

Feb. 19, 1929.

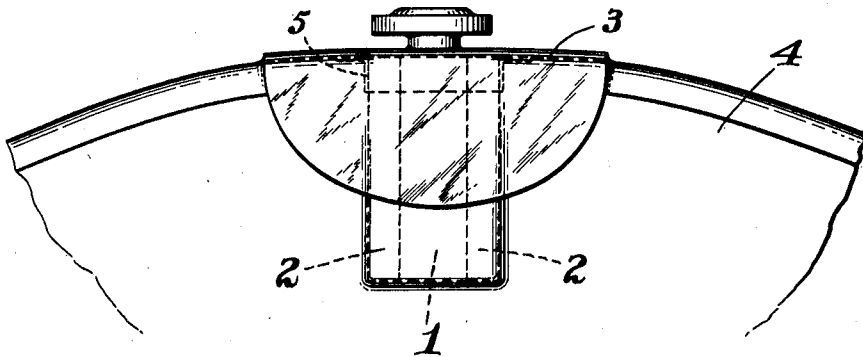
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W. W. MacDONALD

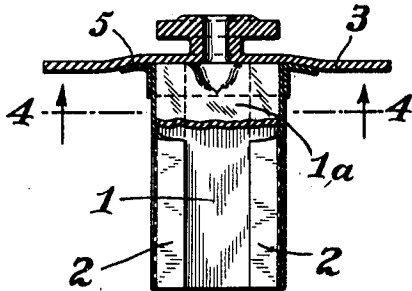
COLLAPSIBLE VALVE AND METHOD OF MAKING SAME

Filed May 12, 1928

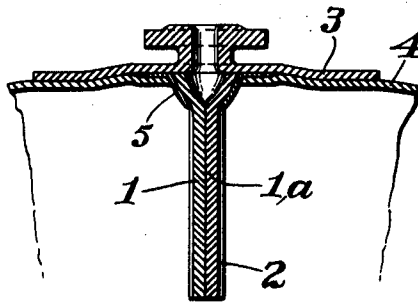
*Fig. 1.*



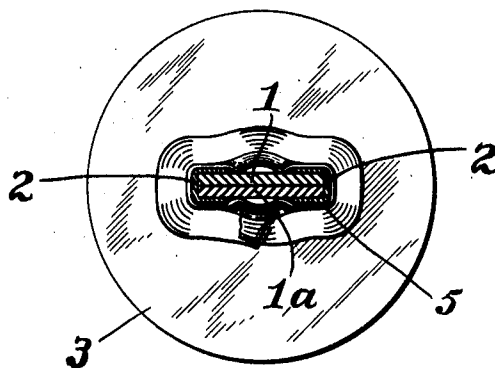
*Fig. 2.*



*Fig. 3.*



*Fig. 4.*



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# UNITED STATES PATENT OFFICE.

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## COLLAPSIBLE VALVE AND METHOD OF MAKING SAME.

Application filed May 12, 1928. Serial No. 277,328.

My said invention relates to an improved air valve of the collapsible type and the method of making the same, and aims to provide a simple and expeditious method of making such article with a view to producing a valve which will be extremely inexpensive and proof against leakage. Such valve are quite extensively used for inflatable bodies such for example as the bladders of foot balls, volley balls, etc.

The invention includes the novel method and article hereinafter described and particularly defined by the appended claims.

What I at present consider the preferred embodiment of the invention is illustrated in the accompanying drawings in which:

Figure 1 is a side elevation of a portion of a bladder containing my improved valve.

Fig. 2 is a sectional detail partly broken away.

Fig. 3 is a section at right angles to Fig. 1.

Fig. 4 is a section on line 4—4 of Fig. 2.

In proceeding according to my improved method I provide two sheets 1 and 1<sup>a</sup> of flexible material impervious to air, and of the proper length, breadth and thickness according to size of valve desired. The material preferable for the purpose is soft vulcanized rubber.

These sheets are superposed on each other with their side edges in alignment, and the said side edges are then connected by applying thereto strips 2 of flexible material (preferably relatively thin) likewise impervious to air. The said strips are also formed preferably of rubber or rubberized fabric and are arranged to extend across the edges of the strips 1, 1<sup>a</sup> and part way over the sides thereof and are adhesively secured in place, either by cementing or vulcanizing. The strips thus secured form practically flexible hinges between the edges of the strips 1 and 1<sup>a</sup> lying on opposite sides of their juxtaposed faces.

In methods of making collapsible valves heretofore pursued, the resultant article has been found liable to develop a hair line leak at the extremity of the slot due to the fact

that such valves have been customarily formed by folding a sheet upon itself and securing its edges together to form a closed tube, and it has been found that a slight leak would invariably develop along the line of fold.

With a valve made according to my improved method this objection is avoided.

The valve is completed by having a disk 3 of rubber or the like secured to one end by cement or vulcanizing, which disk is cemented or vulcanized to the wall of the inflatable bladder or other article shown broken away and indicated at 4, the joint being provided with a rubber reinforcement as indicated at 5.

Having thus described my invention, what I claim is:

1. The herein described method of making collapsible valves which includes the steps of superposing two sheets of flexible material impervious to air, and securing to the edges thereof in overlapping relation thereto strips of flexible material likewise impervious to air to form hinge-like connections between said edges.

2. The herein described method of making collapsible valves which includes the steps of superposing two narrow sheets of rubber, and adhesively securing to opposite edges thereof in overlapping relation thereto strips of thin sheet material impervious to air.

3. In a collapsible valve a pair of juxtaposed sheets of material impervious to air having alined edges, and strips of flexible material impervious to air overlapping said alined edges and adhesively secured thereto and forming hinge connections between said edges.

4. In a collapsible valve a pair of rubber sheets having flat faces in contact and perpendicular alined edges, and rubber strips extending across said edges and overlapping the outer sides of the sheets and adhesively secured thereto.

In testimony whereof I affix my signature.

WM. W. MACDONALD.