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PNEUMATIC BED

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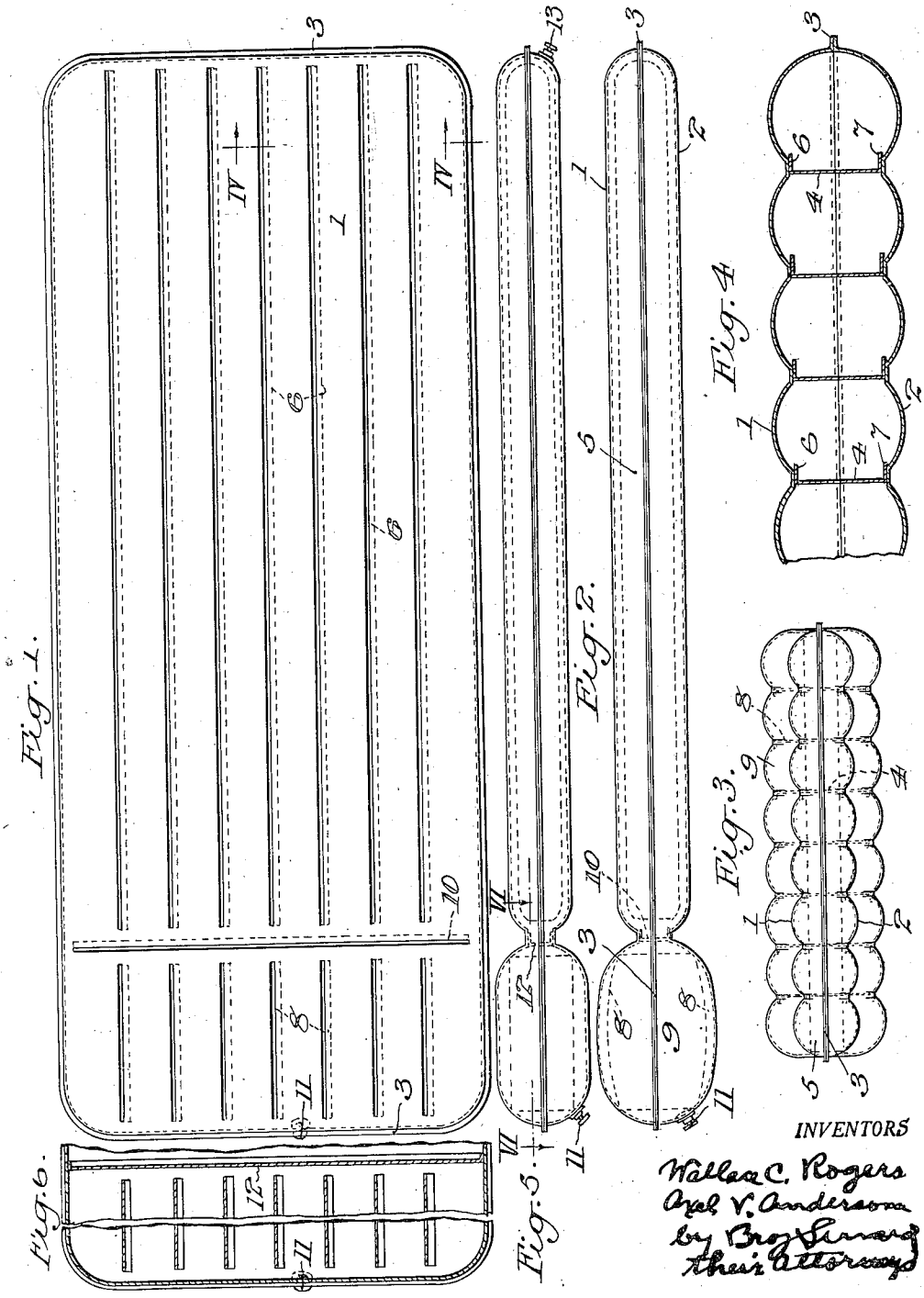

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PNEUMATIC BED

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This invention relates to a pneumatic bed and has for an object to provide such an article which may be collapsed into very small bulk for storage and readily and expeditiously inflated for use.

Another object is to provide such an article which requires no frame for its use, but may be laid upon the floor or the ground and fitted with suitable covers, sleeping bag, or the like, for occupancy; although it may, if desired, be fitted into a suitable bedstead, or the like, either rigid or collapsible.

Another object is to provide such an article which has a body portion and a pillow portion of different thickness when inflated, and in which the association of the body and pillow causes the latter to assume a relatively elevated position when the bed is laid on a flat surface.

Another object is to provide such an article in which the body and pillow have internal stays that insure substantial maintenance of form when in use; and in which a transverse stay is located at the function of body and pillow to facilitate assumption by the latter of the desired sleeping position with relation to the former.

Another object is to provide such an article in which the body and pillow may be separately inflated and to different pressures, to promote comfort.

A further object is to provide certain improvements in the form, construction, and arrangement of the parts, whereby the above named and other objects may be effectively attained.

A practical embodiment of the invention is shown in the accompanying drawings, in which

Fig. 1 represents a top plan view of the bed when inflated;

Fig. 2 represents a side elevation of the same;

Fig. 3 represents an end elevation of the same viewed at the foot of the bed;

Fig. 4 represents an enlarged, detail section taken in the plane of the line IV—IV of Fig. 1, looking in the direction of the arrows;

Fig. 5 represents a view similar to Fig. 2, but showing a modified form of the invention; and

Fig. 6 represents a broken detail horizontal section taken in the plane of the line VI—VI of Fig. 5, looking in the direction of the arrows.

The bed includes a top member 1 and a bottom member 2, which are similar and may consist of sheets of textile fabric which have been suitably rubberized to make them air tight; though any other appropriate sheet material that is impervious to air may be employed.

The lower peripheral face of the top member

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and the upper peripheral face of the bottom member are treated with a vulcanizable rubber compound, or the like, so that the said edges will be firmly bonded together or united, as indicated at 3, when subjected to suitable pressure and heat in a mold, or when rolled or "stitched" and submitted to open steam heat, or otherwise vulcanized, all as will be well understood by those skilled in this art without further description.

A plurality of stays 4 are located within body 5 of the bed, which stays are preferably composed of textile fabric, or other suitable flexible sheet material, and have their upper and lower edges 6, 7, folded so as to take a substantially right angular position, as well shown in Fig. 4. The upper surface of the edge 6 and the lower surface of the edge 7 are treated with a vulcanizable rubber compound to effect their adherence to the members 1 and 2 under vulcanizing heat and pressure, like the peripheries of the said members; and those portions of the members with which the edges 6 and 7 of the stays 4 contact may be correspondly treated for the same purpose, if desired.

Similar stays 8 are located within the pillow 9 of the bed; and an additional stay 10 is positioned at the junction of the body and pillow.

These stays impart to the bed effective resistance to unwanted distortion when in use and subjected to the weight of an occupant, and they eliminate the necessity of vulcanizing, or otherwise securing, the top and bottom members 1, 2, directly to each other at intervals for this purpose, which direct contact would deeply crease the structure and entail other objections.

It will be observed that there is sufficient slack in those portions of the members 1, 2, which form the pillow 9 to cause the latter to have substantially greater thickness than the body 5 when the bed is inflated, thereby obtaining the desired pillow effect which is enhanced when the bed is laid on a flat surface and the underside of the pillow is brought into the same plane as the underside of the body. The stay 10 effectively cooperates in this feature of the structure.

A valve 11, of any well known or approved form, is placed in the underside of the pillow for inflation and deflation of the bed, and it will be seen that the stays 4, 8 and 10 are so arranged as to leave a continuous air channel throughout the bed and facilitate its inflation and deflation through a single valve.

When deflated, the bed is collapsed into the combined thickness of the top and bottom members 1, 2, plus the folded thickness of the stays

4, 8, 10; and the structure may then be very compactly rolled or folded for storage or transportation; while inflation may be very rapidly and easily accomplished by a hand pump or any other source of air pressure.

The number, length, and cross section of the stays 4, 8, 10 may be varied to suit particular requirements; but it has been found highly desirable to form stay 10 so that it imparts a substantial constriction or decrease in thickness to the inflated bed along a line between the body 5 and the pillow 9, to promote sleeping comfort and lend the structure to relative movement of the body and pillow when the bed is laid on a flat surface, as well as to provide reinforcement.

The modified form of the invention shown in Figs. 5 and 6 is like the form already described, except that the stay which separates the pillow from the body, denoted by the reference numeral 12, extends completely across the structure; while a second valve 13 is provided in the body. The stay 12 is made impervious to air, as, for example by rubberizing, and is vulcanized to the top member 1 and bottom member 2 with an airtight contact. Consequently, the pillow and body of the bed may be separately inflated and to different pressures, if desired, for promoting the bodily comfort of the occupant. This construction prevents the weight of the occupant's body from unduly increasing the air pressure within the pillow and rendering it uncomfortably hard.

In Fig. 5 both the body and pillow are illustrated as being inflated to a lesser degree than illustrated in Fig. 2.

As hereinabove indicated, the parts may be secured together by the use of a suitable vulcanizing mold which supplies or is subjected to heat, and affords pressure at the portions intended to be united, or in any other approved manner; all of which is well within the skill and knowledge of those familiar with the rubber industry. The airtight insertion of the valves 11 and 13 is also a commonly known procedure which calls for no detailing herein.

It will be understood that various changes may be resorted to in the form, construction, material, and arrangement of the several parts without departing from the spirit and scope of the invention; hence we do not intend to be limited to details herein shown or described except as set forth in the claims or required by disclosures of the prior art.

What we claim is:

1. An inflatable pneumatic bed comprising a body portion, a pillow portion, and a constricted portion intermediate the body and pillow portions, said body portion being provided with a plurality of substantially uniform and substantially parallel longitudinally extending flexible stays connected with the inside top and bottom of the bed for preventing unwanted distortion thereof, and said constricted portion being provided with a transversely extending flexible stay connected with the inside top and bottom of the bed, said last named stay being less in height than the stays in the body portion for the purpose of maintaining the constriction.

2. An inflatable pneumatic bed comprising a body portion, a pillow portion, and a constricted portion intermediate the body and pillow portions, said body portion being provided with a plurality of substantially uniform and substantially parallel longitudinally extending flexible stays connected with the inside top and bottom of the bed for preventing unwanted distortion thereof, said constricted portion being provided with a transversely extending flexible stay connected with the inside top and bottom of the bed, said last named stay being less in height than the stays in the body portion for the purpose of maintaining the constriction, and said pillow portion being provided with a plurality of substantially uniform and substantially parallel longitudinally extending flexible stays connected with the inside top and bottom of the bed for preventing unwanted distortion of the pillow portion.

3. An inflatable pneumatic bed comprising a body portion, a pillow portion, and a constricted portion intermediate the body and pillow portions, said body portion being provided with a plurality of substantially uniform and substantially parallel longitudinally extending flexible stays connected with the inside top and bottom of the bed for preventing unwanted distortion thereof, said constricted portion being provided with a transversely extending flexible stay connected with the inside top and bottom of the bed, said last named stay being less in height than the stays in the body portion for the purpose of maintaining the constriction, and said pillow portion being provided with a plurality of substantially uniform and substantially parallel longitudinally extending flexible stays connected with the inside top and bottom of the bed for preventing unwanted distortion of the pillow portion, the said pillow being also formed to have greater thickness than the body portion when the bed is inflated whereby the bed will be flexed along the line of the constricted portion when it is laid on a flat surface thereby elevating the upper surface of the pillow portion above the upper surface of the body portion to increase the comfort of the occupant.

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