United States Patent [19]

Barabas

[11] **3,906,557**

[45] **Sept. 23, 1975**

[54] **DROP IN SOFA BED**

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[22] Filed: **June 20, 1974**

[21] Appl. No.: **481,441**

[52] **U.S. Cl.** **5/13;** 5/29

[51] **Int. Cl.²** **A47C 17/14**

[58] **Field of Search** ..... 5/13, 28–31, 5/51 J

[56] **References Cited**

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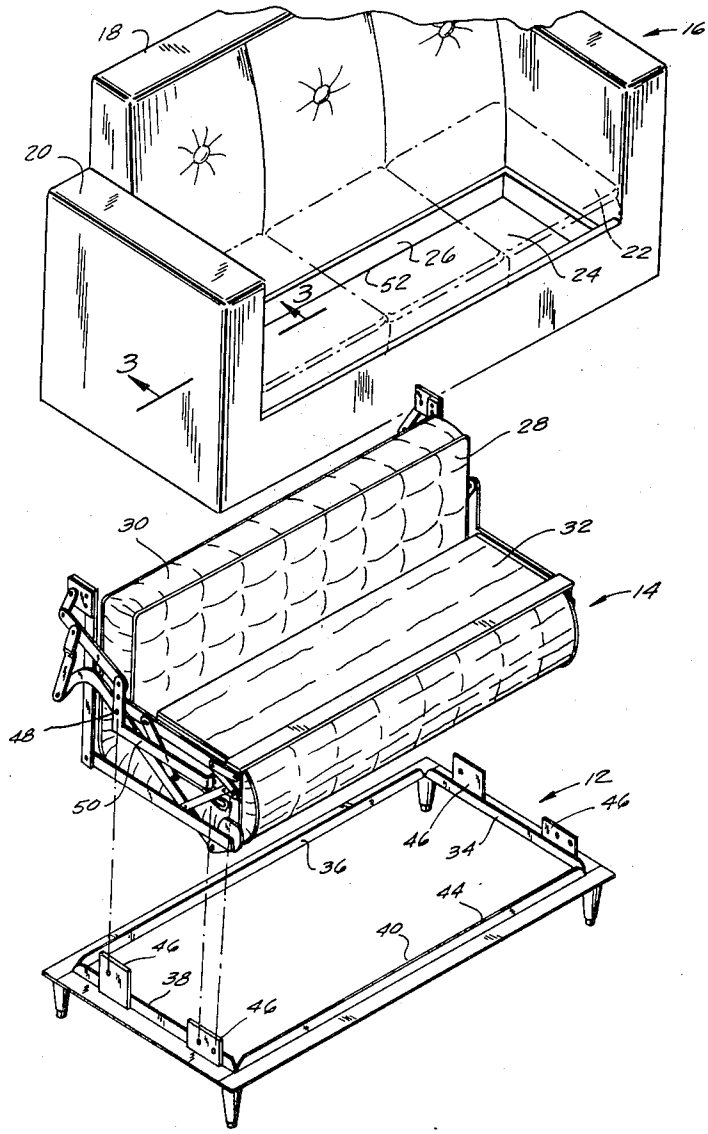
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[57] **ABSTRACT**

The convertible sofa bed disclosed herein includes an independent peripheral base frame on which a folding sofa bed mechanism is removably mounted. An upholstered sofa frame is also removably mounted on the peripheral base frame; but it is independent of the sofa bed mechanism, so that the sofa frame can be removed from the base frame while the sofa mechanism remains on the base frame, available for operation.

6 Claims, 3 Drawing Figures



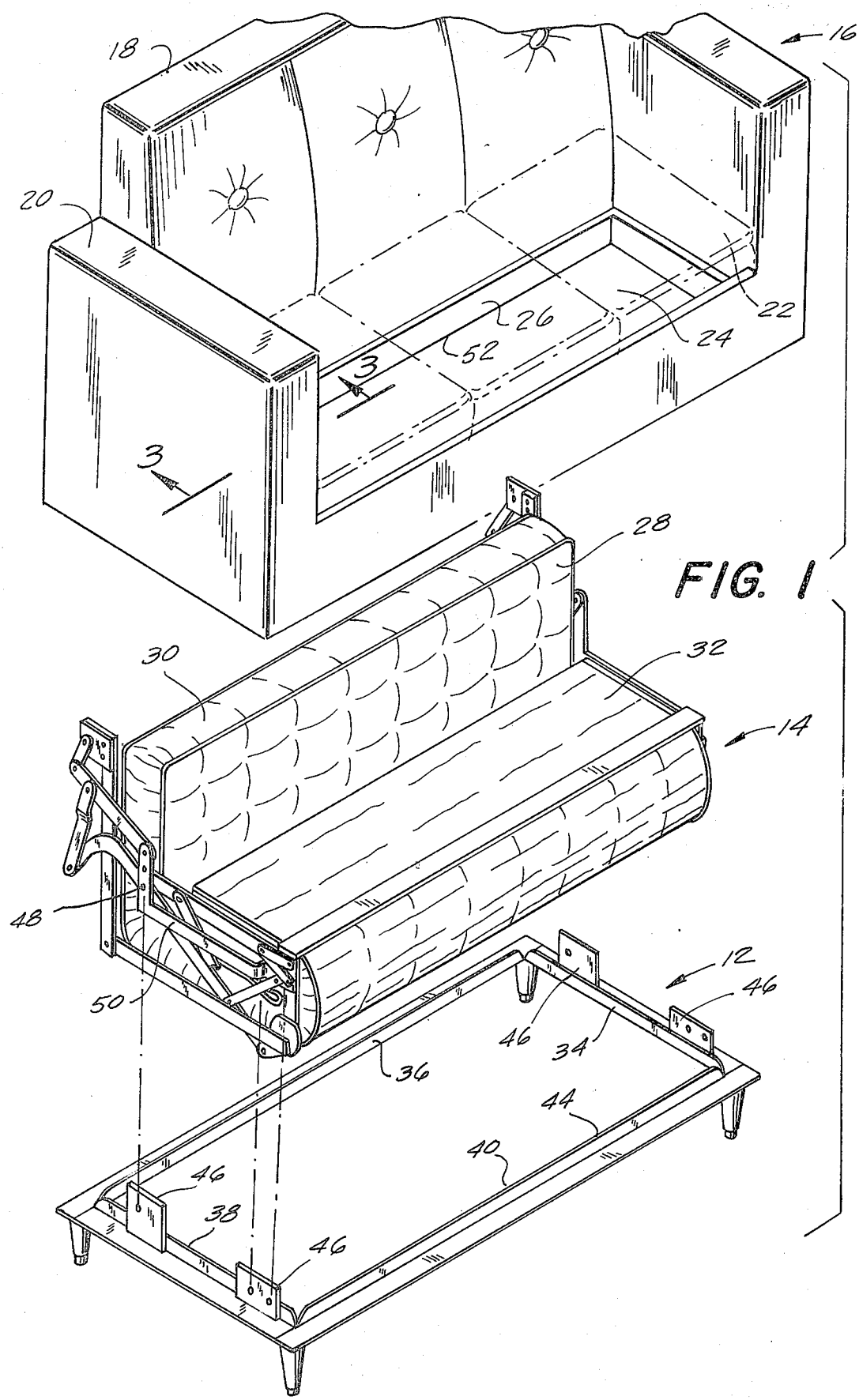


FIG. 1

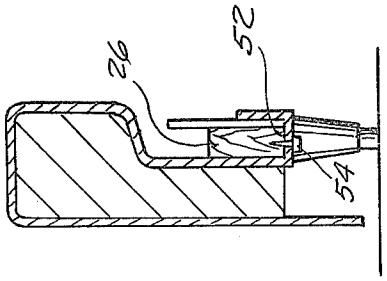


FIG. 3

FIG. 2

DROP IN SOFA BED

The present invention relates to a convertible sofa bed and, more particularly, to a convertible sofa bed wherein the sofa frame is independent of the sofa bed mechanism.

The use of convertible sofa beds has become highly popular in the United States, particularly in urban areas where housing and apartment accommodations provide limited space so that sofas and chairs must serve dual purposes for living and sleeping. There are of course numerous types of convertible sofa and chair structures presently available in the commercial market. Typically the convertible sofa beds which have been previously proposed have a sofa bed mechanism consisting of a foldable metal frame which is adapted to be folded and unfolded between collapsed and extended positions. In the collapsed position, of course, the foldable metal frame is contained within the confines of the sofa and is covered by the sofa's seat cushions. Typically the metal folding frame or mechanism for the sofa is rigidly secured directly to the sofa's frame. That is, the wooden frame which forms the exterior of the sofa, and which is upholstered by the manufacturer, generally is secured directly to the metal folding frame in order to form a one piece unit.

Although such previous proposed convertible sofas have been generally satisfactory in use, they create several problems, particularly for the manufacturer. More specifically, since the metal sofa mechanism is secured directly to the sofa frame, the entire convertible sofa bed is relatively heavy and bulky. This of course creates problems in shipment and increases the expenses involved. Moreover, when the owner of the sofa bed has to have the sofa reupholstered, it is necessary to send the entire sofa and sofa bed mechanism to the manufacture for the reupholstering operation since the sofa mechanism is secured directly to the sofa frame. As a result, the owner of the sofa does not have the sofa bed mechanism available for sleeping, since it must go to the manufacturer with the sofa for the reupholstering operation.

Accordingly, it is an object of the present invention to solve the foregoing problems and provide a comfortable, easy to use sofa bed mechanism.

Another object of the present invention is to provide a convertible sofa bed in which the sofa frame is readily separated from the bed mechanism.

Yet another object of the present invention is to provide a convertible sofa which is relatively easy to ship and manufacture, and simple to assemble.

A still further object of the present invention is to provide a convertible sofa wherein the components thereof can be separately shipped by the manufacturer and assembled conveniently at the home of the purchaser.

In accordance with an aspect of the present invention, the convertible sofa bed herein includes an independent peripheral base frame having means for supporting the base on the floor. A conventional folding sofa bed mechanism is removably mounted in the peripheral base frame and an upholstered frame, adapted to receive the sofa mechanism therein, is also removably mounted on the peripheral base frame, but is independent of any attachment to the sofa bed mechanism.

The peripheral base frame has a generally horizontally extending peripheral support surface along its outer edge and the sofa frame includes an interior support frame which is generally complementary to the base frame and which has a bottom edge that is adapted to be seated in superimposed relation on the support surface of the base frame so that the sofa frame is supported on the base frame. As a result, the sofa frame is removable from the base frame independently of the sofa mechanism so that the sofa frame can be separately shipped from the sofa mechanism. Accordingly, the shipping cost for the manufacturer and the problems involved in such shipping are reduced and, moreover, the homeowner can remove the sofa frame and have it reupholstered or cleaned, as desired, from time to time, without having to ship the sofa mechanism back to the manufacturer with the sofa frame. Thus, the sofa mechanism remains in the home available for use as a bed, when necessary.

The above, and other objects, features and advantages of this invention, will be apparent in the following detailed description of an illustrative embodiment thereof, which is to be read in connection with the accompanying drawings, wherein:

FIG. **1** is an exploded prospective view of the components of the convertible sofa bed of the present invention;

FIG. **2** is a prospective view, with parts broken away, of the sofa bed in FIG. **1** shown in its extended position; and

FIG. **3** is a sectional view taken along line **3-3** of FIG. **1.**

Referring now to the drawing in detail, and initially to FIG. **1** thereof, it will be seen that the convertible sofa bed **10** of the present invention includes a base frame **12,** folding sofa bed mechanism **14,** and an upholstered sofa frame **16.** The latter includes a hollow upholstered back **18,** arms **20,** and removable seat cushions **22** (shown in dotted lines for clarity). The sofa frame **16** defines a central generally rectangular opening **24** in which the sofa bed mechanism **14** is received below the proper level of seat cushions **22.** Opening **24** is bounded along the lower portion of frame **16** by a rectangular support frame **26** which may be formed of wood, metal, or the like, and which surrounds the folding sofa bed mechanism **14,** when the mechanism is folded as seen in FIG. **1.** Frame **26** is used to support sofa frame **16** on base **12** independently of mechanism **14,** as described hereinafter.

The folding sofa bed mechanism **14** is of conventional construction and is essentially of the type sold by Castro Convertible Corporation for many years, although other folding sofa bed mechanisms can also be used in this invention. The illustrated mechanism is described in detail in U.S. Pat. No. **3,654,642** and No. **3,284,812,** and therefore need not be described here in detail. However, basically, the folding mechanism supports a cushioned mattress **28** in the folded configuration shown in FIG. **1,** when the mechanism is folded. As seen therein the mattress will assume a generally L-shaped configuration when folded with the vertical portion **30** of the mattress being received in the hollow back **18** of the sofa frame **16,** and the folded horizontal portion **32** thereof being located beneath the cushions **22** within the aperture **22** of frame **16.** The horizontal portion **32** of the mattress forms the seat surface for cushions **22** when the sofa is in its collapsed position. The arrangement of the folded sofa mechanism in the

sofa frame is shown in greater detail in the above mentioned U.S. Pat. No. **3,654,642.**

Base frame **12** consists of a peripheral frame formed of generally L-shaped metal frame members **34–40.** Each of the frame members has a horizontal outwardly extending flange portion **42** and a vertical flange portion **44** which cooperate with support frame **26** of sofa **16** to properly locate and support the sofa on frame **12** independently of the folding mechanism **14.** The latter is supported on frame **12** by pairs of plates **46** secured to the vertical flanges **44** of the side frame members **34,38.** A plurality of bolts or screws **48** of the like secure one of the frame members of the sofa mechanism **14** to plates **46.** In the illustrative embodiment, the L-shaped bar **50** of the sofa mechanism is secured at its ends to the plates **46** on frame **12** for support of the sofa mechanism thereon. In previously proposed constructions, for example those now commercially available, support bar **50** is secured directly to the wooden sofa frame **16** so as to be intergral therewith. This for example, is shown in my above noted U.S. Pat. No. **3,654,642.** It will be appreciated that by the construction by the present invention, sofa frame **16** is totally independent of the sofa mechanism.

More specifically, it will be appreciated from a consideration of FIG. **1** that, with sofa mechanism **14** secured on frame **12,** through the plates **46,** sofa frame **16** can be placed over the folded sofa mechanism **14,** with the bottom edge **52** (see FIG. **3**) of the sofa support frame **26** engaged against the upwardly facing horizontal surfaces of the flanges **42** in support frame **12.** Accordingly, the sofa mechanism **14** will be received within the sofa frame in the conventional manner, so as to be hidden by the sofa frame, but the sofa frame is independent of the folding bed mechanism.

Preferably the internal dimensions of sofa support frame **26** are substantially equal to the external dimensions of the rectangle formed by the vertically extending flanges **44** of frame **12.** As a result, these vertically extending flanges cooperate with the interior surfaces of support frame **26** in a male - female relationship, such that the sofa frame **16** is properly located on base frame **12** during the assembly procedure. Moreover, the flanges **44** serve to prevent shifting of the sofa frame in any horizontal direction once the bottom edge **52** of support frame **26** is properly seated on the horizontal flanges **42** of the base frame **12.**

It is contemplated that support frame **26** can be removably secured to the frame **12** as desired, by screws or bolts **54,** or the like, extending through apertures (not shown) in flanges **42** into the interior wood support frame **26.** Once the convertible sofa bed is assembled in this manner, the sofa mechanism can be operated in the conventional manner, so as to extend mattress **28** through opening **24** in sofa frame **16** in order to form a flat horizontal sleeping surface.

The assembled configuration of the convertible sofa **10** is shown in greater detail in FIG. **2** wherein it is seen that support frame **26** of the sofa is seated on the outwardly extending flanges **42** of the frame **12.** It is noted that in FIG. **2** only the front portion **26A** of frame **26** is seen, with the remainder thereof broken away to permit the illustration of the connection between bracket **50** and the plates **46** of frame **12.** However, as it will be appreciated, folding bed mechanism **14** can be extended in sofa frame **16** of the present invention by opening the folding mechanism in the conventional manner, as for example, as described in my above mentioned patent, in to the configuration illustrated in FIG. **2.** It is noted that the sofa mechanism includes a pair of counter-balanced springs **56,** of conventional construction, interconnecting various portions of the folding mechanism, in order to balance the weight of the mechanism and mattress during the folding and unfolding operations.

Accordingly, it will be appreciated that the convertible sofa bed mechanism of the present invention permits the upholstered sofa frame **16** to be removed from the base frame **12** as desired, without disturbing the mounting support of the folding bed mechansim **14** on base **12.** Thus, when it is desired that the sofa frame be reupholstered or cleaned, the manufacturer can readily disassemble the sofa frame **16** from the base frame **12** (as for example by removing the bolts **54**) and ship the sofa frame back to the plant for the reupholstery operation. This leaves the sofa mechanism **14** undisturbed on base **12** so that the homeowner can continue to use the mechanism to provide a bed or sleeping surface. When the reupholstering operation is completed the reupholstered frame is simply placed back on base frame **12** and secured thereto.

The construction of the present invention is also advantageous for the manufacturer since typically the sofa frames are manufactured at a different location from the metal folding bed mechanism. With previously proposed constructions it is necessary to ship the folding bed mechanism to the plant at which the sofa frame was manufactured, secure the mechanism to the sofa frame, and then ship the entire assembly to a storage area or warehouse for later shipment to customers. By the arrangement of the present invention, substantial transportation and manufacturing steps are avoided since the upholstered sofa frame **16** can be shipped from its manufacturing plant to the warehouse separately from the folding mechanism **14,** while the latter can be secured to base frame **12,** at its point of manufacture and then shipped to the warehouse, independently of the sofa frame. In this manner extra shipping of the upholstered frame is avoided and the total weight shipped will be less, thereby reducing shipping costs for the manufacturer. Once the sofa frame and folding mechanisms are at the warehouse, the manufacturer or dealer can simply assemble the sofa frame and the folding mechanism - support frame combination or, he can do it later, at the customer's home. Of course being able to assemble the sofa frame and folding mechanism at the customer's home is advantageous since it is easier for the dealer to ship the two lighter sections than the heavier completely assembled sofa.

As a result, it is seen that the arrangement of the present invention provides for more convenient use of the convertible bed sofa by the consumer and substantially reduces the inconveniences encountered by customers when reupholstering of the sofa is required. Moreover, it also substantially reduces the costs of manufacture and shipment for the manufacturer of the convertible sofa beds.

Although an illustrative embodiment of the present invention has been described herein with reference to the accompanying drawings, it is to be understood that the invention is not limited to that precise embodiment and that various changes and modifications may be effective therein by one skilled in the art without departing from the scope or the spirit of the invention.

What is claimed is:

1. A convertible sofa bed comprising an independent peripheral base frame being generally rectangular in plan and having a peripheral outwardly extending unobstructed horizontal support surface formed thereon, a folding sofa bed mechanism mounted on said base, and a separate and independent upholstered sofa frame removably mounted on said base frame independently of said sofa bed mechanism, said sofa frame having an interior generally rectangular support frame which is complementary to said base frame and which has a peripheral bottom surface engaged with and supported on said unobstructed horizontal support surface, whereby said sofa frame is removable from said base frame while the sofa mechanism remains on the base frame available for operation; said folding bed mechanism being folded substantially entirely within the confines of said base frame to leave said outwardly extending support surface exposed and unobstructed for engagement with said support frame.

2. The convertible sofa bed as defined in claim 1 including means for removably securing said sofa frame to said base frame.

3. The convertible sofa bed as defined in claim 2 wherein said base frame is formed of generally L-shaped angle frame members having angularly related horizontally and vertically upwardly extending legs, said horizontal legs defining said support surface and said vertical legs being located within the confines of said sofa support frame when the sofa frame is seated on said base, thereby to locate said sofa frame on said base.

4. The convertible sofa as defined in claim 3 wherein said vertical legs are located to closely mate with the interior of said sofa support frame, thereby to prevent shifting of said sofa frame on said base frame.

5. The convertible sofa as defined in claim 2 wherein said base frame includes a plurality of vertically extending mounting plates, and said sofa mechanism is removably secured to said plates.

6. The convertible sofa as defined in claim 2 wherein said sofa frame has a generally rectangular opening therein which is generally complementary to the sofa support frame and through which said sofa mechanism can be opened when the sofa frame is on said base frame.

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