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Lauzon

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[54] **COMBINATION FURNITURE**

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[52] **U.S. Cl.** ..... **5/2 R,** 5/164 R, 312/279, 312/317

[51] **Int. Cl.** **A47c 13/38,** A47b 81/00

[58] **Field of Search** ..... 5/2 R, 149, 164 R, 164 B, 5/165; 312/204, 290, 317, 279; 297/217

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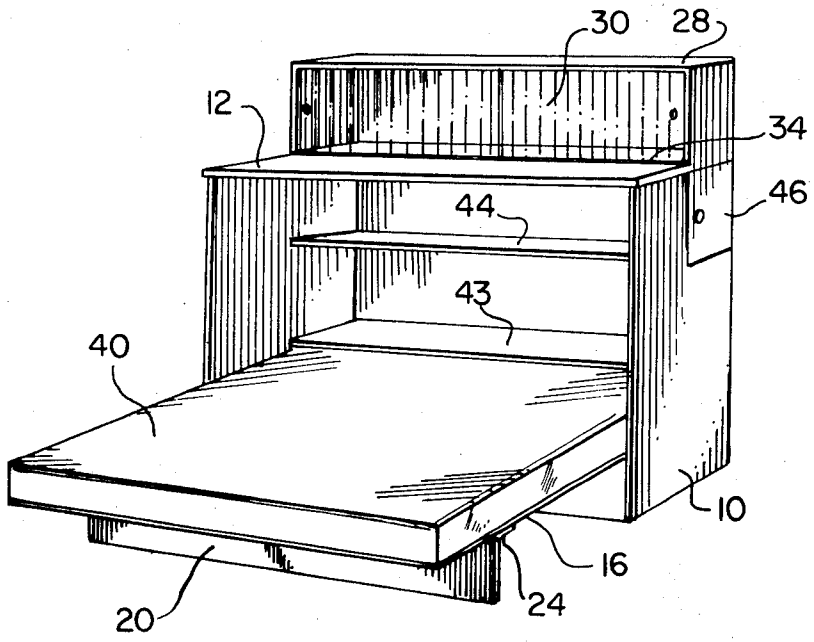
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[57] **ABSTRACT**

A piece of furniture adapted to be transformed in a bed comprising a frame having sides, an upper surface and a facing surface. The facing surface comprises a first lower panel fixed to the sides and a second upper panel connected to the lower panel by a hinge. A third panel is connected to the upper panel by means of a hinge and may be pivoted downwardly so as to be used as a table. The upper panel may also be pivoted downwardly around its hinge and be supported by the said first and third panels to constitute the base of a bed. Springs are foreseen to facilitate the lifting of the upper panel in its raised position.

6 Claims, 7 Drawing Figures



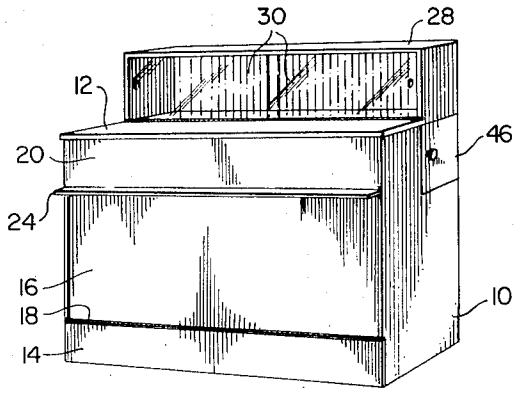


FIG. 1

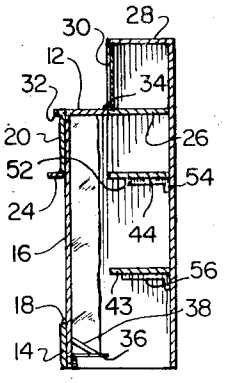


FIG. 2

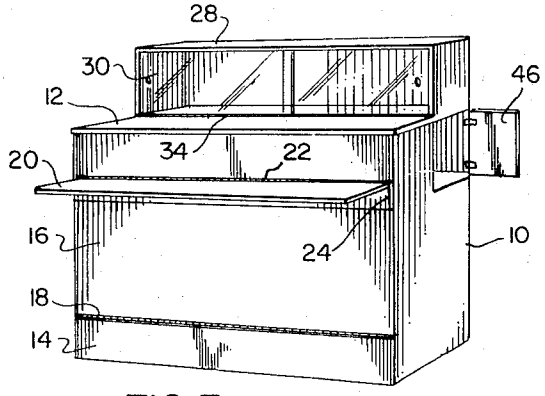


FIG. 3

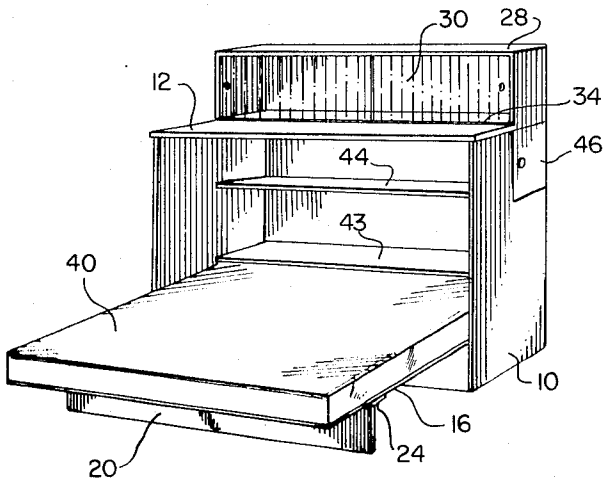


FIG. 4.

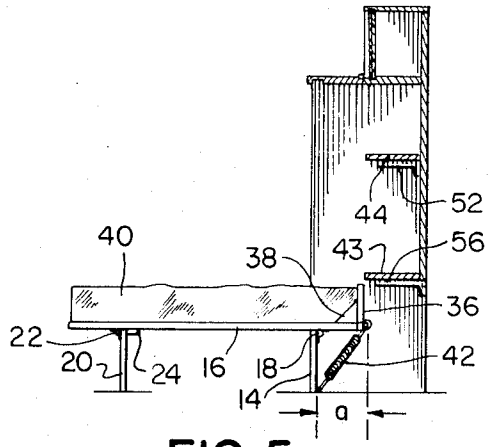


FIG. 5

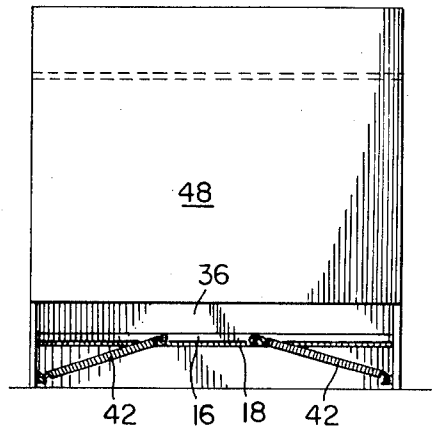


FIG. 6

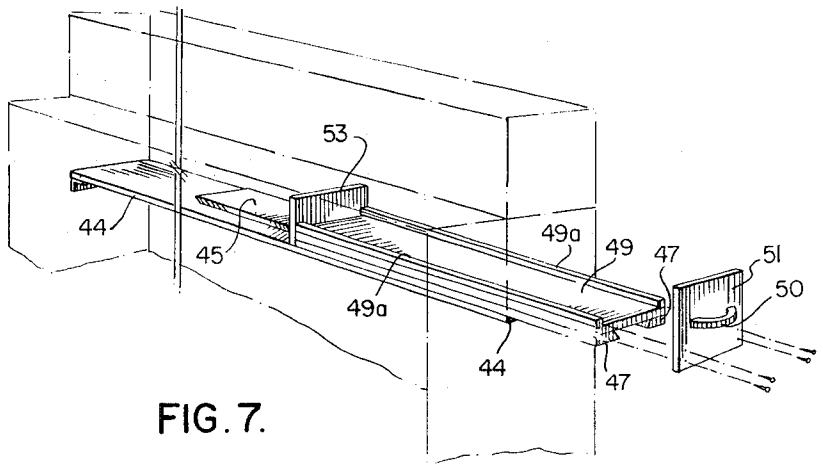


FIG. 7.

COMBINATION FURNITURE

The present invention is directed to a piece of furniture which may be converted into a bed.

It may be advantageous in rooms which are rather small in space to have pieces of furniture which may have various functions, that is, aa plurality of uses. In particular, it is very often useful to have a piece of furniture which uses a relatively small ground surface during the day time but which may be converted into a bed during the night.

The object of the present invention is therefore to obtain a piece of furniture which may easily be converted into a bed at night and be used for other purposes during the day.

The piece of furniture, according to the present invention, comprises a frame having sides, an upper surface and a facing surface. The facing surface comprises a first lower panel fixed to the sides and a second upper panel connected to the first lower panel by means of a hinge. The third panel is connected to the second panel by a hinge and may be pivoted downwardly so as to be used as a table. The upper panel may be pivoted downwardly and be supported by the said first and third panels to constitute the base of a bed. Spring means are also foreseen to facilitate the lifting of the upper panel from a horizontal to a vertical position.

The upper panel is connected to the lower panel from a certain distance from its lower edge which is smaller than the height of the lower panel, and a spring is stretched between the lower edge of the upper panel and at least one point of the said frame, to facilitate the upper panel to be raised when the bed needs to be closed.

According to a different embodiment of the invention, the piece of furniture may also be used as a small library. To this end, the rear part of the upper surface of the furniture is used as a supporting surface, the sides of the furniture are raised upwardly and a cover is mounted between the two sides so as to form a space for locating the books. This space may or may not be closed by sliding glasses in a known manner.

Shelves may be mounted inside the piece of furniture for receiving bed covers, pillows and other useful articles. These shelves are completely hidden when the upper panel is raised. However, a door provided on one of the sides of the piece of furniture may permit someone to reach an article on at least one of the shelves.

The whole or only the forward part of the upper surface may be mounted on hinges so as to permit the forward end of the upper surface to be pivoted upwardly. Accordingly, when a lip is provided at the forward lower edge of the upper surface, the upper panel may be held in its raised position by the said lip when the bed is closed. On the other hand, when the upper surface is slightly raised, the upper panel may be tilted downwardly to form the bed.

The invention will now be described, in a non-limitating manner, by referring to particular embodiments of the invention illustrated in the following drawings wherein:

FIG. 1 is a perspective view of the piece of furniture according to the invention;

FIG. 2 is a side view of the piece of furniture illustrated in FIG. 1 along line 2—2, the right-hand side of the piece of furniture having been raised;

FIG. 3 is another perspective view of the piece of furniture according to the invention in which the front table is tilted downwardly and the door on the side of the piece of furniture is opened;

FIG. 4 is another perspective view of the piece of furniture in which the bed is tilted downwardly;

FIG. 5 is a side view of the piece of furniture illustrated in FIG. 4 along line 5—5, the right-hand side of the piece of furniture being raised;

FIG. 6 is a plan view of the rear of the piece of furniture according to the invention; and

FIG. 7 is a perspective view of the drawer slide.

As illustrated in FIGS. 1 and 2 of the drawings, the piece of furniture comprises a frame having sides 10, an upper surface 12 and a facing surface comprising a lower panel 14 fixed to the sides 10 and an upper panel connected to the lower panel by a hinge 18. A third panel 20 is superposed to the upper part of the upper panel 16 and connected to the latter by a hinge 22 mounted at the lower intersection of the panels 20 and 16. The shelf 24 is rigidly secured in a perpendicular manner to the panel 20 so as to be pivoted together about the hinge 22.

The piece of furniture is adapted to support a library and, in this case, the upper surface 12 comprises a rear part 26 adapted to be used to support the books and the sides of the furniture are extended upwardly for supporting a cover 28 so as to constitute a space to locate the books. This space may also be closed at its forward end by sliding glasses 30 mounted in a known manner. In order to maintain the upper panel 16 in a raised position, the upper surface 12 is provided with a lip 32 at its lower front part and is connected to its rear fixed part 26 by a hinge 34. In order to tilt downwardly the upper panel 16, it is sufficient to slightly raise the upper surface 12 and to pull on the panel 16. In the embodiment in which the piece of furniture comprises no library, the upper surface 12 covers all the surface of the piece of furniture and the hinge 34 is mounted at the rear of the frame.

As illustrated in FIG. 3 of the drawings, the panel 20 is tilted downwardly so that the shelf 24 abuts against the panel 16. This panel 20 may be used as a table. The shelf 24 is used also as a small fixed table and in a permanent manner when the piece of furniture is closed (FIG. 1), as well as of a support for the panel 20 (FIG. 3). Also, when the upper panel 16 is tilted downwardly, the same panel 20 is used as a front support or leg for the bed as illustrated in FIGS. 4 and 5. The panel 20 maintains its position due to the shelf 24 resting on the panel 16 (FIG. 4). The bed is supported at its rear part by the lower panel 14. A board 36 is fixed at right angle to the lower part of the panel 16 and reinforced by squares 38 at each end so as to support the mattress 40 in its raised position as illustrated in FIGS. 2 and 5 of the drawings. Furthermore, the upper panel 16 is connected to the lower panel 14 at a distance *a* of its lower edge and a spring 42 is stretched between the central part of the lower edge of the panel 16 or on the board 36 and the sides 10 of the frame, to facilitate the lifting of the upper panel 16 when the bed is raised as illustrated in FIGS. 5 and 6. It is well understood, that the distance *a* shall be smaller than the height of the lower panel 14 so as to permit the bed to raise and to leave a space for the unstretched springs 42 (FIG. 2). The springs 42 are disposed in diagonal so as to have a longer dimension for a predetermined length of the bed and for also permitting an elongation without excess tension of the springs. This arrangement is very clever

because it permits a constant tension on the bed which lightens the weight of the bed when the latter is raised or lowered. It therefore requires no great strength for the operator. It is to be pointed out that these springs occupy practically very little space although their total length corresponds to more than the length of the bed.

The piece of furniture also comprises a lower shelf **43** and an upper shelf **44** on which may be disposed bed covers, pillows and other useful articles such as a radio, a lamp, bottles, etc... These shelves are completely hidden when the bed is closed. However, a door **46** is provided, on at least one side of the piece of furniture to enable a person to reach on the upper table **44.** As illustrated in FIG. **6,** the upper rear part of the piece of furniture is normally closed by a panel **48** which extends, at least, down to the lower shelf **43** so as to prevent the dust to penetrate easily inside the piece of furniture. The panel **48** is also used to support the shelves **43** and **44,** the part **26** and the upper surface **28.**

The shelf **43** rests, at each end, on an angle **56** fixed to the sides **10** and at its rear part, on the rear panel **48.** The shelf **43** may be easily raised so as to facilitate the dusting in the rear of the mattress **40.**

An angle **52** is rigidly fixed with screws, on each side **10** and to the rear panel **48.** The shelf **44** is itself solidly held by means of screws to each angle **52.** The shelf **43** may be used to receive pillows when the bed is closed, but will be preferably free when the bed will be used for sleeping. The shelf **44** is foreseen to receive preferably objects such as a radio, a lamp, glasses, bottles and other articles of this nature.

Although the shelf **44** may be reached through the door **46** when the bed is closed (see FIGS. **1** and **3**), it may be difficult to reach articles on the central part of the latter. For this reason, a sliding tray may be foreseen. As illustrated in FIG. **7,** a board **45** chamferred on its sides is rigidly fixed on a part or its total length of the shelf **44.** A board **49** mounted on the board **45** slides on the latter and is guided by chamferred blades **47** rigidly connected to the board **49.** A door **51** is nailed or screwed to the end of the board **49** and the blades **47.** Accordingly, while pulling on the handle **50** held to the door **51,** the sliding tray will come out. However, a stop (not illustrated) prevents the tray to completely come out or at least be held without dropping. The chamferred surfaces of the blades **47** on the ones of the board **45** enable to maintain the board **49** in a horizontal positon and in a parallel relationship with the shelf **44** even when the tray is pulled out. The objects which will be placed on the board **49** will therefore not tilt due to the level of the tray. Nevertheless, to prevent the articles from touching the rear surface **48** of the piece of furniture, nor fall on the side of the mattress **40,** two rods **49***a* are fixed along each side of the board **49.** Furthermore, so as to prevent the objects from falling towards the central end of the tray, particularly when the latter is pulled outwardly, a partition **53** is fixed at the rear of the board **49.**

This piece of furniture may have different sizes because it may be adaptable for single, normal or large beds. Although it is used for various functions, it is designed to occupy a small area on the floor. For instance, a model for a double bed which has been built is only **63** inches high (including the library) and 18½ inches in depth (without the shelf **24**) although a luxurious mattress of 8 inches high is mounted on the panel **16.** The upper surface **12** is only 51 inches high. The panels **20** and 14 are 12 inches high, which gives a very reasonable height from the floor to the sleeping surface. The same model has a width of 76 inches to easily accomodate tall persons. It goes without saying that the dimensions of this piece of furniture occupy very little area on the floor when the bed is closed.

This piece of furniture is preferably made so as to be easily taken apart and mounted as a kit for facilitating the transportation of the piece of furniture. For example, the panel **14** is adapted to be retracted between the sides **10.** The packaging volume is reduced when the panels **20** and **14** are folded on the panel **16.** The shelves **43** and **44** are removed from their support. The piece of furniture is also mounted so that the sides **10,** the panel **48,** the upper surfaces **12** and **28** are separated from each other. When all these parts are piled up, they may be located in a relatively small box. This is the usual way to transport and deliver this type of furniture.

Although the invention has been described while referring to a particular embodiment of the invention, it is understood that other embodiments may be contemplated and that the scope of the invention shall be limited only by the enclosed claims. For example, the piece of furniture may be built without a library. The upper panel **16** may be held in its upper position by other means than the lip **32** of the upper surface **12.** In this case, the upper surface **12,** would be simply fixed on the frame.

The library has the advantage of adding weight on the furniture to maintain its vertical position when the bed is opened. This same security may be obtained by connecting the piece of furniture to a point of fixation at the rear of the furniture.

What I claim is:

1. A piece of furniture adapted to be transformed into a bed comprising:

a. a frame comprising rectangular side panels, an upper surface panel extending from one side to the other side and pivoted about its rear edge, and a facing part having a first lower panel extending across the lower part of the frame and fixed to each of said sides, and a second upper panel extending substantially over the full front surface of the frame and extending behind the said first lower panel, a retaining plate secured perpendicularly to the edge of said upper panel located behind the said first lower panel for supporting a mattress disposed on said upper panel, the said upper panel being connected to the upper edge of said first lower panel by a first hinge so as to permit a movement of the second upper panel from a vertical to a horizontal position;

b. a rigid L-shaped member comprising a third and fourth panel extending across the upper portion of the second panel and connected by a second hinge along its apex to said second panel so that the third panel is adapted to cover the top surface of the second panel when the fourth panel projects forwardly of the second panel, the said member being adapted to tilt downwardly about the second hinge so that the said third panel projects forwardly of said second panel, whereby the first panel and the third panel form a base for the second panel when the latter is pivoted downwardly about the first hinge, and the upper surface panel has a downward

lip along its forward edge adapted to hold the said second panel in its raised position;

c. stretchable elastic means connected between the lower edge of the second panel and a location adjacent the lower intersections of the side panels and the said lower panel, wherein the tension of the said elastic means increases uniformly from the vertical to the horizontal position of the second upper panel.

2. A piece of furniture as recited in claim **1,** in which the upper panel is connected to the lower panel at a certain distance from its lower edge which is slightly smaller than the height of the lower panel.

3. A piece of furniture as recited in claim **1,** comprising a rear panel, inner shelves adapted to receive covers, pillows and other small articles, the said shelves being hidden by the bed in its raised position and fixed to the said side and the rear panels.

4. A piece of furniture as recited in claim **3,** in which at least one of the side panels is provided with at least one door extending adjacent at least one of the shelves so as to provide access to the said one shelf when the pieces of furniture is closed.

5. A piece of furniture as recited in claim **4,** in which one of the shelves comprises a sliding tray adapted to slide outside one of the side panels through said door, the said tray being solidly mounted in a sliding manner to the said shelf so as to maintain a parallel direction to the said shelf when the tray is pulled outside the furniture, the said tray being adapted to store material accessible when the piece of furniture is closed.

6. A piece of furniture as recited in claim **1,** in which the said elastic means comprises two coil springs, each spring extending between the central portion of the lower edge of the second panel and a part adjacent the lower corner of the intersection of the side panels and said lower panel, whereby the coil springs extend below the lower edge of the second panel in an unstretched condition when the latter is in its raised position.

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