Jan. 28, 1969 W. F. SMITH 3,423,852

INFLATED ELASTIC FOOTWEAR

Filed May 15, 1967

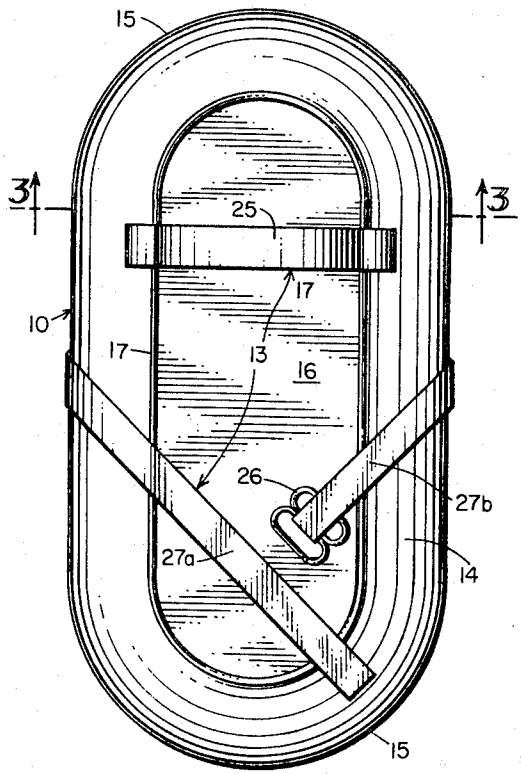


FIGURE 1

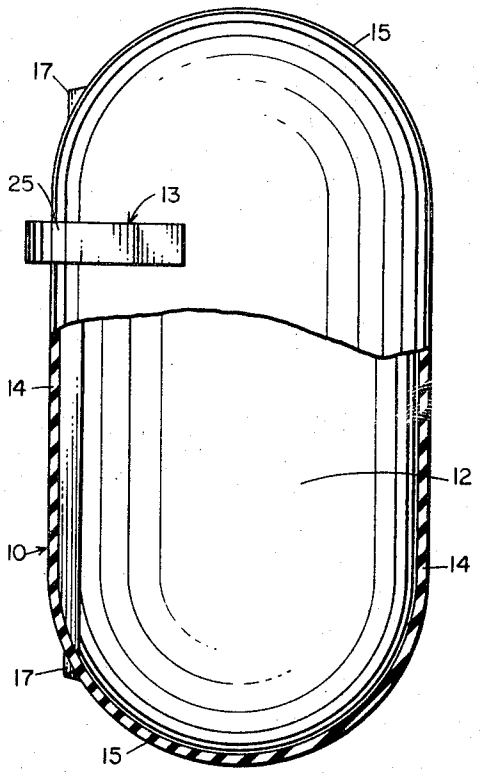


FIGURE 2

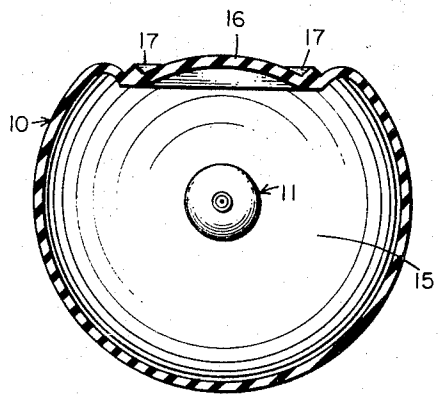


FIGURE 3

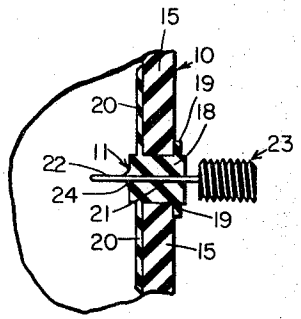


FIGURE 4

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INFLATED ELASTIC FOOTWEAR

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Int. Cl. A43b 3/12, 7/10

ABSTRACT OF THE DISCLOSURE

A renitently deformable and resilient footwear having an elastically deformable outer shell defining an inflatable, pressurized chamber with externally communicating valve structure for inflation and strap means to maintain the structure on the under portion of the foot. The footwear supports a person wearing it above the surface supporting the footwear and creates an elastic reaction upon impact by the wearer to allow a bouncing motion relative to a rigid surface supporting the footwear.

This invention relates generally to an inflatable elastic item of footwear for use as a toy to allow the wearer to bounce elastically upward on a relatively rigid supporting surface and as a support to maintain a wearer upon non-rigid surfaces such as mud, bogs and the like.

The footwear comprises an outer shell-like body of a resilient elastic material defining an interior chamber capable of enclosing pressurized gas or fluid, valve means communicating through the outer shell to allow introduction of an appropriate pressurizing substance within the interior chamber and external fastening means to maintain the body on the underside of the foot of a wearer. Preferably the fastening means include an upper portion configured to receive the sole of a shoe together with plural straps to releasably maintain the foot of the wearer in appropriate operative position on the invention.

The objects of my invention are:

To provide an inflated type, renitently deformable, resilient footwear that reacts elastically, at least upon impact by a wearer, to cause resultant upward forces, thus allowing the wearer to bounce upon a rigid supporting surface for entertainment, locomotion or the like.

To provide an enlarged surface of contact, relatively larger than normal footwear, to support a wearer on non-rigid and unstable surfaces such as swamps, mud, or even water, in a better fashion than possible by the normal footwear.

A still further object of my invention to provide such a device that is of new and novel design, of sturdy and durable nature, of economic manufacture and one that is otherwise well adapted to the uses and purposes for which it is intended.

Other and further objects of my invention will appear from the following specification and accompanying drawings which form a part of this application. In carrying out the objects of my invention, however, it is to be understood that its essential features are susceptible of change in design and structural arrangement, with only one preferred and practical embodiment being illustrated in the accompanying drawings, as required.

In the drawings which form a part of this application and wherein like numbers of reference refer to similar parts throughout:

FIGURE 1 is an orthographic top or plan view of my invention, showing its various parts, their configuration and relationship from this aspect.

FIGURE 2 is an orthographic vertical or side view of the invention of FIGURE 1, partially cut-away to show the internal structure of its rearward part.

FIGURE 3 is a cross-sectional view taken on the vertical plane 3—3 of FIGURE 1, in the direction indicated by the arrows thereon, to particularly show the internal structure of this portion of the invention.

FIGURE 4 is a partial, enlarged, cross-sectional view through the valve means of the invention, showing an inflating needle in place therein to illustrate one manner of introducing a pressurized substance through the outer shell.

Referring now to the drawings in greater detail, it will there be seen that my invention generally comprises shell-like body **10** having valve means **11** to introduce pressurized material into internal chamber **12** and fastening means **13** to fasten the body about the foot of a user (not shown).

Shell-like body **10** is a relatively thin peripheral member including a short cylindrical body section **14** structurally communicating with opposed similar hemispherical ends **15** to define the peripheral surface of somewhat elongate internal chamber **12**, so that the chamber may hold pressurized compressible material of either gaseous or liquid nature. The elongate shape of the body is desirable to aid a user in maintaining his balance by providing a supporting surface that in use tends to resist a turning motion in a forward-rearward direction.

The shell must be formed from some relatively strong, cohesive, elastically deformable material, preferably some type of rubber or at least a material having similar properties. It must have sufficient structural strength to withstand forces of a pressurized substance therein and the impact of the foot of a user. The structure of my invention should be such as to support the wearer's weight on the elastic cushion of the inflated body some appreciable distance above the rigid surface supporting the footwear. The body of the structure should be of both a width and length greater than that of the foot of a user, the exact dimensions being determined from the nature of material from which it is constructed and the nature of the results desired from its use. The thickness of the body **10** must be similarly determined. For use with one hundred to one hundred-fifty pound children a length of fourteen inches, width of seven inches and rubber thickness of about one-eighth of an inch has been found quite functionally acceptable.

Preferably the upper surface of body **10** is formed with foot receiving area **16** defined by peripheral ridge **17** to aid in maintaining a foot in proper operating position thereon. The body member, if formed from rubber, may generally be molded to the shape illustrated without additional reinforcement. If the footwear is to be used by persons of great weight, it may be necessary to include internal ribbing (not shown) to support such person and maintain essentially the shape illustrated when my invention is in use.

Valve means **11** is not of any essential type so long as it allows introduction of pressurized material into chamber **12** and maintains material therein. A type valve found most acceptable is that illustrated in FIGURE 4 and commonly used in inflatable toys and balls, including valve body **18** having external fastening flange **19** and internal fastening flange **20** with central channel **21** adapted to receive the stem **22** of hollow inflating needle **23**. A flap portion **24** is provided about the inner orifice of central channel **21**, to be forcible back into the channel inner orifice upon withdrawal of the needle, to seal the chamber to maintain internal pressure. This type of valve is well known, and only incidentally a part of my invention.

Fastening means **13** include forwardly positioned, laterally extending toe strap **25** and rearwardly positioned buckle-type ankle strap **27**. The toe strap is an elongate member, preferably of elastic nature, fastened to body **10** immediately laterally of ridge **17** of the foot receiving area by adhesion, vulcanization or similar process. It is con-

figured to allow the toe portion of the foot of a user to be inserted thereunder to aid in maintaining the toe in the foot receiving area **16**.

The ankle strap is a compound structure having fastening portion **27***a* and buckle portion **27***b* carrying double-loop buckle **26** in its inwardly projecting, loose end part to allow adjustable fastening of end portion **27***a* therein, all as well known in the fastening arts. The strap is preferably of some flexible material of appropriate strength to allow the element to be adjustable fastened about the forward portion of the arch of the ankle of a user to aid in maintaining the central portion of the user's foot in proper communication with foot receiving area **16**.

With the foregoing description of the structure of my invention, its use can now be understood.

The invention is formed according to the foregoing specification and established on the foot of a user, preferably a shoed foot, with the sole of the shoe adjacent the upper surface of the foot receiving area **16** and the toe under toe strap **25**. Buckle **26** is thereafter placed in appropriate communication with fastening strap **27***a* to fasten the entire ankle strap **27** about the forward arch of the ankle of a user to maintain the foot in position in foot receiving area **16**. With the footwear in such position, preferably on each foot, the user may stand thereon and walk in a normal fashion, supported by the communication of the undersurface of body **10** on some rigid support therebelow. With the invention in use as aforesaid, it is to be noted that the area supporting the weight of the user will normally be substantially greater than that of the foot, or the normally shoed foot, of the user.

It is further to be noted that with the footwear of my invention in place as aforesaid, the user may move his weight rather rapidly upward and allow gravity to force his body relatively rapidly downward to cause an impact upon the footwear, as in a jumping type action. If this be done, the elasticity of my invention, in recovering from the impact, will aid in an upward movement of the body of the user and thus make a continued jumping action more simple. The device is well adapted as a toy or plaything of children when used in this fashion.

The foregoing description of my invention is necessarily of a detailed nature so that a specific embodiment of it may be set forth as required, but it is nevertheless to be understood that various rearrangement and multiplication of parts and modification of detail may be resorted to without depart from the spirit, essence, or scope of the invention.

Having thusly described my invention, what I desire to protect by Letters Patent, and,

What I claim is:

1. A renitently deformable, resilient, inflatable item of footwear, comprising, in combination:

an elastically deformable outer shell of a generally elongate shape with longer axis orientated in a forward and rearward direction to prevent motion of the footwear in the direction of the longer axis to aid the balance of the user, defining a gas pressurized chamber, the shell adapted to elastically support the weight of a user above a surface supporting the outer shell and on a cushion of pressurizing gas within the chamber;

valve structure communicating from the pressurized chamber through the shell and externally thereof to allow introduction of pressurized gas into the chamber and maintain such gas therein; and

means of maintaining said footwear upon the undersurface of the foot of a user comprising

a foot receiving area defined in the upper medial portion of said shell by a peripheral ridge;

a forwardly positioned, laterally extending toe strap adapted to fit above the toe of the foot of a wearer; and

a releasably positionable, laterally carried ankle strap adapted to be fastened across the arch of the ankle of a wearer.

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PATRICK D. LAWSON, *Primary Examiner.*