

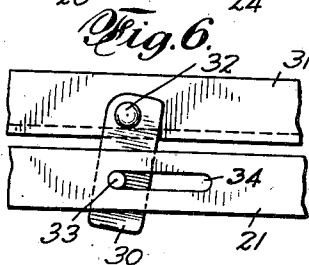
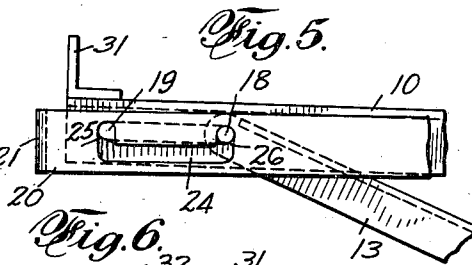
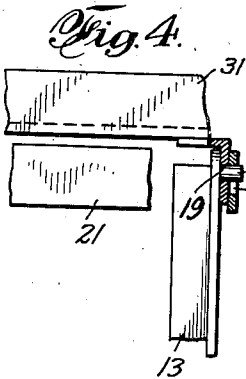
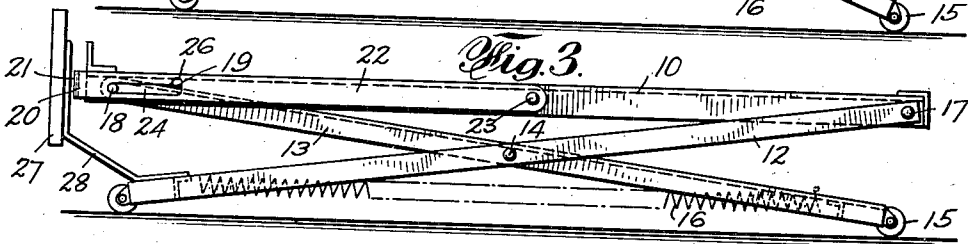
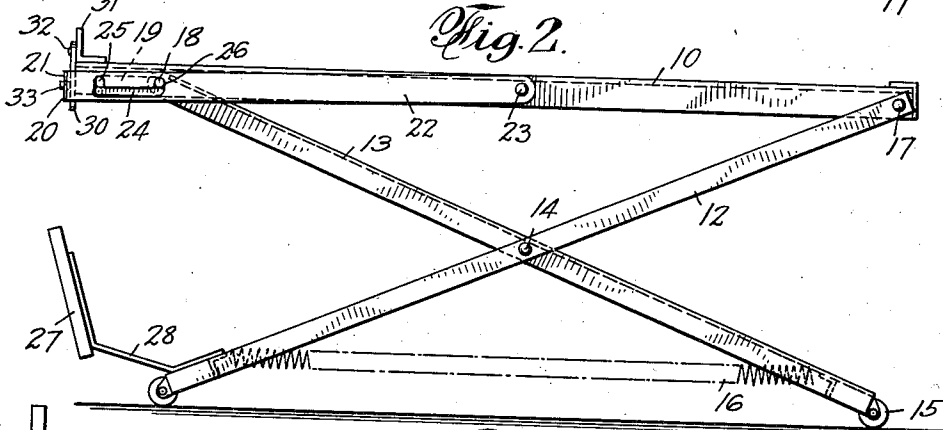
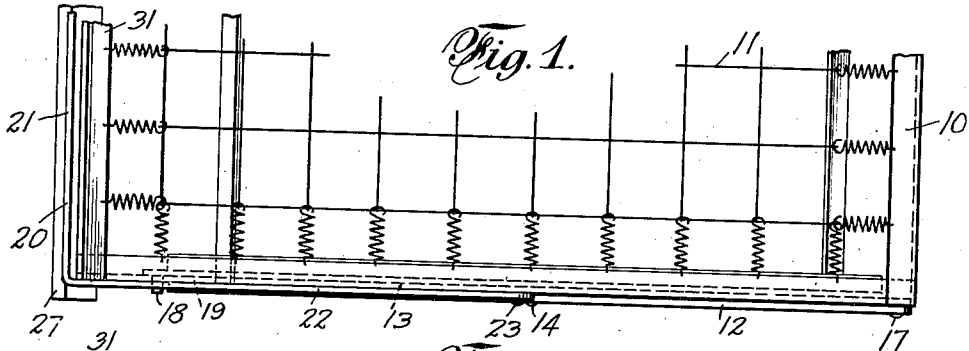
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LOCKING MEANS FOR STUDIO COUCHES

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LOCKING MEANS FOR STUDIO COUCHES

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6 Claims. (Cl. 5—21)

This invention relates to studio couches in which there is a fixed section and a "self-raising" section movable into and out of a space provided therefor in the fixed section and relates particularly to the means for locking the movable section in its raised operative position.

The movable "self-raising" section of such couches is so made that after it is first moved out of the fixed section, the mattress-carrying frame thereof may rise to the same level as the corresponding frame of the fixed section, suitable springs being provided to perform the raising operation either by themselves or with some slight assistance by the user. The mattress-carrying frame of the movable section may also be lowered into a collapsed position under little more force than its own weight and against the action of said springs, preparatory to shifting said section bodily in a horizontal direction into its storage space in the fixed section and out of the way.

Difficulties have been experienced with couches of this type. Should the frame rise under the action of its springs while the movable section is inside of the fixed section, as for example during transit, or if shocks or jars partly or completely overcome the weight of the mattress-carrying frame, it becomes difficult, if not impossible, to slide the otherwise movable section into its operative position because of the jamming of its mattress-carrying frame against the top of the receiving space in the fixed section.

Attempts have therefore been made to provide locking means to maintain the mattress-carrying frame of the movable section releasably in its raised and collapsed positions. The mechanism heretofore provided for that purpose is, however, cumbersome, bulky, comparatively expensive, and more or less difficult for unskilled persons to operate.

My invention therefore contemplates the provision of simple, comparatively inexpensive and dependable locking means having few parts and which is easily and quickly released by unskilled persons when the movable section is to be raised or lowered, said locking means being effective to lock the section either in its raised position or in its lowered or collapsed position, as desired.

The various objects of the invention will be clear from the description which follows and from the drawing, in which,

Fig. 1 is a fragmentary top plan view of the movable section of a studio couch showing my invention applied thereto.

Fig. 2 is an end elevation of the same showing

the locking detent for normally preventing release of the locking means.

Fig. 3 is a similar view of a somewhat modified form of the invention in which the locking detent is omitted, and in which the weight of the locking member and the friction developed thereby is depended on to lock the section in its collapsed position.

Fig. 4 is a fragmentary vertical section on an enlarged scale of the releasable locking means showing the operating parts.

Fig. 5 is a fragmentary end elevation of the same.

Fig. 6 is a fragmentary front elevation of the upper front portion of the movable section and of the locking means, showing the locking detent on an enlarged scale.

In the practical embodiment of the invention which I have shown by way of example, the mattress-carrying frame 10 of the movable section is constructed of angle iron in the usual manner and is provided with the resilient mattress support 11 of any of the usual types. It will be understood that while in Fig. 1 only an end portion of the frame 10 is shown, said frame continues for the desired length and terminates at its other end in a structure identical with the structure at the end shown in Figs. 1 and 2. The description of one end of the section will therefore suffice for both ends.

It will also be understood that the movable section is suitably connected to a fixed section of the usual type, not necessary to be shown, so that the frame 10 of the movable section may first be lowered into the position shown in Fig. 3 and then moved inside of and into a storage space in the fixed section to be hidden thereby. The usual crossed legs 12 and 13 pivoted together intermediate their ends as at 14 are provided to collapsibly support the frame 10. Said legs terminate in suitable rollers or casters 15 and at their lower ends are connected by the tension spring 16 which serves to pull the lower ends of the legs toward each other and thereby to raise the frame 10 against the weight of the frame and of the mattress thereon. The leg 12 is pivoted at its upper end as at 17 to the end rail of the frame 10 while the leg 13 is provided with a pin 18 at its upper end slidable in the slot 19 of the end rail.

The construction thus far described is the usual construction to which my improved locking means has been applied. Said locking means comprises the U-shaped pin locking and release bar 20 having an elongated front portion 21 ex-

tending along and preferably in front of the front rail of the frame 10 and having a rearwardly extending side arm as 22 at each end of the front portion. The side arm 22 is shorter than the end rail and at its rear end is loosely pivoted to the end rail as by means of the pivot 23. Said side arm 22, as shown in Figs. 1, 2 and 5, is provided with a slot 24 substantially coextensive with the slot 19 and receiving the pin 18 which is long enough to pass through both of the slots 19 and 24. The slot 24 is preferably provided with an upright slot extension at the respective ends thereof and at substantially right angles to the main slot 24, said extensions being respectively numbered 25 and 26. Said slot extensions 25 and 26 serve to maintain and lock the pin 18 in either one of the extreme positions thereof in the slot, said positions corresponding to the extreme raised position of the frame 10 and its extreme collapsed position.

Said pin, as shown in Fig. 2, passes through the slot 19 of the frame and is automatically locked at the upper end of the slot extension 26 when the frame 10 is in its extreme raised position. Normally, part of the weight of the bar 20 rests on said pin since the bar tends to drop about its pivot 23. The pressure on the pin due to the weight of the bar normally resists undesired movement of the pin in the slots, except during the deliberate raising or collapse of the frame 10. In the extreme positions of the frame, the bar 20 is free to drop and does drop whereby the pin 18 enters the slot extension 25 or 26 to lock the parts against movement until the bar 20 is deliberately raised to free the pin.

When it is desired to intentionally collapse the section from the position of Fig. 2 into that of Fig. 3 for movement for example into the fixed couch section, the front part 21 of the bar 20 is raised sufficiently to move the pin out of the extension 26 and in the long or main part of the slot 24, whereafter the weight of the frame 10 and its mattress assisted, if necessary, by a slight downward pressure thereon by the user, causes said pin to move along the main part of said slot 24 and causes the legs to swing about their pivots 14 to collapse the couch section.

In said extreme collapsed position, the pin 18 reaches the slot extension 25 and the bar 20 drops, the pin moving into the top of the extension 25 and being locked in said extension against movement until and unless the bar 20 is raised to release it. Consequently, the danger of the frame 10 being raised by the springs 16 after it has been collapsed and moved into the fixed couch section is avoided and possibility of jamming of the sections together during transit or when jarred is eliminated.

As shown in Fig. 3, should the weights of the frame 10 and its mattress be sufficient under all conditions to overcome the action of the springs 16 so that the section is completely self-maintained in its collapsed position, the extension 25 at the front end of the slot 24 may be omitted. For concealing the couch section in its collapsed position in its storage space in the fixed section, a front panel as 27 of the usual type may be secured to the leg 12 as by means of a suitable bracket 28.

To insure against accidental releasing movement of the bar 20 while a person is lying on the couch section, as when the bar is accidentally raised, and to insure against the consequent accidental collapse of said section, a suitable manually releasable locking detent is provided nor-

mally preventing operation of said bar 20, but permitting release of said bar for operation when desired. As shown particularly in Figs. 2 and 6, said detent consists of a flat substantially rectangular member 30 preferably of strip stock and loosely pivoted to the front rail 31 of the frame at a point as 32 offset from or on one side of the longitudinal center line of said member. By suspending the member 30 from a point offset from its center line, said member tends to hang under the influence of gravity in an inclined position to the vertical. The pin 33 projects from the member 30 and enters the slot 34 of the front part 21 of the bar 20. The left end of said slot, as viewed in Fig. 6, is sufficiently offset to the left of the pivot 32 to normally arrange the pin 33 off or to the left of a dead center position vertically below the axis of said pivot. Consequently, the bar 20 is locked against movement about its pivot 23 unless and until the pin 33 is first moved toward the right, as viewed in Fig. 6 past its dead center position. When this has been done, it becomes possible to raise the bar 20 at which time the pin 33 is free to continue the movement toward the right. Raising the bar removes the pin 18 from the extension 26 of the slot 24 as has been explained, thus releasing the locking means to permit collapse of the couch section. Similarly, after the couch has been collapsed and the pin 18 has entered the extension 25 of the slot 24, the pin 33 has moved automatically to the left end of the slot 34 on the dropping of the bar 20 so that operation of said bar to release the locking means becomes impossible until the member 30 has first been moved to arrange the pin 33 along the slot 34 past the dead center position.

It will be seen that after the bar 20 has been lifted to release the locking pin 18, by first manipulating the member 30, and after the bar 20 has then been released, it drops under its own weight thereby permitting the pin 33 to move toward the left along the slot 34 to the extreme left end of said slot.

It will thus be seen that I have provided a simple, inexpensive and dependable and easily releasable locking means for maintaining a couch section both in its collapsed position and in its operative raised position.

While I have shown and described certain specific embodiments of my invention, I do not wish to be understood as limiting myself thereto, but intend to claim the invention as broadly as may be permitted by the state of the prior art and the scope of the appended claims.

I claim:

1. In a collapsible self-raising couch section movable into extreme collapsed and raised positions, a mattress-carrying frame, end rails on the frame each having a slot adjacent the front end thereof, a pair of crossed legs pivoted together, the upper end of one of the legs being pivoted to the rear end of the frame, a pin on the upper end of the other leg entering the slot of the end rail, and releasable means for locking the pin normally against movement in the slot, said means comprising a U-shaped locking bar having a front portion arranged outside of the front portion of the frame and side arms extending rearwardly from the ends of the front portion, each of said arms having a slot therein substantially coextensive with the slot of the adjacent end rail, said slot having an upward extension on at least one end thereof, a pivot loosely pivoting the rear end of each of the arms

to the adjacent end rail whereby the front portion of said arm tends to drop about said pivot, said pin entering the slot of the adjacent side arm and entering and being locked in an end extension of said slot when the bar drops and the section is in an extreme position, and additional manually releasable means for locking said bar against upward pin-releasing movement of the front portion thereof about its pivot in the extreme positions of said section.

2. In a self-raising collapsible couch section, a frame having end rails each provided with a slot, a pair of crossed legs pivoted to each other, a pin on the upper end of one of the legs of each of said pair of crossed legs, said pin entering the slot, a side arm of less length than that of the end rail arranged adjacent the front portion of the end rail and loosely pivoted at its rear end to the end rail, said arm having a slot therein adjacent the front end thereof, said arm slot having an upright extension on at least one end thereof, said pin entering said arm slot, a front bar joining the front ends of the arms and having a slot therein, a locking detent pivoted at its upper end to the front rail at a point offset to one side of the longitudinal middle line of the detent and a pin on the detent below the pivot of the detent and also offset from the middle line of the detent, said detent pin entering and being normally arranged at one end of the slot of the front bar, said detent being suspended from its pivot to hang in a direction inclined to the vertical whereby said detent pin is normally arranged past a dead center position of the detent and lifting of the bar is prevented until the pin of the detent is moved past and on the other side of said dead center position.

3. In a collapsible couch section movable into extreme collapsed and raised positions, said section being provided with a slot, means for movably supporting the section, a pin projecting from the supporting means into the slot and movable in the slot, means for locking the pin at either end of the slot, said locking means comprising a side arm loosely pivoted to the section and having a slot therein substantially coextensive with the slot of the section, said pin entering into said arm slot, the slot of the arm having an upright extension on at least one end thereof, the pin moving into the extension in a selected one of said extreme positions of said section on the movement of the side arm about its pivot under its own weight, a front bar connected to said arm and arranged along the front of said section, said front bar having a slot therein, a manually releasable locking detent loosely pivoted at its upper end to the section and suspended therefrom at a point offset to one side of the middle line of the detent, and a pin on the detent below the pivot of the detent and also offset to one side of the middle line of the detent, said detent pin being movable in and being arranged normally at one end of the slot of the front bar whereby lifting of the front bar is prevented until the detent is first swung about its pivot sufficiently to move the detent pin out of said one end of the slot of the front bar toward the other end of said last-mentioned slot, and to a point offset to the other side of said middle line.

4. In a bodily movable and collapsible couch section adapted to be raised into an operative position, an upper mattress-carrying frame having end rails, each of said rails having a slot therein, a pair of legs for each rail, said legs being pivoted together intermediate their ends, a

pin on the upper end of one leg entering the slot of its end rail, a spring urging the lower ends of said legs together and releasable means to lock said pin against movement out of the ends of the slot in the respective raised and collapsed positions of said section, said means comprising a U-shaped locking bar having a front part substantially coextensive with the front of said frame, and a side arm extending from the front part along each of the end rails and being pivoted thereto, said side arm having a slot therein of substantially the same length as the slot of the end rail and receiving said pin, the slot of the side arm having an upright extension at each end thereof, said pin being received and locked in an extension in the raised and collapsed positions of said section and on the movement of the U-shaped bar about its pivot under its own weight.

5. In couch construction, the combination with a stationary section of a second section adapted to be collapsed and moved to a space beneath the first section, said second section having a frame, the end rails of said frame each having a slot adjacent an end thereof, a pair of crossed legs for each end of the frame, said legs being pivoted together at their junctions, the upper end of one of the legs of each pair of legs being pivoted to an end of a corresponding side rail of the frame, a pin on the upper end of the other leg of each pair entering the slot of its corresponding side rail for pivotal and sliding movement therein, and releasable latch means for locking the pins against movement in the slots, said latch means having flat portions pivoted at their inner ends to the outside of an end rail at each end of said frame, said flat portions each having a slot substantially coextensive with the slot of the adjacent end rail, the slots of said flat portions each terminating in a notch at one end thereof, said pins each engaging the slot of the adjacent flat portion and occupying said notches when the couch is in one position, said latch means also having an intermediate portion lying outside of, parallel to, and closely adjacent to the longitudinal frame member which joins the side rails and rigidly connecting said flat portions for operation in unison.

6. In a couch construction, a bodily movable and collapsible section adapted to be raised into an operative position, said section having a frame, the end rails of said frame each having a slot adjacent an end thereof, a pair of crossed legs for each end of the frame, said legs being pivoted together at their junctions, the upper end of one of the legs of each pair of legs being pivoted to a corresponding end rail, a pin on the upper end of the other leg of each pair entering the slot of its corresponding end rail for pivotal and sliding movement therein, and releasable latch means for locking the pins against movement in the slots, said latch means having flat portions pivoted at their inner ends to an end rail at each end of said frame, said flat portions each having a slot substantially coextensive with the slot of the adjacent end rail, the slots of said flat portions each terminating in a notch at one end thereof, said pins each engaging the slot in the adjacent flat portion and occupying said notches when the couch is in one position, said latch means also having an intermediate portion lying outside of and closely adjacent to the longitudinal frame member which joins the end rails and rigidly connecting said flat portions for operation in unison.

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