Jan. 24, 1961 G. P. NISSEN 2,969,124

BOUNDING BEDS

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FIG. 1

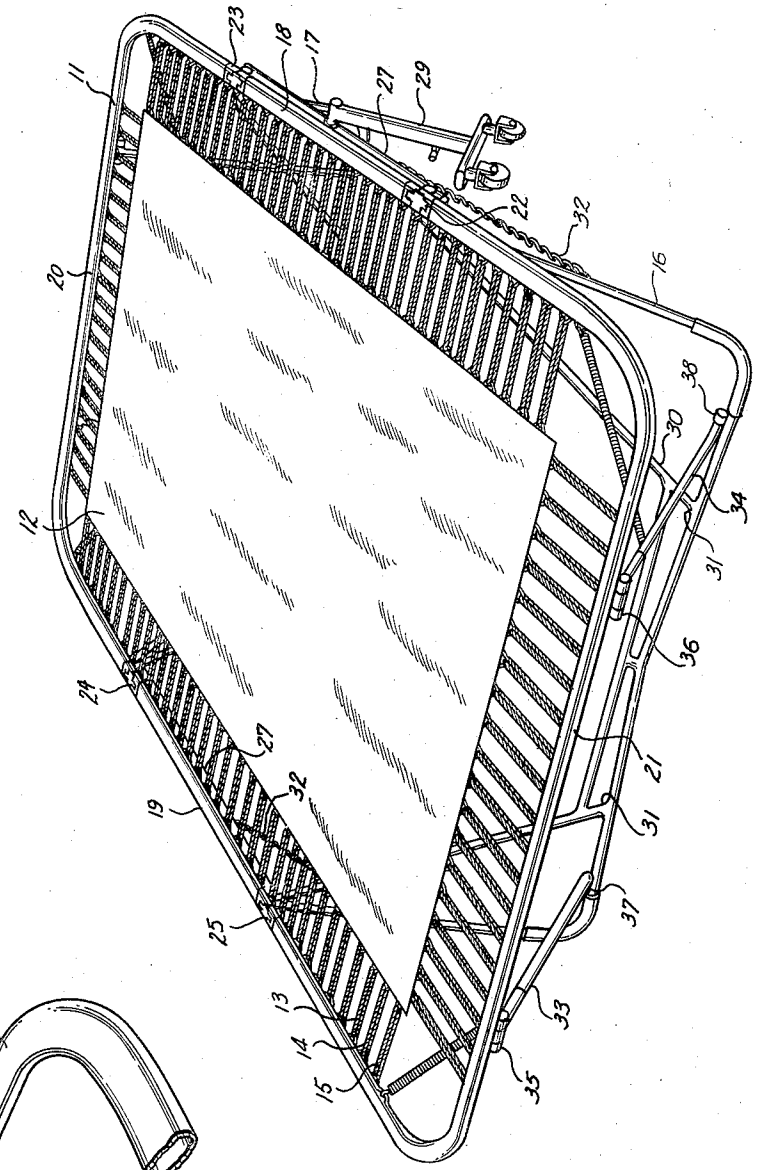
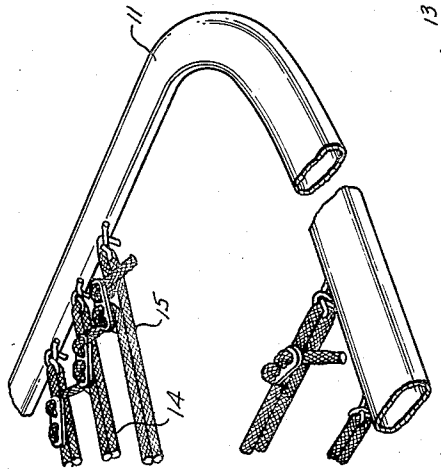


FIG. 2



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FIG. 3

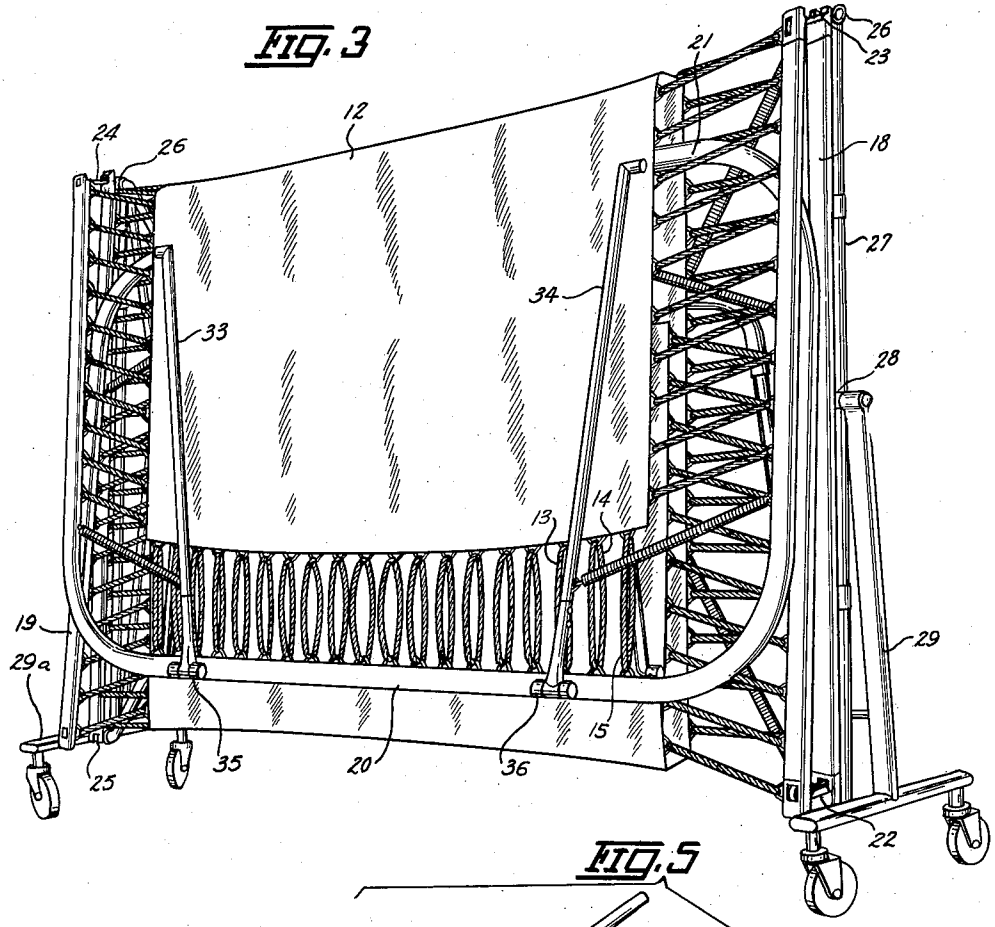


FIG. 5

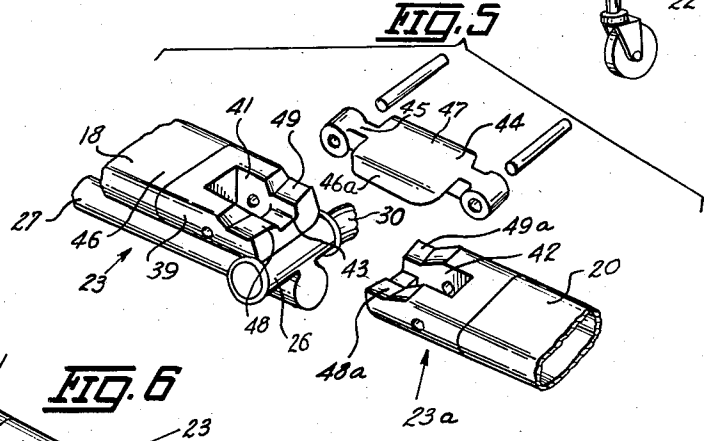
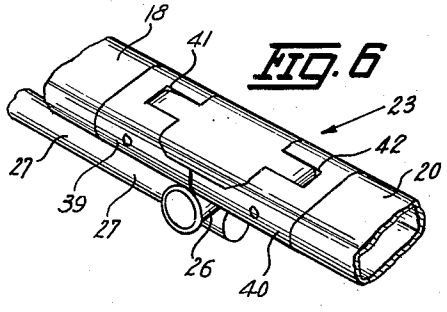


FIG. 6



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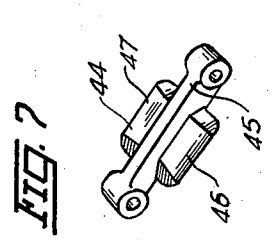


FIG. 7



FIG. 8

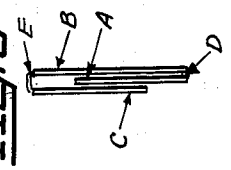


FIG. 9

FIG. 4

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BOUNDING BEDS

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1 Claim. (Cl. 182—139)

This invention relates to a bounding bed and more particularly one in which an oval tubular framework may be employed to support the resilient bounding mat, and yet compactly fold it to permit efficient storage.

It is a primary object of my invention to provide a framework for a bounding bed which is light and yet rigid against both horizontal and vertical impact forces resulting when an individual bounces upon the device.

It is yet another object of my invention to provide a framework which may be compactly folded into a vertical mass which may be readily stored.

It is yet another object of my invention to provide a device in which the hinge members of such a structure are in themselves resistant to both vertical and horizontal forces.

It is yet another object of my invention to provide a device in which detachable wheel supports may be positioned on the framework of the bounding bed to permit its easy movement from one place to another.

Other and further features and objects of the invention will be more apparent to those skilled in the art upon a consideration of the accompanying drawings and following specifications, wherein is disclosed a single exemplary embodiment of the invention, with the understanding, however, that such changes may be made therein as fall within the scope of the appended claim, without departing from the spirit of the invention.

In said drawings:

Figure 1 is a view in perspective of a bounding bed constructed according to my invention.

Figure 2 is an enlarged view of the frame member, a portion of the structure being broken away to show the configuration thereof.

Figure 3 is a view in perspective of the bounding bed shown in Figure 1 after it has been folded into position for storage.

Figure 4 is an enlarged side view of a hinge section of the frame member.

Figure 5 is an exploded view in perspective showing the operative portions of the double hinge.

Figure 6 is a longitudinal view of the hinge member showing it in its fully opened position.

Figure 7 is a view in perspective of the hinge bar.

Figure 8 is a schematic view of the bounding bed frame in open position, and

Figure 9 is a schematic view of the bounding bed frame in folded relationship to show the overlapping of the frame ends.

Referring now to the drawings, and more particularly to Figure 1; a device constructed according to my invention has a rectangular frame member **11** with a bounding bed or sheet **12** positioned within the perimeter of the frame and held by a series of elastic shock cords such as at **13**, **14** and **15**. The frame member is supported by a pair of foldable U-shaped leg members **16** and **17**. The frame member is composed of three sections, the center rails **18** and **19** on opposite sides of the frame, and the

two U-shaped end frame members **20** and **21**. The U-shaped frame members are joined to the center sections by hinges **22**, **23**, **24** and **25**.

Referring now to Figure 4; the hinge **22** is shown in an enlarged figure. In this view, the center section rail is again indicated as **18**, a portion of the U-frame member **21** being affixed to the opposite half of the hinge. The leg **16** is pivoted in a sleeve **26** which is welded to one-half of the hinge at **22***a* on the portion of the hinge which is welded to the center rail. Also welded to this sleeve is a tie rod **27** which extends longitudinally co-extensive with the rail member **18** and is joined to a similar sleeve on the hinge **23**.

The tie rod **27** is additionally joined to the rail **18** by a second sleeve **28** which is welded to both the tie rod and the rail and positioned midway between the two hinges. As will be later described, this second sleeve serves as a bearing for the wheeled supporting dolly **29**.

Referring again to Figure 4, the sleeve **26** serves as a bearing for the leg member **16**. A brace member **30** is welded to the U-frame **16** adjacent the hinge at one end and to the base portion of the same U-frame at **31**, as shown in Figure 1.

It is to be noted, in this connection, that the upward thrust of the leg section is applied to the inner half of the hinge **22** and thus to the frame member **18** and the tie rod **27**. The same structure appears on the opposite side of the frame and at all four hinged joints. In this manner, the primary support is beneath the center section of the device. A chain **32** interconnects the tie rod **27** and the leg **16**. This chain furnishes additional triangular support to the leg member.

The outer end of the main frame **21** is pivoted to the center section as previously described. To interconnect this frame member and the leg members and afford support to the outer ends of the bounding bed, I have provided two angular struts **33** and **34**. These are hinged to the frame member at **35** and **36** and attached to the leg member by means of sockets **37** and **38**. It will be noted that hinges **35** and **36** are T hinged, which hold the struts in a fixed plane of pivotal movement.

Referring again to the frame structure, and more particularly Figure 2; the frame **11** is constructed of oval tubular seamless steel, as indicated in the broken portion of the figure. This affords considerably greater rigidity to the structure. In the use of a tumbling bed, both vertical and horizontal forces are present. Vertical forces are normally resisted by the substantially vertical leg members. However, horizontal forces must be absorbed entirely by the frame structure. It will be at once apparent that a corner bend, such as shown in Figure 2, will remain rigid and stable, regardless of the forces applied, since the greater width of the tubing is in the horizontal plane.

Referring now to Figures 5 and 6; I will describe the structure of the double hinge portion in greater detail. As previously set forth, the hinge halves are joined to the center rail such as **18** on one side and **20** on the other. The hinge, indicated generally at **23** is comprised of three separate pieces and is double jointed. The two outer sections **39** and **40** are cast in an oval shape and on their inner ends have recesses such as **41** on hinge half **39** and **42** on hinge half **40**. These recesses are approximately half the depth of the casting as indicated at **43** of Figure 5. Nested and pinned in these recesses is the hinge center section **44**. This center section includes a longitudinal bar portion in the casting **45** and two wing portions **46***a* and **47**. The upper face of the wing portion is curved to correspond to the curve of the oval tubing. The under side of the wing portion is beveled to mate with a beveled shoulder **48** and **49** of hinge sec-

tion 39 and 48*a* and 49*a* of hinge section 40 of the hinge end casting. The bar mates with the recess 43 of section 39 and 43*a* of section 40.

On each end of the bar is an opening which permits the center section to be pivotally pinned to the hinge casting. When the hinge is in a closed position, such as shown in Figure 6, the upper surface of the center section is co-extensive with the end castings and the oval tubing. The wings of the center section and the shoulders of the base of the castings rest against each other to afford lateral support for the hinge and to generally prevent its tendency to twist. The hinge is a double pivoted unit in order that the end frames may be folded to a point parallel with the center section of the bounding bed.

Figure 3 shows the bed in a folded position. For the purpose of carrying this bed, I have provided two support members such as 29 and 29*a*. These support members are pivoted in the sleeve 28 on the main frame.

To fold the bed, the supports 33 and 34 are removed from the sockets 37 and 38 and pivoted up under the canvas bed in a plane parallel to the frame. The frame is then folded into the same plane as the center section, the center section having been swung 90 degrees on the supports 29 and 29*a* and bearings 28. The opposite end of the bed is similarly folded after the supports on that end have been disconnected. The leg members are pivoted on the bearings 26 and therefore can also be folded to the same plane as the center section. It is to be noted that the double hinges permit this overlapping of the various sections of the bed, and even in their open position, afford the necessary lateral stability and rigidity to the unit.

The relation of the frame section in open position is shown in Figure 8, and in folded relation in Figure 9. It will be noted that in folded relationship, the center section B is in a vertical position, the section A is folded upwardly parallel to B, and then the opposite end section C is folded downwardly over section A and parallel to both A and B.

It will be seen, from the foregoing description, that I have provided a bounding bed which includes an exceptionally strong and yet flexible frame which permits the bed to be folded into a small area and yet, in use, to be rigid and strong against all forces, either vertical or horizontal.

Although I have described a specific embodiment of my invention, it is apparent that modifications thereof

may be made by those skilled in the art. Such modifications may be made without departing from the spirit and scope of my invention as set forth in the appended claim.

I claim as my invention:

A bounding bed comprising a rectangular frame having a sheet resiliently mounted within the perimeter thereof, support means for said frame, said frame comprising a pair of parallel elongate side rails, said rails being oval in cross-section and having their greatest width in a horizontal plane, each of said oval side rails having a pair of spaced hinge sections therein, each of said hinge sections including a pair of hinge halves each comprising a body portion having an end secured to the said rail and having a deep vertical slot therein extending down from its top surface and shallow recesses therein extending laterally from the upper portion of said deep slot, said deep slot and said recesses extending to the distal end of said body portion, said slots in the two halves being aligned, a hinge link comprising a plate having apertures respectively in its opposite ends, and cover wings extending laterally from the top thereof, said plate fitting into said aligned vertical slots, said body portions each having a pin bore extending transversely therethrough in alignment respectively with the apertures in said plate, hinge pins extending respectively through said pin bores and apertures and said cover wings extending into said shallow lateral recesses; the upper surface of said plate, cover wings and the sides and bottom of said hinge sections having similar outline to the outline of said oval rails comprising the frame, whereby the strength of the frame in a horizontal direction is enhanced and the upper and side surfaces of said rails and hinge sections present a minimum of upwardly directed inherently harmful projection area.

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