June 6, 1961 R. KLEPPER 2,987,114

INFLATABLE CUSHION

Filed Aug. 15, 1958 2 Sheets-Sheet 1

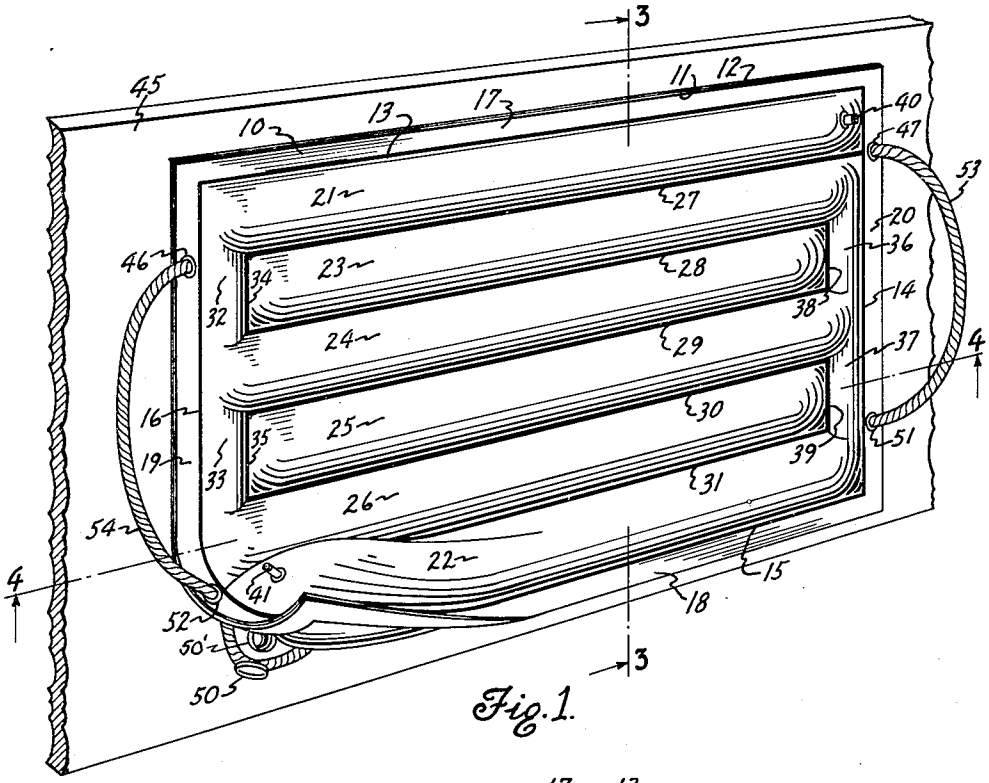


Fig. 1.

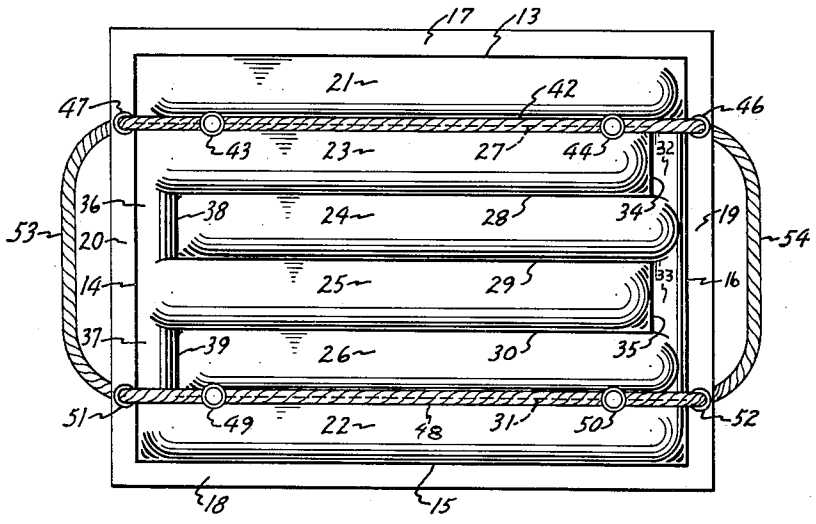


Fig. 2.

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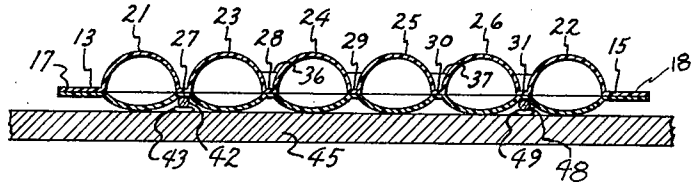


Fig. 3.

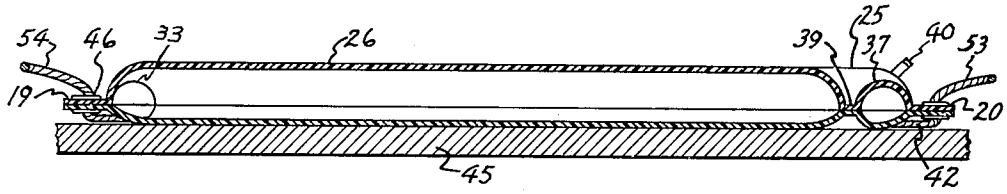


Fig. 4.

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INFLATABLE CUSHION

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This invention relates to an air cushion and more particularly to a life preserver usable as a detachable cushion seat or back rest for small boats or the like.

Cushions which may be detached from boats so as to be used as life preservers have been known heretofore. Such cushions have usually been of the type having a buoyant fiber filling material, as opposed as to the type which is air filled, for the reason that the former are less subject to losing their buoyant powers in the event they are ripped or otherwise damaged. Such detachable cushions usually have handles which are sewed to or otherwise secured to the cushion proper for purposes of easy and quick removal in the event of an emergency. Furthermore, the attaching elements which hold the cushion in its attached position are usually secured directly to the cushion. Regions in the cushion adjacent to the handle attachments and adjacent to the attaching elements are subject to considerable stress and strain which frequently damages the cushion. Consequently, if the cushion is of the air filled variety one must use extra heavy materials of construction in these regions and take precautions so that no damage will result during normal use of the cushion, and especially during the detachment of the cushion from the seat under emergency conditions. Ideally a detachable cushion usable as a life preserver should have handles and attaching elements which serve their necessary function without putting a stress and strain on the buoyant portion of the cushion itself.

The invention described herein is directed to an air filled life preserver seat cushion that is relatively inexpensive to manufacture and which is characterized by handles and seat attaching elements so formed as to permit relatively no strain upon the cushion itself during the detachment of the cushion from a seat. The cushion has attaching elements so positioned with respect to the front of the cushion that one sitting thereon or reclining thereagainst is unaware of their existence through contact therewith.

It is an object of the invention to provide an air cushion that is readily detached from a boat seat to serve as a life preserver.

Another object is to provide an air cushion which, as a result of damage thereto is less likely to fail as a life preserver.

It is an additional object to provide a seat cushion life preserver formed from two sheets of resilient heat-sealable thermoplastic sheet material, which cushion includes snap fastener elements for fixing the cushion to a boat seat or the like, and provided with handles so connected with the fastener elements that upon the pulling away of the cushion from the seat relatively no strain is placed upon the plastic, and so arranged that the cushion can be otherwise manipulated by the handles without danger of tearing the air chambers or opening the forming seams thereof.

The novel features which are believed to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, both as to its organization and method of operation, together with further objects and advantages thereof, may best be understood by reference to the following description taken in connection with the accompanying drawings, in which:

FIGURE 1 is a perspective view of the cushion showing it in attached relationship with respect to the back of a boat seat;

FIGURE 2 is a plan view of the back of the cushion showing the relationship of the snap fastener elements and rope with respect to the air chambers;

FIGURE 3 is a sectional view taken along the lines 3—3 of FIGURE 1; and

FIGURE 4 is a sectional view taken along the lines 4—4 of FIGURE 1.

The cushion **10** is composed of a front sheet **11** and a back sheet **12** of resilient heat-sealable thermoplastic sheet material. The sheets **11** and **12** are heat sealed together along a peripheral flexible joint which includes flexible side joints **13** and **15** and flexible end joints **14** and **16**. The peripheral flexible joint is spaced from the respective edges of the sheets to form a peripheral border composed of side border portions **17** and **18** at the sides of the cushion and end border portions **19** and **20** at the ends thereof.

The peripheral border surrounds a plurality of parallelly spaced elongated chambers including the side chambers **21** and **22** and the inner chambers **23, 24, 25** and **26**. Also within the peripheral border are the smaller transversely placed chambers hereinafter referred to. The border portions are attached to these elongated and transversely placed chambers by means of flexible joints **13, 14, 15** and **16**.

The elongated chambers are formed by heat sealing the front and back sheets **11** and **12** together along a plurality of parallel flexible joints, namely **27, 28, 29, 30** and **31**. These parallel joints serve to space the elongated chambers **21, 22, 23, 24, 25** and **26** apart from one another.

Along one end of the cushion is a set of two smaller chambers **32** and **33**. These chambers are spaced from the ends of alternate inner chambers **23** and **25** in a transverse manner by means of flexible heat sealed end joints **34** and **35** respectively. Chamber **32** connects with the elongated chambers **21** and **24** that are adjacent to elongated chamber **23**, whereas chamber **33** connects with the elongated chambers **24** and **26** that are adjacent to elongated chamber **25**. Thus, each smaller chamber in the set is positioned transversely to and spaced from an end of an inner elongated chamber by a flexible end joint, and furthermore connected with the elongated chambers adjacent to the inner elongated chamber from which it is laterally spaced.

Along the other end of cushion **10** is a second set of two smaller chambers **36** and **37**. These smaller chambers **36** and **37** are spaced from the ends of alternate inner chambers **24** and **26** in a transverse manner by means of flexible end joints **38** and **39** respectively. Chamber **36** connects with elongated chambers **23** and **25** whereas chamber **37** connects with elongated chambers **25** and **22**. Thus each of the smaller chambers of the second set are spaced from the end of one of the inner elongated chambers connected by a smaller chamber of the first set.

Inflation valve **40** is disposed at one end of chamber **21** and is adapted to supply air to chambers **21, 24** and **26** through interconnecting chambers **32** and **33**. Another inflation valve **41** is disposed at an opposite end of chamber **22** and is adapted to supply air to chambers **22, 25** and **23** through interconnecting chambers **37** and **36**. Thus the alternate chambers are separately supplied by air and hermetically sealed from adjacent elongated chambers. By having two sets of chambers hermetically sealed from each other damage to one set permitting the escape of air does not deter the use of the cushion as a life preserver since the other set of chambers still render the cushion buoyant.

With particular reference to Figure 2, it will be seen that the continuous rope has two sections, each section of which overlies the back of the cushion and passes upwardly through a pair of grommets to form handles with

the other section above the respective end border portions. The pair of grommets associated with each section are in alignment with one of the parallel flexible joints which space the elongated chambers so that the attachment element carrying rope section is disposed between elongated chambers on the bottom side of the cushion. Thus, section 42 of the continuous rope overlies the back of flexible joint 27 between the elongated chambers 21 and 23. Female snap fastener elements 43 and 44 are attached to the rope section 42 and are adapted to engage corresponding male elements in the seat. The end portions of rope section 42 extend into the front of the cushion through a pair of grommets 46 and 47 which are in alignment with the flexible joint 27 and located in opposite end border portions 19 and 20 respectively.

Another rope section 48 overlies the back of flexible joint 31 between the elongated chambers 22 and 26. Section 48 is thus located near the opposite side from rope section 42. Female snap fastener elements 49 and 50 are attached to the rope section 48 and are likewise adapted to engage corresponding male fastener elements in the seat. The corresponding male snap fastener element 50' is shown in FIGURE 1. The end portions of rope section 48 also extend into the front of the cushion through another pair of grommets 51 and 52 which are in alignment with the flexible joint 31 and located in opposite end border portions 19 and 20.

One end portion of section 48 and an adjacent end portion of section 42 meet along the front of end border portion 20 to form rope handle 53 whereas the other end portion of section 48 and the other end portion of rope section 42 meet along the front of end border portion 19 to form another rope handle 54.

The snap fastener elements are connected as by sewing to the rope sections and are not otherwise attached to the cushion. It will thus be seen that the buoyant portion of the cushion is only indirectly connected to the rope handles and the snap fastener elements through the grommets. The buoyant portion of the cushion is slideably attached to the rope handles by means of the grommets so that the force applied for detaching the cushion from the boat seat is transmitted directly from the handles through the intervening rope to the attaching elements. The rope preferably fits snugly into the grommets so that the cushion tends to stay in place on the seat or the like. However, the rope should not fit so tightly into the grommets as to cause an unnecessary strain to be transmitted to the cushion when the handles are pulled. Another method for retaining the buoyant portion of the cushion in place along the rope sections is to knot the end portions of each section of the rope along the front of the cushion immediately above the grommets associated with each end portion. In this way the buoyant portion of the cushion is fixed to each rope section between the knots yet is slideable therebetween so that no strain is placed upon the cushion when it is detached from a boat seat by means of the force applied to the handles. It will be apparent that one or more snap fastener elements may be employed in each rope section to engage with corresponding fastener elements positioned in the boat seat or the like.

While only a certain preferred embodiment of this invention has been shown and described by way of illustration, many modifications will occur to those skilled in the art and it is, therefore, desired that it be understood that it is intended in the appended claims to cover all such modifications as fall within the true spirit and scope of this invention.

What is claimed as new and what it is desired to secure by Letters Patent of the United States is:

1. An inflatable cushion comprising a pair of resilient thermoplastic sheets, one superimposed upon the other to form a top and bottom of the cushion, said sheets being attached along a peripheral flexible joint spaced from the respective edges thereof to form end and side border portions, said sheets being further attached within said border portions along a plurality of parallel joints to form a plurality of elongated parallelly spaced chambers, said chambers being adapted to be inflated, a pair of grommets each passing through an end border portion opposite to the other grommet and being in alignment with one of said parallel flexible joints, said one of said parallel joints being near a side border portion of said cushion, another pair of grommets each passing through an end border portion opposite to the other grommet and being in alignment with another of said parallel flexible joints, said other of said parallel joints being near the other side border portion of said cushion, a continuous rope extending downwardly through one grommet of one of said pairs of grommets, under the cushion along the bottom of the flexible joint aligned therewith, upwardly through the other grommet of said one pair, to and downwardly through a grommet of the other of said pairs of grommets, said grommet of the other of said pairs of grommets being in the same end border portion as the other grommet of said one pair of grommets, under the cushion along the bottom of the flexible joint in alignment with the other of said pairs of grommets, upwardly through the other grommet of said other pair in the opposite border portion and thence above said opposite end border portion to complete the continuous rope, the respective portions of the rope which extend between the grommets in each end border portion constituting handles, and at least one fastener element attached to each of the rope sections extending between said pairs of grommets.

2. An inflatable air cushion comprising two elongated side chambers and a plurality of adjacently spaced inner elongated chambers therebetween, said side and inner chambers being parallelly spaced one from another by flexible joints and being adapted to be inflated, a peripheral border surrounding said chambers and attached thereto by a flexible joint, a section of a continuous rope overlying the back of a flexible joint between said elongated chambers near a side thereof, said section having at least one snap fastener element attached thereto, the ends of said section extending into the front of the cushion through a pair of grommets aligned with said flexible joint and in opposite end border portions, another section of said continuous rope overlying the back of a flexible joint between said elongated chambers near the other side thereof, said section having at least one snap fastener element attached thereto, the ends of said section extending into the front of the cushion through another pair of grommets aligned with said flexible joint and in said opposite end border portion, the respective adjacent ends of said sections meeting to form rope handles overlying the front of the respective said end border portions.

3. A seat cushion comprising two elongated parallel side chambers, at least one elongated middle chamber spaced between and parallel to said side chambers, a peripheral border having two opposite edges and surrounding said side and middle chambers, a pair of grommets respectively attached to said opposite edges of said border and being in oppositely facing alignment between one of said side chambers and middle chamber, another pair of grommets respectively attached to said opposite edges of said border and being in oppositely facing alignment between the other of said side chambers and middle chamber, a continuous rope extending through one grommet of said pair of grommets, beneath said cushion between said one side chamber and middle chamber, through the other grommet of said pair of grommets, to and through one grommet of said other pair of grommets, said one grommet of said other pair of grommets being in the same one of said opposite edges of said border as said other grommet of said pair of grommets, said rope continuing beneath said cushion between said other side

chamber and middle chamber, through the other grommet of said other pair and thence to said one grommet of said pair of grommets to complete said continuous rope, the respective portions of said rope which extend between the grommets in each of said opposite edges of said border constituting handles for said cushion.

4. The cushion as defined in claim 3 further comprising at least one element of a snap fastener attached to each of the rope sections underlying said back of said cushion for detachably mounting said cushion on a seat.

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