

D. C. TRAVIS.
FOLDING COUCH.
APPLICATION FILED JUNE 21, 1909.

945,821.

Patented Jan. 11, 1910.
3 SHEETS—SHEET 1.

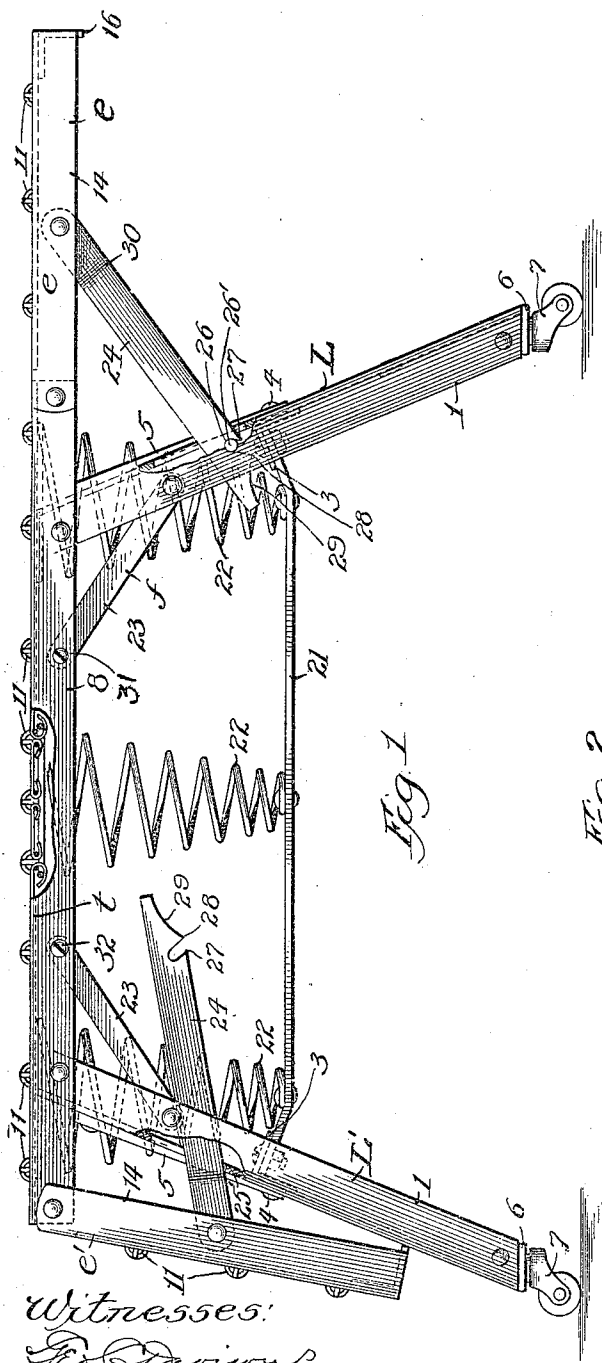


Fig. 1

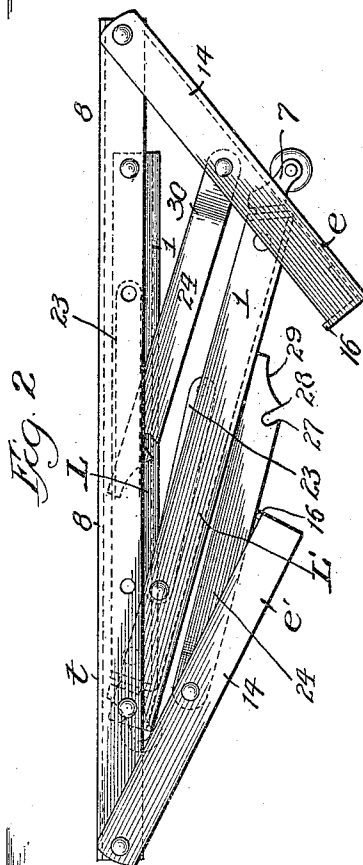


Fig. 2

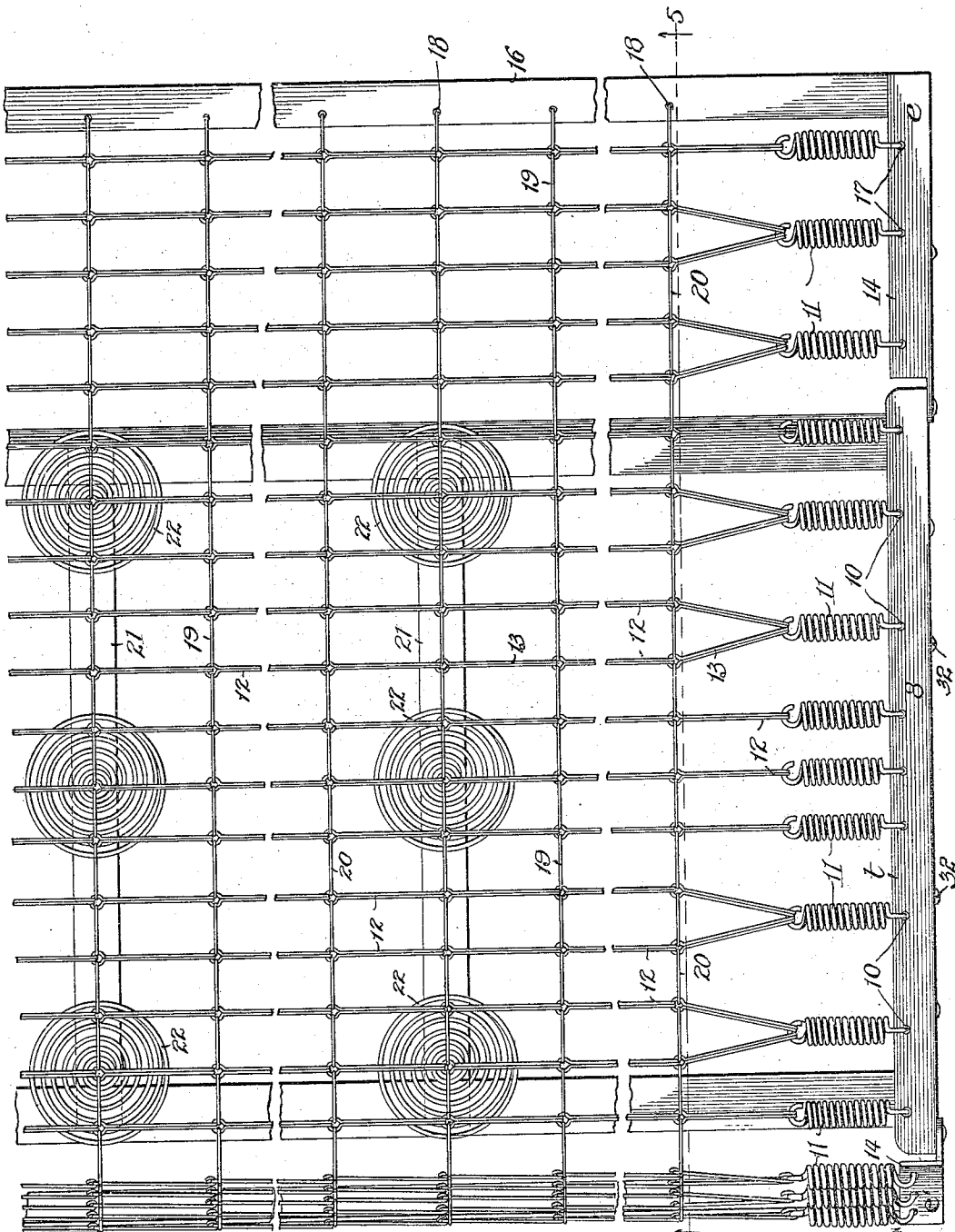
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Fig. 3.

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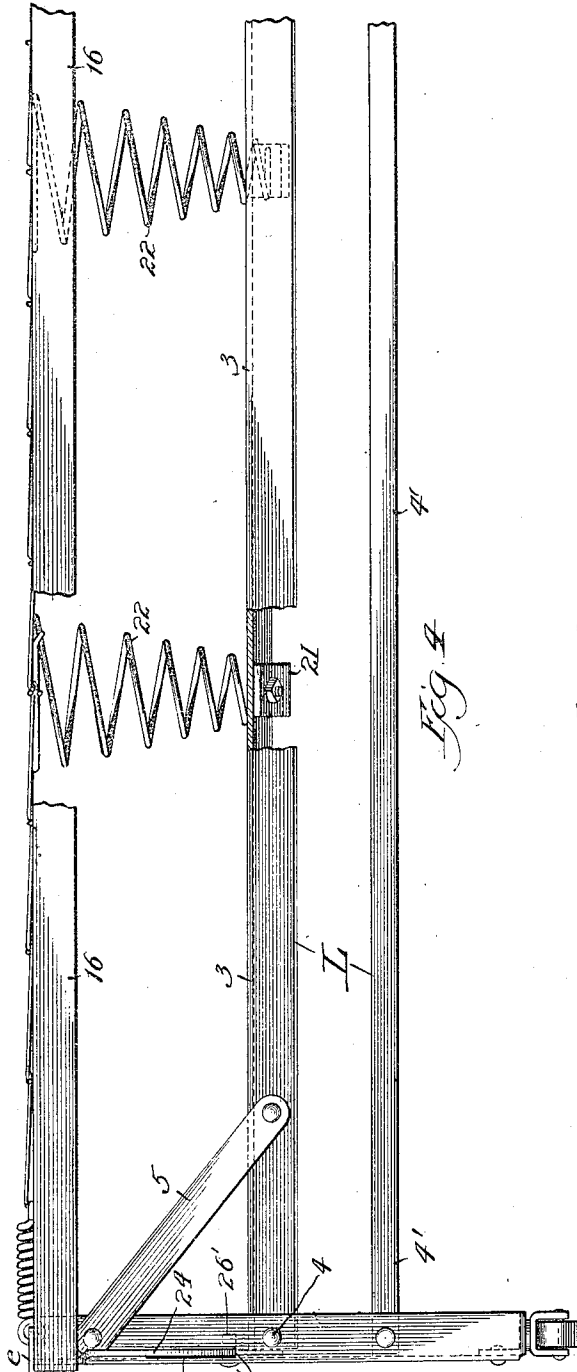


Fig. 4

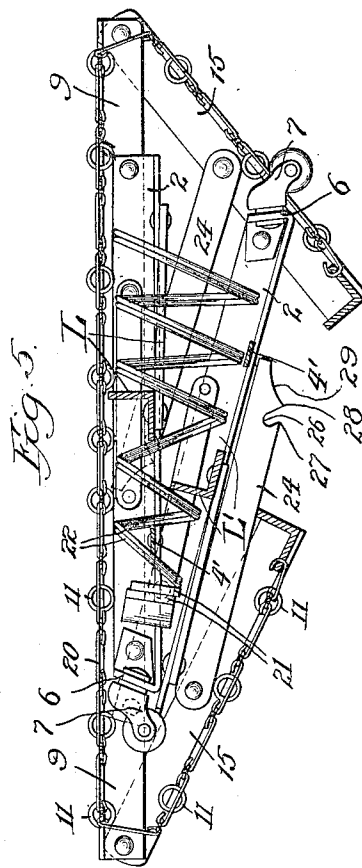


Fig. 5

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UNITED STATES PATENT OFFICE.

DON CARLOS TRAVIS, OF KENOSHA, WISCONSIN, ASSIGNOR TO THE SIMMONS MANUFACTURING COMPANY, OF KENOSHA, WISCONSIN, A CORPORATION OF WISCONSIN.

FOLDING COUCH.

945,821.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed June 21, 1909. Serial No. 503,350.

To all whom it may concern:

Be it known that I, DON CARLOS TRAVIS, residing at Kenosha, in the county of Kenosha and State of Wisconsin, have invented certain new and useful Improvements in Folding Couches, of which the following is a complete, clear, full, and precise specification.

My invention relates to folding couches particularly to couches built entirely of metal.

The main object of my invention is to produce a couch having a minimum number of light and efficiently constructed parts, so arranged and associated that the entire structure can be easily and quickly folded into a more compact form than has heretofore been possible.

My invention also incorporates various novel features of construction and operation all of which will appear in the following specification and the accompanying drawings, in which drawings:

Figure 1 is an elevation of the couch in open position except that one extension is in its lower position. Fig. 2 is an end elevation of the main frame parts showing these parts folded together into compact form. Fig. 3 is a plan view of the end shown in Fig. 1. Fig. 4 is a front view of the end shown in Fig. 1 with parts broken away to more clearly illustrate certain arrangements, and Fig. 5 is a sectional view taken on plane 5—5, Fig. 3, the parts, however, being shown in folded position.

The body of the couch comprises similar longitudinal and upright supporting or leg frames L and L', a top structure *t* directly supported by the frames L and L', and top extension frames or leaves *e* and *e'*. In Figs. 3 and 4 one end of the structure is omitted, but is exactly similar to the end shown. Each leg frame possesses two legs 1 and 2 connected together near a middle point by a longitudinal bar 3 here shown as an angle bar, the connection being permanent as by means of rivets 4. A distance below the bar 3 an auxiliary strengthening and brace bar 4 is permanently secured at its ends to the legs. An angle brace bar 5 is also secured to each leg near the upper end thereof and to the bar 3 as best shown in Fig. 4.

Each leg is in the form of an angle bar whose lower end 6 is bent to form a seat for a caster 7.

The upper or top frame *t* comprises end pieces 8 and 9 in the form of angle iron, one wall of the angle iron extending downwardly and the other wall extending horizontally inwardly, these horizontal walls being provided with holes 10 for supporting one end of coil springs 11.

Extending longitudinally across the top frame and hooked to the inner ends of the springs are the bands 12 built up of links 13 which may be of any desired form. Each of the extensions *e*, *e'* comprises end pieces 14 and 15, formed of angle iron, and an angle bar 16 connecting the outer ends of said end pieces as best shown in Fig. 3. The walls of the end pieces 14 and 15 extend in the same direction as those of the end bars 8 and 9 and the vertical walls of the end pieces are pivoted to the adjacent ends of the end bars 8 and 9. The horizontal walls of the bars 16 are provided with holes 18 for receiving the ends of transverse bands 19 built up of cross links 20 which hook from one longitudinal band to the other as shown.

The extension frames *e*, *e'* can be raised to horizontal position as shown at the right of Figs. 1 and 3, or can be swung downwardly as shown at the left of Figs. 1 and 3. When in their up position, the longitudinal and cross bands will all lie in a common horizontal plane. The upper ends of the legs 1 of frame L are pivoted to the vertical walls of the end bars 8 and 9 near one end of said bars, while the ends of the legs of frame L' are pivoted to the same walls at points near the other ends of said bars. The frames L and L' assist the bars 16 in supporting the end bars 8, 9, 14 and 15 against the tension of springs 11. Secured at their ends to the bars 3 are a number of spring supporting bars 21 to each of which spiral springs 22 are secured at their lower ends, the springs extending upwardly into engagement with the longitudinal and transverse bands 12 and 19. These bars 21 serve to hold the leg frames L and L' in unfolded position. Auxiliary brace bars 23 connect between the end bars 8 or 9 and the

legs to assist in stiffening and holding the leg frames in unfolded position.

Pivoted at their upper ends to the vertical walls of the end angle bars of the extensions *e* and *e'* are strut bars 24 whose lower ends are adapted to pass through slots 25 cut through the walls of the legs, as best shown in Figs. 1 and 4. Near the lower end of each strut bar a notch 26 is cut upwardly in the under edge thereof and has comparatively sharp entrance corners 27 and 28. The end of the under edge is cut away from the entrance corner 28 to form an inclined or curved surface 29. As shown in connection with leg frame L, a pin 26' may extend inwardly from the leg 1 at a point above the bar 3 and adjacent the slot 25 which pin serves to receive the notch 26 to lock the strut in unfolded position; or, as shown in connection with leg frame L', the lower edge 25' of the slot 25 may serve to receive the notch 26 to lock the struts in upper or unfolded position. The extension *e'* is shown in its down position and when raised to its horizontal position the strut bars pivoted thereto will be drawn over the edges 25' until the notches 26 are reached, whereupon the strut bars will drop and the walls of the notches will be engaged by the edges 25' to lock the bars. If a pin were used as shown in connection with leg frame L the strut bars would slide over the pins upon raising of the extension until the notches engaged the pins. To fold the extensions they are first raised to draw up the strut bars a sufficient distance to disengage their notches from the pins or from the edges 25', as the case may be, and to bring the surfaces 29 into engagement with the pins or edges, whereupon a quick downward movement of the extensions will cause the strut bars to be projected upwardly so that the extensions can be dropped before the pins or edges can again engage in the notches.

Referring to Fig. 1 the strut bars 24 engage the inner sides of the vertical walls of end pieces 14 and 15, and the side walls of the legs engage the inner faces of the vertical walls of angle bars 8 and 9. The strut bars 24 are, therefore, offset inwardly at 30 so that the notched ends thereof will be in a position to readily enter the slots 25. The connections between the bars 21 and 3 are detachable, bolts or screws 31 being used. Likewise the connections of the upper ends of brace bars 23 with the angle bars 8 and 9 are detachable, bolts or screws 32 being used. The connection of the springs 22 with the longitudinal and transverse bands 12 and 19 is also readily detachable, the upper turn of each spring being included at opposite points within the hook ends 33 of the adjacent cross links 20 as best shown in

Fig. 1. The springs can be easily disengaged from the cross links by spreading the upper turns thereof, and upon such disconnection and withdrawal of the bolts 31 and 32, the springs with their supporting bars 21 can be removed from the frame work and the brace bars 23 disconnected from the top bars 8 and 9 whereupon the various parts can be quickly and readily folded together into compact form as shown in Figs. 2 and 5. The springs and supporting bars are nested together compactly after removal from the frame and are inserted at the proper time between the frame parts as they are folded together. All the parts of the couch then being in a compact folded arrangement can be easily handled and packed for storage or shipment.

When the couch is to be folded together, extensions *e*, *e'* are raised sufficiently to withdraw the strut bars 24 from the slots 25 and are then dropped. The supporting bars 21 with the springs are then removed and the brace bars 23 are disconnected from the top bars 8 and 9, the bars 23 being swung into the legs against the pins 24 as shown in Figs. 2 and 3. In the sequence, as illustrated in Figs. 2 and 3, the leg frame L is first swung toward the top frame, the legs 1 engaging in the angle bars 8 and 9. The leg frame L' is then swung toward the leg frame L and the extension *e'* then swung inwardly, the strut bar 24, secured to this extension, extending beyond the edge of the bar 16 and engaging against the legs of frame L'. The extension *e* is then swung inwardly, the inner ends of strut bars 24 of said frame being guided into position between the legs of frame L and the adjacent top bars 8 and 9.

All rivet connections between the various parts are sufficiently yielding so that the parts will have sufficient lateral play to allow them to readily assume the various folded positions described. If the springs and bars 21 are to be included in the folded structure, they are nested together as shown in Fig. 5 and will snugly fit between the folded leg frames L and L'. Probably the quickest way to fold the couch would be to first drop the extensions and then invert the couch whereupon the various bolts can be more readily withdrawn and the frames swung inwardly in proper order to their folded position, the nested springs and supporting bars being inserted right after the frame L has been folded in, the frame L' then folding over the springs to confine them in position, and the extension frames being then swung down to folded position.

As best seen in Fig. 5, the springs are shaped to snugly fit in the V-shaped pocket formed between folded frames L and L', and the various springs with their support-

ing bars 21 can be included in the folded structure without the necessity of specially arranging the frame parts.

The entire folded structure takes up a minimum amount of space and the arrangement is such that the structure can be very readily handled and packed for storage or shipment. All the parts are folded inwardly to lie within the top frame, and there are consequently no protruding parts which would render handling or packing difficult. The various parts are also of the lightest and most efficient construction, and the arrangement is such that no skill whatever is required to assemble the parts upon setting up of the couch, or to disconnect the parts and to fold them together. The link construction enables the extensions e and e' to be swung up and down without in the least straining any of the parts.

Having thus described my invention, I desire to secure the following claims by Letters Patent.

1. In a folding couch of the class described, the combination of a top frame, leg frames pivoted to the top frame, transverse bars having detachable connection with the leg frames to hold said leg frames rigid in unfolded position, and springs supported by the transverse bars and having detachable connection with the top frame, said leg frames after detachment of the transverse bars and springs being adaptable to be folded inwardly toward the top frame.

2. In a folding couch of the class described, the combination of a top frame, leg frames pivoted to the top frame, transverse bars having detachable connection with the leg frames to hold said leg frames rigid in unfolded position, and springs supported by the transverse bars and having detachable connection with the top frame, said leg frames after detachment of the transverse bars and springs being adaptable to be folded inwardly toward the top frame to form a compartment for receiving the detachable transverse bars and springs.

3. In a folding couch of the class described, the combination of a top spring frame, leg frames pivoted to said top frame, cross bars having detachable connection with said leg frames to lock said leg frames in unfolded upright position, springs carried by each cross bar and extending upwardly therefrom and having detachable connection with the top spring frame, extensions pivoted to the top frame, detachable strut bars for holding the extensions in unfolded position, said leg frames after detachment of the cross bars and springs adapted to fold inwardly toward the top frame to form a compartment for receiving the cross bars and springs, said extensions and strut bars upon detachment of the strut

bars being adapted to swing inwardly against the leg frames.

4. In a folding couch of the class described, the combination of a flexible top frame, leg frames pivoted to the top frame, cross bars having detachable connection with the leg frames to hold said frames in unfolded upright position, spiral springs carried by and extending upwardly from the cross bars and adapted for detachable connection with the top frame, angle brace bars extending between the leg frames and the top frame and having detachable connection at one end, said leg frames and angle brace bars being adapted upon detachment of the cross bars and springs to be folded together and toward the top frame, said leg frames in their folded position forming a compartment for receiving the cross bars and springs carried thereby.

5. In a folding couch of the class described, the combination of top end bars, bands connecting said end bars, said bands being built up of links, springs included in said bands, leg frames pivoted to the end bars and serving to hold said end bars apart, cross bars detachably secured to the leg frames for locking said leg frames in unfolded upright position, spiral springs carried by and extending upwardly from the cross bars and having detachable connection with said bands, said leg frames after detachment of the cross bars and springs being adapted to fold toward the end bars, said leg frames when in folded position forming a compartment for receiving the cross bars and springs carried thereby.

6. In a folding couch of the class described, the combination of a top frame comprising end bars and side bars, longitudinal bands connecting the end bars and built up of links, springs included in the longitudinal bands, cross links connecting between the links of the longitudinal bands and connecting with the side bars to form transverse bands, cross bars having detachable connection with the leg frames, spiral springs carried by the cross bars and having detachable clamping connection with said cross links, said leg frames being adapted upon detachment of the cross bars and springs to fold inwardly toward the top frame to form a compartment for receiving the cross bars and springs.

7. In a folding couch of the class described, the combination of a top frame comprising end bars and side bars, longitudinal bands connecting the end bars and built up of links, springs included in the longitudinal bands, cross links connecting between the links of the longitudinal bands and connecting with the side bars to form transverse bands, cross bars having detachable connection with the leg frames, spiral

springs carried by the cross bars and having detachable clamping connection with said cross links, said leg frames being adapted upon detachment of the cross bars and
5 springs to fold inwardly toward the top frame to form a compartment for receiving the cross bars and springs, the side sections

of the top frame being adapted to fold inwardly against the folded leg frames.

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