Feb. 22, 1949. W. Z. NORMAN ET AL 2,462,215

COMBINED BAG AND INFLATABLE PILLOW

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Fig. 1

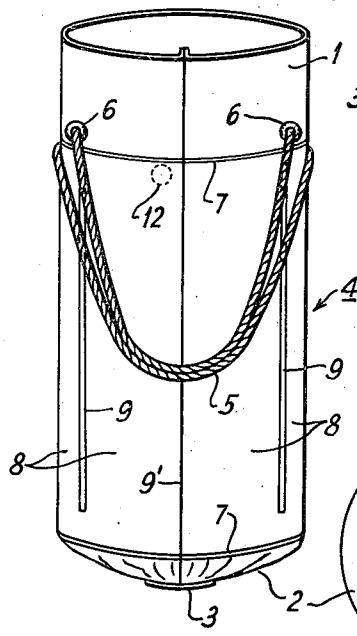


Fig. 2

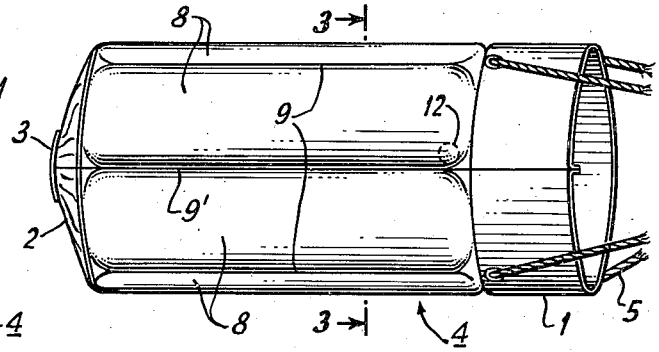


Fig. 4

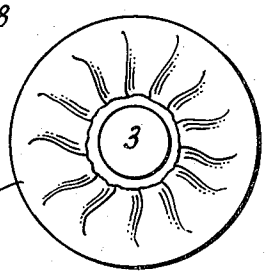


Fig. 3

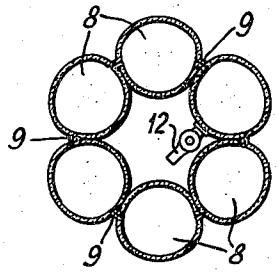


Fig. 5a

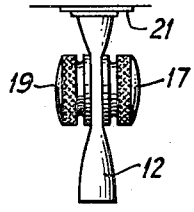


Fig. 5b

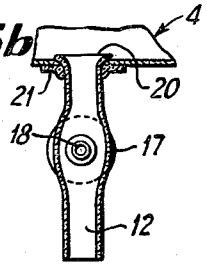


Fig. 6

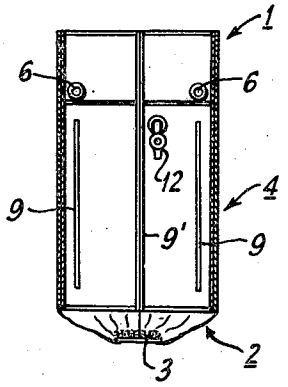
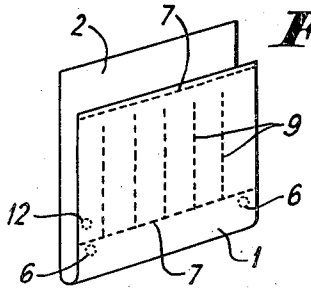


Fig. 7



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COMBINED BAG AND INFLATABLE PILLOW

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6 Claims. (Cl. 5—341)

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Our invention relates to inflatable devices, and more particularly to a combination bag and inflatable pillow.

An object of our invention is to provide an attractive, lightweight, waterproof, portable hand-carrying bag which is useful for carrying beach-wear or other articles, and which can be inflated for use as a pillow.

Another object is to provide a lightweight, hand carrying receptacle having a plurality of inflatable compartments along the major portion of its length, and so designed as to eliminate the need for threads in its fabrication.

A more specific object is to provide a combination handbag and inflatable pillow which is made from a single sheet of thermoplastic material, and which is provided with inflatable intercommunicating compartments in association with an air valve acting both as an inlet and an outlet for the compartments.

A better understanding of our invention may be had from a reading of the following description which is accompanied by a drawing, wherein:

Fig. 1 shows an elevation or perspective view of the combination bag and pillow of our invention in deflated condition;

Fig. 2 shows the bag of Fig. 1 in inflated condition and ready for use as a pillow;

Fig. 3 is a cross-sectional view of Fig. 2 along the line 3—3;

Fig. 4 is a view of the combination bag and pillow looking at it from the bottom;

Fig. 5*a* shows a side view of the air valve;

Fig. 5*b* is a longitudinal section through the air valve, the bag being torn away to show the manner of securing the flexible tube of the air valve to the bag;

Fig. 6 is a vertical cross-section through the bag of Fig. 1 looking at the valve; and

Fig. 7 illustrates, generally, the manner in which the combination bag and pillow of our invention can be fabricated from a single sheet of thermoplastic material.

Referring to the drawing in more detail, wherein like reference numerals in the several figures indicate similar elements, the inflatable bag and pillow comprises a top or flap section 1, a bottom section 2 terminating in a rosette 3, and an intermediate section 4. These sections are made from a thermoplastic or thermosetting synthetic plastic sheeting material capable of being rendered plastic and tacky on heating. Such a material may be a polyvinyl plastic produced under the tradename "Vinylite." The specific chemical nature of the sheeting is no part of our invention,

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although it should be understood that the sheeting utilized is one which bonds to itself by the application of heat and pressure.

The top or flap section 1 is shown perfectly cylindrical in shape, but it should be understood that in practice, this portion will seldom, if ever, retain this contour because the pliable and flexible character of the material from which it is made will cause the flap to fold and assume a less symmetrical configuration. Actually, in the deflated condition assumed for Fig. 1, the opposed halves of the flap fold toward each other and tend to close the opening to the bag, when the bag is carried by the draw string 5.

The draw string 5 comprises a suitable endless cord, which passes through two pairs of grommets or metal eyelets 6, 6 located near the bottom of the flap 1.

The intermediate section 4 is bonded to the flap 1 and to the bottom section 2 along the lines 7, 7. Section 4 is composed of a plurality of inflatable air compartments 8, 8 separated from one another by means of longitudinally arranged parallel and co-extensive seams or bond lines 9, 9 whose ends are spaced from the cross-wise running bond lines 7, 7. A centrally located longitudinally extending bond or seam 9' extends over the entire length of the bag. Since the intermediate section 4 comprises two thicknesses of sheeting, suitably sealed or bonded together at lines 7, 7, it will be apparent that the compartments 8, 8 are intercommunicating at their ends. The longitudinally extending bond lines 9, 9 and 9' are preferably equi-distantly spaced.

The bond lines or seams 9, 9 and 7, 7 may be of any suitable width, and may be produced by any known and suitable method, preferably by the so-called electronic heating method. To obtain these bond lines or seams by electronic heating, the thermoplastic material is employed as a dielectric in a high frequency electric field. In practice, two thicknesses of material are run through electrodes which set up a high frequency field therebetween whereby a high degree of heat is generated in the thermoplastic material. There is concurrently applied pressure to the two thicknesses of material at the points to be bonded to thereby effect a seal or bond which becomes virtually integral with the material with no observable line of division at the bonding lines between the thickness joined together. In this way, highly durable airtight seams are produced at edges 7, 9 and 9'.

For inflating the compartments 8, 8 of the device of our invention, there is provided an ad-

justable air valve which is located on the interior of the bag and sealed to the inner thickness of sheeting of the section 4 preferably near the flap 1 so as to be easily accessible to the wearer when it is desired to blow up the bag. This air valve may be any suitable type but is preferably of the pinch clamp type described in detail in our co-pending application Serial No. 660,827 filed April 9, 1946. The general construction of this valve which supplies air to the compartments 8, 8 is shown in Figs. 5a and 5b and comprises a tube 12 preferably made of a thermoplastic material thereby to permit the upper end of the tube 12 to be bonded to the inner face or thickness of the intermediate section 4. The pinch clamp for the air tube 12 comprises a male clamp member 17 having a threaded stem 18 in threaded engagement with a female clamp member 19. The free end of stem 18 is peened or enlarged to prevent the removal of clamp member 19 from the stem 18. Upon rotating clasp member 19 toward male member 17, the inner faces of the clamp members 17 and 19 will constrict the channels of the tube 12. It is for this reason that we fashion the clamp members in the fashion of circular buttons or heads whose cooperating inner faces are flat. Fig. 5a shows the closed position of the pinch clamp members 17 and 19. It is possible to prevent any escape of air through the channels of tube 12 merely by rotating button 19 as far as it can move in clamping position. The air is readily permitted to escape by unscrewing the member 19 in the opposite sense.

The specific mode of coupling the upper end of tube 12 to the inner thickness of intermediate section 4 is as follows: The upper end of tube 12, as shown in Fig. 5b is peened outwardly as at 20 and bonded to the inner face of the inner thickness of sheeting. An opening has, of course, been previously provided to receive the tube end 20. A thermoplastic collar or washer 21 has been slipped over the tube end 20 prior to fitting the latter into the bag interior. The collar 21 is bonded to the inner thickness of sheeting by means of heat and pressure. In other words, a circular area of the inner thickness of sheeting is sandwiched between peened end 20 and collar 21 and bonded thereto. This mode of coupling provides an air-tight joint between the tube 12 and the bag.

The bottom section 2 comprises, in effect, a continuation of the intermediate section 4. The lowermost portion of the bottom section is folded or bunched together and the loose edges tightly joined together into a rosette by a circular thermoplastic disc at zone 3, by means of heat and pressure.

A longitudinal cross-section of interior of the combination bag and inflatable pillow of our invention, looking toward the air valve, is shown in Fig. 6. It should be noted that both the top or flap section 1 and the intermediate section 4 are each made up of two thicknesses of thermoplastic sheeting material, while the bottom section 2 is made up of only one thickness of thermoplastic sheeting material. The frayed ends at the rosette zone 3 are the remains of the bottom bunched up or pleated portion which is cut off after the rosette is formed, and does not show on the exterior of the bag.

The central vertical line 9' which extends over the entire length of the bag of Figs. 1, 2 and 6 indicates the bond or seam which joins together the longitudinal edges of the sheeting from which the bag is made.

In fabricating the inflatable device of our invention, it is preferred that we use a single sheet of thermoplastic material which is folded in the manner illustrated in Fig. 7. The rear portion of the folded sheet of Fig. 7 is somewhat longer than the front portion. The broken lines indicate generally the locations of the seams or bond lines and have been indicated similarly as in Figs. 1, 2 and 6. The circular holes for the locations of the eyelets 6, 6 and the air valve 12 have also been labeled. The bottom folded part of the single sheet of Fig. 7 constitutes the top or flap section 1 of the completed bag, while the single thickness part at the top of Fig. 7 constitutes the bottom section 2 of the completed bag. In the process of manufacture, the air valve 12 is preferably joined to the inner thickness of sheeting of Fig. 7 before the bond or seam lines 7 and 9 are made. After the bond or seam lines 7 and 9 are made, the vertical edges are bonded together by heat and pressure (electronically, preferably) to form the bond line 9' and thereby produce a cylindrical sheeting. The section 2 is then bunched and closed up at the rosette zone. The bag is thus fabricated in an inverted or inside-out position.

An inspection of the inflated bag shown in Figs. 2 and 3, will reveal lateral air circulation passages between inflated compartments. The existance of these air circulation passages or grooves in the inflated bag when the device is used for long periods of time tends to prevent discomfort to the head of the user.

The combined bag and pillow of our invention is of course not limited to the precise method of manufacture set forth above nor to the specific materials mentioned. And of course, a pair of thermoplastic sheets of the same relative areas of the front and rear portions of the single sheet of Fig. 7 can be used instead of a folded single sheet by adding an additional seam to the fold line.

What is claimed is:

1. A combination hand-carrying bag and inflatable pillow, comprising a flap section open at the top, a bottom closed section, and an intermediate section bonded to both said flap and bottom sections, said intermediate section comprising two thicknesses of sheeting which are bonded together along a plurality of parallel spaced bond lines to thereby provide compartments, said compartments being intercommunicating at their ends, and means for inflating and deflating said compartments.

2. A combination hand-carrying bag and inflatable pillow, comprising a flap section open at the top, a bottom closed section, and an intermediate section bonded to both said flap and bottom sections, said intermediate section comprising two thicknesses of sheeting which are bonded together along a plurality of parallel spaced longitudinally extending bond lines to thereby provide compartments, said lines being coextensive and shorter than the length of said intermediate section, whereby said compartments are intercommunicating at their ends, a seam extending along the entire length of said bag and parallel to said lines, and an air valve in the interior of said bag and joined to the inner thickness of said intermediate section.

3. A combination hand-carrying bag and inflatable pillow, comprising a flap section open at the top, a bottom closed section, and an intermediate section bonded to both said flap and bottom sections, said intermediate section comprising two thicknesses of sheeting which are bonded

together along a plurality of parallel spaced longitudinally extending bond lines to thereby provide compartments, said lines being coextensive and shorter than the length of said intermediate section, whereby said compartments are intercommunicating at their ends, a seam extending along the entire length of said bag and parallel to said lines, an air valve in the interior of said bag and joined to the inner thickness of said intermediate section, gathering means in connection with the flap section for closing the latter, and a bottom disc of a diameter smaller than that of said intermediate section, the ultimate end of said bottom section being bonded to said disc in gathered folds.

4. A method of fabricating a combination hand-carrying bag and inflatable pillow which includes folding a single sheet of the thermoplastic material to provide opposed sections of unequal area, attaching a valving means to one of said sections, thermally bonding by the application of high frequency waves to said material the smaller area section to the larger area section transversely along a line near the free end of said smaller area section and also along a parallel line somewhat removed from the fold, thermally bonding said two opposed sections together in similar manner along parallel lines which are spaced at all points from said first lines, thermally bonding together in similar manner the longitudinal or side edges of said two sections to form a hollow interior for said bag, and closing the free end of said larger area section.

5. A method of fabricating a combination hand-carrying bag and inflatable pillow which includes folding a single sheet of thermoplastic material to provide opposed sections of unequal area, attaching a valving means to one of said sections, thermally bonding by the application of high frequency waves to said material the smaller area section to the larger area section

transversely along a line near the free end of said smaller area section and also along a parallel line somewhat removed from the fold, thermally bonding said two opposed sections together in similar manner along spaced longitudinal and substantially coextensive lines which stop short of at least one of said transversely extending lines, thermally bonding together in similar manner the longitudinal or side edges of said two opposed sections for their entire lengths to thereby provide a hollow interior for said bag, sealing together the free edges of the extra length of said larger area section to form the bottom of said bag, and attaching gathering means to the folded end of said bag.

6. A method as claimed in claim 5, wherein the sealing of the free edges of said larger area is accomplished by gathering said edges and sealing them to a disc of a circumference smaller than that of said hollow bag.

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REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
303,859	Kiam	Aug. 19, 1884
789,428	Hruby et al.	May 9, 1905
1,677,743	Berton	July 17, 1928
2,068,134	Houghton	Jan. 19, 1937
2,145,289	Boudreaux	Jan. 31, 1939

FOREIGN PATENTS

Number	Country	Date
164,789	Switzerland	Jan. 2, 1934

OTHER REFERENCES

"Electronics," Aug. 1943, Publication, (pages 90–93, incl., and 160–168, incl.).