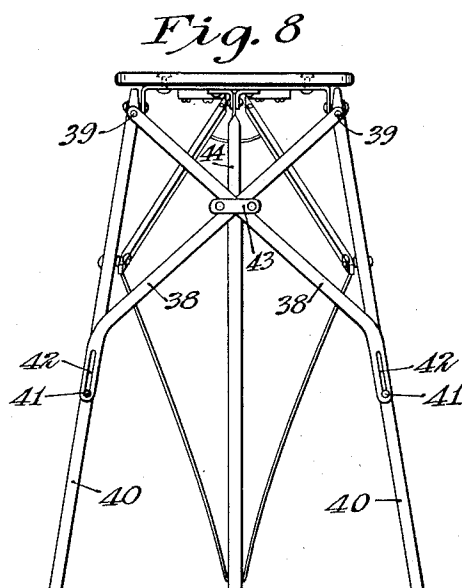
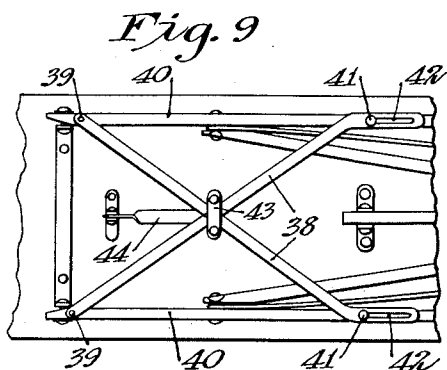
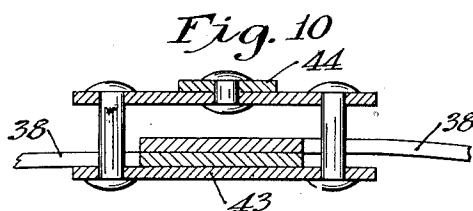
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2 Sheets-Sheet 2



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IRONING TABLE

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5 Claims. (Cl. 38—117)

This invention relates to ironing tables of the type wherein an ironing board proper is provided with folding or collapsible supporting mechanism attached to the under side thereof ready for use and collapsible compactly for storage or shipment.

In most instances heretofore the front and rear legs have been so arranged that they have to be independently set up and certain of the bracing elements had to be connected either to the under side of the board or to either the front or rear leg members and when the table was collapsed it was necessary to disconnect these brace members. In addition, many of the prior structures have required the use of leg members formed in sections and braced by sectional bracing members with the result that a very unstable structure was produced.

It is an object of my invention to provide a simple and comparatively inexpensive collapsible ironing table having a maximum amount of rigidity when in use and adapted to be compactly folded or collapsed for storage or shipment and wherein the entire supporting structure is operatively and automatically set up or collapsed by moving only one of the elements forming the supporting and bracing structure. All of the parts of the supporting structure are connected to the board or to parts which are themselves connected to the board and there is no possibility of the board accidentally collapsing when it has once been set up.

It is a further object of my invention to provide a light weight rigid collapsible ironing table, wherein the rear supporting legs are automatically spread apart at their outer ends and firmly braced by the action of swinging one of the supporting elements from the collapsed to the operative position.

It is a still further object of my invention to provide an ironing table of the type described, wherein means is provided for placing the bracing and supporting structure under tension to take up the play which is present in all types of jointed collapsible structures.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views, and, in which:

Fig. 1 is a perspective view of the embodiment of my invention set up for use;

Fig. 2 is a side elevation of the device in set-up position;

Fig. 3 is an end elevation thereof with one of the rear supporting legs broken away;

Fig. 4 is a bottom plan view of the ironing table in collapsed position;

Fig. 5 is a bottom plan view of another embodiment of my invention with a different form of rear leg bracing structure;

Fig. 6 is an end elevation thereof in set-up position;

Fig. 7 is an enlarged detail of the pivotal connections at the center of the rear leg bracing structure;

Fig. 8 is an end elevation of an ironing table in set-up position with another form of rear leg bracing structure;

Fig. 9 is a fragmentary bottom plan thereof in collapsed position; and

Fig. 10 is an enlarged detail of the rear leg connecting and operating means disclosed in Figs. 8 and 9.

In one embodiment of my invention shown in Figs. 1 through 4, the numeral 11 indicates the flat top or board of the table which may be of the conventional shape used in ironing boards and having integrally secured to the rear end thereof the two rear legs 12 which are adapted to lie flush against the bottom of the board when the table is collapsed and which are positioned slightly past vertical when the board is set up for use with the outer ends thereof spread apart to a distance greater than the width of the board. The hinged ends of legs 12 may have inner beveled surfaces engaging the downturned ears 13 of a transverse attachment bracket 14 which is rigidly secured to the under side of the rear end of the board. A forward and longer supporting leg 15 is hinged between attachment ears 16 which are secured to the medial portion of the board at the under side thereof. The leg 15, as clearly shown, extends forwardly in an inclined position when the board is set up and the inner end of the leg is mitered or cut at the proper angle to firmly abut the bottom of the board when the device is set up.

The upper portions of the rear legs 12 are connected together by means of a brace which comprises a pair of lower relatively long arms 17 which cross each other and are provided with a pivot 18 at their point of crossing. The lower ends of said arms are connected respectively by pivotal connections 19 to one of the rear legs 12. At their upper ends the arms 17 are connected by pin and slot connections 20 to short links 21 which are in turn connected at their opposite ends to the upper ends of the legs 12, as by piv-

otal connections 22, the link connecting with one of the cross bars 17 being secured to the opposite leg from the one to which its co-operating cross bar is connected. The depending or rear brace arm 23 has a twisted upper end 23a which is hinged between angle attachment brackets 23b disposed a short distance rearwardly of attachment bracket 14 and centrally of the board.

Upper converging braces connect the medial portions of the rear legs 12 with the medial portion of the board 11 and comprise a pair of converging brace bars 24 pivotally connected at their lower ends to the inner edges of legs 12 and hingeably connected at their upper converging ends to a link or locking plate 25, said plate and said brace bars forming a toggle brace which passes the dead center position to lock the leg in set-up position and assist in tensioning the legs and brace members. It will be noted that the pivotal connection element upon which the locking plate 25 is swingably mounted spans the forward extremities of the brace bars 24 and spaces these extremities apart in a predetermined relation. The forward end of plate 25 is hinged to a bracket 26 disposed some distance from the forward end of the board and at the center of the under side thereof. The forward ends of the brace bars 24 are connected by an abutment link 24a which is disposed rearwardly of the inclined forward leg 15 in a position to engage and thrust against the same when the rear legs are swung in the direction of the board for collapsing the table.

A lower brace link connects the intermediate portions of the rear legs 12 with the outer end of the forward or inclined leg and this brace may comprise a pair of converging rods or wires 27, having their rear ends pivotally connected at 27a to the inner sides of legs 12 and having their forward ends pivotally connected at 27b to the outer end of the forward leg 15. Cushioning or abutment members 28 are secured to the central portion of the bottom of the board and are positioned to abut the forward ends of upper brace bars 24 when the table is in set-up position. A locking arm 29 may be pivoted to the board adjacent the link plate 25 adapted to underlie the plate and lock the same in set-up position.

In the embodiment of my invention shown in Figs. 5, 6 and 7, I have illustrated a different form of cross brace construction for the rear leg member. In this embodiment I provide a pair of elongated cross arms 30 which are connected at their point of crossing by a pin 31, which is slidably mounted in the slots 32 formed in said cross arm. The pin 31 is rigidly secured to a rear brace arm 33 similar to the rear brace arm 23 described in the first embodiment of my invention. Connecting the lower ends of the cross arms 30 to opposite leg members 34 are a pair of pivoted link members 35. It should be noted that the pin 31 is somewhat longer than the thickness of the cross bars 30 and the rear brace arm 33 for a reason to be hereinafter described.

I wish to call attention to the fact that the rear brace arm 33 is secured to the under side of the board 36 centrally and forwardly of the bracket 37 to which the rear legs are secured, whereas, in the first embodiment of my invention, the rear brace arm 23 is secured rearwardly of the bracket 14 to which the legs 12 are secured.

In the embodiment shown in Figs. 8, 9 and 10, I have shown a modified form of rear brace construction, wherein the cross braces 38 are

formed in one piece. Each of said cross braces runs from a pivotal connection 39 at the upper portion of one of the legs 40 and extends downwardly diagonally crossing the other brace arm and connecting to a medial portion of the opposite leg by means of a pin 41 secured to the leg 40 and adapted to ride in an elongated slot 42 formed in the lower end of said cross brace arm. A loop member, indicated at 43, is placed around the brace arms 38 at the point where said arms cross each other and one side of said loop is connected to the lower end of the rear depending brace arm 44, which is positioned similarly to the brace arm 33 in the embodiment shown in Fig. 6.

The general operation of the various embodiments of my invention is the same. To collapse the table, it is necessary only to pull the converging brace arms 24 and its connected cooperating locking plate 25 downwardly past their dead center position and then fold the entire structure up against the under side of the board which forms the top of the table by swinging either the rear legs or the front leg in a forward and upward direction. In its collapsed position, the front and rear legs lie flat against the under side of the board and the rear cross braces and their co-operating depending rear brace member draw the lower ends of the rear legs inwardly toward the center of the board so that they lie parallel within a space no greater than the width of the board itself.

To set up the ironing table, the front leg is moved downwardly and backwardly, said leg engaging the abutment link 24a which is so designated in the first embodiment and similarly shown in the drawings relating to the other embodiment or modifications. This engagement with the abutment link assists in the initial movement of the converging brace bars and the pivoted rear legs, the connections between the various bracing members and the leg members being such that all parts move in unison toward their set-up position. The converging brace bars and their co-operating locking plate are then pushed upwardly past their dead center position, or, if desired, the front leg can be pushed backwardly sharply and the converging braces and locking plate will automatically snap past their dead center position.

While the supporting structure is being swung backwardly by and with the front leg, action of the depending rear brace member on the rear leg cross braces will cause their lower ends to move outwardly from the center line of the table, thereby causing a resulting outward movement of the lower ends of the rear legs themselves, due to their connection with said cross brace members.

In the embodiment shown in Figs. 1 through 4, the short link members 21 connected to the relatively long brace arms 17 lie substantially at right angles to the longitudinal center line of the board with the pin forming part of the pin and slot connection 20 lying in the end of the slot nearest the end of said link member, and as the legs are swung backwardly, the pins will move toward the other ends of said slots until approximately half of the setting up movement has been accomplished. Then, as the rear legs approach their final set-up position, the pins will move back to the outer ends of said slots and the links and their co-operating cross arms will come into alignment, causing the lower ends of said cross arms to expand outwardly. The relative movement of the links 21 and the arms

17 is caused by the positioning of the upper pivotal connection of the depending rear brace member 23 at a point offset from a line drawn between the pivotal connections of the leg members 12 with the board 11.

In addition to the above mentioned function of the depending rear brace member 23, due to the fact that it is a straight stiff member and also because of its offset positioning, it will place a sufficient amount of strain on the cross braces 17 and co-operating links 21 to impart to them a tendency to twist in a counter-clockwise direction. This tensioning imparts added rigidity to the rear leg members, the bracing elements and the front leg member, due to their inter-connection by taking up all of the slack or lost motion at every one of the points of pivotal connection. This tensioning is independent of the tension imparted to the entire supporting structure by the converting brace bars 24 and their co-operating locking plate 25.

In the embodiment shown in Figs. 5, 6 and 7, the rear cross braces are similar in appearance and position, except for the fact that the relatively long cross arms 30 are provided with elongated slots at their point of crossing. The depending rear brace 33 expands or collapses the rear cross brace members when the supporting structure of the table is collapsed or set up by action of the pin 31 in said elongated slots 32. The depending rear brace member 33 is shown attached to the board centrally thereof but forwardly of the center line of the pivots between the board and the rear legs 34. This results in the bowing of the rear cross braces in a forward direction, placing said braces under tension and also tensioning the entire supporting structure of the table.

In the embodiment shown in Figs. 8, 9 and 10, the rear cross braces are shown in one piece rather than in the arm and link construction disclosed in the first two embodiments of my invention. The general function is the same, however, as it can readily be seen that, when the supporting structure is set up the loop 43 secured to the rear depending brace member 44 and positioned similarly with the corresponding member 33 in Fig. 6, will act upon the cross braces 38 as a sliding pivot, causing said loop member to be drawn upwardly with the result that the lower ends of the arms 38 will be moved outwardly with a slight upward movement of the lower ends of said arms permitting the pins 41 in the legs 40 to take the position illustrated in Fig. 8 which shows the pins at the lower ends of the slots 42 in the cross arms 38. When the table is set up, the cross arms 38 will take a bowed position similar to that of the cross braces shown in Fig. 6. This bowing of the cross braces 38 is shown to some extent in Fig. 10.

From the foregoing it will be seen that I have provided an ironing table which is not only extremely rigid because of the inter-connection of leg and bracing members and the spreading of the rear leg members, but also because of the fact that the rear cross braces are so tensioned that they impart their tension to the remainder of the table structure and provide an extremely rigid unitary construction. The table may be easily collapsed and set up, there are no complicated mechanisms to get out of order or require any special attention and the table is light and inexpensive to manufacture. It should also be borne in mind that when the table is collapsed, the laterally extending lower portions of the rear

leg members are joined inwardly by the cross brace structures so that said rear legs lie parallel within the area of the sides of the table top.

It will, of course, be understood that various changes may be made in the form, details, proportions and arrangement of the parts without departing from the scope of my invention, which, generally stated, consists in a device capable of carrying out the objects set forth and in the novel parts and combinations of parts disclosed and defined in the claims.

What is claimed is:

1. In an ironing table, a top, a front leg adapted to fold against said top, rear legs adapted to fold against said top, a bracing connection between said front and rear legs, and a cross bracing element comprising crossed arms extending diagonally from upper end portions of said rear legs to intermediate portions of opposite rear legs and each having pin and slot connection with its opposite rear leg, a loop around said arms at their point of crossing, and a cross brace actuating element comprising a lever connected between said loop and said top at a point offset from the axis of movement of said foldable rear legs.

2. In an ironing table, a top, a front leg pivoted to said top, rear legs pivoted to said top for longitudinal and lateral movement relative to the top, a brace pivotally connecting said front and rear legs, jointed crossed bracing elements pivotally connected between said rear legs and pivotally joined at their point of crossing to permit expansive pivotal movement of said elements for extending said rear legs laterally, and brace operating and holding means comprising a bar pivotally connected between said cross bracing elements at their point of pivotal crossing and a point on the underside of said top, the connection between said bar and said top being offset with respect to a line between the pivotal connections between said rear legs and said top, the disposition of said bar relative to said rear legs and their bracing elements being such that swinging of said rear legs will produce lateral movement of said rear legs, and the offset position of said bar producing a pivot tightening strain on said brace and said legs in one position of said legs.

3. In an ironing table, a top, a front leg pivotally connected to the underside of said top, rear legs pivotally connected for swinging movement relative to said top, a bracing connection between said front and rear legs, and rear leg cross bracing elements comprising relatively long cross arms pivoted to and extending upwardly from intermediate portions of said rear legs, a fixed pivot at the point of crossing of said arms, a bar extending from said fixed pivot to said top to spread said arms upon movement of said rear legs away from said top, and relatively short links having pin and slot connections with said long arms and pivotally connected to the upper ends of said rear legs.

4. In an ironing table, a top, front and rear legs pivotally connected to said top for swinging movement relative thereto, the pivotal connection between said rear legs and said top also permitting lateral movement of said rear legs relative to the top, bracing means connecting the front and rear legs to provide unitary folding movement thereof, a cross bracing structure comprising a pair of arms pivotally connected to said rear legs and pivotally connected to each other by a pin and slot connection to permit expansion of

said cross bracing structure and lateral movement of said rear legs, and a depending rear brace connected at its upper end to said top centrally at the longitudinal center thereof and rearwardly of a line between the points of pivotal connection between said rear legs and top, and connected at its lower end to said cross braces at their point of pivotal connection.

5. In an ironing table, a top, a front leg pivotally connected to the underside of said top, rear legs pivotally connected to said top for longitudinal and lateral movement relative thereto, a brace connected between said front and rear legs, a cross bracing element comprising relatively long arms pivotally connected to and ex-

tending downwardly from the upper ends of said rear legs and crossing each other and having slots therein at their point of crossing, relatively short links pivotally connecting the lower ends of said arms with intermediate portions of opposite legs, and a cross brace actuating bar extending from a point adjacent the point of pivotal connection of said rear legs and top, and a pin on said bar slidably connected through the slots in said cross brace arms, the location of said bar relative to said cross brace structure being such that longitudinal pivotal movement of said rear legs causes lateral expansive movement upon said cross brace structure and said rear legs.

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