

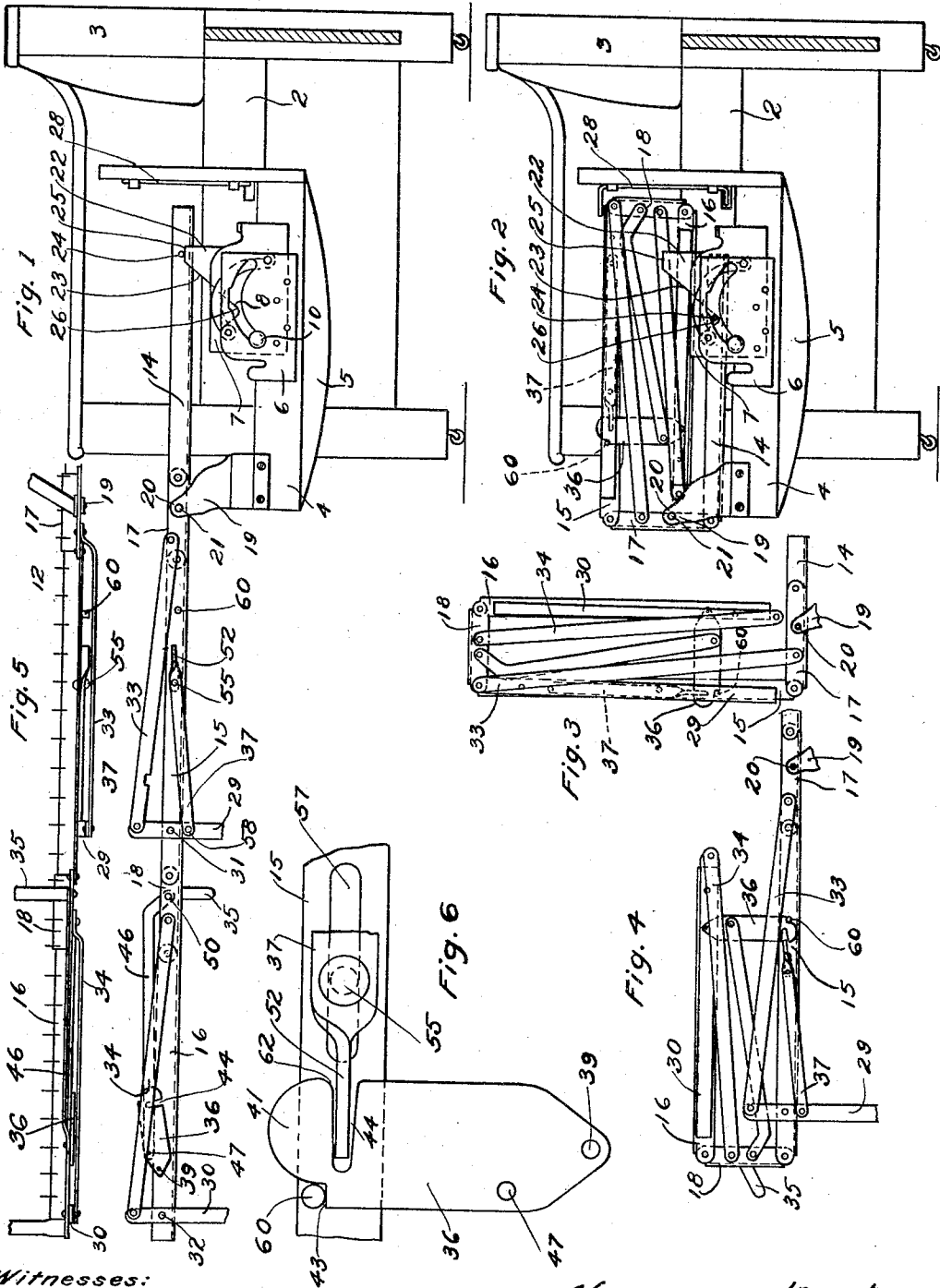
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SOFA BED.

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SOFA-BED.

1,115,769.

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To all whom it may concern:

Be it known that I, HARRY D. BARTLETT, a citizen of the United States of America, and a resident of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Sofa-Beds, of which the following is a specification.

This invention relates to convertible furniture of the class in which a series of foldably-related bed sections are arranged to unfold to form a bed, and more particularly to sofa beds in which means are provided for securing part of the sections in spaced folded relation while being unfolded or folded with respect to the remaining section or sections.

Beds of this character have been made in different ways, usually with the bed portion pivoted directly to the front of the sofa frame, or carried by a rotatably mounted hollow seat frame having a seat member for the sofa formed directly upon or carried by one side, and having the bed portion pivotally connected to and carried by the reverse side, the bed in either case being extensible transversely of the sofa and being foldable one section over another in the same direction for storage under the seat member when the bed is not in use.

The main objects of this invention are to provide an improved form of fastening means adapted for securing part of the sections in folded relation during the folding and unfolding of the remaining sections; to provide an improved form of fastening carried by an intermediate section and adapted for automatic operation by the movement of said section, to secure and release an outward section folded thereon in folding and unfolding the bed respectively; to provide complementary means on the foot section and an intermediate section respectively adapted for automatic mechanical control to interlock to secure the foot section in spaced folded position; and to provide means of said character having resilient qualities and adapted to snap into partial engagement to yieldably hold the foot section folded upon a medial section when the latter is in its bed position and with the bedding in place.

An illustrative embodiment of this invention is shown in the accompanying drawings, in which—

Figure 1 is a side elevation of a sofa bed

with the bed sections unfolded and with the near end of the sofa frame removed to show the details of the seat member and operating means associated therewith. Fig. 2 is a similar view showing the bed in its folded position and with the seat frame ready for turning to its normal sofa position. Fig. 3 is a side elevation of the foot and middle sections of the bed illustrating the first stage of the unfolding operation with the foot section locked in spaced folded relation upon the middle section and disposed in an upright position. Fig. 4 is a side view similar to Fig. 3 but illustrating the next stage of unfolding, the middle section being in its bed position, the foot section being folded thereupon, and the locking plunger being retracted. Fig. 5 is a broken plan view of a portion of the bed bottom when extended, and shows the relative position of the leg folding and section locking members on one side of the bed. Fig. 6 is an enlarged broken side view of the latch and plunger interlocked, in the position shown in Fig. 2.

In the construction shown in the drawings, the sofa bed comprises the usual housing or frame 1 having ends 2 and back 3 in combination with a rotary seat frame 4 operatively mounted between and supported by the ends 2. This seat frame on one side is adapted to serve as a seat 5, and the reverse side is formed as a hollow frame adapted and arranged to support the bed sections pivotally attached thereto for unfolding when the seat frame 4 is turned to its inverted position, as shown in Fig. 2. The connection of the seat frame 4 to the sofa frame 1 may comprise any of the means well known in the art, as plates 6 and 7 secured to the sofa ends 2 and seat frame 4 respectively and having pivotal relation.

The bed bottom or frame 12 comprises three wide major sections 14, 15 and 16 and two narrow minor sections 17 and 18 hinged together, in alternate position. Said sections are adapted to be folded together upon the underside of and within the seat frame 4, with the three major sections lying substantially in horizontal position and with the minor sections vertically disposed at the opposite edges thereof.

Bed supporting brackets 19 are secured to the ends of the seat frame 4 adjacent to that edge of the seat frame which is in front when in the bed position. The outer and upper ends of these brackets are formed

and adapted, as it 20, to receive the pivot members 21 secured to the sides of the narrow bed section 17 intermediate of the ends thereof. The section 17 thus mounted is adapted to swing from a vertical storage position to a horizontal bed position. The head section 14 and the middle section 15 are hinged to the section 17 at opposite ends thereof, lower and upper respectively when folded.

The head section 14 is raised and lowered in its horizontal position within the seat frame with the shifting of the narrow section 17 to and from its horizontal position respectively, by means of plates 22 located rearwardly of the brackets 19 and adjacent to the ends of the seat frame 4. Each plate 22 is formed with a rearwardly inclined forward surface 23 on which slide the studs or shoulders 24 secured to the section 14, each of which surfaces 23 terminates at its upper end in a horizontal surface 25 on which the studs 24 rest when the section 14 is shifted to its elevated or bed position, and at its lower end terminates in a socket 26 which coacts with its respective stud 24 for securing the section 14 in its lowered position.

The foot minor section 18 and the foot major section 16 are hinged together, and the former is hinged to the middle major section 15. Sections 16 and 18 are adapted to be extended in horizontal alinement, or to be folded with section 15 upon the seat frame with the foot section 16 between the sections 14 and 15. The head and middle major sections may be of substantially the same length, but the foot section 16 is somewhat shorter so that it may be folded between the longer sections, the difference in length being substantially equal to the thickness of the mattress and usual bedding (not shown). The short sections 17 and 18 are also of different lengths, the difference being a little more than the thickness of the mattress and bedding.

The outwardly disposed or foot sections are supported in their bed position by means of foldable legs 29 and 30 pivoted at 31 and 32 to the outer ends of sections 15 and 16 respectively. These legs are controlled automatically by means of links 33 and 34 pivoted to the upper ends of the legs and next rearwardly adjacent short sections 17 and 18 respectively. Section 18 is braced by a rod 35 connected at its ends to medial portions of the sides, said rod preferably being U-shaped and having pivotal connection.

Improved means are provided for securing the foot section 16 in folded relation upon the middle section 15, said means being complementary in character and comprising a member carried upon and operated by the movement of the foot section, in combination with another member carried upon and operated by the movement

of the middle section for engaging the first member, or more specifically latch and plunger means 36 and 37 carried by sections 16 and 15 respectively. Preferably two sets of said coactive means 36 and 37 are provided, one set for each side of the bed, as will be understood.

The latch member 36 is adapted and arranged for pivotal connection at one end, as at 39, to a side of the bed frame, the opposite end 41 being rounded or beveled and having a shoulder 43 formed thereon, and also having a transverse notch or slot 44. A link 46 is pivoted at one end to the medial portion of said latch, as at 47, preferably adjacent to its supporting pivot 39 and at its opposite end to a medial point 50 on the adjacent section 18, by which means the latch is caused to move nearly to a horizontal or retracted position when the foot section is turned to its bed position and to a perpendicular position respecting the foot section when the latter is raised for folding upon the middle section.

The plunger 37 is carried slidably by section 15 preferably upon a side thereof and in nearly parallel position, said plunger being movable longitudinally for engaging said latch at notch 44 when the section 15 is raised for folding with respect to section 17. Said plunger, adjacent to but somewhat back from its latch engaging end 52, is provided with a pivot shoulder 55 which projects laterally into a longitudinal guide slot 57 formed in the side of the section 15, the opposite end of the plunger being pivoted at 58 to the leg 29 adjacent to and below the pivot 31 so that when the section 15 is raised and the leg 29 folded the plunger is moved forward. A shoulder 60 is provided on the side of the section 15, in the form here shown, adapted to receive the shoulder 43 of latch 36, and thereby arrest the downward movement of the foot section when the latter is folded upon the middle section. The shoulder 60 also serves to guide the latch into place by sliding contact with the beveled end of the latch.

Preferably the outer forward edge of the notch 44 is beveled slightly as at 62, and the plunger 37 made long enough so that when the foot section is folded to the position shown in Fig. 4 the forward tip of the plunger will strike the outer beveled edge of the latch and be caused to snap slightly into the notch 44, when the latch is carried downward into position, but enough to hold section 16 in place against the expansive force of the mattress and bedding (not shown), until section 15 is raised. This obviates all need of holding section 16 folded down with one hand while section 15 is raised with the other hand, as might otherwise be necessary at times. In order that the plunger 37 may thus snap into place, it

is preferably somewhat flexible and resilient so that it may bulge or bow slightly in springing into place. Owing to the beveled corner at 62 the plunger may readily be sprung out of the notch 44 and the foot section raised by a somewhat stronger pull than would be necessary if the spring or snap feature were omitted.

The operation for unfolding the bed is as follows: The seat frame is inverted from its sofa position and the bed sections are then unfolded to the position shown in Fig. 3, the middle and foot sections being held in folded relation by the coacting latch and plunger. When the sections are further unfolded the plunger is thereby withdrawn from engagement with the latch, or so nearly so that only a slight lifting force is required to separate them, and the sections may be unfolded to the position shown in Fig. 1, the latch being retracted automatically when the foot section is lowered into its horizontal position.

The folding operation is as follows: First the foot section is raised, thereby causing the latch 36 to swing outward so that when said section swings over upon the middle section the shoulder on the latch will come to rest upon the stop 60, and the plunger will be sprung into slight yieldable engagement with the latch. Upon further folding the bed by raising the middle section, the plunger thereon is caused to move forward into non-yielding engagement with the notch 44, whereby the foot and middle sections are rigidly locked in spaced folded relation. The folding operation is then completed by swinging the said folded sections over and downward upon the head section where they are locked in the usual way, and the seat frame is then rotated to its normal sofa position.

Although but one specific embodiment of this invention has been herein shown and described, it will be understood that numerous details of the construction shown may be altered or omitted without departing from the spirit of this invention as defined by the following claims.

I claim:

1. A plurality of foldably related bed sections, in combination with complementary fastening means carried by different sections and operatable successively by the folding of said sections each with respect to the next adjacent section respectively, and mechanical automatic control means for each of said fastening means respectively.

2. In a device of the class described, a plurality of bed sections adapted to fold together, in combination with a latch carried by one of the sections, means operatively connecting the next adjacent section and said latch adapted and arranged for moving said latch into its operative position when said

adjacent sections are folded, and locking means carried by a third section adapted and arranged for movement, by the folding of said sections with respect to a fourth section, to engage said latch.

3. In a device of the class described, a plurality of foldably related sections, a latch pivoted to one of said sections, means operatively connecting said latch to an adjoining section, and means carried by another section and movable by the folding and unfolding of its supporting section for engaging and releasing said latch respectively.

4. A plurality of foldably related bed sections, in combination with complementary fastening means adapted to interlock and carried by the foot section and a medial section respectively, said complementary means being formed and adapted to snap into yieldable partial engagement when the foot section is folded upon said medial section, and means adapted and arranged for causing a greater and unyielding degree of engagement of said complementary means when said medial section is folded with respect to an oppositely disposed section.

5. A plurality of foldably related bed sections, one of which is provided with a guide shoulder and a plunger spaced apart from said shoulder and carried by said section, a foot section having a beveled and shouldered member adapted and arranged to project downwardly against said shoulder when said sections are folded together, said projecting member being formed and adapted to interlock with said plunger, and means operatively connecting said plunger and a third section adapted and arranged for advancing said plunger into engagement with said projecting member when the said shoulder-bearing section and foot section are folded.

6. In a device of the class described, a plurality of bed sections adapted to fold together, in combination with a latch carried by one of the sections, means operatively connecting the next adjacent section and said latch adapted and arranged for moving said latch to retracted and projecting positions when said adjacent sections are folded and unfolded respectively, and a locking member carried by a third section substantially in the same plane therewith and movable longitudinally thereof by the turning movement of said third section upon a fourth section adjacent thereto for engaging and releasing said latch in folding and unfolding the bed respectively.

7. A plurality of foldably related bed sections, in combination with a plunger carried by and movable longitudinally of a medially disposed section, means operatively connecting said plunger to an adjacent section on one side, and means carried by a third section disposed at the opposite side and adapted for interlocking engagement with said

plunger to secure said third section in folded relation with said medial section.

8. A plurality of foldably related bed sections, in combination with a plunger carried by and movable longitudinally of a medially disposed section, means operatively connecting said plunger to an adjacent section on one side, and means carried by a third section disposed at the opposite side and adapted for interlocking engagement with said plunger to secure said third section in folded relation with said medial section, one of said interlockable members being operatively yieldable for snapping into and out of engagement.

9. In a device of the class described, a plurality of bed sections adapted to fold together in combination with a latch pivoted to a foot section, a link pivoted both to said latch and to the next adjacent section and adapted to move said latch into its operative position when said sections are folded and vice versa, a leg foldably attached to the second section from said foot section, a link operatively connecting said leg and the third section from said outer foot section and adapted to fold said leg when the said leg carrying section is folded with respect to said third section and a plunger slidably supported upon said leg carrying section and operatively connected to said leg and movable longitudinally into operative position to engage said latch when the said leg carrying section is folded with respect to said third section.

10. A plurality of foldably related bed sections, in combination with a plunger, a pivot on which said plunger is carried, one of said sections having a longitudinal guide portion adapted to receive and support said pivot for reciprocatory movement, means operatively connected for controlling said plunger by relative movement of the sections, and means carried by another of said sections adapted and arranged to be engaged by said plunger when the sections are folded for securing them in folded relation.

11. In a device of the class described, a plurality of foldably related bed sections, in combination with a leg pivoted to one of the sections, and a plunger slidably connected adjacent to one of its ends to said section and pivoted at its opposite end to said leg, said plunger being adapted to engage another member of the bed for holding the sections in folded relation.

12. In a device of the class described, a plurality of foldably related bed sections, in combination with a plunger slidably connected adjacent to one of its ends to one of the sections, the other end of said plunger being operatively connected for control by the folding movement of said section and an adjacent section.

Signed at Chicago this 4th day of March, 1914.

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