Aug. 27, 1963 A. E. MARTIN 3,101,492

SWIMMING AID

Filed April 28, 1961 2 Sheets-Sheet 1

Fig. 1

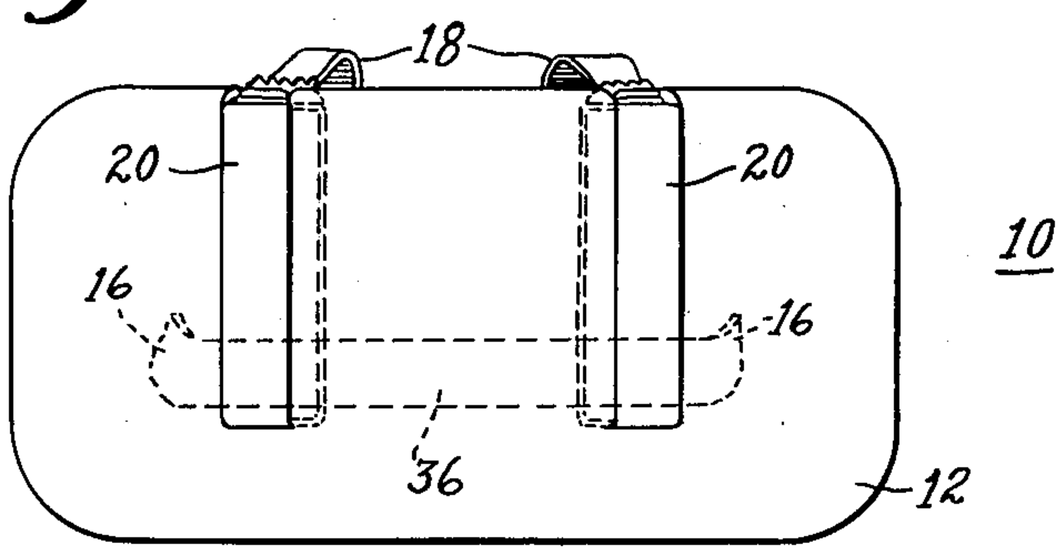

Fig. 2

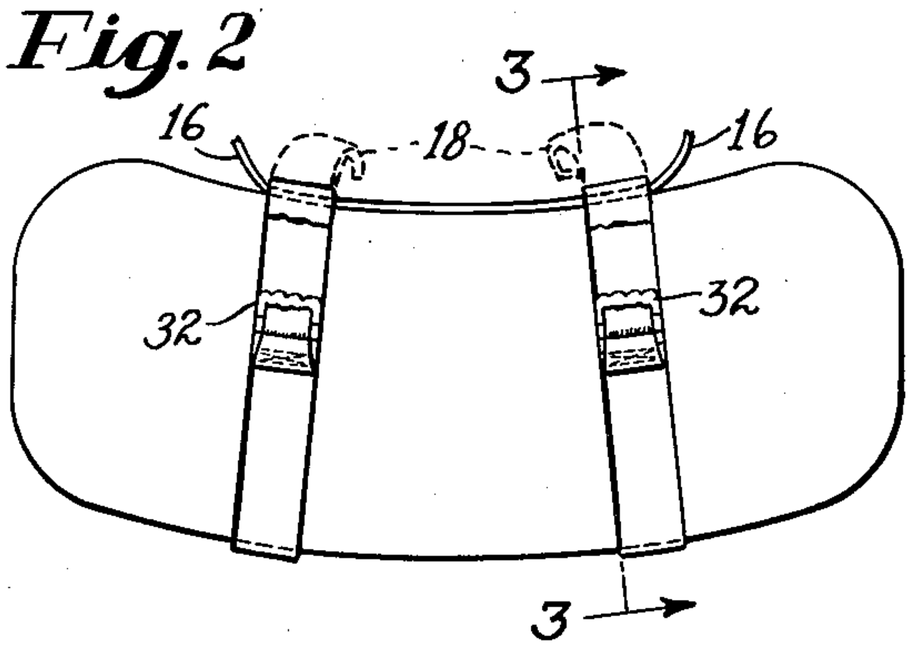

Fig. 3

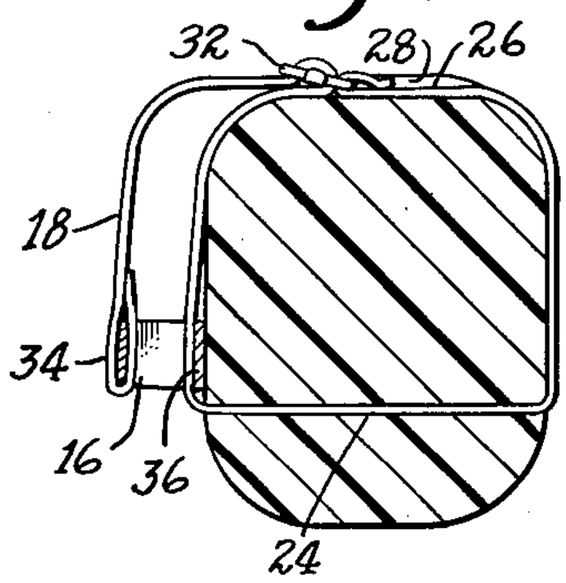

Fig. 4

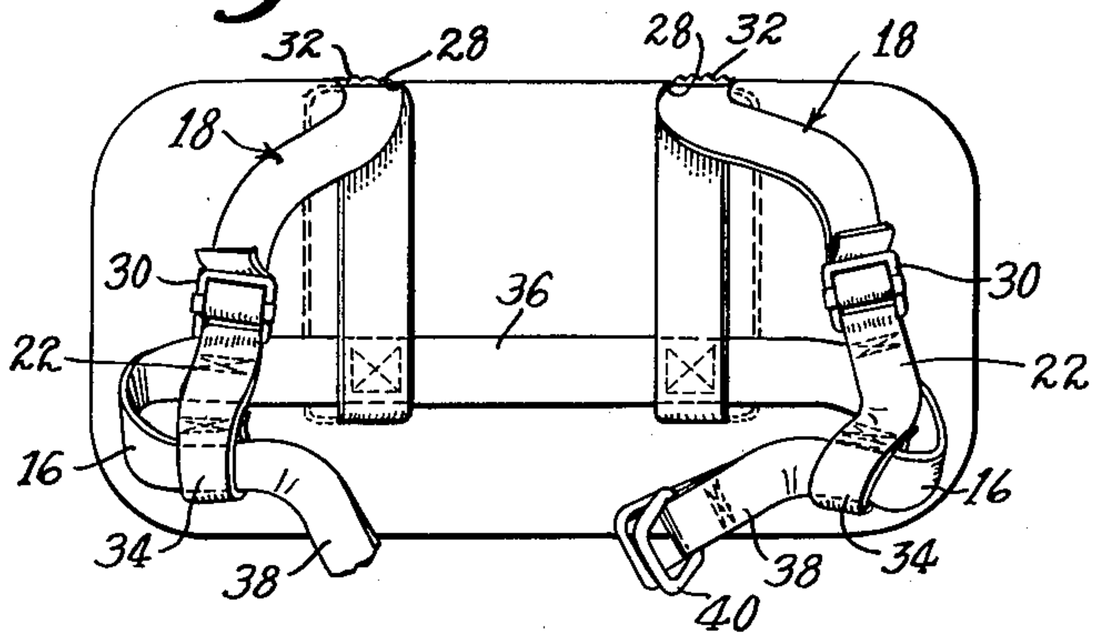

Fig. 5

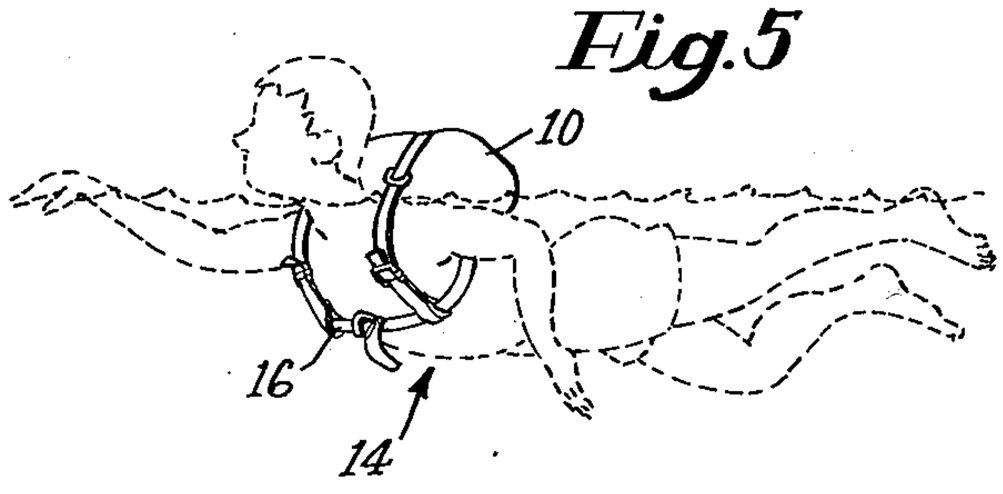

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Fig. 6

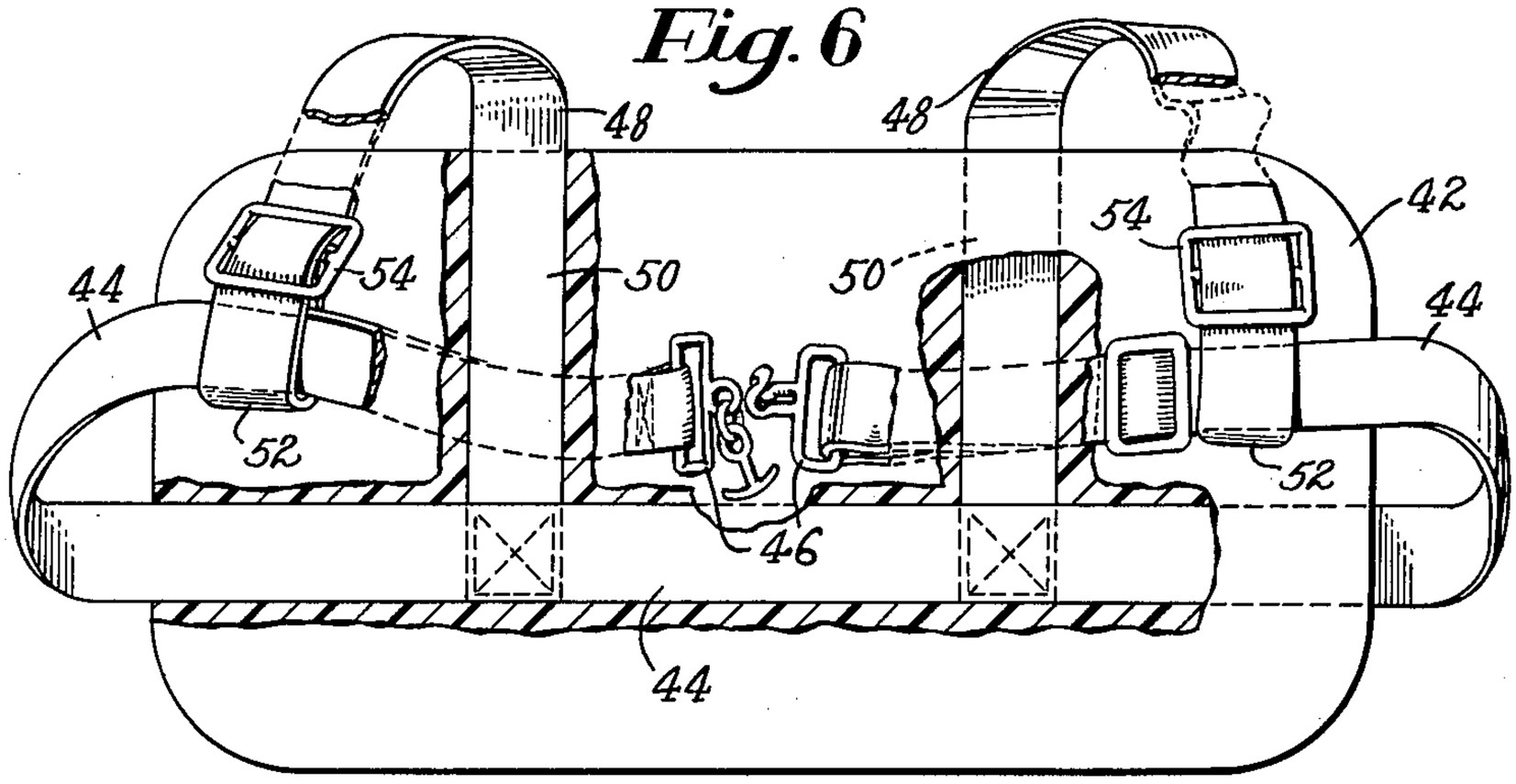


Fig. 7

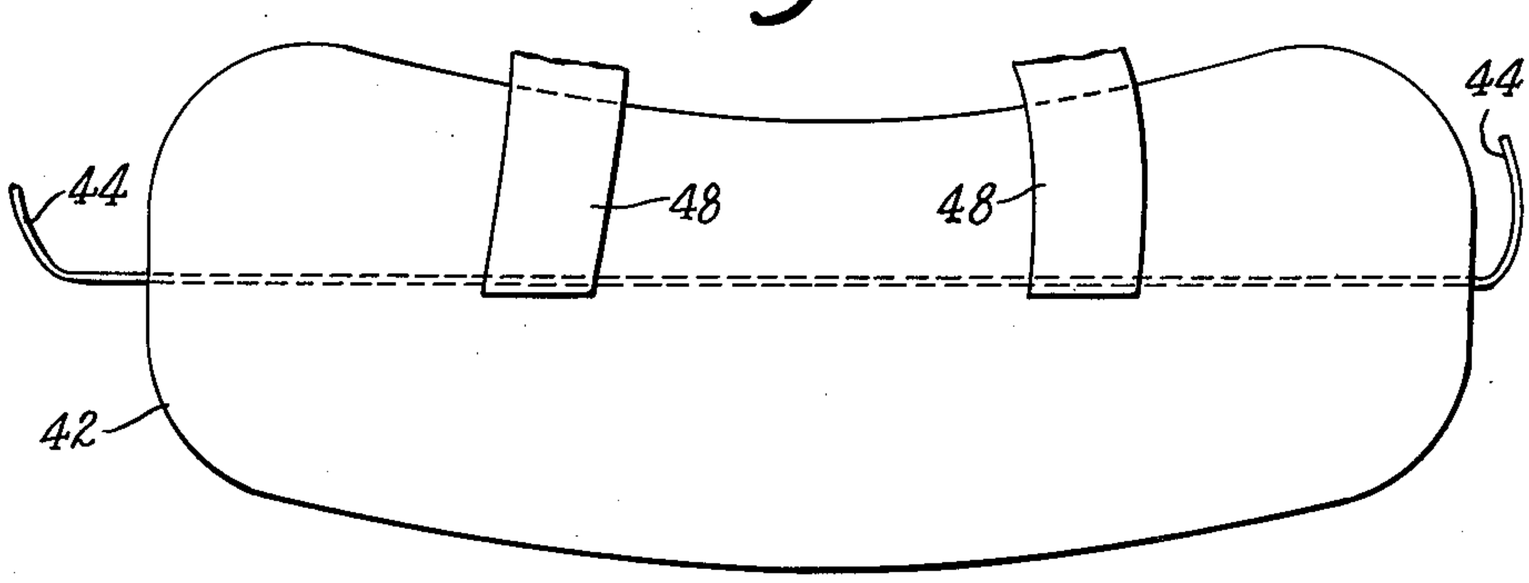
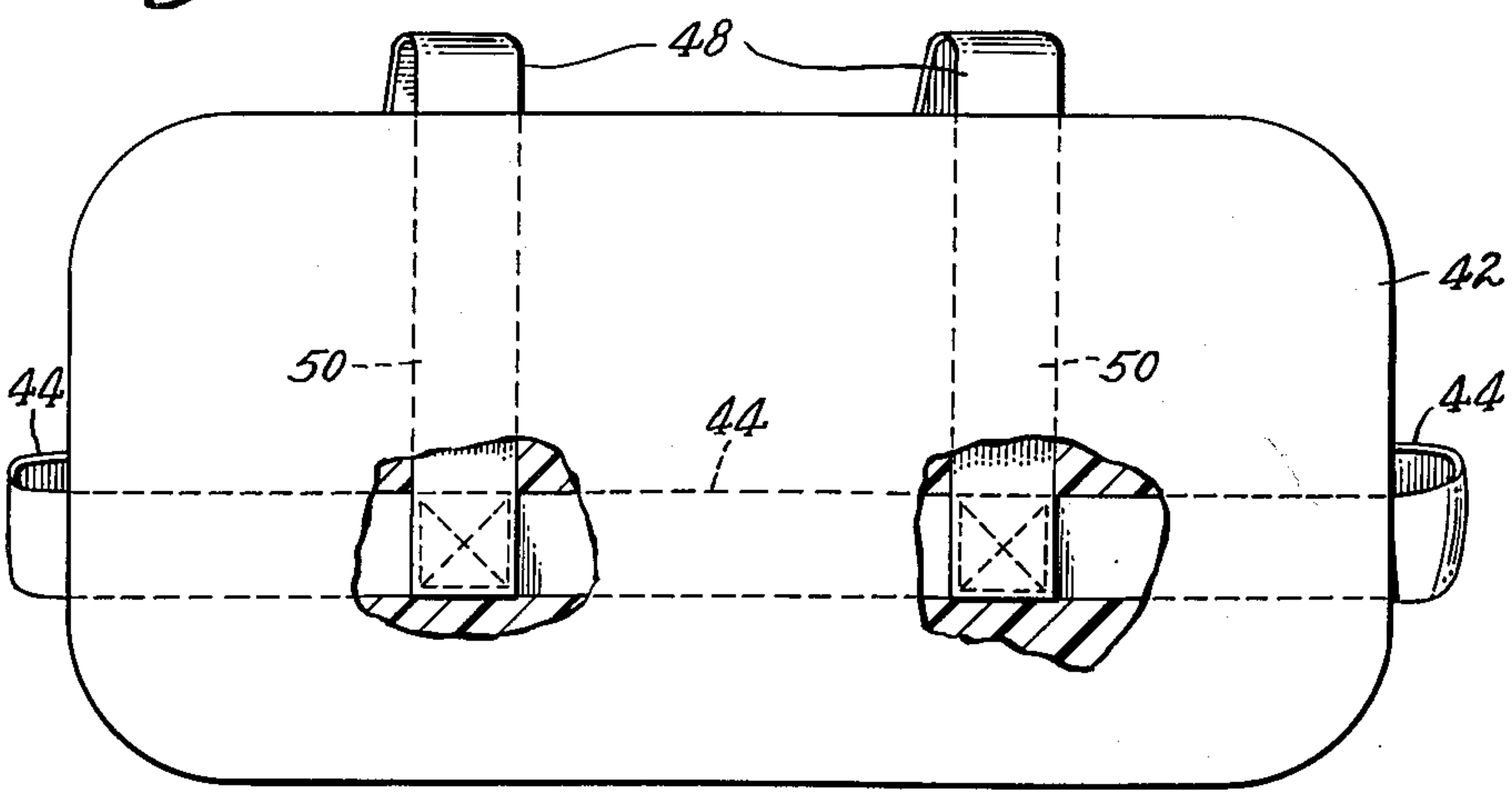


Fig. 8



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SWIMMING AID

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This invention relates generally to swimming aids, and has particular reference to a swimming aid which is particularly adapted for use in giving swimming instructions to small children.

Flotation devices such as life jackets of the conventional vest type have been found generally unsatisfactory for use as a swimming training aid, since the construction of such devices causes them to interfere with the free movement of the arms, and impedes progress through the water. They also tend to promote a false sense of security, since they impart buoyancy to the wearer at all times, even while the wearer is in a horizontal swimming posture.

It has been considered desirable to utilize new types of flotation materials such as foamed plastics for such a device, since such materials have an extremely low density, and do not absorb water even during long periods of immersion. However, these materials have not been generally accepted for this purpose, possibly because of the low tensile strength, which makes it difficult to securely and safely attach retaining straps to the material, and because heretofore the design of such devices has provided slight, if any, improvement over conventional life jackets in the amount of interference with normal swimming motions and with progress through the water.

The object of this invention is to provide a swimming aid adapted to be worn in a manner such that buoyancy is imparted to the wearer only when the wearer is in an upright position in the water, such as is assumed during a rest period, and is out of the water when the wearer assumes the normal horizontal swimming posture.

A further object of this invention is to provide a swimming aid adapted to be worn in such a manner that normal swimming motions and progress through the water are not impeded.

A further object of the invention is to provide a swimming aid assembly having a buoyant body formed of foamed plastic, and retaining straps secured thereto in a novel manner which makes use of the compressive strength of the material so that the danger of the straps separating from the buoyant body is eliminated.

Other objects of the invention will be apparent to one skilled in the art from the following detailed description of specific embodiments thereof.

Referring to the drawing:

FIG. 1 is a view in elevation of a swimming aid embodying the features of the invention;

FIG. 2 is a top plan view of the device of FIG. 1;

FIG. 3 is a view in section taken on line III—III of FIG. 2;

FIG. 4 is a view of the side of the device of FIG. 1;

FIG. 5 is a view in side elevation of a swimmer illustrating the position of the swimming aid when the swimmer is in a normal swimming posture;

FIG. 6 is a view in elevation, partly in section, of a modified form of swimming aid;

FIG. 7 is a top plan view of the device of FIG. 6; and

FIG. 8 is a view of the device of FIG. 6 as seen from the opposite side, partly broken away.

Referring to FIGS. 1–5 of the drawing, there is illustrated a swimming aid **10**, which comprises a body **12** formed of buoyant foamed plastic, adapted to be secured to the upper portion of the back of a wearer **14** by means of a chest strap **16** and a pair of shoulder straps **18**.

The material of which the body **12** is formed may be buoyant material, preferably synthetic organic plastic of

the type which may be foamed in a mold, such as polystyrene, polyurethane, or the like, having a density of about 2 to 4 pounds per cubic foot. The body **12** may be of any convenient shape, preferably having a width less than that of the shoulders of the wearer, and may be slightly arcuate to conform to the shape of the back of the wearer.

The shoulder straps **18** each comprises a portion **20** encircling a major section of the foam body, and a free end portion **22** extending therefrom. In the embodiment illustrated in FIGS. 1–4, the portion **20** has a lower portion **24** which extends through the lower portion of the foam body from the front surface to the rear surface and an upper portion **26** which is disposed in shallow grooves **28** in the top of the body. The straps **18** may each conveniently be formed of two separate lengths of material joined by a slide buckle **30** to permit size adjustment. One end of the strap **18** may be provided with another slide buckle **32** disposed on the top of the body. During assembly the free end of this strap portion may be threaded through the buckle **32** and the portion **20** tightened so that it snugly engages a major portion of the cross section of the foam body. The other extreme end of each strap may be provided with a loop **34** for a purpose to appear hereinafter.

The chest strap **16** has a medial portion **36** which extends between the portions **20** of the shoulder straps and the foam body and is secured to said portions **20** by stitching or other means, and free end portions **38** one of which is provided with a friction buckle **40** so that the ends **38** may be secured together about the chest of the wearer. The end portions **38** are also intended to extend through the loops **34** of the shoulder straps.

As illustrated in FIG. 4 the various strap portions are so dimensioned as to securely position the foam body on the back of the wearer at about the shoulder blades. With the foam body so positioned, when the wearer is in a horizontal swimming position (see FIG. 5), the foam body is substantially completely out of the water, so that it provides no buoyancy to the wearer, and does not interfere with normal swimming motions or progress through the water. However, when the swimmer assumes an upright position in the water, as during a rest period, the foam body is partially submerged and imparts buoyancy to the wearer, and the various strap portions are dimensioned so as to hold the foam body on the back of a wearer at about the level of the shoulder blades, as in the case of the previous embodiment.

Referring now to FIGS. 6–8, there is illustrated a swimming aid having certain modifications within the scope of the invention. A foam body **42**, having a shape generally similar to that of the previously described body **12**, is provided with a chest strap **44** which extends transversely through the lower portion of the body and is provided with fastening means **46** on the ends thereof. A pair of shoulder straps **48** have ends **50** disposed inside the body and secured to the chest strap therein in spaced relation. The shoulder straps **48** extend out of the upper surface of the body, and have loops **52** on the free ends thereof through which the ends of the chest strap pass. As in the previous embodiment, the shoulder straps **46** may be provided with adjustment buckles **54**.

The above illustrated embodiments of the invention may be conveniently manufactured by properly positioning the straps in relation to a suitable mold, so that the portions of the straps to be disposed inside the body are disposed in the mold and then foaming the mold full of plastic foam in the usual manner. Methods of forming such foams are well known in the art and do not form part of the present invention.

Although foamed plastic materials of the type described

have a low tensile strength, they have adequate compressive strength. The above described strap arrangements apply substantially only compressive stresses to the foam body when it is secured tightly to the back of a wearer. The strap forces are also spread over a relatively large area, thereby reducing the unit stress to which the plastic is subjected in use.

Since certain obvious changes may be made in the illustrated devices without departing from the scope of the invention, it is intended that all matter contained herein be interpreted in an illustrative and not a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. A swimming aid, comprising a buoyant plastic body, a pair of shoulder straps secured to the body, said shoulder straps each comprising an attaching portion which extends through the foam body near the bottom and encircles and snugly grips the upper portion of the body, and a chest strap extending transversely of the body and being secured to each shoulder strap at the foam body.

2. A swimming aid, comprising a body formed of buoyant foam, a pair of shoulder straps each attached to the body by a loop portion which extends through the lower portion of the body from front to back and over the top of the body to snugly engage a major cross-section of the body, and a chest strap extending transversely of the body between the loop portions and the body and being secured to the loop portions.

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