

Feb. 2, 1965

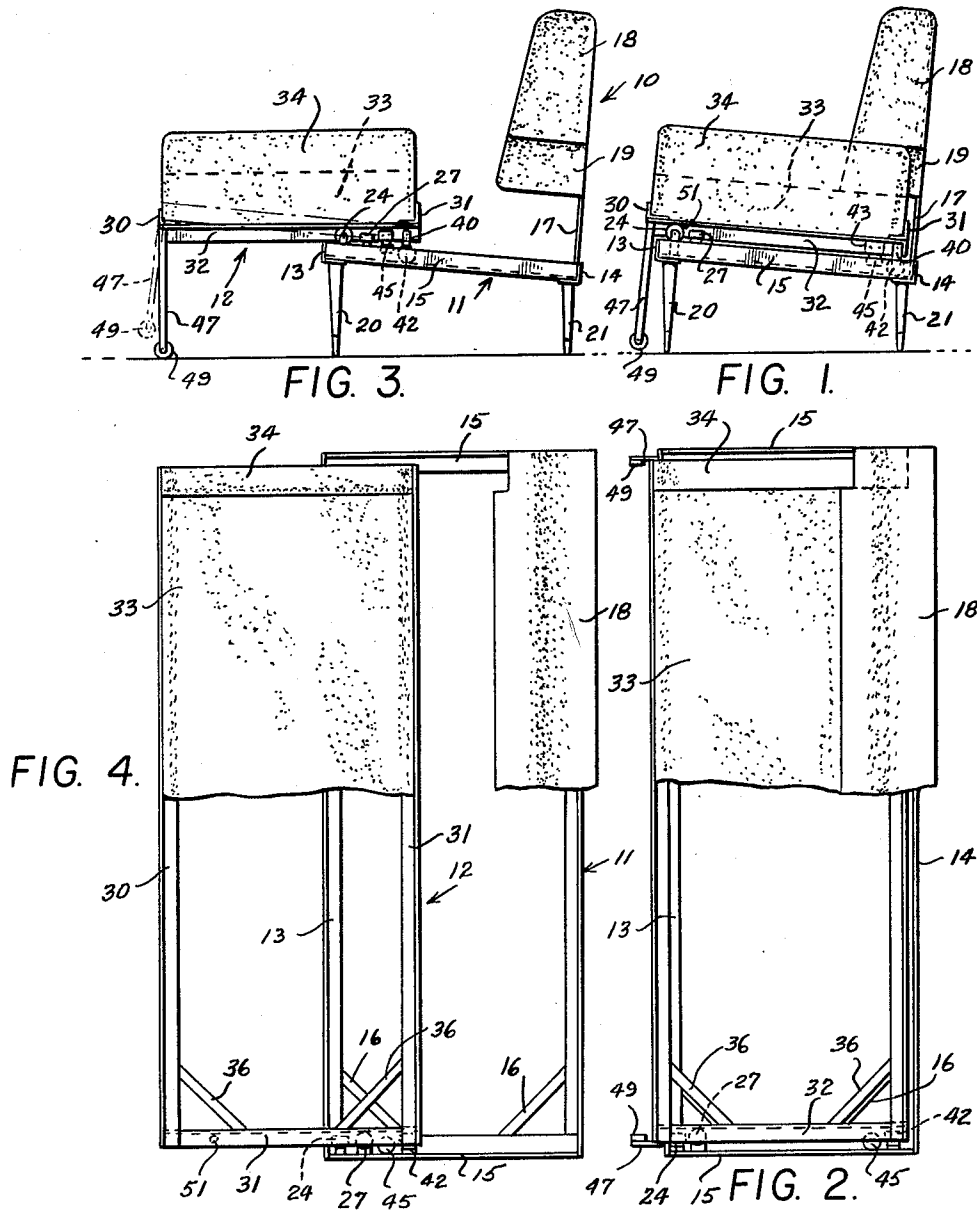
W. K. MURPHY ETAL

3,167,788

CONVERTIBLE SOFA

Filed Jan. 9, 1963

2 Sheets-Sheet 1



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FIG. 8.

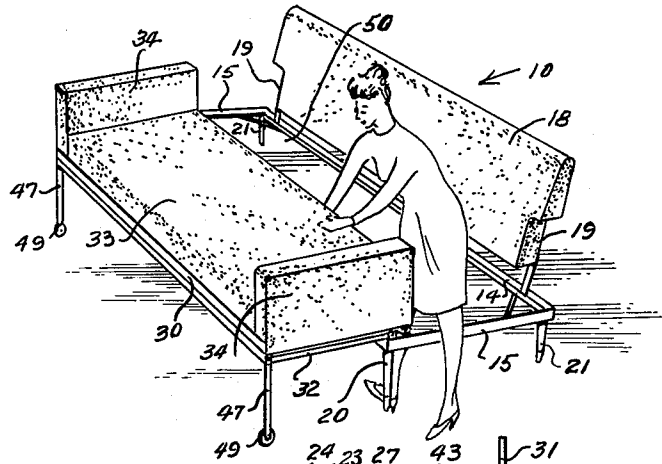


FIG. 7.

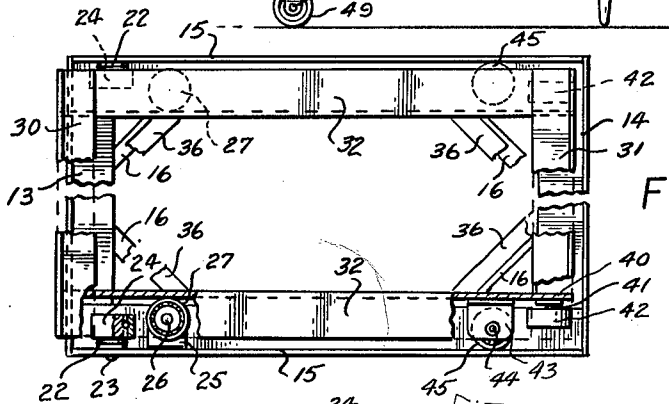
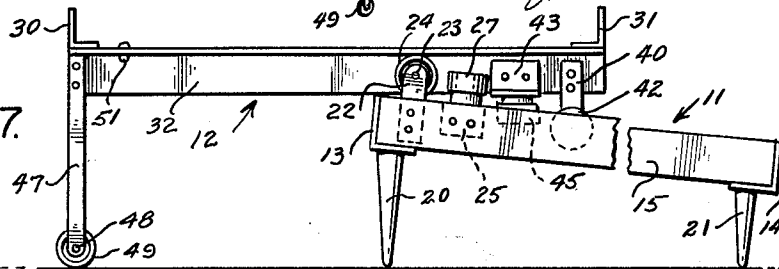


FIG. 6.

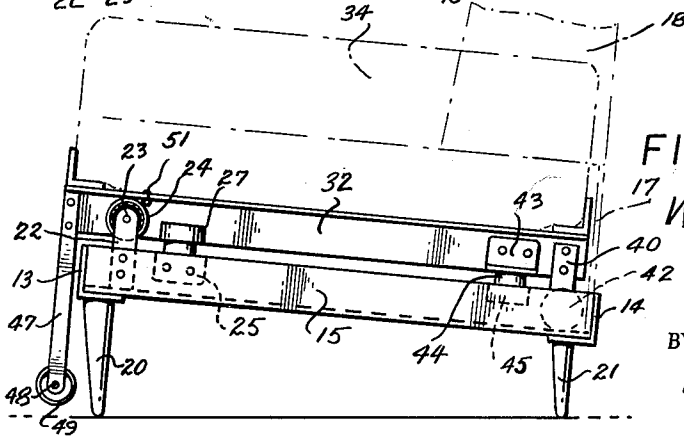


FIG. 5.

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3,167,788

CONVERTIBLE SOFA

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2 Claims. (Cl. 5-17)

This invention relates to a convertible sofa and has particular applicability to a sofa which is adapted to be converted, by lateral movement of a portion thereof, into a single bed.

A primary object of this invention is the provision of an improved convertible sofa-bed of this character wherein the laterally extensible portion may be pulled out in such relation that its supporting extremities clear the floor until the bed is substantially fully extended, thus avoiding rumpling or wrinkling a rug or other floor covering, or, alternatively, possibly marking a bare floor.

An additional object of the invention is the provision of a convertible sofa-bed of this character which, when extended into bed position, provides a space between the bed portion and the back or bolster of the sofa which is open, whereby access may be had to both sides of the extended bed to permit ready application of covers thereto.

A further object of the invention is the provision of a device of this character wherein the main frame of the sofa is inclined rearwardly, and the extensible portion thereof, which comprises the frame of the bed, is slidable thereon in such manner that the extended rollers or supports which carry the weight of the bed portion when in extended position are clear of the floor until substantially the end of the extension or travel of the bed frame is reached.

A further object of the invention is the provision of a device of this character which is provided with improved roller bearing means facilitating the extension and retraction thereof with a minimum of effort and difficulty.

Still another object of the invention is the provision of such a device which is sturdy and durable in construction, reliable and efficient in operation, and relatively simple and inexpensive to manufacture.

Other objects will in part be obvious and in part be pointed out as the description of the invention proceeds and shown in the accompanying drawings wherein there is disclosed a preferred embodiment of this inventive concept, and wherein:

FIGURE 1 is an end elevational view of one form of convertible sofa constructed in accordance with the instant invention in retracted position, or in position for use as a sofa.

FIG. 2 is a top plan view, partially broken away, of the article of FIG. 1.

FIG. 3 is a view similar to FIG. 1 but showing the bed portion in extended position.

FIG. 4 is a top plan view of the article of FIG. 3 in extended position.

FIG. 5 is an enlarged end elevational view of the frame structure of the convertible sofa-bed shown in retracted position, with the upholstered portion thereof removed.

FIG. 6 is a top plan view of the frame as shown in FIG. 6, parts thereof being broken away, and other parts being sectioned for clarity of illustration.

FIG. 7 is a view similar to FIG. 5 but showing the frame in extended position, and

FIG. 8 is a perspective view of the convertible sofa-bed in extended position, showing the facility with which the bed portion may be made up or covered.

Similar reference characters refer to similar parts throughout the several views of the drawing.

Having reference now to the drawings in detail, the convertible sofa-bed of the instant invention is generally

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indicated at 10 and comprises a fixed or stationary portion generally indicated at 11 and a movable or bed portion generally indicated at 12. Referring first to the fixed portion 11, the same is comprised of a frame which includes front and rear longitudinally extending angle irons 13 and 14 respectively, which are connected at their ends by end angle irons 15, the end angle irons 15 being substantially identical but opposite. Diagonal braces 16 extend between the corner portions of the longitudinal and transverse frame angle irons, for reinforcement purposes. The end angle irons 15 are rearwardly inclined as best shown in FIGS. 1 and 3, and to rear angle iron 14 are secured uprights 17 which support an upholstered back or bolster 18, the ends of which are cut away at 19, for a purpose to be more fully described hereinafter.

Front legs 20 and rear legs 21 are positioned at the corners of the fixed or stationary frame 11 for supporting the same, with the front legs 20 being longer than the rear legs 21 so that the bottom portion of the frame is inclined rearwardly, as best shown in FIGS. 1 and 3, for a purpose to be more fully described hereinafter.

Each end angle iron 15 carries adjacent front angle iron 13 and front leg 20 an upright 22 which supports a stub axle 23 on which is mounted a roller bearing 24, which is rotatable about a horizontal axis for a purpose to be more fully described hereinafter. Immediately adjacent thereto but spaced rearwardly therefrom is an angle bracket 25 which carries a vertically extending stub axle 26 upon which is mounted a horizontally positioned roller bearing 27, the purpose of which will also be described hereinafter.

Movable or bed section 12 includes front and rear angle irons 30 and 31 respectively, which are carried on the top horizontal flanges of end angle irons 32, the angle irons 32 being positioned with their horizontal flanges uppermost, in contrast to angle irons 15 which have their horizontal flanges downward and extending inwardly. The frame formed by members 30, 31 and 32 supports an upholstered mattress or seat portion 33, which, when the convertible article is in retracted position, serves as a seat for the sofa, and when in extended position, as a mattress for the bed. Upholstered end portions 34 are also carried overlying end frame members 32, and when the device is retracted, fit into the cut away portions 19 of bolster or back 18 and serve as end arms for the sofa, and alternatively, when the device is in extended position as shown in FIG. 8, serve as a head and foot board portions for the bed.

Diagonal reinforcing bars 36 extend between frame members 30 and 32 and frame members 31 and 32 in the same manner as diagonal reinforcing members 16, to add strength to the assembly.

Adjacent the rear end of each end angle iron 32 is a depending lug 40 which carries a horizontally extending stub axle 41 on which is mounted a roller bearing 42 which rotates about a horizontal axis, and is aligned with roller bearing 24. Similarly, an angle iron support 43 is positioned adjacent lug 40 and carries a vertically positioned stub axle 44 upon which is mounted a roller bearing 45 which is rotatable in a horizontal plane about the vertical axle, and which is in linear alignment relative to the end members 32 and 15 with horizontally positioned roller bearings 27.

Adjacent each front corner or juncture of front frame member 30 with end member 32 of movable frame 12 is a depending leg 47 which carries at its lower end a stub axle 48 upon which is mounted a roller 49, the roller and leg serving as a support for the outer or front end of frame 12 when the device is in position for use as a bed.

Studs or buttons 51 extend through the horizontal flanges of the end angle irons of the movable frame, and,

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when the movable frame is in retracted position, engage rearwardly of roller bearings 24, serving to retain the movable frame against lateral displacement until a substantial lateral force is exerted thereon.

From the foregoing, the use and operation of the device should now be readily understandable. When the device is in position for use as a sofa, the seat 33, back or bolster 18, and arms 34 coact in the usual manner. In this position the legs 47 are inclined slightly forwardly with the rollers 49 clear of the carpet or the floor as best shown in FIGS. 1 and 5.

When it is desired to use the same for a bed, the movable frame 12 is pulled outwardly to the position of FIGS. 3 and 7, with the roller bearing 24 rolling against the horizontal flange of end angle iron 32, and the roller bearing 42 rolling against the horizontal flange of end angle iron 15. Similarly, roller bearings 27 and 45 roll against the opposed vertical flanges of the angle irons 32 and 15 respectively. The arrangement is such, due to the inclination of end angle irons 15 that wheel 49 is clear of the floor for substantially the entire outward movement of movable section 12, until an over center position is passed, at which time end frame pieces 32, and consequently bed portion or movable frame 12, are overbalanced to move to a horizontal position. Only at this time do the rollers 49 contact the rug or floor, so that only throughout the last two or three inches of travel of the frame 12 are rollers 49 in contact with the rug or the like, thus materially reducing any tendency to rumple or wrinkle or disarrange the rug or carpet.

As best seen in FIG. 8, when the article is in extended or bed position, an adequate space 50 is provided between bolster 18 and the inner side or rear frame member 31 of the bed so that an individual may readily move between the edge of the bed and the bolster so that making up the bed with sheets and blankets is facilitated and expedited.

From the foregoing it will now be seen that there is herein provided an improved convertible sofa-bed which accomplishes all of the objects of this invention, and others, including many advantages of great practical utility and commercial importance.

As many embodiments may be made of this inventive concept, and as many modifications may be made of the embodiment hereinbefore shown and described, it is to be understood that all matter herein is to be interpreted merely as illustrative and not in a limiting sense.

We claim:

1. A convertible sofa-bed comprising a fixed rectangular open frame, a movable rectangular frame, and mounting means by which said movable frame is mounted on said fixed frame for back and forth movement between sofa and bed positions; said fixed rectangular frame comprising a pair of spaced front and rear frame members connected together at the ends thereof by a pair of straight angle iron end frame members having the horizontal flanges thereof lowermost and extending inwardly of said fixed frame, a first pair of frame supporting legs secured to the front of said fixed frame and a second pair of frame supporting legs secured to the back of said fixed

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frame, said second pair of supporting legs being shorter than said first pair of supporting legs whereby said straight angle iron end frame members incline rearwardly and downwardly; said movable frame comprising a pair of spaced parallel front and rear frame members connected together at the ends thereof by a pair of angle iron end frame members having the horizontal flanges thereof uppermost and extending outwardly of said movable frame; and a pair of supporting legs secured to the front of said movable frame, said mounting means comprising each of the said angle iron end members of said fixed frame having a vertically disposed roller mounted thereon at the forward end thereof in position to engage the horizontally disposed flange of the adjacent angle iron end member of said movable frame, and a horizontally disposed roller mounted thereon adjacent to and rearwardly of the vertically disposed roller mounted thereon in position to engage the vertical flange of the adjacent angle iron end member of said movable frame; and each of the angle iron end members of said movable frame having a vertically disposed roller mounted thereon at the rear end thereof in position to engage the horizontally disposed flange of the adjacent angle iron end member of said fixed frame, and a horizontally disposed roller mounted thereon adjacent to and forwardly of the said vertically disposed roller mounted thereon in position to engage the vertical flange of said adjacent angle iron end member of said fixed frame; the rearward and downward inclination of the said end members of said fixed frame and the cooperative arrangement of the said vertically and horizontally disposed rollers being such that the supporting legs carried by said movable frame are maintained out of contact with the floor until the said movable frame has been moved forwardly to an over center position with respect to the vertically disposed rollers carried by the fixed frame; said movable frame being adapted to have a cushioned seat mounted thereon, and said fixed frame having vertically disposed supports which are adapted to have a bolster secured thereto.

2. A convertible sofa-bed as defined by claim 1 in which a downwardly extending stud is secured to each of the horizontal flanges of the said angle iron end members of the movable frame in position to engage behind the vertically disposed rollers carried by the said angle iron end members of said fixed frame when said movable frame is in fully retracted position to restrain said movable frame against accidental outward movement.

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