O. KONRAD.

FOLDABLE BED.

APPLICATION FILED APR. 3, 1920.

1,401,796.

Patented Dec. 27, 1921.

2 SHEETS—SHEET 1.

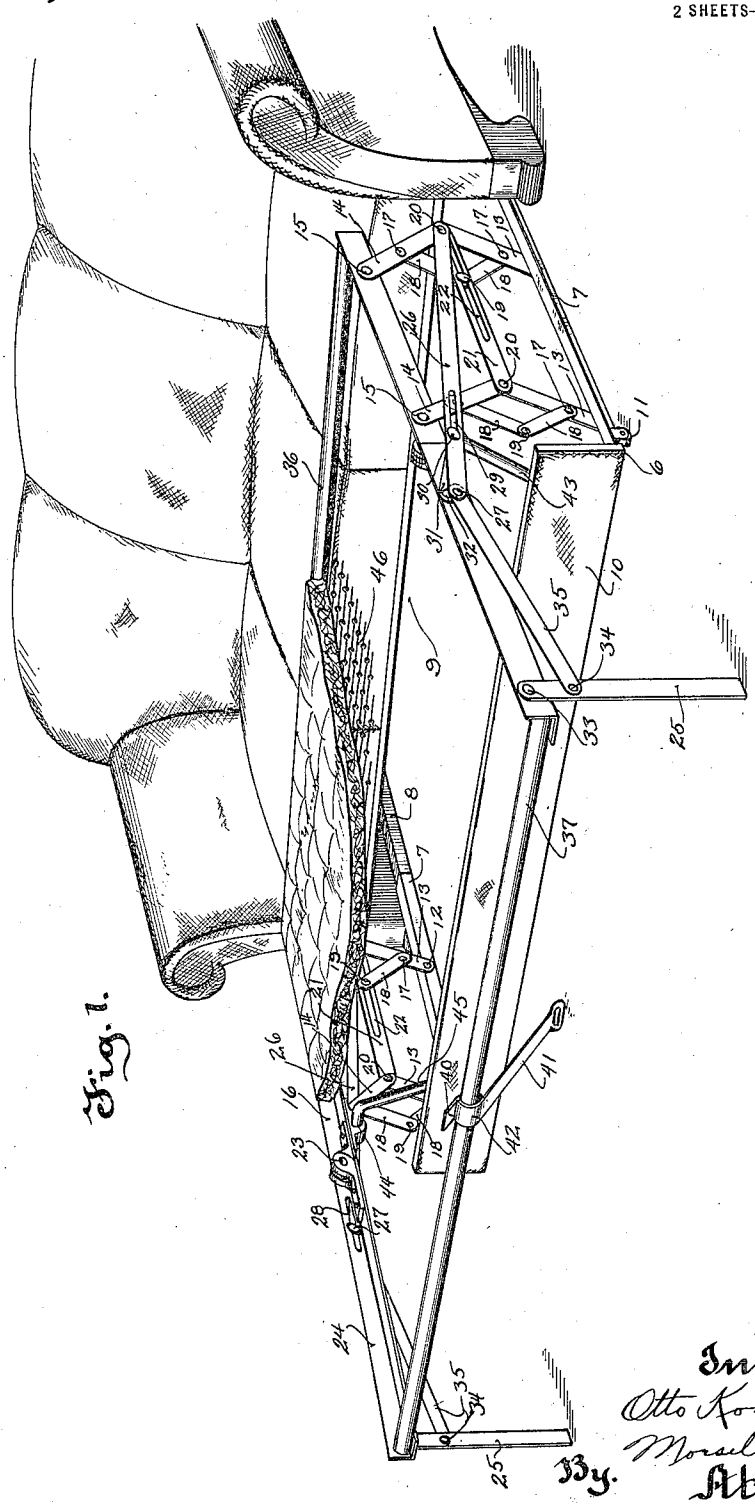


Fig. 1.

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2 SHEETS—SHEET 2.

Fig. 2.

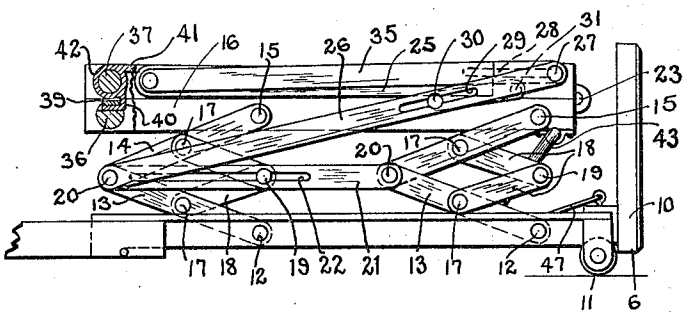



Fig. 3.

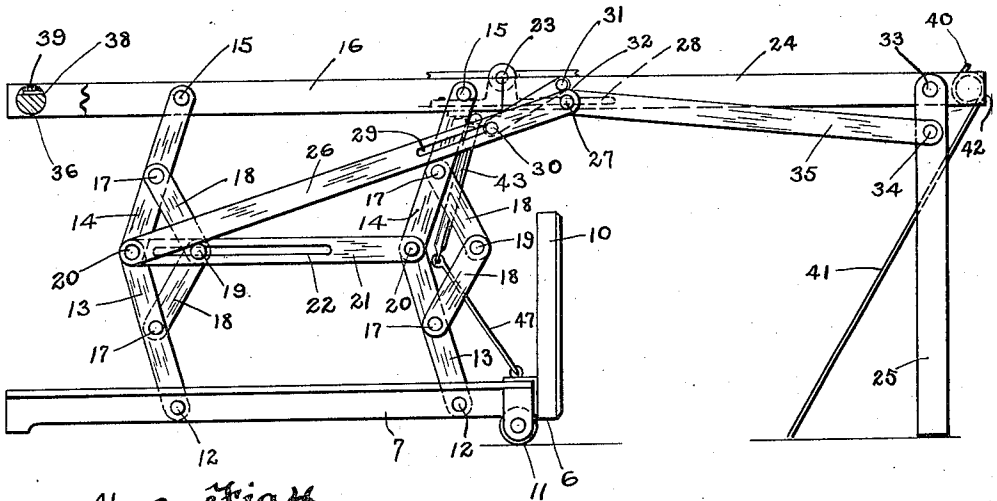



Fig. 4.

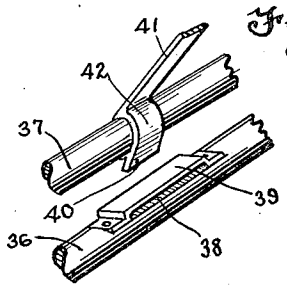



Fig. 5.

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# UNITED STATES PATENT OFFICE.

OTTO KONRAD, OF OSHKOSH, WISCONSIN.

## FOLDABLE BED.

1,401,796. Specification of Letters Patent. Patented Dec. 27, 1921.

Application filed April 3, 1920. Serial No. 370,954.

*To all whom it may concern:*

Be it known that I, OTTO KONRAD, a citizen of the United States, and resident of Oshkosh, in the county of Winnebago and State of Wisconsin, have invented new and useful Improvements in Foldable Beds, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

The present invention relates to certain new and useful improvements in beds, and refers more particularly to what may be called a foldable disappearing bed.

The present invention contemplates the provision of a disappearing bed having a two part foldable spring frame connected with a supporting member and provided with means for readily releasably locking the parts in folded or collapsed position.

Another object of this invention is to provide a two part spring frame for a disappearing bed, one part of which is supported above a receiving member and the other part of which is supported partly by the supporting member and by supporting legs, the supporting legs being movable to operative position upon the movement of the frame parts to extended or operative position.

It is a still further object of this invention to provide a foldable bed which may be combined with a couch, davenport, or other support in such manner that it may be inclosed within the couch, davenport, or other support to be out of sight, and which may be withdrawn for use without disturbing the seat or upper portion of the support in which it is contained.

With the above and other objects in view which will appear as the description proceeds, my invention resides in the novel construction, combination and arrangement of parts substantially as hereinafter described and more particularly defined by the appended claims, it being understood that such changes in the precise embodiment of the herein disclosed invention may be made as come within the scope of the claims.

In the accompanying drawings, I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so far devised for the practical application of the principles thereof, and in which:

Figure 1 is a perspective view of a davenport illustrating the bed as in operative position, *i. e.*, with the supporting member exteriorly of the davenport, and the spring frame section unfolded or in extended position, said view having parts broken away to more clearly illustrate the various structural details of my invention.

Fig. 2 is a side plan view of my improved device with the parts thereof in folded position and nested within the drawer-like supporting member which is shown in its outward position.

Fig. 3 is a side plan view thereof with the parts in their extended or operative position, and

Figs. 4 and 5 are fragmentary perspective views of the improved means I employ for readily releasably locking the sections of the two part spring frame in folded or collapsed position.

My invention is adapted to be folded or nested within a drawer-like supporting member 6 which includes a substantially rectangular shaped frame 7 having a sliding connection with guide members 8 positioned within a concealing recess 9 formed within a wall or the like, or else within the bottom of a davenport as illustrated in Fig. 1. In either case, the outer end of the supporting member 6 has secured thereto a board or partition 10 shaped and finished to conform with the exterior appearance of the wall, davenport, or the like, in which the bed is adapted to be concealed. The outer end of the supporting member 6 is provided with roller means 11 forming supporting feet so that the outer end thereof, when outwardly of its concealing recess will be maintained substantially level with the inner end.

The supporting member 6 has pivoted to each side thereof in spaced relation, as at 12, the lower end of two complementary links 13 having their upper ends pivotally connected with the lower ends of like links 14, the upper ends of links 14 being pivoted, as at 15, to the adjacent side of a bed spring section 16. Each pair of connected together links 13 and 14 have secured thereto, adjacent their outer ends, as at 17, the outer ends of links 18. The links 18 have their inner ends pivotally connected together, as at 19, and each set of connected together links 13, 14 and 18 forms what may be termed one section of a lazy tong.

Each pair of links 13 and 14 have their inner ends connected together by a pivot 20, and the adjacent pivots 19 and 20 are,

at all times, maintained in spaced relation, on opposite sides of an imaginary line drawn perpendicularly through adjacent pivots 17, by an intermediate guide bar 21. Each bar 21 has the pivots 20 of the adjacent links 13 and 14 secured thereto near the ends thereof, whereby the pivots 20 will at all times be maintained in substantially the same spaced relation. The pivot 19 of the innermost pair of adjacent links 18 is passed through, and slidable in an elongated slot 22 of the adjacent guide bar.

As will be readily obvious, this structure maintains the spring section 16, at all times, parallel with the supporting frame 7, but, at the same time permits its ready vertical movement so that the frame 16 may be nested to lie against the frame 7, or may be releasably locked or held in raised position as depicted in Figs. 1 and 3, by means now about to be described.

Pivotally connected, as at 23, to the spring frame section 16 is a complementary spring frame section 24, which is readily movable on its pivots 23 to the folded position depicted in Fig. 2, or to the extending or operative position illustrated in Figs. 1 and 3, in which position its outer end is supported by two foldable leg members 25, to be later described, and its inner end supported by the inner section 16.

The section 16 has its sides connected with the adjacent sides of the frame 7 by the link members, before described, and as the operation of the links on one side is identical with that of the links on the other side, but one side will be hereinafter referred to. The innermost pair of link members 13 and 14 have their pivots 20 pivotally connected to the inner end of an operating and locking bar 26, which has its outer end pivotally connected to the adjacent side of the spring frame section 24, near its pivot 23, by a pivot member 27 carried by the outer end of said bar and having a free, but limited, sliding movement within an elongated slot 28 in the side of the section 24.

The bar 26 is longitudinally slotted, as at 29, adjacent its outer end and has slidably mounted therein the pivot 30 of a locking link 31, the outer end of which is pivotally secured to the section 24, as at 32. When the section 24 is in its fully extended position, the pivot 30 will be at the outer end of the slot 29, and the link members will be restrained from collapsing as the link 31 becomes a substantially fixed part of bar 26 and has its pivot 32 positioned on a plane beneath the section pivot 23.

With the section 24 in extended position the pivot 27 of the bar 26 will have none of the strain from the weight applied to said bar thereon, the weight being sustained by the pivots 30 and 32 of the link member 31. By reason of the pivot 32 being on a lower plane than pivot 23, the link members will be held from collapsing when weight is applied thereto as will be readily obvious.

The operation of the link structure is substantially as follows:

Assuming the spring sections 16 and 24 to be in folded position as depicted in Fig. 2, the section 24 is swung on its pivots 23 when it is desired to place the parts in position for use. When the sections 16 and 24 are collapsed, the pivots 27 will be at the extreme inner ends of the slots 28 and thus a pull will be exerted on the bars 26 as section 24 is moved away from section 16 and this pull will continue until the pivots 30 reach the outer ends of slots 29 when the strain is taken off of pivots 27.

This forward pull on the pivots 20 of the innermost link members 13 and 14 will raise the frame 16 to the position depicted in Figs. 1 and 3, and when the section 24 reaches its fully extended position, the pivots 32 will drop below the pivots 23 and thus lock the links 13 and 14 in their extended position, as any weight which is placed upon the bed springs will naturally tend to collapse the links and place a strain upon the bar 26 as will be obvious.

The supporting legs 25 have their upper ends pivotally secured, as at 33, to the sides of the section 24 near the outer end thereof and each have pivotally secured thereto slightly below pivot 33, as at 34, an operating rod 35 having its inner end pivotally secured to the adjacent pivot 27. This construction provides means for automatically bringing the supporting legs to the position depicted in Fig. 3 when the section 24 is extended, and for folding the legs 25 against the sides of the section 24 when the section is nested upon the section 16.

When the stress of the rods 26 is taken up by the links 31, as before described, the outer end of said rod will be moved outwardly, the pivots 27 sliding within the slots 28, thus extending rods 35 and swinging the legs 25 upon their pivots. When the section 24 is moved to folded position, the pivots 27 move inwardly thus drawing the legs 25 up against the sides of the section.

The outer ends of the sections 16 and 24 are connected together by means of side rods 36 and 37 respectively, and said side rods are provided with coöperating means for releasably securing the sections in folded position. The rod 36 has a flattened portion 38 upon which is secured a bracket member 39 forming an elongated slot in which is adapted to be engaged the latch end 40 of an operating handle 41 pivotally mounted upon the rod 37, as at 42. The improved latch member just described insures the retaining of the parts in fully nested position and prevents the catching of the section 24 with the top wall forming the recess 9, the

sections being drawn tightly together by engaging the latch 40 within the recess formed by bracket 39 and moving the handle 41 to a position against the section 24. The latch is disengaged by raising the handle 41 as will be readily obvious.

The spring frame is braced adjacent the pivots 23, by means of a rod 43 having its end pivoted, as at 44, to one of the spring sections, and the brace rod is provided with an offset portion 45 intermediate its ends so that the same will be out of the way of the give of a bed spring 46 carried by the sections 16 and 24. The offset portion of the brace rod 43 is guided inwardly to the position depicted in Fig. 2 when the sections are collapsed by means of a guide link 47 having a pivotal connection with the outer end of the supporting member 6 and a pivotal connection with the offset portion 45 of said rod.

From the foregoing description taken in connection with the accompanying drawings it will be at once apparent to those skilled in the art to which an invention of this character appertains that I provide a disappearing bed which may be concealed within the walls of a room or within the bottom of a davenport, or the like. In the latter, the seat of the davenport forms no part of the bed as is the case of structures of this class now in use and therefore the davenport may be provided with the best of finish without danger of being damaged by constant use as a bed.

What I claim as my invention is:

1. A device of the class described, comprising a supporting member, a sectional connected together bed frame, means connecting each end of one frame section with said supporting member and including pairs of pivotally connected together link members having their outer ends pivotally connected with the adjacent sides of said frame section and said supporting member, an operating rod mounted at each side of the frame and having one end connected with the connecting pivot of one pair of link members and its other end slidably connected with the adjacent side of the other frame section, a supporting leg for each side of said other section and having its upper end pivotally secured to the adjacent side thereof, and means connecting each supporting leg with the adjacent operating rod, said means being connected with each rod at its slidably mounted end and with each supporting leg at a point spaced from its pivotal connection with the other frame section.

2. A device of the class described, comprising a supporting member, a sectional connected together bed frame, means connecting each end of one frame section with said supporting member and including pairs of pivotally connected together link members having their outer ends pivotally connected with the adjacent sides of said frame section and said supporting member, a bar at each side of the frame section carried by the connecting pivots of the adjacent link members, an operating rod at each side of the frame and having one end pivotally connected with the adjacent bar and its other end slidably connected with the adjacent side of the other frame section, and a link at each side of the frame and having one end slidably connected with the adjacent operating rod and its other end pivotally connected with the adjacent side of said other frame section.

3. A device of the class described, comprising a supporting member, a sectional connected together bed frame, means connecting each end of one frame section with said supporting member and including pairs of pivotally connected together link members having their outer ends pivotally connected with the adjacent sides of said frame section and said supporting member, a bar at each side of the frame section carried by the connecting pivots of the adjacent link members, an operating rod at each side of the frame and having one end pivotally connected with the adjacent bar and its other end slidably connected with the adjacent side of the other frame section, and a link at each side of the frame and having one end slidably connected with the adjacent operating rod and its other end pivotally connected with the adjacent side of said other frame section, the slidably mounted ends of said operating rods and said links being substantially equally limited.

4. A device of the class described, comprising a supporting member, a sectional connected together bed frame, means connecting each end of one frame section with said supporting member and including pairs of pivotally connected together link members having their outer ends pivotally connected with the adjacent sides of said frame section and said supporting member, a bar at each side of the frame section carried by the connecting pivots of the adjacent link members, an operating rod at each side of the frame and having one end pivotally connected with the adjacent bar and its other end slidably connected with the adjacent side of the other frame section, a link at each side of the frame and having one end slidably connected with the adjacent operating rod and its other end pivotally connected with the adjacent side of said other frame section, a supporting leg for each side of said other section and having its upper end pivotally secured to the adjacent side of said section near its outer end, and a connecting lever for each supporting leg having its outer end pivoted to the adjacent leg spaced

from its pivot and its inner end pivotally connected with the outer end of the adjacent operating rod.

5. A bed comprising a supporting member, a spring frame including two hingedly connected together sections, pairs of link members having their inner ends pivotally connected and their outer ends pivotally connected with the supporting member and one of the spring sections whereby the said spring section is permitted a vertical movement with respect to the supporting member, an operating member connected with the link members and the other of said spring sections whereby a movement of said other section to extended position will raise the first mentioned section, supporting legs pivotally secured to the outer end of said other section, and connections between said operating member and supporting legs, whereby a movement of said other frame section to extended position will position said legs to support the same and a movement of said other section to folded position will fold said legs against the sides of said section.

In testimony whereof I affix my signature.

OTTO KONRAD.