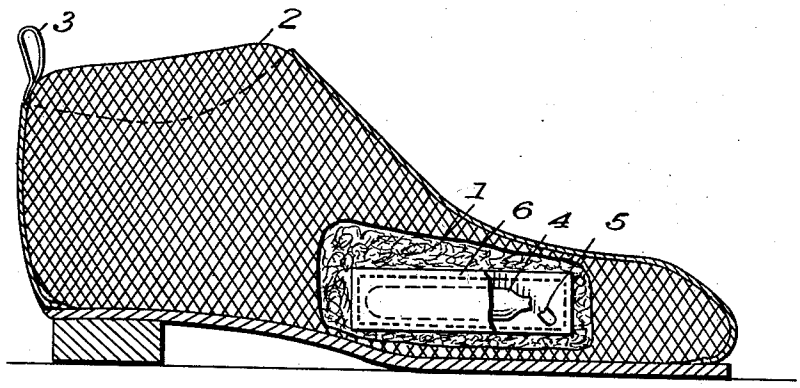
Sept. 19, 1939. E. B. BEALE 2,173,528

DISINFECTANT PAD

Filed Oct. 12, 1937

Fig. 1.



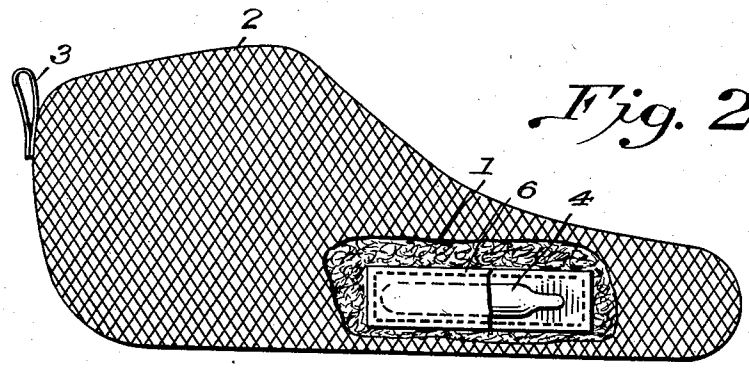




Fig. 2.

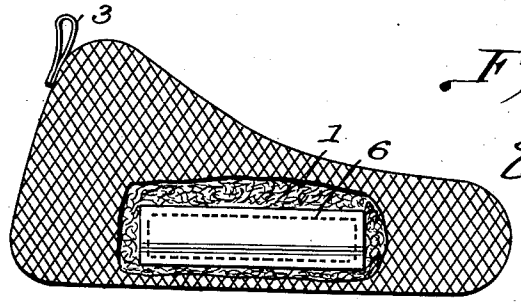



Fig. 3.

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Patented Sept. 19, 1939 2,173,528

# UNITED STATES PATENT OFFICE

2,173,528

## DISINFECTANT PAD

Edward B. Beale, Belle Haven, Va.

Application October 12, 1937, Serial No. 168,666

19 Claims. (Cl. 12—128)

This invention relates to a disinfectant pad. More particularly it relates to a shoe form to be used for the purpose of disinfecting shoes.

An object of this invention is to provide a means for rendering more effective the treatment of various foot diseases, such as that known as "Athlete's foot", by the removal of the danger of reinfection from the shoes. Although effective remedies for the various foot infections are known, these are in many cases rendered ineffective by the failure of the sufferer to recognize the shoes as a source of reinfection. The article of the present invention is intended to thoroughly cleanse the shoes of infectious organisms between wearings.

A further object of this invention is to provide an article for disinfecting shoes which contains the predetermined proper amount of disinfecting agent, thus eliminating guess work on the part of the user. In this way any danger of insufficient treatment or of overtreatment, with consequent injury to the shoe, is avoided.

A further object of this invention is to provide a cheap disinfectant pad for shoes which may be discarded after each use.

Further objects and advantages of the invention will be apparent from a consideration of the following description and the accompanying drawing, in which:

Fig. 1 represents a side view, in section, of the shoe form in use in a shoe,

Fig. 2 represents a side view, in section, of the shoe form prior to use, with its internal liquid container intact, and,

Fig. 3 represents a side view of a modified shoe form.

The body of the pad 1 is made of a suitable compressible and resilient absorbent material, such as animal or vegetable fiber batting, for instance, cotton batting, kraft paper, carton board, fibrous paper, preferably coarsely fibrous, or various spongy materials, for instance, natural sponge, rubber sponge or cellulose sponge. The body of the pad is preferably made to conform roughly to the shape of the shoe. The resilience of the material will cause it to expand to fill all the recesses of the shoe when the pad is forced into the shoe. Thorough contact of the pad with the entire interior surface of the shoe is thereby assured.

Fig. 1 shows a pad designed to fill the entire shoe. Fig. 3 shows a pad designed to fill only the toe of the shoe. For infections limited to the front regions of the foot, the second type may be desirable. This second type of pad will also be desirable for that type of women's shoe, the body of which consists almost entirely of a toe portion. Obviously pads may, if desired, similarly be constructed so as to fit solely in the heel or in any other portion of the shoe. Obviously for high top shoes a pad designed to fill not only the foot but also the leg or ankle portion may be used.

The absorbent material is preferably surrounded with a suitable porous covering 2, such as a light mesh textile covering. This porous envelope is made of sufficient strength to retain the absorbent material when it is forced into the shoe. However, it is preferably of an open mesh such as will permit actual contact of the absorbent material with practically the entire interior surface of the shoe.

A tab 3 or other suitable handle may be securely anchored to either the porous covering or the body of absorbent material or both, in such a position as to facilitate removal of the used pad from the shoe. Such a tab, or hanlde may, if desired, be made of a non-absorbent material, such as wood, metal, coated fabric, Cellophane, or light rubber membrane, so that it is unnecessary to bring the hands into contact with the disinfectant when removing the pad. I prefer, however, to form the pad of a light gauze or tape and desirably it can be formed of the same material as is used to envelop the shoe form.

A sealed liquid container 4 of any suitable size is embedded in the absorbent material in a suitable position. This container is formed from any suitable breakable material. It is preferably a glass ampoule with a scored tip 5 which may easily be broken off. It may, however, be a capsule formed of cellulosic material, gelatin, or even a soft metal, which may be punctured by the insertion of a needle or other sharp instrument through the absorbent material.

If a glass ampoule is employed, it is preferably positioned so that the scored glass tip is embedded in the narrow toe portion of the pad where it may be most easily manually broken off. It is, however, desirable that the ampoule be embedded sufficiently deeply in the absorbent material to prevent the broken glass from working its way to the surface of the pad or entirely out of the pad and thus injuring either the shoe or the foot of the wearer, or both. To further guard against this danger, the ampoule may be enclosed in a small envelope 6 of porous but strong material, such as fine wire mesh, strong textile material, or other suitable material. Thus

when the ampoule is broken, the glass fragments are securely retained in the envelope.

The glass ampoule or other sealed container will contain a sufficient dose of any of those known effective puritives for infections of the feet which may be applied in a liquid form. In particular an oily substance, preferably more or less volatile, may be used. Such an oily substance may be a light petroleum oil, for instance any hydrocarbon fraction within the range of petroleum ether and kerosene, such as gasoline or kerosene. When the interior of the shoe is thoroughly saturated therewith, such a substance serves to effectively discourage the infectious organisms which are present. When used with leather shoes it has the additional advantage of nourishing and preserving the leather.

A particularly effective disinfectant composition consists of an emulsion of a light petroleum oil with an aqueous solution of a disinfectant substance. The light petroleum oil is preferably the so-called "soluble oil", which is a highly purified, water white oil which can be easily beaten into an extremely stable emulsion with water or aqueous solutions. A suitable disinfecting agent for the water phase is a dilute solution of chlorine or other oxidizing agent in water. Small amounts of suitable emulsifying agents may be present. If desired, various essential oils, such as the various terpenes, may be included in the mixture to give a pleasant odor to both the disinfectant composition and the treated shoes. When the emulsion is applied to leather, the oil phase is absorbed into the leather and protects it against the hardening and cracking action of the water phase. The disinfectant water phase serves to destroy the organisms present on the lining and at or near the inner surface of the leather of the shoes. Emulsions of this type are more particularly described and claimed in the application for Unitel States Letters Patent of Edward B. Beale, Serial No. 168,665, filed October 12, 1937.

The entire shoe form is intended to be made up and sold as a unit. It is preferably constructed of materials sufficiently cheap in price that it may economically be disposed of after a single application. The article is used by breaking the tip from the ampoule so as to permit the disinfectant fluid to run out and saturate the absorbent material. The liquid is carried by capillary action to all the surfaces of the shoe form. The ampoule is of such a size that it contains the precise amount of liquid required to effectively saturate the entire body of absorbent material. After the ampoule is broken the form may be immediately inserted within the shoe where the leakage from the ampoule will rapidly saturate the form and adjacent surfaces of the shoe or the shoe form may be tilted back and forth to insure the complete emptying of the ampoule and saturation of the form before the form is forced into the shoe. It is allowed to remain in place between wearing or for at least such a period of time as is necessary for a thorough saturation of the lining of the shoe and the pores of the leather. The form may then be withdrawn from the shoe and be discarded. A similar treatment of the shoe should take place after each wearing until a complete cure of the foot infection has taken place.

A single shape of shoe form will suffice for various shaped shoes of the same general style since the form may be compressed into many different shapes. Only a small number of different sizes need be provided to accommodate the diverse sizes of the shoes of men, women and children, since the resilience of the form makes it possible for the largest size to be compressed into a much smaller shoe without a loss of effectiveness.

Certain variations in the invention disclosed will be apparent to those skilled in the art and are intended to be included within the scope of the appended claims.

What is claimed is:

1. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein a frangible liquid container.

2. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein a frangible liquid container containing a disinfectant liquid.

3. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein an ampoule with a breakable tip.

4. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein a glass ampoule with a breakable tip, said ampoule containing a disinfectant liquid.

5. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein a glass ampoule with a breakable tip and means surrounding said ampoule for confining the glass fragments resulting from the broken tip.

6. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent material having embedded therein a glass ampoule with a breakable tip, said ampoule containing a disinfectant liquid, and said ampoule being surrounded by a porous envelope adapted to confine the glass fragments resulting from the broken tip.

7. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a resilient body of absorbent material enclosed in a confining envelope of porous flexible material and a frangible liquid container embedded in said absorbent material.

8. A disinfectant shoe form shaped to conform

to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a resilient body of absorbent material enclosed in a confining envelope of porous flexible material and a glass ampoule with a breakable tip embedded in said absorbent material.

9. A disinfectant shoe form comprising a resilient body of absorbent material enclosed in a confining envelope of porous flexible material, a glass ampoule with a breakable tip embedded in said absorbent material, said ampoule containing a disinfectant liquid, and a porous envelope surrounding said ampoule adapted to confine the glass fragments resulting from the broken tip.

10. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of absorbent cotton having embedded therein a frangible liquid container.

11. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of fibrous paper having embedded therein a frangible liquid container.

12. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a body of carton board having embedded therein a frangible liquid container.

13. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a resilient body of absorbent cotton enclosed in a confining envelope of porous flexible material and a frangible liquid container embedded in said absorbent material.

14. A disinfecant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a resilient body of fibrous paper enclosed in a confining envelope of porous flexible material and a frangible liquid container embedded in said absorbent material.

15. A disinfectant shoe form shaped to conform to the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the entire interior surface of the shoe and comprising a resilient body of carton board enclosed in a confining envelope of porous flexible material and a frangible liquid container embedded in said absorbent material.

16. A disinfectant shoe form shaped to conform to at least a portion of the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the desired portion of the interior surface of the shoe and comprising a body of absorbent material having embedded therein a frangible liquid container.

17. A disinfecant shoe form shaped to conform to at least a portion of the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the desired portion of the interior surface of the shoe and comprising a body of absorbent material having embedded therein an ampoule with a breakable tip.

18. A disinfectant shoe form shaped to conform to at least a portion of the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the desired portion of the interior surface of the shoe and comprising a resilient body of absorbent cotton enclosed in a confining envelope of porous flexible material and a frangible liquid container embedded in said absorbent material.

19. A disinfectant shoe form shaped to conform to at least a portion of the interior of a shoe and adapted to be inserted into the shoe in a relatively compressed state and, when so inserted, capable of expanding and contacting the desired portion of the interior surface of the shoe and comprising a body of absorbent material having embedded therein an easily punctured ampoule.

EDWARD B. BEALE.