Dec. 23, 1924. 1,520,049

L. W. BEMAN

BATHING CAP

Filed April 30, 1924

Fig. 1.

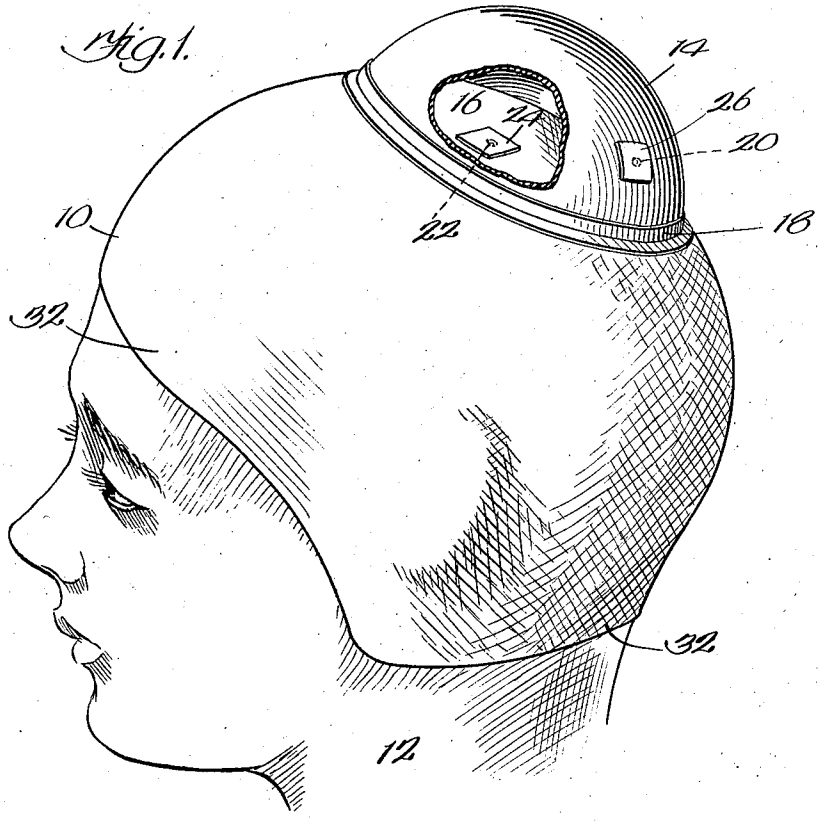
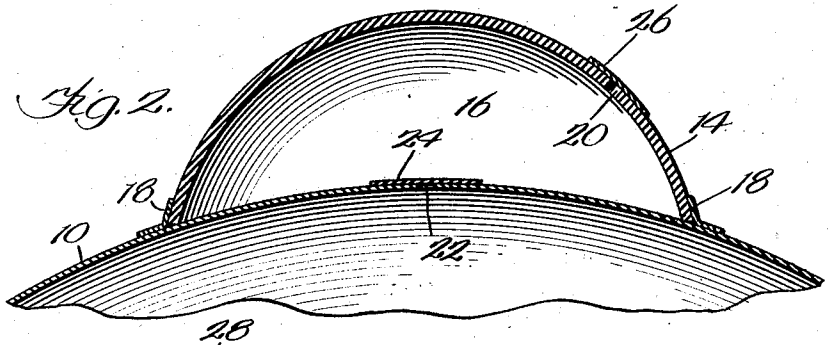


Fig. 2.



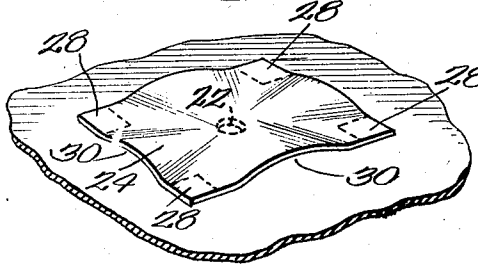


Fig. 3.

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UNITED STATES PATENT OFFICE.

LYNN W. BEMAN, OF CHICAGO, ILLINOIS.

BATHING CAP.

Application filed April 30, 1924. Serial No. 709,997.

To all whom it may concern:

Be it known that I, LYNN W. BEMAN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Bathing Caps, of which the following is a specification.

This invention relates to elastic head caps commonly used by bathers and the like, to keep the head dry in the presence of water or other liquid. Caps of this order are very common on the market, designed to be stretched over the head, under the theory that the tension of the border of the cap, usually located at the hair line, as shown in Figure 1 of the drawings, will be sufficient to make a liquid tight contact between the cap and head so that water or other liquid in which the head is more or less immersed will not creep up under the cap. As a matter of fact, this theory does not work in practice in all instances, and the object of this invention is to provide a partial vacuum inside the cap between it and the head of the wearer which will cause the cap, particularly at the edges, to draw down against the head sufficiently tight so that no liquid can pass from the outside under the border of the cap into contact with that portion of the head covered by the cap.

The invention consists in means for attaining the foregoing and other objects; which can be easily and cheaply made; which is satisfactory in use and is not readily liable to get out of order.

More particularly, the invention consists in a vacuum creating device made as a unit with the cap, capable of creating the necessary vacuum inside the cap. Still more specifically, the invention consists in the valve mechanism used in the vacuum creating pump or apparatus above referred to.

The invention further consists in numerous features and details of construction which will be hereafter more fully set forth in the specification and claims.

Referring to the drawings in which like parts are designated by the same numerals throughout the several views:

Figure 1 is a perspective view of a cap of this invention, applied to the head of a bather or the like.

Figure 2 is a sectional, detail view through the vacuum creating apparatus of this invention.

Figure 3 is a perspective view of the valve mechanism.

In carrying out this invention, the elastic or other material cap 10, applicable to the head of the user 12, does not differ in construction or appearance from ordinary bathing caps now on the market except that at a convenient point—usually but not necessarily at the top of the head—a semi-spherical, elastic member 14 is so applied as to form between it and the exterior of the cap a vacuum chamber 16. The edges of the semi-spherical elastic member 14 are sealed in fixed relation with the cap 10 by any suitable means, as for instance, the sealing ring 18, cemented in place. The material of member 14 is sufficiently thick and elastic so that under normal conditions, it will assume the raised or inflated position of Figure 2. The vacuum chamber 16 is provided with an air port 20 in the surface of member 14 and with an air port 22 in that portion of the material of cap 10 which is covered by member 14. Both of these ports 20 and 22 have applied to them independent valve mechanisms of any suitable construction which will operate as member 14 is compressed and released, as hereafter described, to suck air from the space between the head of the wearer and cap 10 into vacuum space 16 and thence deliver it through port 20 to the open air. In the particular case here illustrated, the two valves 24 and 26 are identical, being merely sheets of suitable material, more or less elastic, placed over the adjacent port and attached at the corners 28 by glue or vulcanizing, as may be desired. The corner fastenings 28 of these valve plates are so arranged that when air is passed upward through either port 22 or 26, it can lift the valve plate and pass out through the space 30 over the adjacent wall portion of members 10 or 14, as the case may be, and that, under other conditions, the pressure of air on top of the valve plate forces it down onto the adjacent port 20 or 22, thus closing it.

In the operation of the device, the bather applies the cap to the head exactly like any other conventional bathing cap; for instance, as shown in Figure 1. Under this condition of application, there is a certain quantity of atmospheric air inside the cap 10 between it and the bather's head. The

user now places a hand upon the exterior of semi-spherical member 14 and presses upon it. This action causes valve 24 to automatically close and air within chamber 16 to be expelled through port 20 under valve 26. When this operation has gone far enough, the operator removes the hand from pressure on member 14 whereupon the elasticity of the wall of this member causes the parts to return to the normal position of Figure 2 in which condition the atmospheric air outside the device holds valve 26 closed, with the result that the vacuum thus created within chamber 16 causes air between the cap and the head of the user to be drawn through port 22 under valve 24 into chamber 16. This withdrawing air from inside the cap 10 creates a partial vacuum in the space between the cap and head of the user with the result that the lower border 32 of the cap is sucked tightly against the head 12 of the user. The operator may press upon and release the semi-spherical wall 14 as many successive times as are found necessary or desirable to create sufficient vacuum inside the cap 10 and adjacent to the head of the user to satisfy the convenience and comfort of the user.

The vacuum created by this mechanism inside the cap 10 is not sufficient to interfere with the user's peeling the cap off from the head in the ordinary way when it is desired to remove the cap.

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

1. As an article of manufacture, a bathing cap of flexible material for a person's head, the cap equipped at the top of the head with a semi-spherical member 14 a vacuum chamber between it and the cap, there being through the cap and semi-spherical member ports 22 and 20 closed by valves 24 and 26, all the parts being arranged and disposed as shown and described, for the purposes set forth.

2. The combination with a bathing cap having flexible edge portions, of a pump device for exhausting air from said cap thereby to cause the flexible edge portion thereof to fit snugly in water tight engagement with a person's head, said pump device consisting of a compressible member attached directly to the cap and cooperating with the latter to form a vacuum chamber, and valve connections between said vacuum chamber and the interior of the cap and the atmosphere, respectively.

In witness whereof, I have hereunto subscribed my name.

LYNN W. BEMAN.