March 12, 1957 McLEAN CIMON 2,784,419

SOFA BED

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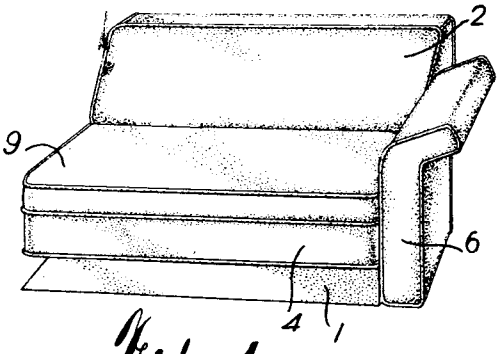


Fig. 1

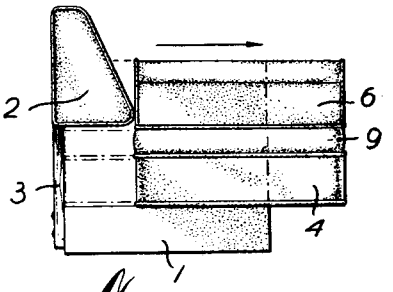


Fig. 2

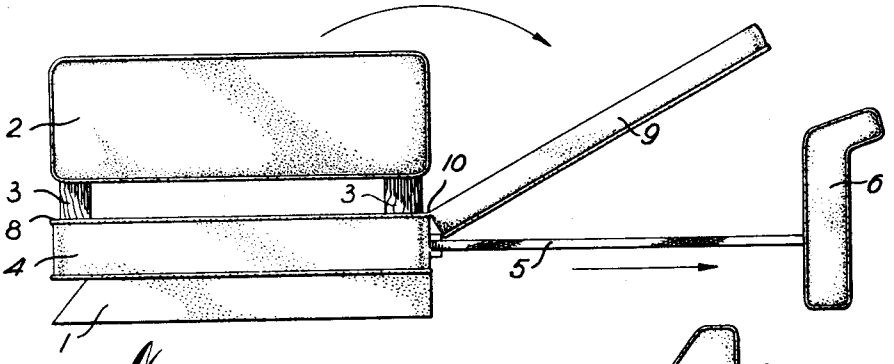


Fig. 3

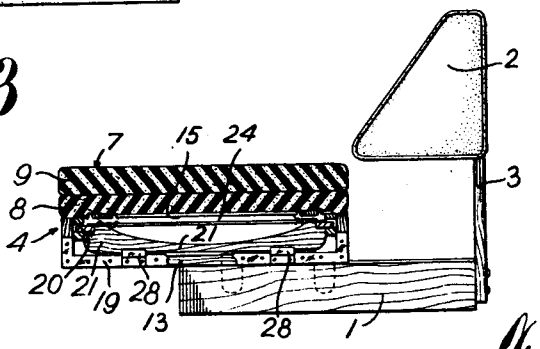


Fig. 4

Fig. 5



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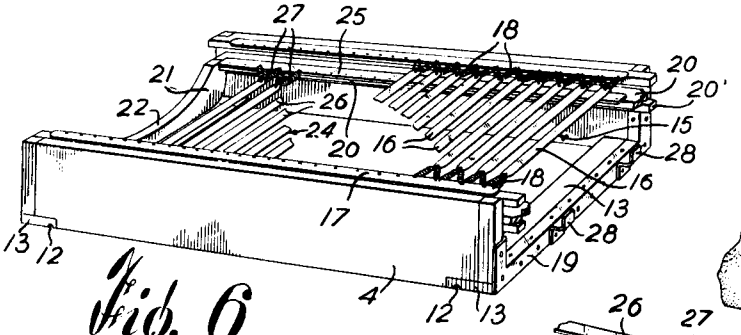


Fig. 6

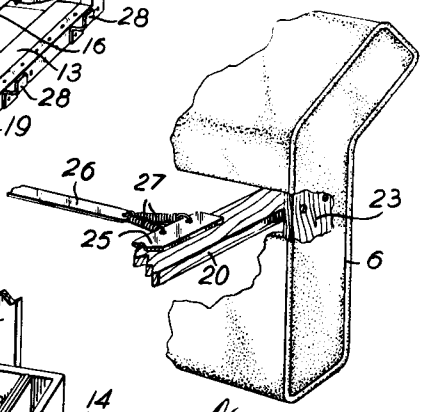


Fig. 9

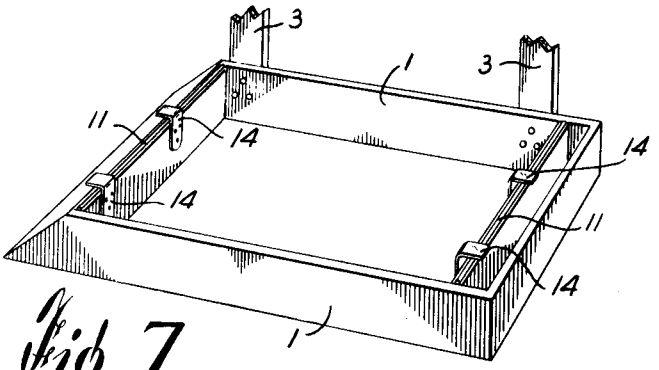


Fig. 7

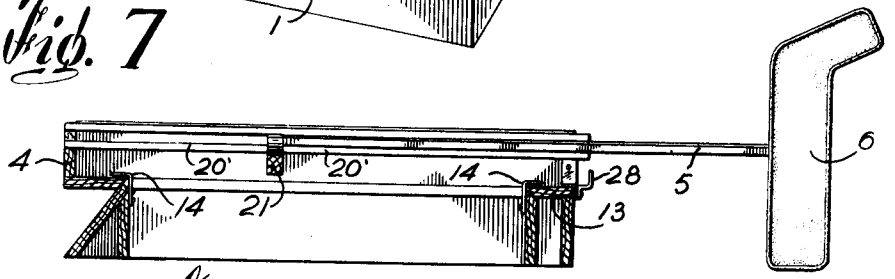


Fig. 8

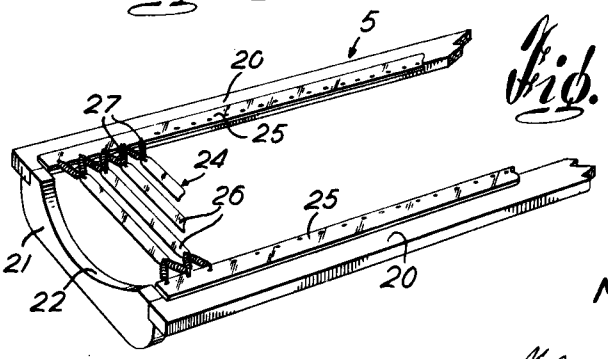


Fig. 10

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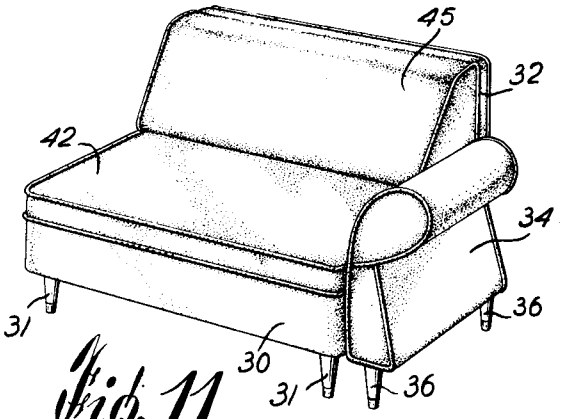


Fig. 11

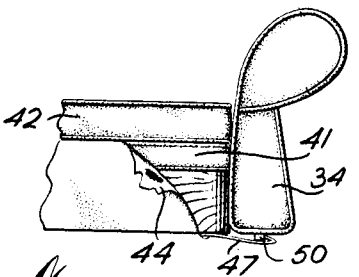


Fig. 13

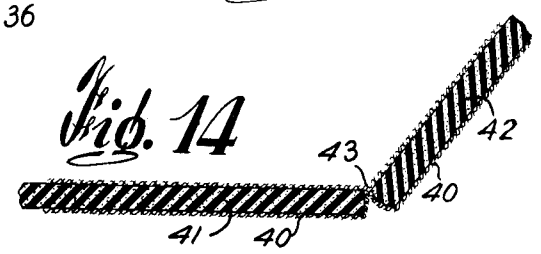


Fig. 14

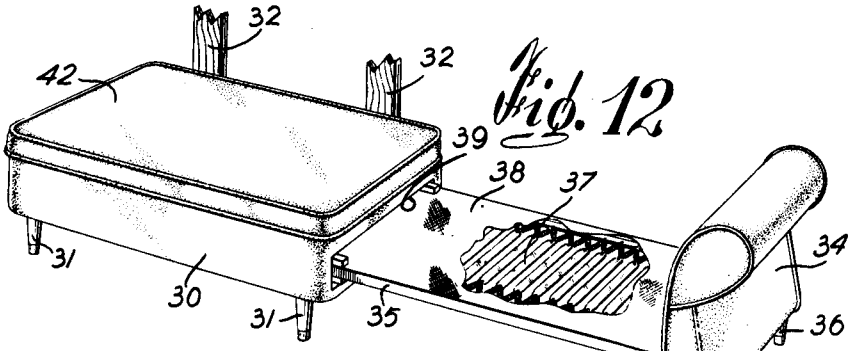


Fig. 12

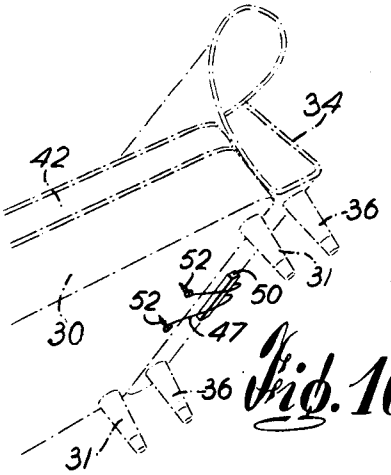


Fig. 16

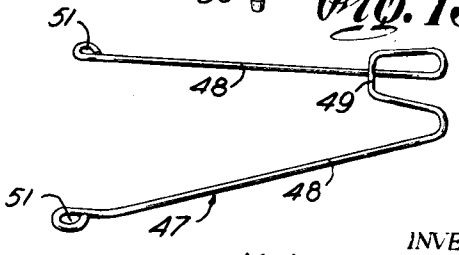


Fig. 15

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United States Patent Office 2,784,419 Patented Mar. 12, 1957

2,784,419

SOFA BED

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Application November 15, 1954, Serial No. 468,893

3 Claims. (Cl. 5—18)

The present invention relates to a sofa bed of the type which may be converted from a seat position to a bed position.

The general object of the present invention resides in a sofa for seating two persons which may be changed into a single bed of standard length by doubling the length of said sofa, whereby the sofa will have such a length in the seat position that it will be useful in small rooms.

An important object of the present invention is the provision of a sofa bed of the character described which is very quickly and easily transformed from the seat to the bed position and vice versa.

Another important object of the present invention is the provision of a sofa bed of the character described in which part of the seat is disposed underneath the back when the sofa bed is in seat position so as to provide a sofa having a conventional width or depth; when pulled out the bed is of conventional single width.

Yet another important object of the present invention is the provision of a sofa bed of the character described which is very comfortable either in the seat or bed position.

The foregoing and other important objects of the present invention will become more apparent during the following disclosure and by referring to the drawings in which:

Figure 1 is a perspective view of the sofa bed in the seat position;

Figure 2 is an end elevation of the sofa bed showing how the seat is pulled forward from underneath the back;

Figure 3 is a front elevation showing how the arm rest is pulled out and the top part of the seat is unfolded to provide a full length bed;

Figure 4 is a cross-section of the sofa bed in the position shown in Figure 2;

Figure 5 is an enlarged end elevation of the interior elements of the sofa bed, the upholstery being removed;

Figure 6 is a perspective view of the seat and extension frame assembly;

Figure 7 is a perspective view of the base frame;

Figure 8 is a longitudinal section of the lower part of the sofa bed shown in partially extended position;

Figure 9 is a fractional perspective view of the arm rest and attached extension frame;

Figure 10 is a partial perspective view of the extension frame;

Figure 11 is a perspective view of another embodiment of the sofa bed according to the present invention;

Figure 12 is a perspective view of the same embodiment, in which the extension frame is in extended position;

Figure 13 is a partial elevation of the sofa bed according to Figure 11;

Figure 14 is a longitudinal section of the seat mattress shown in partly unfolded position;

Figure 15 is a perspective view of the wire clip used to lock the extension frame to the main frame of the sofa bed; and

Figure 16 is a perspective view of the spring clip shown in operative position underneath the sofa bed.

Referring now more particularly to the drawings in which like reference characters indicate like elements throughout, the first embodiment, according to the invention, is shown in Figures 1 to 10 inclusive, and comprises a rectangular base frame **1** supporting an upholstered back **2** by means of uprights **3** which are secured at their lower end to the back of the back frame **1**. The back **2** has preferably a substantially triangular cross-section, as shown in Figure 3, and extends forwardly to overlie part of the base frame **1**.

A seat frame, generally indicated at **4**, is slidably mounted on the base frame **1** so as to be moved transversely to the longitudinal axis of the sofa bed from a retracted position lying partly underneath the back **2** to a forward position completely clearing said back **2**. Said forward position is shown in Figures 2 and 4, while said retracted position is shown in Figures 1 and 5.

An extension frame, generally indicated at **5**, is slidably mounted within the seat frame **4** for movement in the longitudinal direction of the sofa bed, between a retracted position in which it is completely located within the seat frame **4** and an extended position in which it projects from one end of the sofa bed, said extended position being shown in Figure 3.

An arm rest **6** is secured to the outer end of the extension frame **5** and supports the outer end of the latter, when in extended position.

The seat frame **4** supports a two-part mattress **7**, preferably made of rubber foam or the like, and comprising a lower section **8** and an upper section **9** hinged together at one end so that the upper section **9** may be moved from a folded position on top of the lower section to an unfolded position lying on the extended extension frame **5**. The two-part mattress **7** is preferably covered with fabric material which serves as a hinge **10** between the lower and upper sections of said mattress.

As shown in Figure 7, the base frame **1** is provided with two parallel guide rails **11** extending transversely of the longitudinal axis of the sofa bed, and projecting slightly above the upper edge of the base frame **1** to slidably engage registering grooves **12** made in the underface of the bottom boards **13** which are secured underneath the seat frame **4** at both ends thereof. Thus the seat frame **4** is guided by means of the rails **11** and grooves **12** in its forward and backward movement relative to the base frame **1**. L-shaped brackets **14** are secured to the sides of the guide rails **11** and their upper horizontal legs are adapted to engage the upper face of the boards **13** in order to prevent removal of the seat frame **4** from the base frame **1** while allowing slidable relative movement between said frames. The L-shaped brackets **14** also serve as stops for limiting the forward movement of the seat frame **4**.

A spring assembly **15** is supported at the upper edge of the seat frame **4** and consists in a plurality of spaced parallel steel strips **16** attached at their ends to longitudinally extending metal bars **17** by means of coil springs **18**. The metal bars **17** are secured to the upper edge of the seat frame **4** and the steel strips **16** extend in a direction transverse to the longitudinal axis of the sofa bed. In order to maintain the upper edges of the seat frame **4** at a predetermined distance apart, the front and back walls of said seat frame are interconnected by U-shaped reinforcing metal members **19** secured to the ends of said front and back walls and to the boards **13**.

The extension frame **5** is slidably mounted within the seat frame **4** and consists of two longitudinal bars **20** interconnected at one end by means of a transverse spacer

member **21** having a concave top edge **22** to allow for sagging of the mattress and spring assembly under the weight of the person lying on the sofa bed when the latter is in bed position. The other ends of the longitudinal bars **20** are secured to the frame parts **23** of the arm rest **6** as shown in Figure 9.

The extension frame 5 is provided with a spring assembly **24** constructed in a manner similar to the spring assembly **15**, that is: it consists of metal bars **25** secured to the inner edge of the bars **20**, and of a plurality of steel strips **26** connected to said bars **25** by means of coil springs **27**. The steel strips **26** extend transversely of the longitudinal axis of the sofa bed.

The bars **20** are slidably supported and guided at their outer marginal portions by engaging the channel formed by two spaced parallel bars **20'** which are secured to the inside face of the front and back walls of the seat frame **4**, and project from one end of said seat frame as shown in Figures 6 and 8. Thus the extension frame **5** may be slid longitudinally of the sofa bed from a retracted position entirely within the seat frame **4**, to an extended position in which the spacer member **21** abuts brackets **28** which are secured to the U-shaped reinforcing member **19** of the seat frame **4**.

It will be noted that the spring assembly **24** of the extension frame **5** is at a lower level than the spring assembly **15** of the seat frame **4**; accordingly, the thickness of the upper mattress section **9**, is substantially equal to the distance between the top of the extension frame **5** and the top face of the lower mattress section **8** so that when the upper mattress section **9** is in unfolded position, the bed mattress will be substantially at the same level throughout its length.

To convert the sofa bed from the seat position to the bed position, the seat frame **4** is pulled forward relative to the base frame **1** so as to clear the back **2**, then the extension frame **5** is pulled longitudinally of the sofa bed, and finally the upper mattress section **9** is unfolded over the extension frame **5**.

Due to the fact that the seat frame **4** lies partly underneath the back **2** when in seat position, the seating area of the sofa bed is no wider than the seat of an ordinary sofa, while the bed resulting from the sofa bed has the conventional width of a single bed.

Another embodiment according to the present invention is illustrated in Figures 11 to 16 inclusive. In this embodiment, a main frame **30** is provided with supporting legs **31** and supports in turn a back frame **32**. An arm rest **34** is secured to the outer end of an extension frame **35** and is provided with support legs **36**. The extension frame **35** comprises a bed spring **37** covered by fabric material **38** and is insertable within an opening **39** made in one end of the main frame **30**. The extension frame **35** is slidable within the main frame **30** between a retracted position in which the arm rest **34** abuts against the opposite end of the main frame **30**, as shown in Figure 11, and an extended position shown in Figure 12. The main frame **30** is provided with a two-part mattress made of foam rubber and covered with a fabric material **40**. Said mattress is composed of a lower section **41** and an upper section **42** hinged tgoether at one end **43** by means of the fabric material **40**. The lower section **41** is secured to the main frame **30** by the fabric material **40**, as shown at **44** in Figure 13.

In this embodiment the back cushion **45** is removable as it rests on the upper mattress section **42** and the back frame **32**. The thickness of the upper mattress section **42** is such that the top surface of the two sections will be at the same level when unfolded.

To convert the sofa bed into a bed, according to the second embodiment of the present invention, the back cushion **45** is removed, the arm rest **34** is pulled to extend the frame **35** and the upper section **42** of the mattress is unfolded over the extension frame **35**.

In order to prevent accidental extension movement of the frame **35**, a wire clip **47** is provided to lock the arm rest **34** against the adjacent end of the main frame **30**. The wire clip **47** consists in a resilient rod member folded into a U, the cross leg of which is folded back over the straight legs **48** of the U to form a hook **49** engageable with the bar **50** secured underneath the arm rest **34**. The free ends of the legs **48** of the spring or wire clip **48** forms eyes **51** which are secured to the underside of the main frame **30** by means of screws **52**. Thus the hook **49** of the wire clip **47** engages the outer face of the bar **50**, thereby locking the extension frame **35** in retracted position. To unlock said extension frame **35**, the wire clip **47** is pressed down so as to disengage the bar **50** and thereafter the extension frame **35** may be pulled to extended position. As shown in the drawings, the sofa bed, according to the present invention, has only one arm rest which is secured to the extension frame **5** in the embodiment shown in Figures 1 to 10 inclusive, or to the extension frame **35** in the embodiment shown in Figures 11 to 16 inclusive. The upper mattress section **9** and **42** of the first and second embodiment respectively has substantially the same length as the lower mattress section **8** and **41** of the first and second embodiment respectively. Thus, when the upper mattress section is folded on top of the lower mattress section the outer edges of said mattress sections are flush at the side of the sofa which is not provided with any arm rest and, as illustrated, this arrangement gives a neat and attractive appearance to the sofa bed. When the upper mattress section is unfolded over the extension frame, the latter must have a length sufficient to receive said upper mattress section. When the extension frame is in retracted position it must not project from the opposite side of the seat frame. That is why, as shown in the first embodiment, the L-shaped brackets **28** serving as an abutment for the spacer member **21** when the extension frame **5** is in extended position, project from the side of the seat frame **4** and enters within the arm rest **6** when the latter is retracted to a position abutting the said seat frame **4**. Thus, when the extension frame is in extended position the spacer member **21** is in a position outside of the lateral face of the seat frame **4** so as to provide sufficient length for the extension frame **5** to receive the upper mattress section.

The same identical arrangement is provided for the extension frame **35** of the second embodiment. For the same reason the guide shelves **20'** project from the side face of the seat frame **4** so as to guide the movement of the frame **5** past the actual lateral face of the frame **4**. This is clearly shown in Figures 6, 8 for the first embodiment and in Figure 12 for the second embodiment.

While preferred embodiments according to the present invention have been illustrated and described it is understood that various modifications may be resorted to without departing from the spirit and scope of the appended claims.

I claim:

1. A sofa bed comprising a main rectangular frame of a width and length sufficient to serve as a sofa, means to support said main frame above the floor, an extension frame slidably nested within said main frame and adapted to be withdrawn endwise from one end thereof to form a longitudinal extension of the main frame having a width corresponding approximately to the width of the said main frame and having a length substantially equal to the length of said main frame, a single arm rest for said sofa bed secured to the outer end of said extension frame and adapted to support said outer end of said extension frame on the floor when said extension frame is in an extended position, means to limit the endwise movement of said extension frame to a distance substantially equal to the length of said main frame, said means comprising brackets secured to said one end of said main frame and projecting from said one end, and a cross member at the opposite inner end of said extension frame adapted to abut

said brackets, said cross member being disposed outwardly of said main frame when abutting said brackets in the extended position of said extension frame, guide members longitudinally extending within said main frame and engaged by said extension frame for guiding the latter in its endwise movement, said guide members projecting from said one end of said main frame, said brackets and projecting ends of said guide members extending into said arm rest when the latter abuts against said one end of said main frame in the nested position of said extension frame, a resilient mattress supporting means mounted on said main frame and a second resilient mattress supporting means mounted on said extension frame, and a mattress supported by said mattress supporting means of said main frame and made of two sections of equal length hinged together at said one end of said main frame, said mattress sections lying one on top of the other on said main frame when in folded position, the upper one of said sections being supported on the extended extension frame when it is in unfolded position, so constructed and arranged that the distance between said arm rest and the lower one of said mattress sections is sufficient to receive the upper one of said mattress sections in the extended position of said extension frame, whereas said extension frame lies wholly within said main frame in the nested position of said extension frame so as not to project

outwardly from the opposite end of said main frame which is without any arm rest.

2. A sofa bed as claimed in claim 1, wherein said means to support said main frame consist of a base frame of rectangular shape, said main frame constituting a seat frame which is slidably mounted on said base frame for movement transversely to the longitudinal axis of said base frame between a retracted position on top of the base frame and an extended position projecting from one long side of said base frame.

3. A sofa bed as claimed in claim 2, further including a back rest secured to said base frame and overlying said upper mattress section when said seat frame is in retracted position, said upper mattress section, when being unfolded, clearing said back rest when said seat frame is in extended forward position.

References Cited in the file of this patent

UNITED STATES PATENTS

2,211,450	Wesley	Aug. 13, 1940
2,548,570	Udd	Apr. 10, 1951
2,642,584	Petersen et al.	June 23, 1953

FOREIGN PATENTS

151,271	Austria	Nov. 10, 1937