

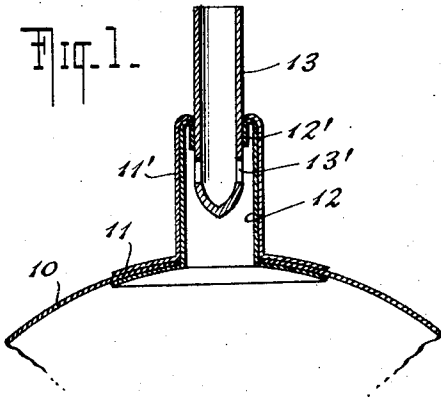
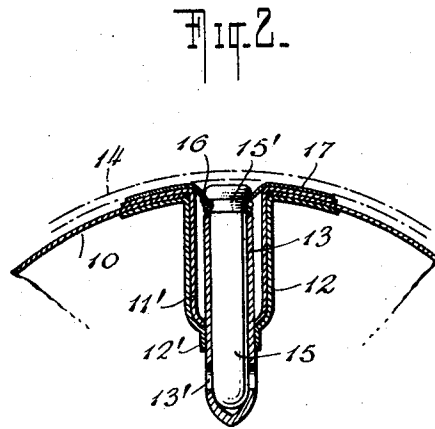
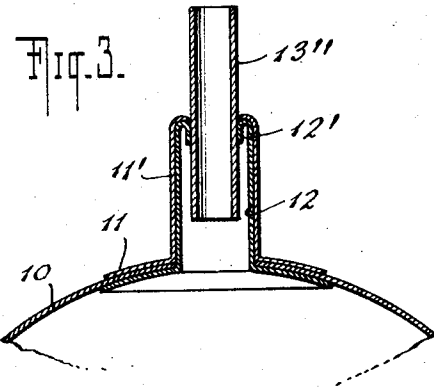
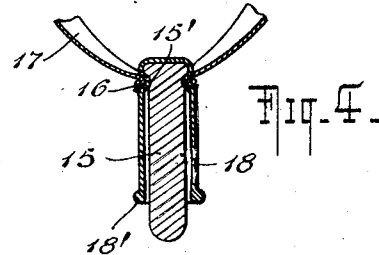
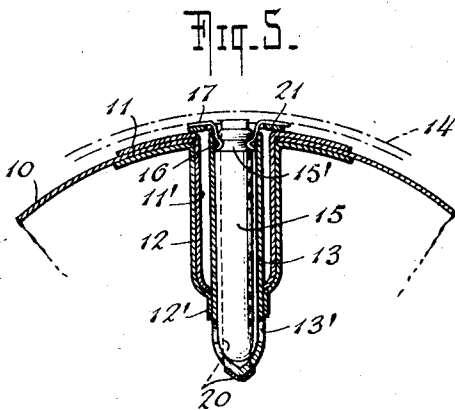
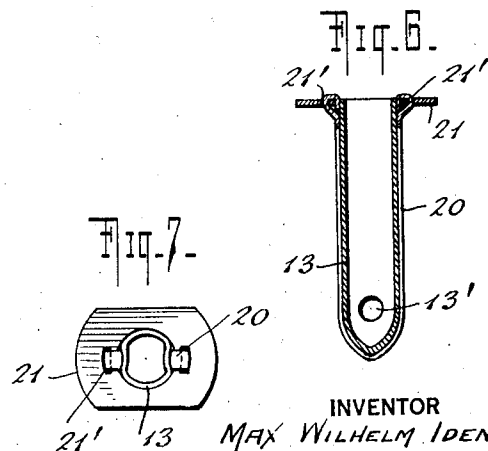
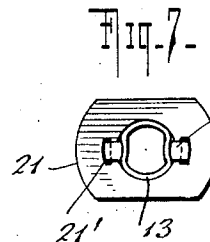
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INFLATABLE VALVED BAG

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INFLATABLE VALVED BAG.

Application filed May 28, 1926, Serial No. 112,190, and in Germany June 26, 1925.

My present invention relates to inflatable bags such as are used for footballs and like sporting implements, and has for its object to provide improved means for closing the opening or tube through which such bags are inflated. In constructions of this type as now in common use, the inflatable bag is provided with an inflating tube which projects from the bag permanently, and this is a drawback since it exposes the tube to injury and also makes it impossible for the inflatable bag to lie smoothly against the inner surface of the encasing envelop or cover, at the point where such inflating tube projects. My present invention enables the inflating tube to be retracted or pushed back into the bag or bladder, thereby placing it in a well protected position and enabling the outer surface of the bag or bladder to lie smoothly against the inner surface of the cover at all points, even at its point of connection with the inflating tube.

Several typical and satisfactory embodiments of my invention will now be described in detail with reference to the accompanying drawings, in which Fig. 1 is a partial section through the bag or bladder and its inflating tube, with the latter in the projected position used during inflation; Fig. 2 is a similar view showing the inflating tube pushed back into the bladder after inflation and the sealing plug or valve in position to prevent the escape of air; Fig. 3 is a section showing a bag provided with an inflating tube of a type slightly different from the one shown in Figs. 1 and 2; Fig. 4 is a longitudinal section of a sealing plug or valve for use in connection with an inflating tube of the type shown in Fig. 3; Fig. 5 is a view of the same character as Fig. 2, but with an inflation tube of a different construction; Fig. 6 is a detail longitudinal section of the inflation tube shown in Fig. 5, and Fig. 7 is an end view of such tube with a plate attached thereto.

In the construction illustrated by Figs. 1 and 2, the body 10 of the bladder is provided with an opening and with a re-inforcement 11 of fabric or other suitable material adjacent to said opening, said re-inforcement being applied to the outer surface of the bladder and being extended to form a re-inforcing layer 11' on a tubular projection 12 provided on the bladder at said opening. The edge of said projection or nipple 12 is folded inwardly as indicated at 12' and there vulcanized or otherwise secured to the inflating tube 13. The parts 10, 12, and 13 are generally made of rub-

ber. In Fig. 1, which shows the nipple and the inflating tube in the outwardly-projected position, I have illustrated a form of inflating tube which is closed at the inner end, except for one or more perforations 13'.

When the parts are in the position shown in Fig. 1, a pump of the well-known type can be connected readily with the outer end of the tube 13 to inflate the bladder; the latter at that time is contained within an encasing envelop or cover of leather or other suitable material, indicated at 14. After such inflation, the tube 13 is closed by inserting a suitable sealing member, plug, or valve. In the form illustrated by Fig. 2, this member comprises a rod or plug 15 preferably made of relatively stiff material, such as wood, horn, hard rubber, etc. and of proper dimensions to fit within the tube 13 and to extend into it far enough to cover and close the opening or openings 13'. At its outer end, the rod or plug 15 is provided with a constriction or groove 15' for securing thereto, by means of a string 16 or the like, a suitable handle 17, which may consist of a strip of leather or textile fabric. After this valve has been inserted into the inflating tube 13 until the openings 13' are closed, an inward pressure is exerted on the outer end of the valve to cause the inflating tube 13 to be forced into the bladder 10, until such tube reaches the position shown in Fig. 2. It will be noted that the fold 12' causes the main portion of the tubular projection or nipple 12 to be out of contact with the inflating tube 13. Thus, as the tube 13 is pushed inwardly into the bladder 10, the nipple 12 surrounding the tube 13 will, as it were, roll along the same and become reversed, or turned inside out, since in Fig. 1 the layer 11' forms the outer surface of the nipple, while in Fig. 2 such layer lies on the inside of the nipple. In the final position, the nipple is entirely within the bladder 10; the pressure of the air inside the bladder has no tendency to push the nipple out, but rather holds it firmly in such inner position. When it is desired to bring the nipple to the outer or projected position shown in Fig. 1, the handle 17 is grasped and the plug or sealing member pulled out together with the inflating tube 13, and as this tube is pulled out, the nipple 12 is again formed into a fold 12' and is gradually reversed by a kind of rolling motion, so as to return to the fully-extended condition shown in Fig. 1. If then the valve member is pulled

further by means of the handle formed by the strip or flap 17, this will separate such valve member from the inflating tube 13, and allow air to escape so as to deflate the bladder

5 10. When the nipple 12 is in the innermost position, Fig. 2, the handle 17 will lie flat and practically flush on the outer surface of the bladder, so that the latter can lie smoothly against the inner surface of the envelop or
10 cover 14, without forming a bulge therein.

In Fig. 3, the parts 10, 11, 11', 12, and 12' are of the same construction as described above, but the inflating tube 13'', instead of being closed at its inner end, is open at this
15 point, and the lateral apertures 13' are thus dispensed with. In this case, I prefer to employ a sealing member or valve of the type shown in Fig. 4. The rod or plug 15 may be of the same character as set forth above, and
20 is adapted to be slipped or pushed into the inflating tube 13''. This rod is provided with a sheath 18 made of rubber, preferably not quite the full length of the rod or core 15. The closed end of the sheath may be held in
25 place on the constriction 15' of the rod by the same string 16 which secures the flap or strip 17 forming a handle for said rod. The open end of the sheath is preferably thickened or beaded, as shown at 18'. After the bag or
30 bladder 10 has been inflated, the free end of the rod 15 is inserted into the outer end of the tube 13'', the sheath 18 having previously been rolled back until the bead 18' is quite close to the handle 17. The rod 15 having
35 then been inserted into the tube 13'' as far as the rolled sheath will permit, such sheath is pulled or rolled down over the inflating tube so as to surround the latter and form a reliable seal. Then the valve, inflating tube,
40 and nipple are pushed in, causing the nipple to turn inside out as in the form of my invention first described. When it is desired to deflate the bladder, the parts are pulled out by means of the handle 17, the sheath 18 is rolled
45 back from the inflating tube 13'', and the valve removed to allow the escape of air. The advantages of this form of my invention are substantially the same as in the case of the construction illustrated by Figs. 1 and 2.

50 Still another form of my invention is shown in Figs. 5, 6, and 7. Again, the parts 10, 11, 11', 12 and 12' are of the same structure and arrangement as described above. The inflating tube 13 has a closed inner end
55 and one or more apertures 13' adapted to be closed by the core or rod 15 of the valve, the latter being of the same type as in Fig. 2, with a handle 17 fastened by a string 16 in the constriction 15'. In order to prevent the inflating tube 13 from stretching lengthwise,
60 I have secured to its outside longitudinal strips 20 of practically inextensible material (textile fabric, as a rule). The free ends of these strips 20 are passed through slits 21' in a plate 21 surrounding the outer end of the

inflating tube 13, said strip ends being then bent inwardly to clamp and secure them between the inner edge of the plate 21 and the outer surface of the tube 13, it being understood that the plate has a central aperture to
70 receive the outer end of the inflating tube. The operation of this form of my invention will be the same, substantially, as described in connection with Figs. 1 to 4, so that no further explanation will be required; the ad-
75 vantages, too, are practically the same as in the other forms of my invention.

I claim:

1. An inflatable bag provided with a nipple adapted to be projected from the bag and
80 to be turned inside out and retracted into the bag, and an inflating tube located within said nipple and connected with the free end thereof by a nipple portion which forms a fold
85 in the projected position of the nipple.

2. An inflatable bag provided with a nipple the free end of which is adapted to be moved inwardly and outwardly with respect to the
90 said bag, and an inflating tube carried by said nipple, the latter having its free end attached to said tube at a point intermediate of its ends.

3. An inflatable bag provided with an inflating tube movable into and out of said bag and closed at its inner end but apertured laterally adjacent thereto, and a sealing device
95 comprising a core adapted to be inserted in said tube and to engage it at the laterally apertured portion, and a handle-forming projection at the outer end of said core.

4. An inflatable bag provided with an inflating tube movable into and out of said bag, and a sealing device comprising a core adapted for insertion into said tube and a flexible
100 sealing sheath attached to the outer portion of said core and adapted to be rolled lengthwise thereof and to surround said inflating tube.

5. An inflatable bag provided with an inflating tube movable into and out of said bag
110 and provided with longitudinal reinforcing strips to minimize its longitudinal stretching, a plate surrounding the outer end of said tube and having slits through which the said strips are extended, and a device for sealing
115 said tube.

6. A sealing device for the inflating tube of an inflatable bag, comprising a core adapted for insertion into such tube and provided
120 with a constriction at the outer portion of the core, and a flexible handle secured to the core at said constriction.

7. A sealing device for the inflating tube of an inflatable bag, comprising a core adapted for insertion into such tube and a flexible
125 sealing sheath attached to the outer portion of said core and adapted to be rolled lengthwise thereof and to surround said tube.

8. An inflatable bag provided with a nipple movable into and out of the bag, and an
130

inflating tube attached to the nipple and projecting both inwardly and outwardly from its point of attachment to said nipple.

9. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air tube in said extension of the bladder, said extension and air tube adapted to be telescoped from a position outside the air bladder to a position inside the air bladder, a stopper to be inserted into the upper end of said air tube, and an elastic cap on said stopper adapted to be slipped down over upon said air tube so that when the cylindrical extension and air tube are forced into the filled bladder the cap will lie between said air tube and said extension.

10. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting cylindrical extension of said air bladder, an air tube secured at a point between its ends in said extension of the bladder, said extension and air tube adapted to be telescoped from a position outside the air bladder to a position inside the air bladder, a stopper to be inserted into the upper end of said air tube, and an elastic cap secured to the outer end of and said stopper adapted to be slipped down over upon the upper end of said air tube so as to lie between the same and the cylindrical extension when said air tube and extension are forced into the filled bladder.

11. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air tube secured in said extension of the bladder, and projecting outwardly beyond the same, a stopper to be inserted into the outer end of said air tube, and an elastic cap on said stopper adapted to be slipped down over the outer side of said air tube.

12. A device for closing the air bladder for sport balls or the like comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air tube in said extension of the bladder, said air tube being rigidly connected with the upper edge of said projecting extension of the bladder, a stopper to be inserted into the upper end of said air tube, and an elastic cap secured at its upper end to said stopper and having a beaded lower edge, said cap adapted to be slipped down over upon the cylindrical extension after the insertion of the stopper into said air tube.

13. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air

tube in said extension of the bladder, said air tube being rigidly connected at a point intermediate of its length with the upper edge of said projecting extension of the bladder so that the lower portion of the air tube extends into said projecting extension of the bladder when the air tube is pulled out of the bladder for inflating purposes, a stopper to be inserted into the upper end of said air tube, and an elastic cap on said stopper secured at its upper edge to the stopper and adapted to be slipped down over upon the outer side of said air tube so that when the extension and air tube are forced into the filled bladder the sleeve will lie between said tubular extension of the air bladder and the air tube.

14. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air tube in said extension of the bladder, said air tube being rigidly connected with the upper edge of said projecting extension of the bladder so that the lower portion of the air tube which is open at the lower end extends into said projecting extension of the bladder when the air tube is pulled out for inflating purposes, a stopper to be inserted into the upper end of said air tube, and an elastic cap secured at its upper end to said stopper and having a beaded lower edge, said cap adapted to be slipped down over said air tube so that when the air tube and tubular extension are forced into the filled bladder the sleeve will lie between the air tube and tubular extension with its beaded edge impinging firmly against the latter.

15. A device for closing the air bladder for sport balls or the like, comprising in combination with the air bladder, a projecting tubular extension of said air bladder, an air tube in said extension of the bladder, said air tube being rigidly connected with the upper edge of said projecting extension of the bladder so that the lower portion of the air tube which is closed at the lower end but has lateral air holes extends into said projecting extension of the bladder when the air tube is pulled out for inflating purposes, a stopper to be inserted into the upper end of said air tube, an elastic cap on said stopper adapted to be slipped down over said air tube so as to lie between the tube and tubular extension of the air bladder when said air tube and extension are forced into the filled bladder, and a disk at the upper end of the stopper.

In testimony whereof I have hereunto set my hand.

MAX WILHELM IDEN.