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Arima et al.

[11] **3,884,522**

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[54] **CONVERTIBLE SLEEPER SEATS FOR PLEASURE BOATS**

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[52] **U.S. Cl.** **297/63;** 9/7

[51] **Int. Cl.** **B60n 1/10**

[58] **Field of Search** ..... 9/7; 297/62, 63, 64, 65, 297/233, 445, 452, DIG. 2

[56] **References Cited**

UNITED STATES PATENTS

2,993,529	7/1961	Brown	297/65
3,379,471	4/1968	Dalziel	297/63
3,394,417	7/1968	O'Link	9/7
3,473,176	10/1969	Taylor	9/7

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[57] **ABSTRACT**

A back-to-back seat assembly for pleasure boats is disclosed, the assembly including an integral seat unit of resilient material including a pair of integrally connected seat bottom-seat back pieces which, in raised position, form back-to-back seats and, in lowered position, flatten out to form a bed. The seat bottoms and seat backs include integral spring sections. The seat unit is supported on a base on which it is adapted to slide from the raised position to the lowered flattened position. Elongated guide rails are secured to the underside of each of the seat bottoms of the seat unit and extend rearwardly thereof, each rail having an elongated slot therein. The seat units are secured to the base by a rod extending through the slots in the guide rails and secured to the side walls of the base. The seat unit is locked in a predetermined position by a cam secured to one end of the rod which, in locking position, presses the sidewalls of the base against the guide rails and a sleeve surrounding the portion of the rod extending between the guide rails.

8 Claims, 4 Drawing Figures

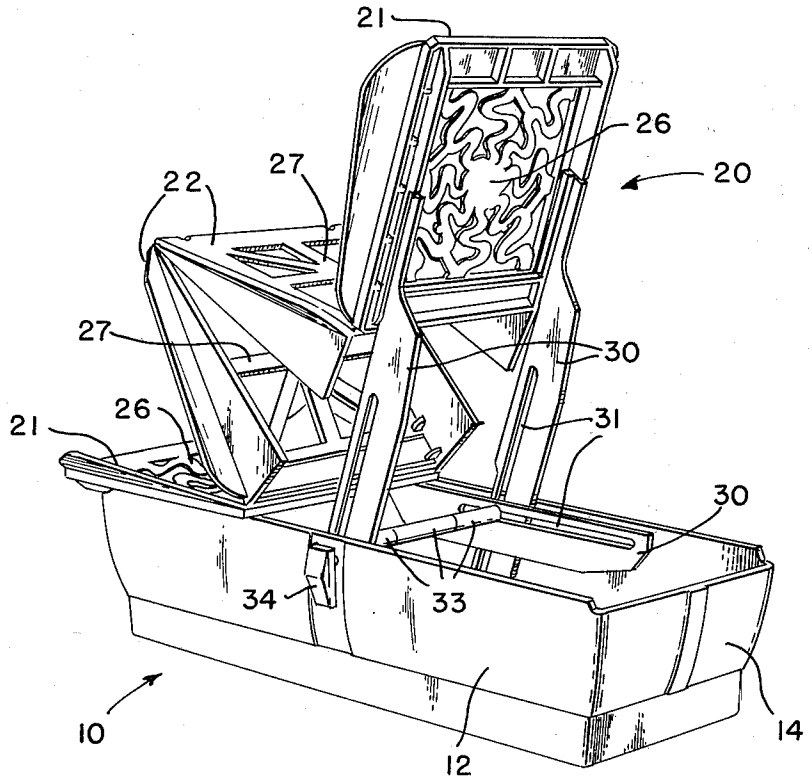
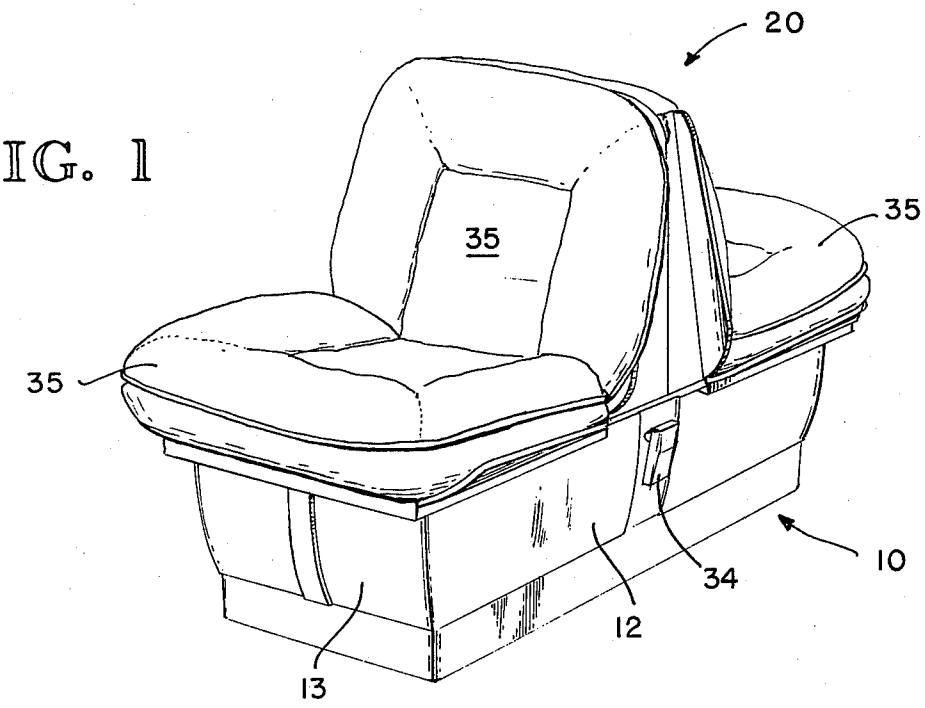


FIG. 1



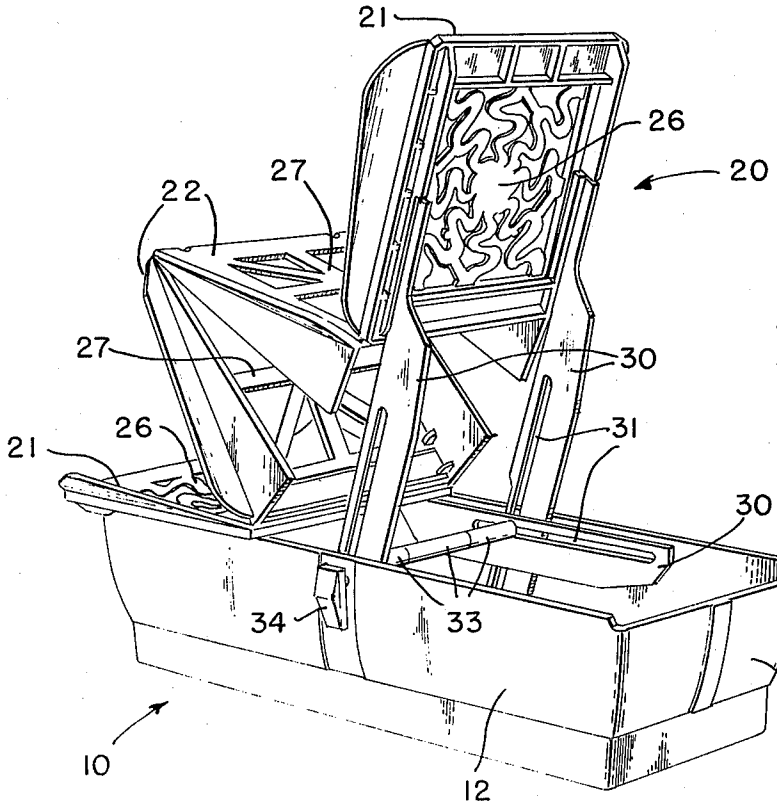


FIG. 2

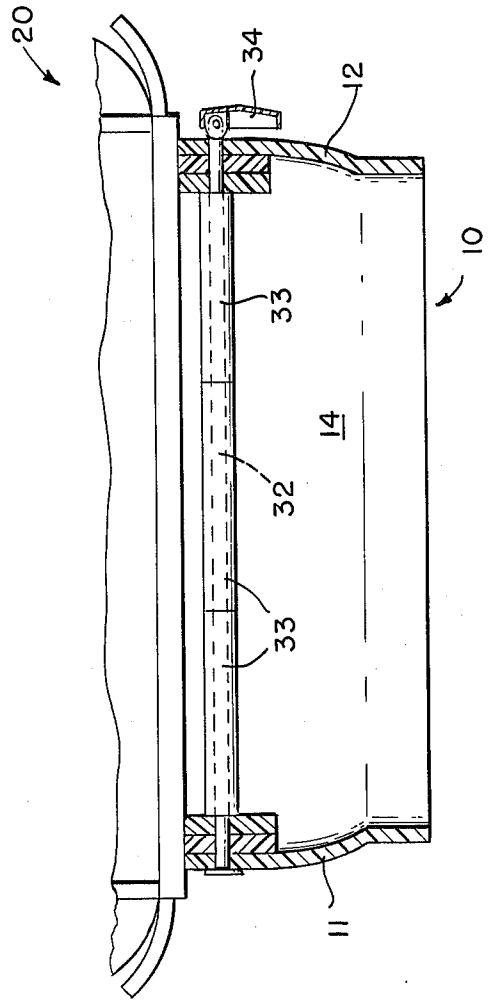


FIG. 4

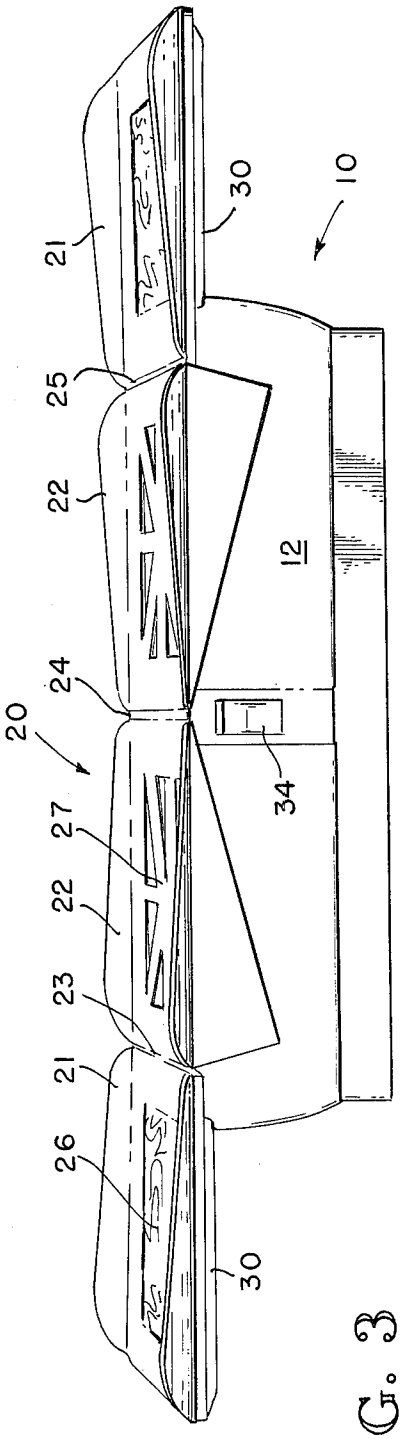


FIG. 3

CONVERTIBLE SLEEPER SEATS FOR PLEASURE BOATS

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a seat assembly for pleasure boats which is convertible between a seating position and a sleeping position.

2. Prior Art Relating to the Disclosure

Seat assemblies for pleasure boats which are convertible to a bed are known. Generally the seat assemblies include separate back-to-back seat units of plywood which are hinged together by metal hinges. The seats have no cushioning other than the cushions which are secured to the seat bottoms and seat backs. The seat units are secured to a base unit, also generally of plywood construction.

SUMMARY OF THE INVENTION

The primary object of this invention is to provide a seat assembly for pleasure boats which includes only three parts: (1) a base; (2) an integral, back-to-back seat unit which folds down to form a bed; and (3) means securing the seat unit to the base and releasably locking each of the seats of the unit in a predetermined position. It is a further object of this invention to provide a seat assembly for pleasure boats wherein the seats of the seat unit include integrally formed spring sections therein. Another object of this invention is to provide a seat assembly for pleasure boats wherein the entire assembly is made of a resilient synthetic plastic, providing a more comfortable ride for the person sitting in the seat, even in rough water at relatively high speed. These and other objects are accomplished by providing a seat assembly comprising a base, a pair of integrally connected seat bottom-seat back pieces which, in raised position, form back-to-back seats and, in lowered position, form a bed, the seat unit mounted on the base to slide from the raised position to the lowered position, and means securing the seat unit to the base and releasably locking each of the seat units in a predetermined position.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the seat assembly in raised position with cushions secured to the seat bottoms and seat backs;

FIG. 2 is a perspective view of the seat assembly without the cushions, one of the seats raised for access to the storage area beneath the seat;

FIG. 3 is a perspective view of the seat assembly without the cushions in lowered position; and

FIG. 4 is a vertical cross-sectional view of the seat assembly illustrating the lock mechanism for the seats.

DETAILED DESCRIPTION OF THE INVENTION

Referring to the drawings, the seat assembly comprises essentially three parts: a base unit **10**, a seat unit **20** and means securing the seat unit to the base and releasably locking the seats of the seat unit in a predetermined position. It is preferred to manufacture the entire assembly of a resilient synthetic plastic, such as polypropylene, to provide a more comfortable ride for the person in a boat which incorporates the seat assembly. The seat assembly may be manufactured of other suitable materials if desired.

The base **10** includes side walls **11** and **12** and end walls **13** and **14**, terminating in a common upper edge. The hollow interior of the base provides storage space. The base is directly mountable to the floorboard of a pleasure boat by any suitable means.

The seat unit **20** is formed as an integral, one-piece unit and includes a pair of integrally connected seat bottom-seat back pieces which, in raised position, form back-to-back seats and, in lowered position, flatten out to form a bed as illustrated by FIG. **3.** The seat bottoms **21** and seat backs **22** are integrally connected to one another by integral hinges **23, 24** and **25.** Each of the seat bottoms includes an integrally formed spring section **26.** The spring section is formed of narrow integral bands extending from the outer periphery of the seat bottom to the center thereof. This integral spring section, combined with cushioning, as illustrated in FIG. **1,** provides a very comfortable ride, even at high speed in rough water. Each of the seat backs also includes an integral spring section **27** of narrow bands interconnecting a center portion with the outer periphery of the seat back. The seat unit is fabricated in a single piece by injection molding.

A pair of elongated guide rails **30** is secured to the underside of each of the seat bottoms, the rails extending rearwardly of the seat bottoms. Each of the rails is provided with an elongated slot **31** which extends from about the rear edge of the seat bottom to the rear end of the rail. The rails may be adhesively bonded to the undersides of the seat bottoms or include projections which snap into corresponding openings in the seat bottoms. The rails secured to one of the seat bottoms are placed inwardly of those secured to the other seat bottom to avoid any overlap and interference, as illustrated by FIG. **4.**

The seat unit is supported on the upper edges of the base and is designed to slide along the upper edges of the base from the raised position to the lowered position. The seat unit is secured to the base by a rod **32** extending through the slots in each of the guide rails **30.** The rod **32** extends between the side walls **11** and **12** of the base at about the midpoint of the base and adjacent the upper edge of the base. The rod is firmly secured to the side wall of the base at one end and extends through an opening in the opposite side wall so that it is free to slide therein. One or more sleeve sections **33** are slidably mounted over the rod **32** and extend into contact with the guide rails **30** as illustrated by FIG. **4.** A cam member **34** is secured to the end of the rod extending through the opening in the side wall of the base. When the cam member is moved to the position shown in FIG. **4** it presses against the side wall **12** and exerts tension on the rod **32** to pull side wall **11** of the base into contact with the guide rails **30** and the guide rails into contact with the sleeve sections **33** to frictionally lock the guide rails and seat unit secured thereto firmly in place. When the cam member **34** is moved to the release position the pressure against the side walls **11** and **12** is relieved, allowing the seats to slide along the top edge of the base. The seat unit may be locked in position at any intermediate location between the raised and lowered positions.

Cushions **35,** of any desired construction, are secured to the seat backs and seat bottoms of the seat assembly, as illustrated in FIG. **1.** The cushions may be made of any desired construction, such as vinyl covered, flexible foamed plastic.

Because the entire seat assembly is formed of a resilient plastic material and the seat bottoms and seat backs incorporate integral spring sections, the seat assembly provides a very comfortable ride. Since there are no metal parts and no metal hinges associated with the device other than rod **32**, there is no corrosion problem. As illustrated in FIG. **2**, the seat bottoms may be raised for access to the storage area within the base of the assembly.

The embodiments of the invention in which a particular property or privelege is claimed are defined as follows:

1. A seat assembly which is convertible to a bed, comprising:

a seat unit having a pair of seat backs hinged together at their upper edges and a pair of seat bottoms, each hinged at its rear edge to the respective lower edges of the seat backs,

a base having a pair of laterally spaced, upended, parallel, opposed sidewalls and end walls terminating in a common, planar upper edge, the seat unit slidably supported on the upper edge of the laterally spaced sidewalls for movement between a raised position wherein the seat units form back-to-back seats and a lowered position wherein the seat units flatten out to form a bed supported on the upper edge of the laterally spaced walls,

securing means slidably securing the seat unit to the base, and

locking means frictionally clamping the sidewalls of the base to the securing means to retain the seat unit in a predetermined position.

2. The seat assembly of claim **1** wherein the seat bottoms of the integral seat unit include integral spring sections therein.

3. The seat assembly of claim **2** wherein the integral spring sections are integral narrow bands extending from a common center to the outer periphery of the seat bottoms.

4. The seat assembly of claim **1** wherein the securing means includes (1) a first pair of laterally spaced, slotted guide rails secured to the underside of one of the seat bottoms near the side edges thereof and extending rearwardly of the seat bottom within the laterally spaced sidewalls of the base, (2) a second pair of laterally spaced, slotted guide rails secured to the underside of the other seat bottom near the side edges thereof extending rearwardly of the seat bottom toward the first pair of guide rails and intermeshing therewith in side-by-side relation, and (3) a rod extending through the respective slots of both pairs of slotted guide rails secured at one end to one of the laterally spaced sidewalls of the base and extending through an opening in the opposed, laterally spaced sidewall, the guide rails slidable along the rod, and wherein the locking means is secured to the other end of the rod and frictionally clamps the guide rails against one another and against the sidewalls of the base to retain the seat unit in a predetermined position.

5. The assembly of claim **4** wherein the locking means includes one or more sleeve sections surrounding the portion of the rod extending between the first and second pairs of guide rails, and cam means secured to one end of the rod, the cam means in one position exerting pressure against the sidewalls of the base, resulting in compression of the sidewalls of the base against the guide rails and sleeve section, providing a frictional lock to lock the guide rails and the seat unit associated therewith in a predetermined position.

6. The assembly of claim **1** wherein the base and seat unit are fabricated from a resilient, synthetic plastic material.

7. The assembly of claim **6** wherein the material is polypropylene.

8. A back-to-back seat assembly convertible to a bed, the assembly mountable in a pleasure boat, comprising:

a base having upended, parallel sidewalls and end walls terminating in a common upper edge and having a hollow interior for storage,

an integral seat unit of resilient plastic material including a pair of integrally connected seat-bottom/seat-back pieces which, in raised position, form back-to-back seats, and, in lowered position, flatten out to form a bed,

integral spring sections formed in the seat bottoms and seat backs of the seat unit,

a first pair of laterally spaced, slotted guide rails secured to the underside of one seat bottom near the side edges thereof and extending rearwardly of the seat bottom within the sidewalls of the base,

a second pair of laterally spaced, slotted guide rails secured to the underside of the other seat bottom near the side edges thereof, the second pair of guide rails extending toward the first pair of guide rails and intermeshing therewith in side-by-side relation,

a rod extending through the slots in each of the guide rails securing at one end to one of the sidewalls of the base at about its midpoint and adjacent the upper edge thereof and extending through an opening in the opposite sidewall, the guide rails slidable along the rod,

a sleeve section over that portion of the rod extending between the spaced-apart guide rails, and

cam means secured to the end of the rod extending through the opening in the base for frictionally locking the guide rails and the associated seat unit in a preset position, the cam means in one position exerting pressure against the sidewalls to compress the sidewalls of the base into frictional contact with the guide rails and the guide rails into frictional contact with the sleeve section to lock the guide rails and associated seat unit in a preset position.

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