July 1, 1952 R. O. JONES 2,601,851

APPLICATOR FOR TREATING SKIN AILMENTS

Filed May 19, 1949

Fig. 1.

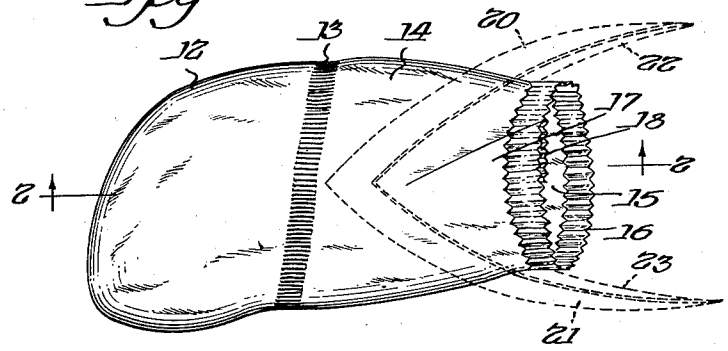


Fig. 2.

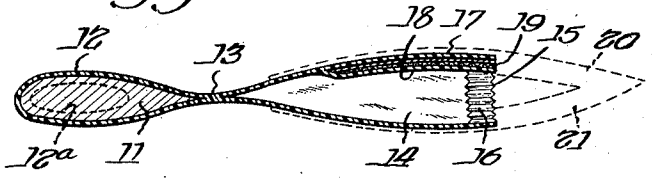
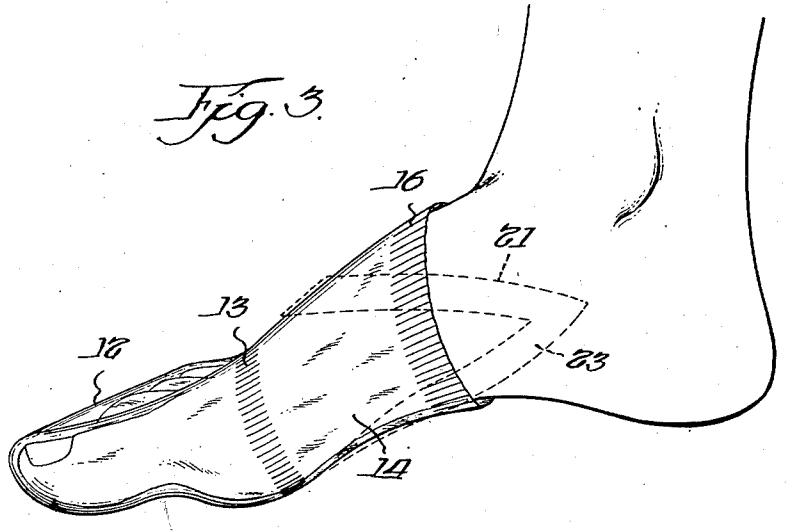


Fig. 3.



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APPLICATOR FOR TREATING SKIN AILMENTS

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7 Claims. (Cl. 128—260)

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This invention relates to medical applicators, and is particularly concerned with an applicator for treating ailments affecting the epidermis, such as may be caused by ringworm invasion or the like.

The principal object of the invention is to provide an applicator for the above noted purpose, which is made in the form an an elongated envelope containing a suitable sealed-in medical preparation, e. g., a powder, a salve or ointment, or the like. The applicator may be slipped on a limb and worn in the manner of a garment accessory to provide prolonged treatment to affected parts in contact with the preparation, without inconvenience to the patient.

A specific object is to provide an applicator of the above noted type comprising an elongated slipon envelope, means associated with said envelope forming a pocket containing a suitable medical preparation, and means connected with said slipon envelope and disposed remote from said pocket for resiliently securing said envelope in engagement with a limb to be treated, said last noted means functioning in the nature of a seal which confines the medical preparation in contact with the affected parts of the limb.

The foregoing objects and other objects and features will be brought out in the course of the description of certain embodiments of the invention, which is rendered below with reference to the accompanying drawings. In these drawings:

Fig. 1 shows by way of example, in schematic perspective view, an embodiment of an applicator made in accordance with the invention, for treating ailments caused by ringworm invasion of the foot, commonly referred to as athlete's foot;

Fig. 2 illustrates the applicator in diagrammatic sectional view, as seen when looking in the direction of the arrows along lines 2—2 of Fig 1; and

Fig. 3 indicates the applicator in treatment position on a foot.

Like parts are numbered alike throughout the drawings. Known elements and features will be discussed only to the extent required for conveying an understanding of the invention.

The applicator shown in the drawings may be made of a suitable material, e. g., a somewhat stretchable plastic material, in the form of a baglike elongated envelope which may approximate the shape of a foot. Various sizes may be furnished in trade, depending on the stretching properties of the particular material that may be used.

An amount of a suitable medical preparation, e. g., a powder, a salve, ointment, liquid or semi-liquid 11, may be disposed in the forward pocket portion 12 of the envelope, and this pocket portion may be transversely sealed off, as indicated at 13, by securing the opposite envelope walls together. This may be done in any suitable manner, depending on the particular envelope material, e. g., by feeding the applicator through heated rollers which may be rippled, if desired, thus providing the transverse seal 13 which separates the pocket portion 12 from the remainder of the envelope and seals the medical preparation in place and against contact with the air. The seal 13 is breakable responsive to pressure exerted thereon by the toes when the envelope is slipped on the foot into the position shown in Fig. 3, and the medical preparation then spreads around and between the toes to treat the affected parts. The seal 13 is in effect an elastic portion which is integral with the envelope and, when broken, forms a resiliently expandable strip in back of the pocket 11 which attaches resiliently around the corresponding portion of the foot to inhibit escape of the medical preparation, thus confining the preparation to the parts to be treated. If desired, a separate elastic strip may be employed on top of the section 13 or in place thereof to secure the envelope on the foot in back of the pocket 12 so as to inhibit rearward escape of the medical preparation.

The required medical preparation may also be furnished in an auxiliary relatively small and suitably shaped breakable bag or envelope marked 12*a* in dotted lines, which is inserted for use in the forward portion of the principal slipon envelope. The resilient seal 13 may be omitted or may be provided, if desired, to secure the auxiliary bag 12*a* in place so as to form a unit with the principal slipon envelope. As in the former case, a separate elastic strip may again be used to provide a circumferential seal against the escape of the medical preparation when the applicator is in treatment position on the foot.

It is understood, of course, that the envelope material must be chosen in either case with due regard to the medical preparation that is to be used. In general, the material containing the preparation must be substantially inert with regard thereto; sufficiently sturdy to provide a secure enclosure which is impermeable by the preparation; and, in the case of the auxiliary bag 12*a*, the material must be breakable responsive to pressure to allow the preparation to flow into the pocket space 11 when the foot is inserted into the elongated slipon envelope and must be of a

type that will not cause detrimental mechanical irritation after breakage. A suitable seam or the like may be formed in the wall of the bag 12*a*, if such bag is used, to assure breakage thereof responsive to pressure at the time when the applicator is used for treatment.

Stitching or gluing or the like may be employed to furnish the transverse seal 13, if desired or necessary, but the seal must always be such that it provides proper protection for the medical preparation and that it may be broken by pressure applied to it without injuring the remainder of the slipon envelope.

The rearwardly extending portion 14 of the slipon envelope is open at 15 for slipping in the foot for treatment of the affected parts. The rim of the free end of the envelope may be ruffled, as indicated at 16, to provide a circumferentially constricted, resiliently expandable cuff. A wing or flap 17 may be formed which overlies the wing portion 18. This flap may be an integral part of the envelope or suitably secured thereto. The inside of this flap, if it is used, may be provided with suitable adhesive and the latter may be covered with gauze 19.

The cuff 16 forms, in effect, an elastic portion just like the portion 13, which is integral with the envelope and which functions as a seal against the foot, when the applicator is in treatment position, to inhibit escape of the medical preparation from the rearward end thereof.

This cufflike end may be simply slotted and the resulting wings may be drawn together and one secured to the other by any suitable means, including adhesive, as shown, or by snap or hook fasteners, or by suitable straps.

A separate elastic strip may be employed for attachment of the open end 16 on the foot.

The applicator and desired or required auxiliaries may be furnished in a suitable sanitary package for ready use and for disposal after use.

The applicator is slipped on the foot at 15. The forward pressure of the toes breaks the seal 13 to permit the toes to slide into the medical preparation 11. In case a separate envelope 12*a* is employed which contains the preparation, which may be a powder, salve, ointment or the like, this envelope is broken by the pressure of the toes, and the toes then again slide into the preparation 11, displacing it as before, so that it flows into the folds and cavities between the toes, bathing all affected parts. Gentle massage applied to the portion 12 of the envelope will easily spread the preparation as desired. The gauze 19 is then ripped off to expose the adhesive layer on the under side of the flap 17, if such flap is provided, and this flap is thereupon pulled over the wall 18, stretching the parts, and is secured in place, thus attaching the envelope to the foot remote from the pocket 11 and preventing the rearward escape of the medical preparation. The resiliently expandable feature of the circumferentially constricted cufflike open end of the elongated slipon envelope, forming in effect an elastic section, may be used alone, without the slit forming the wing 17, to provide the secure and resilient attachment to the corresponding part of the foot, as described. Suitable fasteners or a separate strip of elastic, e. g., in the form of a round garter, or suitable tie straps may be used, as previously explained, to secure the end 16 on the foot. The applicator in either case forms a socklike envelope on the foot, as indicated in Fig. 3, which may be worn for prolonged periods without inconvenience, furnishing the desired treatment by the action of the preparation 11 in intimate and prolonged contact with the affected parts. The attachment is secured by the resilient means at 13 in back of the toes, substantially at the ball of the foot, and at 16 in the area of the instep.

The applicator may be made longer and may provide for one or more pockets 11 and/or auxiliary envelopes 12*a* at suitable places, to furnish treatment for areas in back of the toes, in fact, to furnish treatment for the entire foot, if desired.

The invention is obviously adapted to provide applicators for body parts aside from the feet, and for numerous ailments aside from ringworm trouble. The specific showing is therefore not intended to indicate any inherent limitations.

The applicator is for sanitary reasons preferably of the disposable type. It may nevertheless be desirable to furnish such an applicator as a device that may be reused. In this case the principal slipon envelope may be made of a more or less permanent washable material, and the medication may be furnished in the form of a breakable auxiliary bag such as 12*a* containing the desired ointment or the like, which is inserted into the forward end of the relatively permanent principal slipon envelope when desired for use. Elastic sections such as 13 and/or 16 may be formed integral with the envelope, as in the former case. Separate garterlike elastic members may likewise be used substantially at the places of the sections 13 and/or 16 either in addition thereto or in place thereof, all as described before with reference to the illustrated embodiment. In other words, the applicator made for repeated use may have these and all other features of the disposable type discussed before.

The applicator envelope is slipped on as before, in the manner of a sock, the pressure of the toes breaking the bag or envelope 12*a* containing the medication (one or more may be provided for use at desired points) and causing the preparation to flow out and around the affected parts, bathing them in intimate contact therewith. The envelope may be reused after proper washing and sterilizing. The material from which the envelope is made in this latter case is of course chosen so that it holds the preparation, preventing soiling, and, as noted before, the material from which the bags 12*a* are made should again be such as to avoid detrimental irritation to the patient after breakage thereof.

Suitable tie straps may be provided in place of or in addition to the expandable circumferentially resilient closure accorded by the use of the cuff structure 16, including, if desired, the flap or wing 17 and the wing portion 18. Tie straps which I have found satisfactory are indicated in the drawings in dotted lines. They comprise two generally V-shaped top and bottom portions having the legs 20—21 and 22—23, respectively. These tie straps may be connected with or secured to the elongated slipon envelope intermediate its opposite ends, as shown, forming part thereof, or may form separate parts furnished with the envelope to be suitably attached thereto by the patient when necessary. When the applicator is on the foot, as shown in Fig. 3, the joining rearward portions of coacting tie straps are pulled back and secured to the foot. The V-shape of these tie straps exerts a peripheral circumferentially effective resilient pull on the

envelope material remote from the pocket portion 11, i. e., along an intermediate line, and to some extent on the open end of the envelope, securing it resiliently in place on the foot and thus preventing escape of the medical preparation, as before. Each free end of the V-shaped tie straps may be provided with suitable adhesive which is normally covered by gauze. The gauze is stripped off, and the corresponding tie strap is attached to the foot by the adhesive. The tie straps may also extend rearwardly, and their ends may be tied or otherwise suitably secured together in back of the heel. Suitable fasteners, e. g., hooks, eyelets or snap fasteners may be used for securing the tie straps as desired. The tie straps may also be made, wholly or in part, of elastic material.

The applicator may be used for treatment at any desired time, but will preferably be used in inactive periods, e. g., during rest periods.

Changes may be made within the scope and spirit of the appended claims.

I claim:

1. A medical applicator of the class described comprising an elongated envelope for slipon disposal on a limb to be treated, said envelope enclosing substantially throughout its length the corresponding parts of said limb when slipped thereon, and means integral with said envelope forming a breakable pocket therein containing a suitable medical preparation for escape from said pocket upon the breaking thereof to treat affected parts of the limb in contact therewith, escape of said preparation to the outside being prevented by said envelope enclosing said limb.

2. The applicator defined in claim 1, together with a relatively small auxiliary breakable envelope which contains said preparation and which is disposed within the pocket of said slipon envelope.

3. The applicator defined in claim 1, together with a relatively small auxiliary breakable envelope disposed in said pocket and containing said preparation.

4. As an article of manufacture, an applicator for the treatment of ailments affecting the epidermis such as caused by ringworm invasion or the like, comprising means forming a slipon envelope for disposal on a limb to be treated, said envelope being substantially inert to the action of the medical preparation for said ailment and substantially impermeable thereby, means forming in said slipon envelope a pocket for holding a suitable medical preparation for the treatment of said ailment, said pocket forming means being breakable responsive to pressure exerted thereon upon slipping the limb into said slipon envelope to allow said preparation to spread within said slipon envelope into contact with affected areas of said limb, and means connected with said slipon envelope for attaching it to the limb to be treated.

5. An applicator of the class described, for treating ringworm invasion of the feet, comprising a slipon envelope made of a suitable material for slipon disposal on a foot to envelop affected parts thereof and extending rearwardly therefrom, a breakable seal formed by said envelope which joins the walls thereof intermediate its opposite ends, said seal forming a pocket in the forward portion of said envelope for holding a suitable medical preparation for treating said ringworm invasion in contact with the affected parts of the toes after the envelope is slipped on a foot, the forward pressure of the toes on the seal incident to slipping the foot into the envelope breaking said seal to allow the toes to slip into said medical preparation for treatment, said seal after being broken forming a circumferentially resiliently effective sealing attachment of the envelope with corresponding parts of the foot in back of the toes substantially at the ball of the foot to inhibit rearward escape of said preparation, and means connected with said slipon envelope for circumferentially resiliently securing it to corresponding parts of the foot in back of said sealing attachment to form a second sealing area remote from the toes and in engagement with part of the instep which further inhibits escape of said medical preparation during treatment.

6. An applicator of the class described, for treating ailments of the foot caused by ringworm invasion or the like, comprising a disposable elongated envelope made of suitable material and having an opening solely at one end thereof for slipon disposal on a foot to envelope when slipped thereon substantially completely the corresponding parts of the foot and extending rearwardly from the toes thereof, the walls of said envelope being joined to form a transverse seal in back of the portion which envelops the toes when slipped on the foot, said seal defining a pocket in said toe portion, a suitable medical preparation disposed in said pocket, said seal being breakable responsive to pressure exerted thereon by the toes when said envelope is slipped on the foot to allow the toes to enter said pocket and to slip into said medical preparation for treatment thereby, and securing means connected with said slipon envelope for holding said envelope on the foot.

7. An applicator structure as set forth in claim 6, wherein said securing means comprises substantially V-shaped straps connected to the body of said envelope with the apex portion extending rearwardly therefrom for attachmennt to the foot, whereby said V-shaped straps are drawn together to secure the open rear portion of said envelope resiliently around the foot.

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