July 7, 1953 E. C. CHAMPAGNE 2,644,449

INFLATABLE PAD

Filed June 3, 1952 3 Sheets-Sheet 1

Fig. 1.

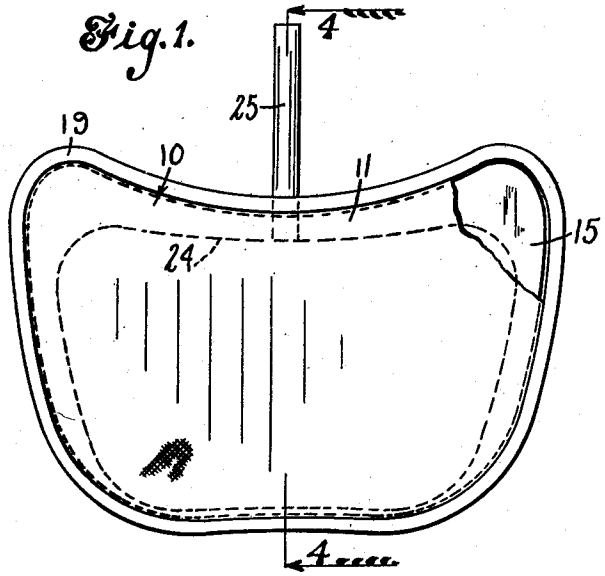


Fig. 2.

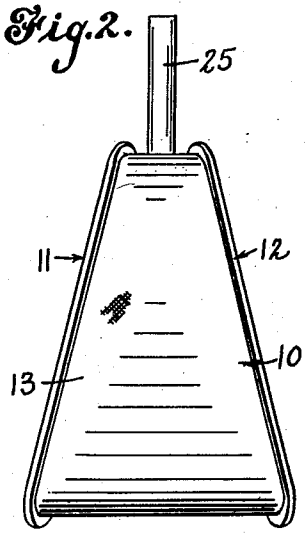


Fig. 3.

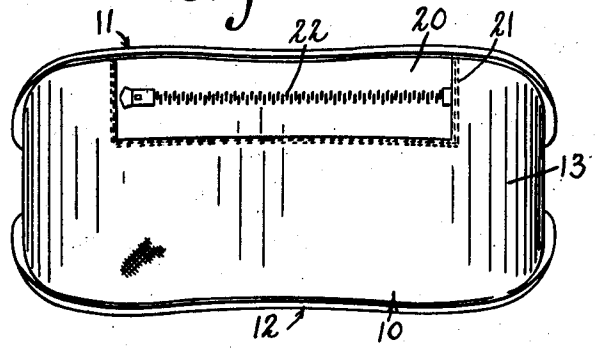


Fig. 5.

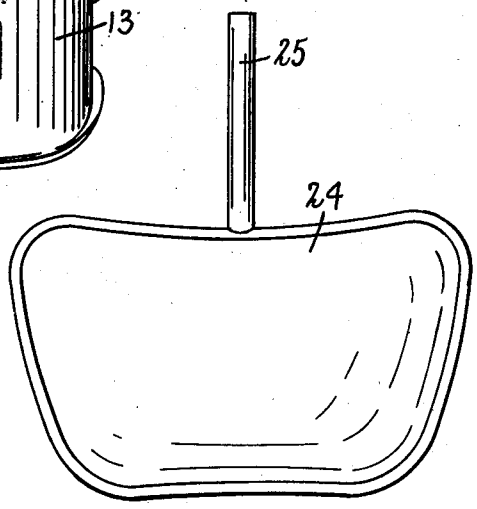
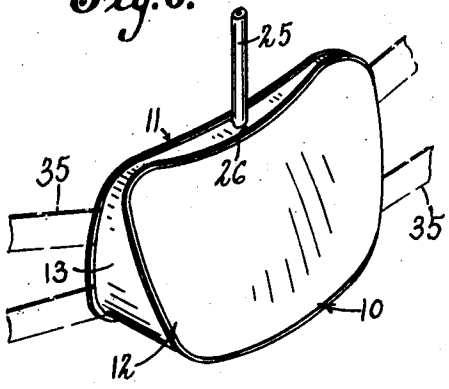


Fig. 6.



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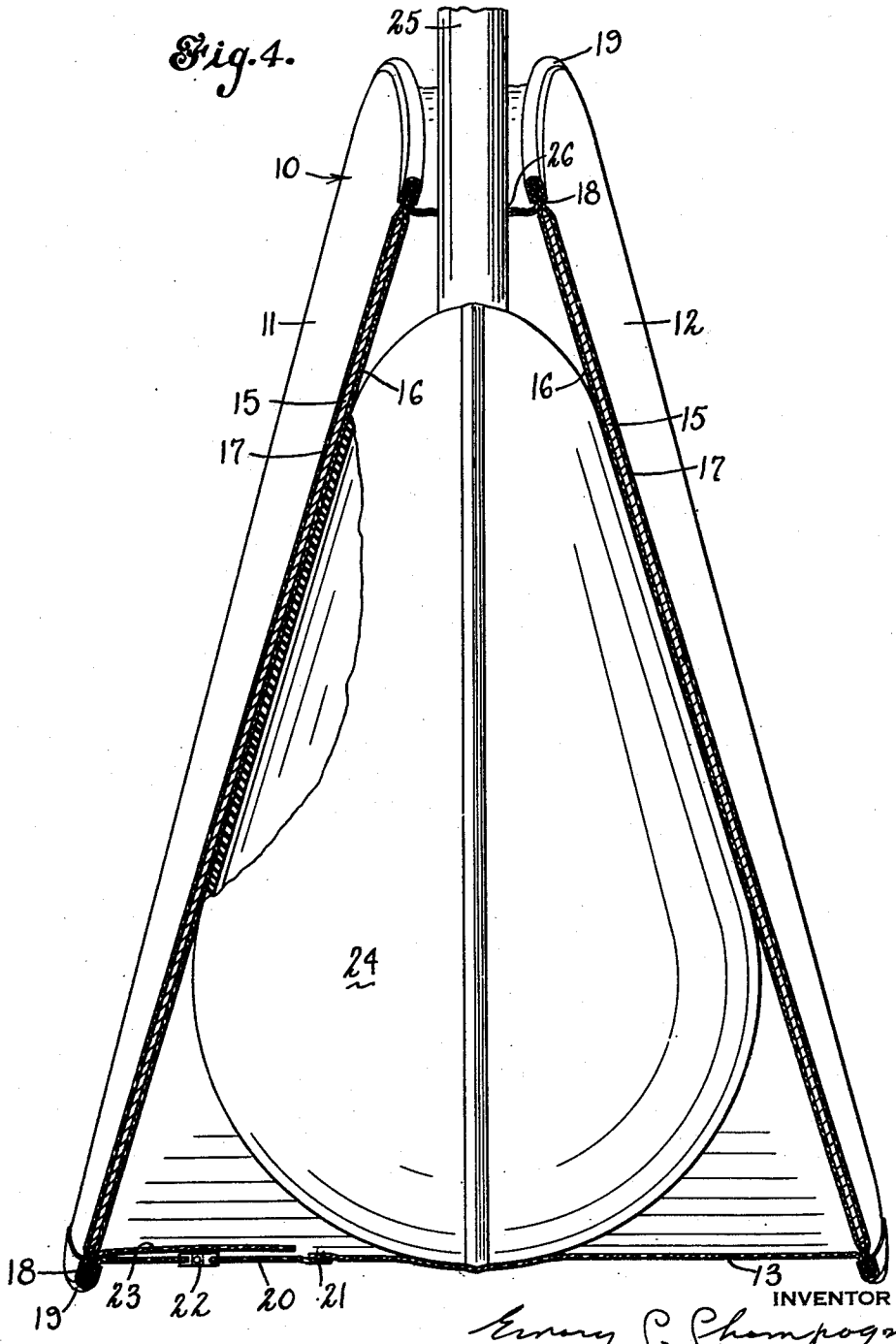
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July 7, 1953 E. C. CHAMPAGNE 2,644,449

INFLATABLE PAD

Filed June 3, 1952 3 Sheets-Sheet 2

Fig. 4.



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July 7, 1953 E. C. CHAMPAGNE 2,644,449

INFLATABLE PAD

Filed June 3, 1952 3 Sheets-Sheet 3

Fig. 7.

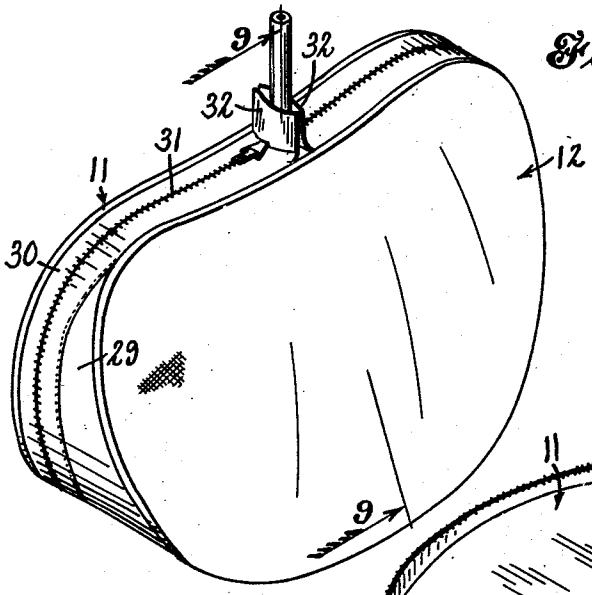


Fig. 8.

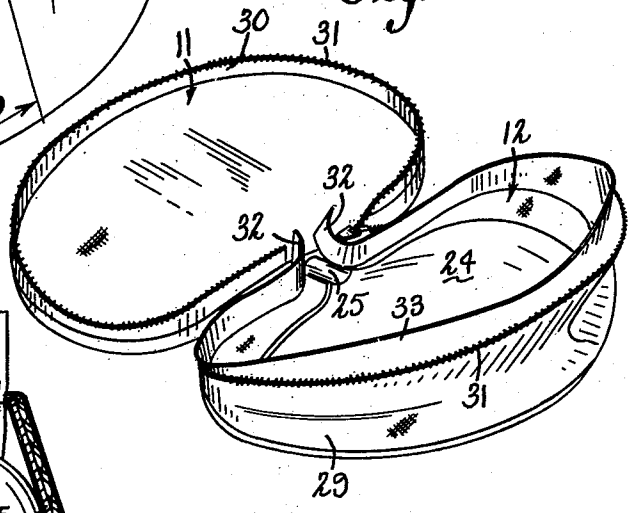
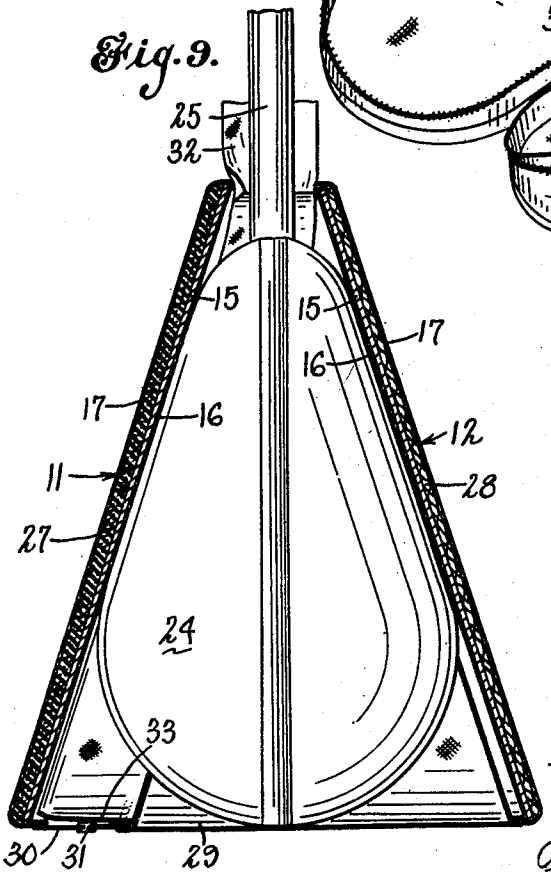


Fig. 9.



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UNITED STATES PATENT OFFICE

2,644,449

INFLATABLE PAD

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Application June 3, 1952, Serial No. 291,539

9 Claims. (Cl. 128—118)

1

This invention relates to an inflatable pad and more particularly to an article of this character of bellows-like construction which may be applied to a portion of the body in order to give support or uplift to the organs of the body and apply pressure thereo. The pad is adapted to be secured to a body-encircling garment, for example, or to have body-encircling straps secured thereto in order to hold it in position, and contains an inflatable bladder which may be inflated to the proper pressure so that it may be expanded to the desired size.

In many instances it is desired to support or elevate some of the organs in the abdominal region of thhe body, and in some instances rigid pads have been employed for this purpose. It is, however, difficult to provide pads of this character which may be universally used in that it is often necessary that they differ in size, thickness and in other ways according to the requirements of the individual case. Also, a pad made in the ordinary way is comparatively unyielding and is not adjustable either as to thickness or as to the pressure which may be exerted upon the organs of the body.

It is contemplated by the present invention to provide an inflatable pad which may either be secured to the inner surface of a body-encircling garment or be provided with body-encircling straps so that it may be secured in place to exert pressure on the desired region. The pad, as illustrated, is of bellows-like construction, of greater thickness at the lower portion that an the upper portion, and is adapted to contain a bladder which may be inflated to any desired pressure so that the proper pressure or uplift force will be exerted on the body of the wearer. The walls of the pad are preferably made of material which will have a certain amount of rigidity but which at the same time will be moldable or bendable to a certain extent so that these walls, formed in the present instance by metal plates, may be bent or molded to the proper shape to conform to the shape of the body at the region where the pad is applied. With this construction the wall of the pad will be sufficiently rigid so that it will not be deformed by the pressure within the bladder and will exert equal pressure upon the parts of the body with which it is in contact. Moreover, as it is free to expand to a greater extent at its lower portion than at its upper portion, the inflation of the pad will cause it to exert a certain amount of uplift pressure which can be regulated by the degree of inflation so that a compelling pressure may be exerted to

2

force upward and/or inward certain of the abdominal organs, for example, the kidneys.

As illustrated, the bladder is readily removable from the pad and replaced by another if desired, there being provided an opening having zippers or detachable fasteners by which it may be readily closed. In one form of the invention the pad is made in two nearly equal parts, the zipper extending substantially entirely around the structure so that it may be completely opened to remove or insert the bladder.

One object of the invention is to provide a new and improved inflatable pad employed to exert inward and/or upward pressure on the organs of the body.

A still further object of the invention is to provide an inflatable pad of this character adapted to be used with a body-encircling strap or garment, the pad being inflatable so that the pressure against the body may be regulated to the desired extent.

A still further object of the invention is to provide an inflatable pad of the character described, one or both of the walls of which is bendable or moldable so that the pad may be shaped to the configuration of the portion of the body at which it is applied while at the same time be sufficiently rigid to exert pressure upon that area of the body.

Still another object of the invention is to provide an inflatable pad of the character described, the casing of the pad being wider at the bottom than at the top so that upon inflation thereof an upward as well as an inward pressure will be exerted on the body organs.

To these and other ends the invention consists in the novel features and combinations of parts to be hereinafter described and claimed.

In the accompanying drawings:

Fig. 1 is a side elevational view of an inflatable pad embodying my invention;

Fig. 2 is an end view thereof;

Fig. 3 is a bottom plan view of the pad;

Fig. 4 is an enlarged sectional view on line 4—4 of Fig. 1;

Fig. 5 is an elevational view of the inflatable bladder removed from the pad;

Fig. 6 is a perspective view of the pad showing body-encircling straps secured to the front or outer wall thereof;

Fig. 7 is a perspective view of a modified form of structure;

Fig. 8 is a view of the pad shown in Fig. 7 when the pad is fully opened; and

Fig. 9 is a transverse sectional view through the pad on line 9—9 of Fig. 7.

To illustrate one embodiment of my invention I have shown in Figs. 1 to 6 of the drawings an inflatable pad comprising a bellows-like bag or pouch 10. This member comprises front and back walls 11 and 12, these walls being joined by a fabric strip 13 sewed to the wall members at its edges. As illustrated, the fabric strip 13 is wider at the bottom than at the top and tapers upwardly at its ends so that the bellows structure, when inflated, is wedge shaped or wider at the bottom than at the top, as shown for example in Figs. 2 and 4.

As shown more especially in the sectional view of Fig. 4 each of the side walls 11 and 12 comprises a relatively rigid plate 15, which may be formed of metal or plastic. As shown, it is made of tempered aluminum although it is not restricted to this material. It will preferably, however, be made of a material which may be bendable or moldable so that it may be bent or formed to the desired shape depending upon the part of the body to which it is applied, and when bent or molded will remain in the shape which has been given to it.

Each side of each of the metal plates 15 is covered with cloth or fabric, as shown at 16 and 17, these pieces of fabric being sewed together all around the peripheries of the plate, as shown at 18, and the edges of the strip 13 may also be sewed to the peripheral edges of the wall coverings 16 and 17. A binding strip 19 may cover these seams in order to provide a finished exterior appearance.

As shown more especially in Fig. 3 the strip 13 is cut away at the bottom of the pouch or pocket 10 and a zipper strip 20 is secured to the edges of the opening thus formed by the stitches 21. This zipper strip is provided with a zipper or hookless fastener 22 of the usual form so that it may be opened and closed. A fly 23 (Fig. 4) covers the zipper 22, the fly being secured at its edge to the adjacent seam 18.

Within the inflatable pad is a bladder 24 shown in Fig. 5, which bladder will be of substantially the same shape (kidney shape) as the bellows itself. The bladder is provided with a filling neck 25 which when the bladder is within the pouch or pocket 10 will extend out through an opening 26 at the upper central portion of the strip 13. It will be understood that the bladder may be inserted and removed from the pad through the opening controlled by the zipper 22.

In Figs. 7 to 9 of the drawings I have shown a somewhat modified form of my invention in which, as before, the pocket or pouch consists of the side walls 11 and 12, these walls comprising bendable or moldable plates 15 of metal or some other rigid material which may be bent to the desired form and retain such form as was explained in connection with the modification of my invention first described. These plates have inner and outer fabric coverings 16 and 17, as previously described. It has, however, been found desirable to place some soft padding material such as foam rubber or the like 27 between the plate and the cover 16 on the side of the pad adapted to be worn next to the body. In this case also the outer cover 17 may be of some soft material such as plush or moleskin in order to make it more comfortable. Also a relatively thin padding member 28 may be provided upon the other wall of the bellows between the plate 15 and the outer covering 17.

In this form of my invention the two walls of the pad have secured thereto fabric strips 29 and 30, the former, as shown, being of somewhat greater width than the latter. At the meeting edges of these strips zipper or hookless fasteners 31 are provided, these extending entirely around the edges of the strips and securing them together except at their central portions where the ends 32 are left unsecured and drawn outwardly to accommodate the filling tube 25 of the bladder 24, as shown in Figs. 7 and 8. A fly 33 is secured to the strip 29 to cover the zipper 31 and protect the bladder.

It will be seen that in this form of my invention also the pad is considerably wider at its lower portion than at its upper portion so that when inflated it will exert an upward lift upon the body organs as well as exert pressure thereon.

The pad may be applied to the body by being worn within an encircling garment such as a belt and the pad secured to the inner surface of the belt. If desired, however, body-encircling straps 35 (Fig. 6) may be secured to one wall of the pad and the straps may be fastened about the body so as to secure the pad in place and cause it to exert the necessary pressure upon the body organs.

It will be understood that the pad may be inflated through the filler tube 25 which may be provided with the usual self-sealing valve (not shown) for this purpose, and the bladder may be inflated to any desired pressure to give the proper support or the proper degree of pressure to the body organs. The width of the strip 13 or the combined width of the strips 29 and 30 in the other form of my invention determine the separating movement which is permitted the two walls of the pad, and varying the width and shape of this strip will vary to some extent the direction of thrust and the degree of pressure applied to the body.

In Figs. 1 to 3 of the drawings I have shown the walls of the pouch dished inwardly at their central portions with respect to their outer lateral edges, while in Fig. 6 a reverse condition is shown wherein the walls are bulged outwardly at their central portions or are convex in form in horizontal section. These shapes may be obtained as previously explained by bending the wall members or plates 15 so as to obtain the desired shape depending upon the part of the body to which the pad is to be applied.

While I have shown and described some preferred embodiments of my invention, it will be understood that it is not to be limited to all of the details shown, but is capable of modification and variation within the spirit of the invention and within the scope of the claims.

What I claim is:

1. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material.

2. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, and the material of at least one thereof being moldable to form the wall into a desired shape.

3. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch

having front and back wall members of relatively rigid material, said walls being secured together by a strip of flexible material, and said strip being wider at the lower edge than at the upper edge of the pouch to permit greater expansion at the lower edge and provide a wedge-shaped body.

4. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said material being moldable whereby the walls may be formed into the desired shape, and said walls being secured together by a strip of flexible material to form a wedge-shaped body wider at the lower edge than at the upper edge.

5. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said wall members being bendable into the desired form and adapted to retain such form, and being connected at their edges by a non-elastic flexible material to form a wedge-shaped body.

6. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said wall members being bendable into the desired form and adapted to retain such form and being connected at their edges by a non-elastic flexible material to form a wedge-shaped body, and said flexible material having a zippered opening through which the bladder may be removed or replaced.

7. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said wall members being bendable into the desired form and adapted to retain such

form and being connected at their edges by a non-elastic flexible material to form a wedge-shaped body, and said flexible material being provided in two sections the meeting edges of which are connected by a detachable fastener whereby the pouch may be fully opened to permit access to the interior thereof.

8. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said wall members being bendable into the desired form and adapted to retain such form, and being connected at their edges by a non-elastic flexible material to form a wedge-shaped body, and a relatively thick yieldable cover pad on the outer surface of one of said wall members.

9. An inflatable pad for applying pressure to a portion of the body, said pad including a pouch having an inflatable bladder therein, said pouch having front and back wall members of relatively rigid material, said wall members being bendable into the desired form and adapted to retain such form and being connected at their edges by a non-elastic flexible material to form a wedge-shaped body, said flexible material being provided in two sections the meeting edges of which are connected by a detachable fastener whereby the pouch may be fully opened to permit access to the interior thereof, and means providing an opening between said sections for the filler tube of the bladder.

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