Feb. 20, 1940.

J. F. ANDREWS

2,190,819

STUDIO COUCH

Filed July 27, 1938

Fig. 1.

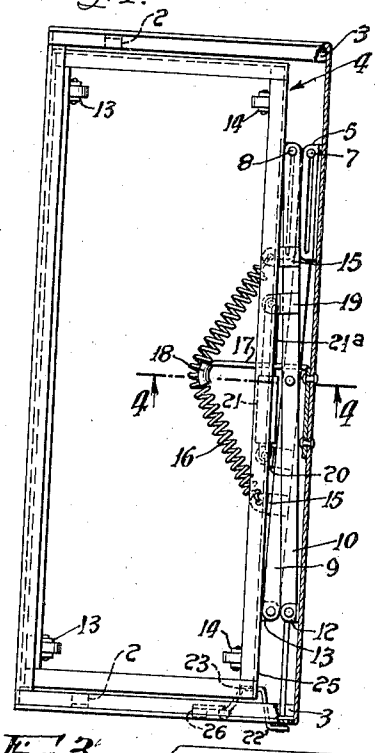


Fig. 2.

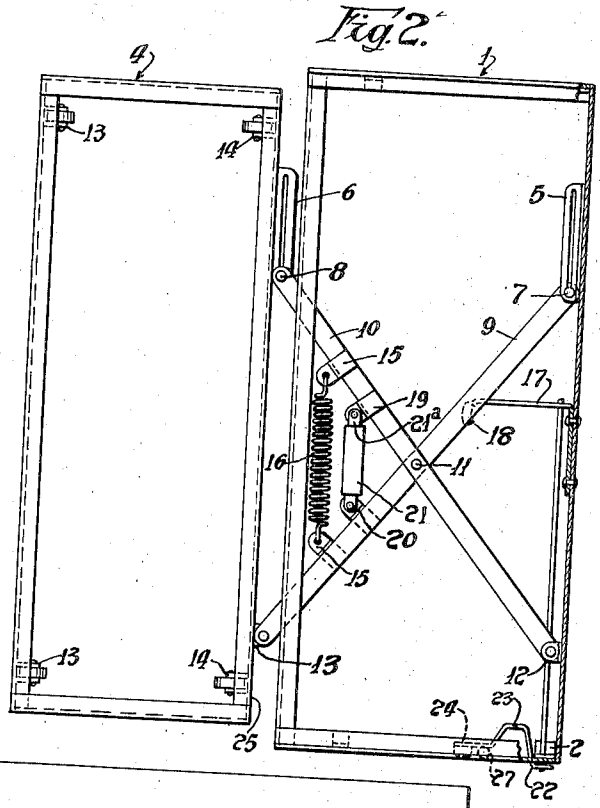


Fig. 3.

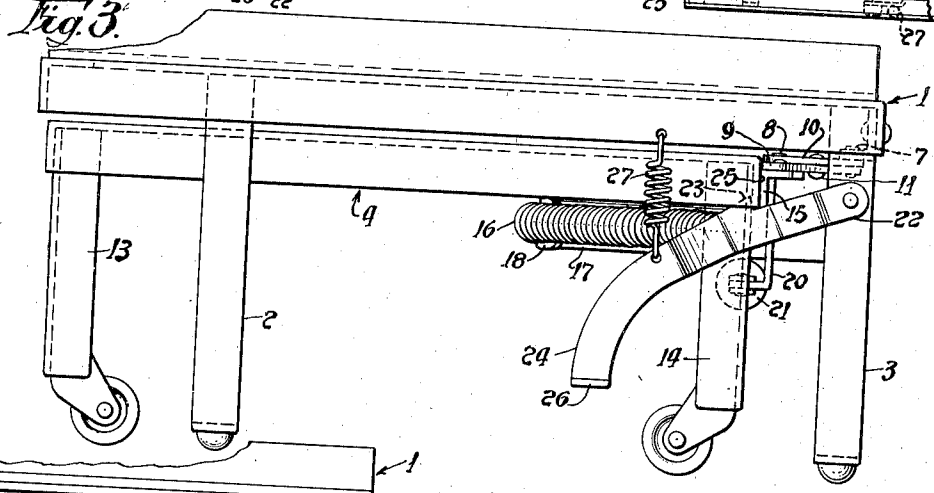
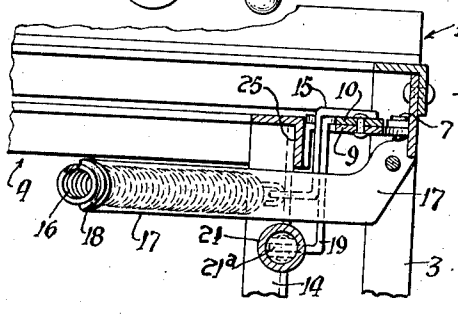


Fig. 4.



Inventor:
Joseph Franklin Andrews
By:
Rudolph Sturz
Attorney.

Patented Feb. 20, 1940 2,190,819

UNITED STATES PATENT OFFICE

2,190,819

STUDIO COUCH

Joseph Franklin Andrews, Memphis, Tenn.

Application July 27, 1938, Serial No. 221,491

4 Claims. (Cl. 5—18)

The present invention relates to improvements in the type of seating and bed structure commonly known as a studio couch, and has for its main object to provide a structure of this class wherein the lower and inner bed member is projected automatically from its position beneath the main bed and seating member of the structure upon releasing a retaining latch mechanism, said projection being effected by a tension spring associated with a pair of lazy tong levers which connect the two component frame members of the structure with each other and serve to maintain them in parallel relation to each other and also to limit the outward projection of the lower frame or bed member.

The employment of a pair of lazy tong levers in connection with a tension spring associated therewith to effect projection of a lower bed member from its position beneath the main seating and bed member, is not, per se, novel in the art, but in the usual and substantially conventional structure of this type it is necessary for the operator to maintain the retaining latch mechanism in released position while he imparts to the lower frame or bed member an outward push to start its outward movement.

The necessity for imparting this initial impulse to the lower bed member is due to the fact that when the latter is in its innermost and latched position the tension spring is disposed almost axially parallel with the closely folded lazy tong levers and cannot overcome the resistance offered by the frictional resistance to movement offered by the lower bed member to start the same toward its projected position. The use of a spring strong enough to overcome this initial resistance is prohibitive because of the subsequent speed of the further projection of the lower bed member.

The main object of the present invention is, therefore, to provide simple and efficient means for so associating the said tension spring with the respective bed members of the structure as to obviate the necessity for imparting manually to the lower bed member a starting impulse toward its projected position and whereby the spring will start and continue the outward movement of said lower bed member upon effecting release of the retaining latch mechanism hereinbefore referred to.

A further essential object of the invention is to effect an operative association of the spring with the lazy tong levers and the main bed and seating member in such a manner as to enable a relatively light spring to be employed and thus avoid the high speed outward movement of the lower bed member which might cause injury to persons disposed in the path of the latter.

Another object of the invention is to provide means associated with the operating parts of the structure for retarding the outward travel of the lower bed member.

A suitable and exemplary embodiment of the invention is illustrated in the accompanying drawing, wherein:

Fig. 1 is a plan view of a studio couch constructed in accordance with the invention, the same being shown in its collapsed position.

Fig. 2 is a view similar to Fig. 1 showing the structure in its extended position.

Fig. 3 is an end elevation of the same on an enlarged scale.

Fig. 4 is a vertical transverse sectional view of the same taken on the line 4—4 of Fig. 1.

The structure of the present invention comprises a main frame 1 which may be designated as a seating member, but which also is a bed member, as is usual in structures of this type.

The said frame 1 is rectangular and is composed of suitable structural steel end and side rails, such as angle iron, and is supported upon the legs 2 and 3 secured to the end rails of the frame 1. The lower bed member 4 is similarly composed of suitable structural steel units. The customary mattress supporting structures of the frame 1 and member 4 are omitted from illustrating as constituting no part of the present invention.

Secured to the rear rails of the frame 1 and the member 4 are longitudinally slotted guide members 5 and 6, respectively, which receive projections 7 and 8 disposed upon one end of each of the lazy tong levers 9 and 10, the latter being pivotally connected with each other midway between their ends by means of a pivot member 11. The other ends of said levers 9 and 10 are pivotally connected with brackets 12 and 13 mounted upon the rear rails of the frame 1 and member 4, respectively.

The plane of the upper face of the frame of the member 4 is disposed immediately below the plane of the lower edges of the rails of the frame 1, the latter being of greater dimensions between the front and rear rails than the member 4, in the instance illustrated.

The member 4 is also supported upon legs 13 and 14 as shown in Fig. 3.

Secured to the lazy tong levers 9 and 10 between the pivot pin 11 thereof and the ends of said levers connected with the member 4, is a

pair of brackets 15 having downwardly projecting arms opposed to the rear rail of the member 4 and to the lower ends of which a tension spring 16 is secured at its opposite ends, said tension spring acting normally to dispose the lazy tong levers 9 and 10 in their expanded or unfolded position, wherein the said projections 7 and 8 are disposed at the innermost ends of the slots in said guide members 5 and 6, respectively. When said levers 9 and 10 are in their last-named position, the said member 4 will be disposed in a position wherein its rear rail is disposed slightly forward of the front rail of the frame 1. It will be apparent, of course, that the members 7 and 8 may be equipped with anti-friction rollers.

The rear rail of the member 1 is equipped midway between its ends with an L-shaped bracket 17, the lower or horizontal arm of which extends forwardly into the path of the spring 16 and is equipped at its forward end with a saddle member 18 to receive the middle portion of said spring 16.

A pair of brackets 19 and 20 are mounted upon the levers 9 and 10 adjacent to and, in the instance illustrated, inwardly of the brackets 15. Said brackets 19 and 20 extend downwardly a greater distance than the brackets 15 and to the lower end portion thereof there are pivotally secured thereto the cylinder 21 and the piston rod 21a of a dash-pot structure of suitable conventional type acting reversely of a door-check to retard the outward travel of the member 4, but not its inward travel, said dash-pot structure being disposed below the horizontal arm of the bracket 17 when the member 4 is disposed at the inner limit of its movement.

The dash-pot structure shown and described is merely exemplary of a suitable travel retarding means adapted to the purpose.

A suitable type of latch device is employed to maintain the structure in collapsed position shown in Fig. 1. In the instance illustrated the said latch mechanism comprises an arm or lever 22 pivotally secured at its rear end to one of the rear legs 2 of the frame 1. Between its ends the said lever 22 is equipped with a shoulder formation 23 lying at the upper end of its inclined front arm 24 and which is adapted to engage the rear downwardly extending flange 25 of the rear rail of the member 4. At the lower extremity of the arm 22 there is provided a pedal formation 26 which may be depressed by the foot of the operator to swing said arm against the action of its supporting spring 27 to release the shoulder 23 from the flange 25 and thereby permit the member 4 to be projected to the forward limit of its movement responsively to the tension of the spring 16 in an obvious manner.

The said arm or lever 22 is bent between its ends as indicated in Fig. 2 so that the shoulder 23 thereof will be disposed in the path of the flange 25 at a point spaced from the similar flange of the adjacent end rail of the member 4, the rear legs 14 of the member 4 being spaced from the end rails thereof to avoid the inwardly projecting portion of the lever 22 as shown in Fig. 2.

The latch mechanism illustrated and described is merely exemplary of a suitable mechanism of this type and may be replaced by any other suitable type.

The bracket 17 causes the spring 16 to be bowed appreciably and also to be elongated and thus placed under greater tension than if said bracket were omitted and, further, the tension of the end portions of the spring is so exerted on the levers 9 and 10 when they are in collapsed position as to cause them to easily unfold and start the forward travel of the member 4 the instant that the latch is released.

It will be noted that the spring 16 is not greatly elongated while the lazy-tong levers are moved to the position wherein said spring first contacts the saddle member 18 and, further, that when said levers are in said last-named position, no appreciable degree of force is required to move them and the member 4 to the position shown in Fig. 1, said spring 16 being, therefore, so light that the member 4 is not projected very forcibly to the position of Fig. 1. This is due partly to the direction of exertion of the force of said spring which is transversely of the travel of the member 4.

The details of construction of the members 1 and 9 may be changed and varied as desired without departing from the invention as defined in and by the appended claims, the accompanying drawing being intended to illustrate only an exemplary embodiment of the invention.

I claim as my invention:

1. In a structure of the type specified, including a main bed-frame, an auxiliary bed frame normally maintained housed by the main-frame, means connecting said frames for permitting the auxiliary frame to be projected outwardly from the main frame and maintaining the said frames parallel with each other, spring means connected with said first-named means for actuating the latter to effect outward projection of said auxiliary frame, manually releasable latch means on said frames for maintaining the auxiliary frame at the inner limit of its movement against the action of said spring means, and a device on the main frame disposed in the path of said spring means for engagement therewith as said auxiliary frame approaches the inner limit of its movement for increasing the effective force of said spring means to initiate outward projection of the auxiliary frame upon release of said latch means.

2. In a structure of the type specified, including a main bed frame, an auxiliary bed frame normally maintained housed by the main frame, means connecting said frames for permitting the auxiliary frame to be projected outwardly from the main frame and maintaining said frames parallel with each other, a single tension spring connected with said means for maintaining the auxiliary frame normally at the outer limit of its movement, a manually releasable spring-held latch means associated with said frames for maintaining the auxiliary frame at the inner limit of its movement against the action of said spring, and a device on the main frame disposed in the path of said spring for effecting distortion of the latter during inward movement of said auxiliary frame and increasing the normal maximum tension of said spring and also diverting the normal direction of exertion of its force on said means for initiating outward movement of said auxiliary frame upon releasing the said latch means.

3. In a structure of the type specified, including a main bed frame, an auxiliary bed frame normally maintained housed by the main frame, a pair of lazy-tong levers connecting said frames and maintaining the same parallel with each other at all points in their relative movement, means associated with said lazy-tong levers for

limiting the relative movement of said frames, a single tension spring connected with both said levers and normally disposed parallel with said frames and acting to maintain the auxiliary frame normally disposed at the outer limit of its movement, a member rigid with the main frame and disposed in the path of a point between the ends of said spring for distorting the latter and increasing its tension while said auxiliary frame is disposed at the inner limit of its movement and thereby causing diversion of the normal direction of force exerted by said spring upon said levers for initiating outward projection of said auxiliary frame, and a spring-held manually releasable latch mounted upon the main frame for automatic engagement with the auxiliary frame for maintaining the latter at its inner limit of its movement against the action of said spring.

4. A structure of the kind specified comprising a main bed and seating member, a secondary bed member disposed below the first-named member and adapted to be moved from a position entirely below and within the first-named member to an exposed position outwardly thereof, a pair of lazy-tong levers operatively connecting said members to maintain them parallel with each other and which are collapsed when said secondary member is disposed at the inner limit of its movement relatively to the first-named member, a tension spring connected at its ends with said lazy-tong levers at points between their pivotal connection with each other and extremities thereof and acting to move said levers from collapsed to extended positions, a latch-means for retaining said second member at the inner limit of its movement relatively to the first-named member with said lazy-tong levers collapsed against the action of said spring, and a device on the first-named member disposed in the path of the middle portion of said spring for maintaining the same bowed when said levers are collapsed and thereby increasing the tension of said spring and the direction of the force thereof exerted on said levers for promoting their initial movement from collapsed to extended position upon releasing said latch.

JOSEPH FRANKLIN ANDREWS.