

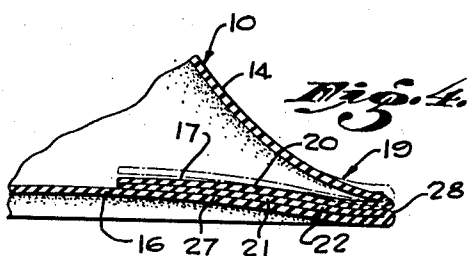
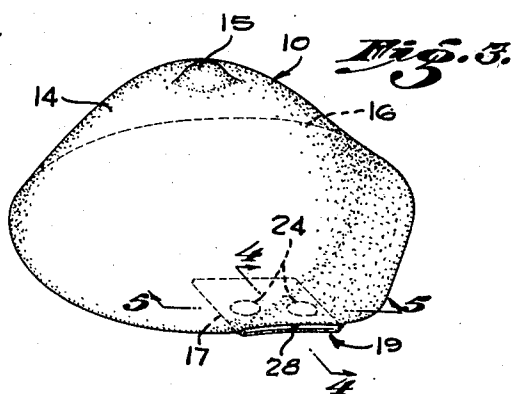
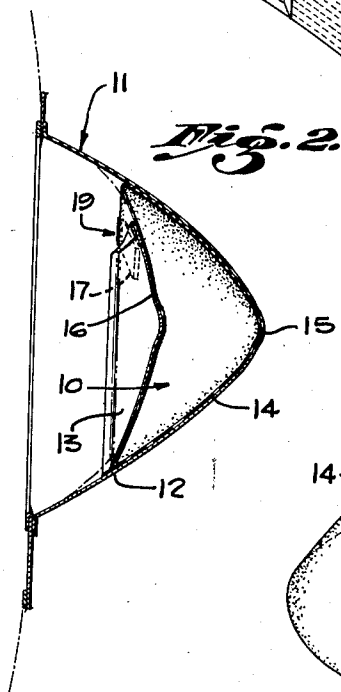
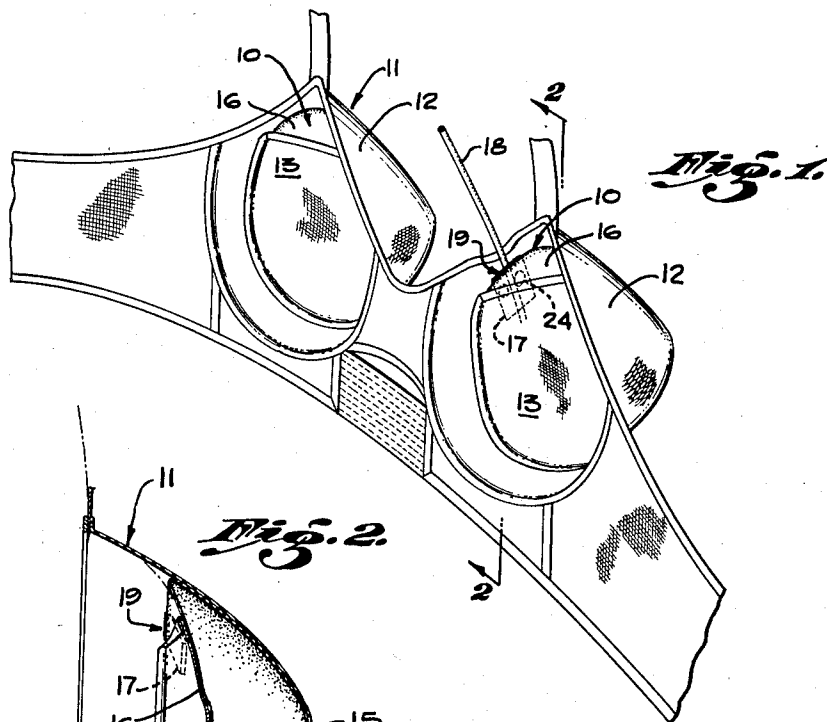
Dec. 21, 1954

E. E. KRUEGER
INFLATABLE ARTICLE

2,697,229

Filed June 7, 1952

3 Sheets-Sheet 1



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Fig. 5.

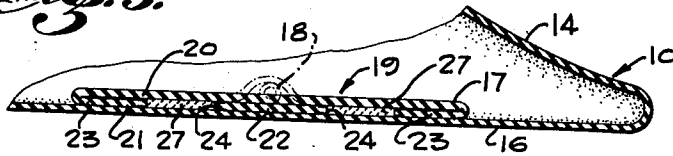


Fig. 6.

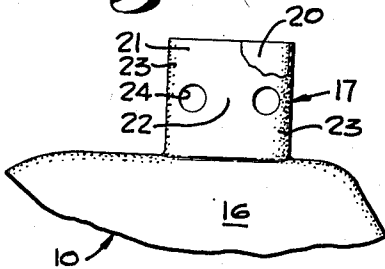


Fig. 7.

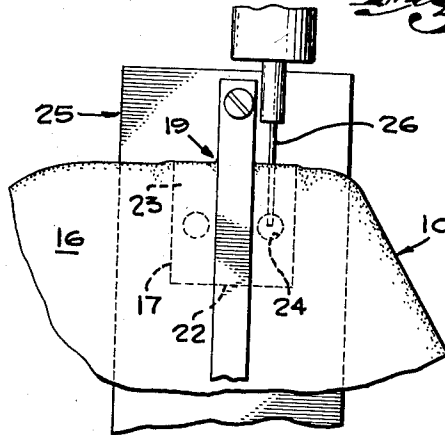


Fig. 8.

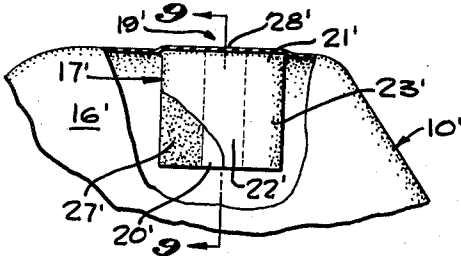


Fig. 9.

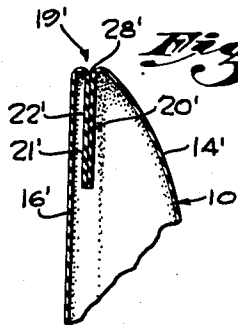
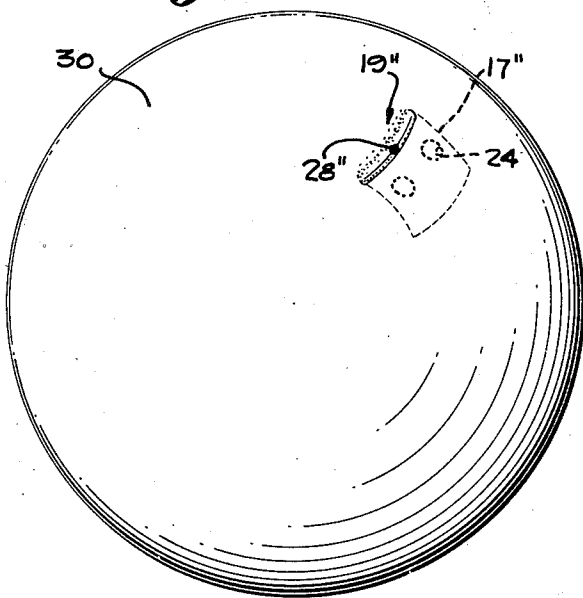


Fig. 10.



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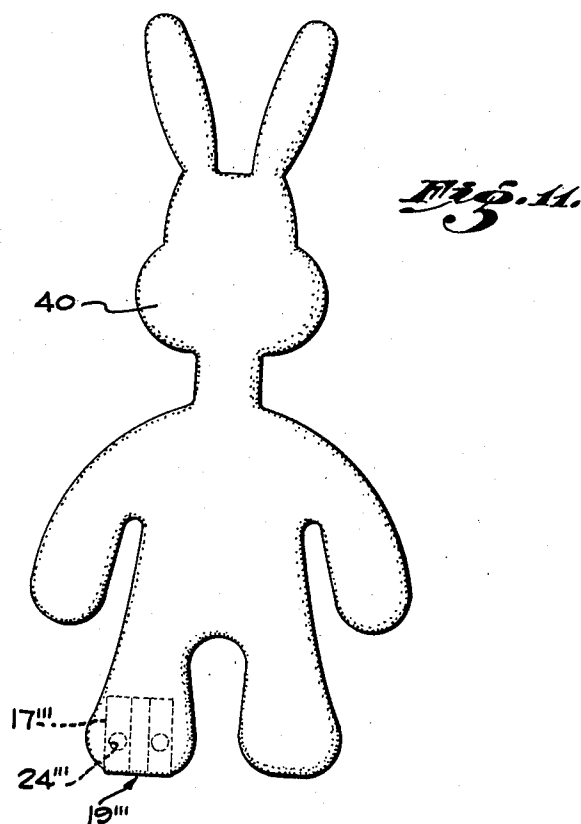
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3 Sheets-Sheet 3



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INFLATABLE ARTICLE

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Application June 7, 1952, Serial No. 292,346

3 Claims. (Cl. 2—267)

This invention relates to inflatable articles and to self-sealing valves for such inflatable articles such as breast pads, rubber balls, balloons and the like, and more particularly to such an article provided with a flat tubular stem and which is adapted to be inflated and deflated by means of a tube inserted through the center portion of the tubular stem, after the tubular stem has been tucked into the article and the outer portions of the tubular stem sealed together.

An object of my invention is to provide an inflatable article, such as inflatable breast pads, rubber balls, balloons and the like with a self-sealing valve which cannot be broken in use, and which cannot be pulled out of the inflatable member.

Another object of my invention is to provide such an article with a self-sealing valve which is an integral part of the article and which is secured to one of the walls of the article.

Another object of my invention is to provide such an article with a self-sealing valve which is an integral part of the article.

A further object of the invention is to provide a novel self-sealing valve for inflatable articles which will be simple in construction, reliable in operation and constructed in such a manner as to present only a slight interruption to the smooth exterior contour of the inflatable article.

My invention has many other objects, advantages and features, some of which, with the foregoing, will be set forth in the following description where I shall outline certain forms of my invention which I have selected for illustration in the drawings accompanying and forming a part of the present specification.

Fig. 1 is a perspective view of a brassiere showing my improved inflatable breast pads in use therewith;

Fig. 2 is a sectional view taken substantially as indicated by line 2—2 of Fig. 1;

Fig. 3 is a perspective view of one of the breast pads;

Fig. 4 is a fragmentary sectional view of the improved valve for inflatable articles, taken substantially as indicated by line 4—4 of Fig. 3;

Fig. 5 is another sectional view of the valve taken substantially as indicated by line 5—5 of Fig. 3;

Fig. 6 is a fragmentary elevation view showing the valve prior to assembly;

Fig. 7 is a fragmentary view of the valve and a jig, showing the method of assembly;

Fig. 8 is a fragmentary elevation view, partially in section and showing a modified form of valve;

Fig. 9 is a sectional view of the modified valve taken substantially as indicated by line 9—9, Fig. 8;

Fig. 10 is an elevation view of a rubber ball embodying the valve of the present invention; and

Fig. 11 illustrates the valve of the present invention as applied to a toy balloon or like article.

Referring to the form of my invention shown in Figs. 1 to 5 inclusive, and primarily to Figs. 1 and 2, the inflatable breast pad 10 is shown in use with a brassiere 11 having suitable bust receiving pockets 12, the outer portions of which are provided with an auxiliary pocket 13 for the reception of the pad 10. The pad 10 comprises a front wall portion 14 of the desired contour having a nipple portion 15, a rear wall portion 16 which is designed to be placed over the breast of the user, and an integral tubular stem 17 which is positioned at the junction of the front and rear wall portions 14 and 16. The pad 10 may be made of natural latex, a vinyl plastic or any other suitable flexible material.

In use, the pads 10 are designed to be inserted in the standard bust receiving pockets of any brassiere, in auxiliary pockets 13 in the brassiere 11 or in like pockets in foundation garments, and the like and to be inflated therein by inserting a flexible tube 18 through a suitable self-sealing valve indicated generally at 19 which is formed from the tubular stem 17.

The stem 17 is adapted to be inserted in and secured to a wall of the inflatable pad 10 in such a manner as to provide a self-sealing valve which is reliable in use, simple and compact in construction, which cannot be pulled out of the pad. As an instance of this arrangement, see Fig. 6. The tubular stem 17 of the valve 19 comprises a front wall 20; and a rear wall 21 having center wall portions 22 and side wall portions 23. An opening 24 is provided in each of the side wall portions 23 of the rear wall 21.

In manufacture, the flat tubular stem 17 is tucked in the pad 10, Fig. 7, and the center portion 22 is clamped in a suitable jig 25 so as to urge the center portions 22 in tight engagement with each other. The side wall portions 23 are then cemented together, cement being delivered thereto as by a needle 26, during which operation cement, indicated at 27, flows through the openings 24 and secures the rear wall 21 of the tubular stem 17 to the rear wall portion 16 of the pad 10, an uncemented passageway being thereby provided by the clamping portion of the jig 25 thus creating the valve 19. The pad may then be inflated by inserting the tube 18 initially at the point indicated at 28, Fig. 3, and then intermediate the center wall portions 22 of the walls 20 and 21, after which air is blown through the tube 18 into the pad 10. To facilitate insertion of the tube 18, the valve 19 may be powdered with talcum or like powder. After the pad has been inflated, in order to provide the front wall portion 15 with desired shape, the tube 18 is withdrawn from the pad, the air pressure in the pad acting on the wall portion 22 to force said walls into sealing engagement with each other.

The construction of the self-sealing valve 19 is, therefore, such as to prohibit the escape of air from the pad 10 even though the air in the pad is under considerable pressure and even after a considerable period of time.

The inflated pad may be deflated by reinserting the tube 18 at the point 28, then intermediate down below the center wall portions 22 of the walls 20 and 21 and applying a small amount of pressure to the pad.

In Figs. 8 and 9, I show a modification of the invention wherein like parts are indicated by single primal reference numerals. In this form, the openings 24 are omitted and the side portions 23' are cemented as at 27' to the rear wall 20', a space being provided intermediate the center wall portions 22' for the insertion of a tube or like device used to inflate the pad. In this instance, the valve 19' therefore is normally disposed into the interior of the pad, air pressure therein acting on both the wall portions 22' to urge these elements into sealing engagement when the inflating tube is removed.

Fig. 10 illustrates the present valve indicated at 19" as applied to a rubber ball 30 or the like. It will be seen that the valve may be advantageously used in such objects as it provides ready means for the inflation and deflation thereof and presents but an insignificant interruption to the smooth exterior thereof.

In Fig. 11, I show a further application of the valve which is indicated at 19''' and shown applied to a toy rubber balloon 40 or like article which may be constructed in a wide variety of shapes, the valve being inconspicuously located for ready accessibility and use.

From the foregoing description taken in connection with the accompanying drawings, the uses, advantages, and operation of my invention will be readily understood by those skilled in the art to which the invention appertains. While I have described certain embodiments of my invention, I desire to have it understood that the forms shown are merely illustrative and that the invention is not to be limited to the details disclosed herein, but is to be accorded the full scope of the appended claims.

I claim:

1. A flexible inflatable article having a self-sealing valve therein, said article having a continuous outer wall

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portion, said valve comprising a flexible, flat tubular stem integral with said article and extending into the interior thereof, said stem having a front wall and a rear wall, openings in the side portions of one of said stem walls, and sealing composition securing the side portions of said stem walls together and extending through said openings and securing said one of said stem walls to the inner surface of the outer wall portion of said article.

2. A flexible, inflatable breast pad adapted for use in breast receiving pockets of brassières or the like and having a continuous outer wall portion, a self-sealing valve comprising a tubular, flexible stem formed integrally with said outer wall portion and extending into said pad, said stem having a front wall and a rear wall, openings in the side portions of said rear stem wall, and sealing compound sealing the side portions of said stem walls together and extending through said openings and securing said rear stem wall to the interior surface of said outer wall of said inflatable pad.

3. An inflatable breast pad comprising integral front and rear wall portions of flexible air-impervious material, a flexible, tubular stem of air-impervious material integral with said front and rear wall portions, said stem

being otherwise free from attachment to said front wall portion, said stem being turned inwardly to extend into said pad, said stem having a front stem wall and a rear stem wall, the side edges of said front stem wall being bonded to the side edges of said rear stem wall for a portion of the length thereof thus retaining said stem in substantially flat tubular form and providing a normally closed longitudinal passage through said stem, said stem being bonded along a portion of its length to the rear wall portion only of said pad to retain said stem in substantially flat tubular form against the rear wall portion of the inflated pad.

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