

Aug. 11, 1953

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2,648,071

SOFA BED

Filed July 2, 1949

2 Sheets-Sheet 1

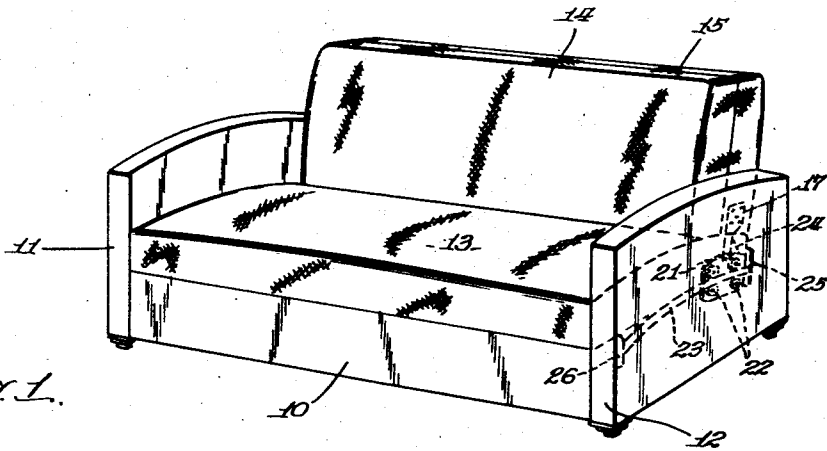


Fig. 1.

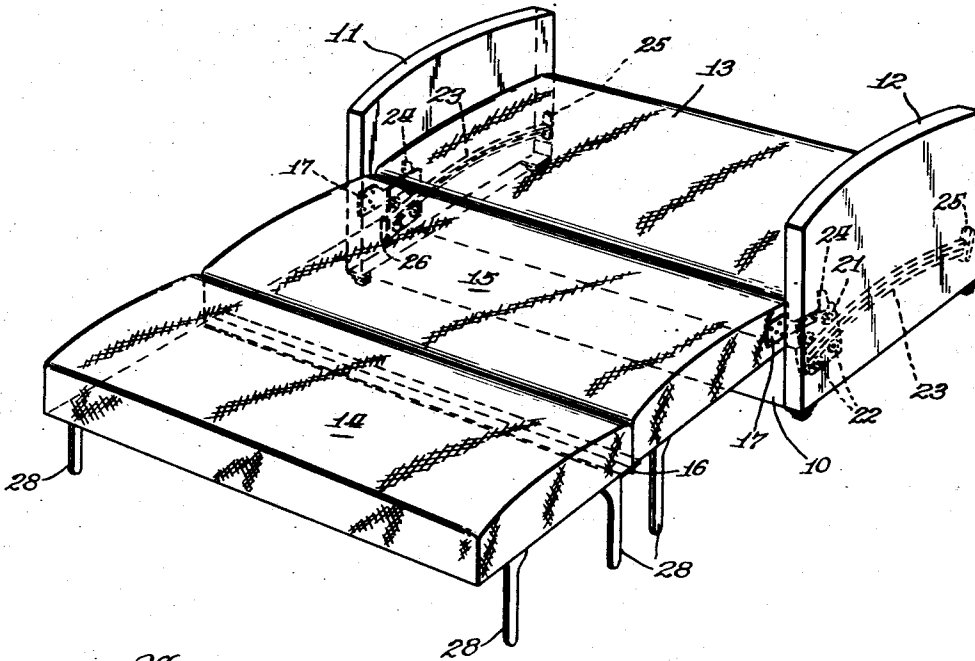


Fig. 2.

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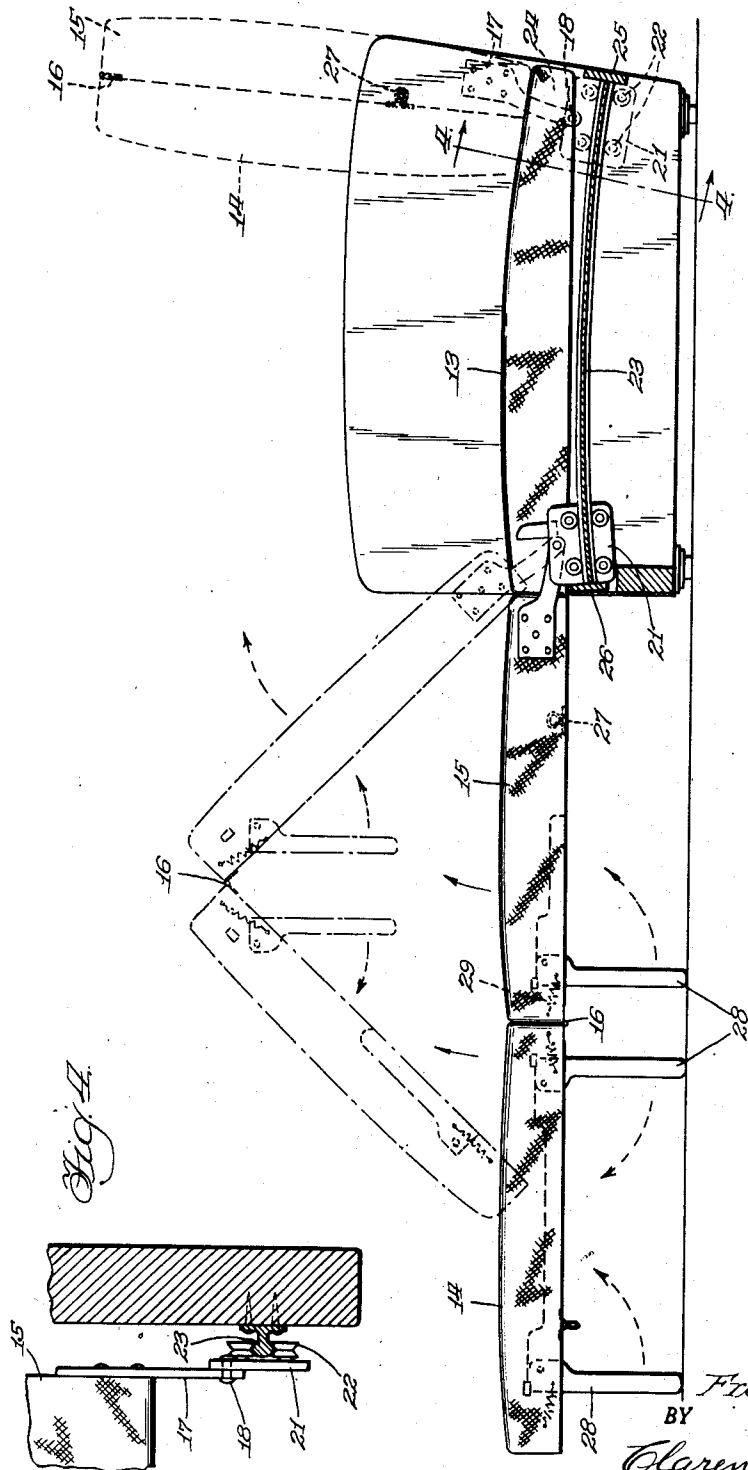


Fig. 3.

Fig. 4.

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2,648,071

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Application July 2, 1949, Serial No. 102,837

4 Claims. (Cl. 5—47)

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The present invention relates to a sofa bed adapted for use either as a full size bed or as a sofa. It is the general aim of this invention to provide a soft of generally conventional appearance, yet having its parts so arranged and correlated with each other that it may be converted into a bed quickly and easily, yet at the same time of relatively simple mechanical construction so that it is not expensive to make or complex to operate.

In the pursuance of this general aim it is a specific object of the invention to provide a sofa bed wherein the same cushions utilized as the mattress of the bed are employed as the seat and back when the device is used as a sofa. This is a departure from the teachings of many conventional folding beds or sofa bed developments in which the back or cushions of the sofa are discarded and a separate mattress employed, and it is one of the objects of this invention to avoid duplication of the cushion structures and the consequent cost thereof by employing the same upholstery, cushions and springs for both of the dual uses of the device, yet to do so without sacrifice of comfort or convenience of operation.

A further specific object is the provision of a folding sofa bed characterized by a neat, trim and attractive appearance, either when opened or closed, and having all of the several parts of the structure permanently connected together so that they cannot come apart and become separated, as often occurs with previously designed expedients.

A still further object of the invention is the provision of a sofa bed wherein the several cushions forming the bed can be quickly, easily and conveniently moved from extended position in horizontal relationship to each other to an upright position to serve as a sofa, yet wherein the cushions are united in a manner whereby the upright cushions cannot be accidentally released during use.

The foregoing objects are accomplished according to the present teachings for the provision of a sofa frame having a seat cushion permanently mounted thereon, together with a back frame comprising two oppositely disposed cushions hinged together at their upper edges and mounted on a shiftable carriage on the sofa frame, so that they normally stand in upright position along the back of the sofa seat, but can be shifted forwardly across the seat and then opened outwardly into side-by-side horizontal positions directly in front of the seat of the sofa.

The preferred form of the invention is illus-

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trated in the drawings of this specification wherein:

Figure 1 is a perspective view of a sofa bed according to these teachings in upright position;

Figure 2 is a perspective view of the device of Figure 1 with the parts shown in extended position to serve as full size bed;

Figure 3 is a sectional view taken between the end panel and cushions of the bed shown in Figure 2; and

Figure 4 is a detail sectional view taken substantially on a plane of the line 4—4 of Figure 3 with the structure in the position shown in dotted lines.

The device comprises, in general, a main frame shown as consisting of a longitudinal rail 10 and a pair of end panels 11 and 12 provided with a sofa seat 13. The end panels may be of conventional construction or may even be omitted if desired. The seat is permanently mounted on the main frame and preferably provided with internal springs and padding so that it is resilient and comfortable.

The back frame consists of two separate cushions 14 and 15. These are hinged together at their upper edge by the hinges 16 and the cushion 15 is provided with a pair of pivot brackets 17 at its lower corners so that both cushions 14 and 15 may be supported on the pivot studs 18 mounted on a pair of shiftable carriages 21. These carriages each comprise a flat plate on which a plurality of grooved wheels 22 are mounted to engage a carriage rail 23. The carriage rails are secured to the main frame in any convenient manner, as by the screws 20 extending into the end panels. The rails 23 extend from the back of the seat to the front thereof (Figure 3) and are preferably arched or curved with their center portion higher than their ends so that they follow the general curvature of the convex upper surface of the sofa cushion 13. Each of the rails has a carriage limiting stop or abutment 25 at the rearward end, and a similar abutment 26 at its forward end to limit the travel of the carriage.

Each of the carriages 21 also has a limiting stop 24 against which the brackets 17 come to bear when the cushions 14 and 15 are in their upright position. These stops prevent the cushions 14 and 15 from tilting rearwardly beyond the position shown.

Examination of the dotted line showing of Figure 3 will show that when the carriages are at the back of the sofa seat they are at rest at the lowermost point in the rail, so that they will

maintain themselves in position by gravity. The tilting brackets 17 and stops 24 are also so related that they allow the back cushions 14 and 15 to tilt backwardly at any desired angle. A spring detent 27 may be provided between the cushions 14 and 15, although this is ordinarily entirely unnecessary since the forces of gravity will hold the cushions in the position shown.

The cushions 14 and 15 may be shifted into horizontal position by drawing them forwardly, causing the carriages 21 to roll forward along the rails 23 and stop against the abutment 26, as shown in the full line position of Figure 3. The cushion 15 swings downwardly and the lower end of the cushion 14 is drawn outwardly to bring these both into horizontal position on the same level as the cushion 13. Cushions 14 and 15 are each provided with pivoted legs 28 which, as shown, are urged outwardly to extended position by springs 29. Thus as the cushions are separated and move through the broken line position illustrated in Figure 3, the legs spring downwardly in position to come to rest on the floor.

The operation of moving the parts from extended position to upright position is accomplished with equal ease, merely by lifting the cushions 14 and 15 at a point near the hinge 16, placing them in back-to-back relation with each other, and sliding the entire carriage rearwardly across the sofa seat. The closing movement of the hinged cushions 14 and 15 overcome the springs 29 on the legs 28, so that these are folded into retracted position as the parts are returned to upright relationship.

From the foregoing it will be seen that the novel combination of cushion structures here employed makes possible the provision of a convertible sofa bed in a much more simple, straightforward and conveniently used manner than accomplished by prior teachings. The same cushions are used in all cases whether the device is in upright position for use as a sofa or whether in extended position to serve as a full size bed. Only three cushions are employed for the purpose, and these are at all times permanently connected to each other, so that no difficulty is encountered in fitting them together or taking them apart. The employment of each of the cushions in a dual function makes it unnecessary to provide separate mattress structures or separate sofa cushions, and thus reduces the cost of manufacture accordingly.

The form of the invention illustrated and described herein is the present preferred embodiment of this teaching, and is chosen as being particularly well suited to a description of the principles involved, but it is to be understood that the specific form shown is capable of some modification and variation and that the scope of the inventive concept is not limited to the precise structure shown, but extends to any modification or variation thereof within the appended claims.

Having thus described the invention what I claim as new and desire to protect by United States Letters Patent is:

1. A sofa of the character having a seat and back rest portion, comprising in combination, end frame members extending substantially across each end of the seat, a curved track in each end member, a carriage having rollers engaging opposite faces of said track to prevent binding of the carriage on the track, a back member consisting of forward and rearward complementary sections hingedly connected at their upper ends when in the vertical normal position, the lower

end of the rearward portion only being pivotally mounted on said carriage, legs pivotally mounted near the opposite longitudinal edges of the forward back portion and the forward longitudinal edge of the rear portion of the back member when said members are extended in a horizontal position, and means for moving said legs outwardly to an extended position during the conversion of said sofa into a sofa bed.

2. A sofa of the character having a seat and back rest portion, comprising in combination, end frame members extending substantially across each end of the seat, a curved track in each end member, a carriage having rollers engaging opposite faces of said track to prevent binding of the carriage on the track, a back member consisting of forward and rearward complementary sections hingedly connected at their upper ends when in the vertical normal position, the lower end of the rearward portion only being pivotally mounted on said carriage, legs pivotally mounted near the opposite longitudinal edges of the forward back portion and the forward longitudinal edge of the rear portion of the back member when said members are extended in a horizontal position, means for moving said legs outwardly to an extended position during the conversion of said sofa into a sofa bed, and spring pressure means for retaining the front portion of the back member against the rear portion of the back member when in normal vertical position.

3. In a sofa of a character having a seat and back member adapted to be readily converted into a sofa bed by the mere application of slight pressure to the back member, in combination, a frame, a back member consisting of a rearward section and a complementary forward section hingedly connected to the rearward section at their upper ends and standing in opposed back to back relationship to said rearward section when in normal vertical position, a pair of supporting brackets mounted on the rearward section on the opposite sides and at the lower ends of said rearward section, with each of said brackets including pivotal means; a pair of shiftable carriers secured to and supporting said brackets by said pivotal means and guide means, secured to and supporting said carriers, with means for securing said guide means to the frame whereby the forward and rearward sections of the back member are shiftable supported on said frame by the carriers and guide means; said carriers having a normal position wherein said brackets are positioned adjacent the rear corners of the seat at the opposite sides thereof, the brackets and carriers being shiftable through curvilinear paths of motion upwardly, forwardly and downwardly to positions adjacent the forward edge of the seat at the opposite sides thereof, a pair of legs pivotally mounted on the under side of the forward section of the back member near the forward longitudinal edge thereof, with means for automatically moving said legs outwardly to downwardly extending positions during the conversion of said sofa into a sofa bed, and recesses in the sections of the back member receiving and concealing said legs between the sections of the back member when in normal vertical position.

4. In a sofa of a character having a seat and back member adapted to be readily converted into a sofa bed by the mere application of slight pressure to the back member, in combination, a frame, a back member consisting of a rearward section and a complementary forward section hingedly

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connected to the rearward section at their upper ends and standing in opposed back to back relationship to said rearward section when in normal vertical position, a pair of supporting brackets mounted on the rearward section on the opposite sides and at the lower ends of said rearward section, with each of said brackets including pivotal means, a pair of shiftable carriers secured to and supporting said brackets by said pivotal means and guide means secured to and supporting said carriers, with means for securing said guide means to the frame whereby the forward and rearward sections of the back member are shiftable supported on said frame by the carriers and guide means, said carriers having a normal position wherein said brackets are positioned adjacent the rear corners of the seat at the opposite sides

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thereof, the brackets and carriers being shiftable to positions adjacent the forward edge of the seat at the opposite sides thereof, a pair of legs pivotally mounted on the under side of the forward section of the back member near the forward longitudinal edge thereof, with means concealing said legs between the sections of the back member when in normal vertical position.

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