

Oct. 20, 1942.

A. HUNTER ET AL

2,299,627

MANICURE IMPLEMENT

Filed Jan. 18, 1941

FIG. 1.

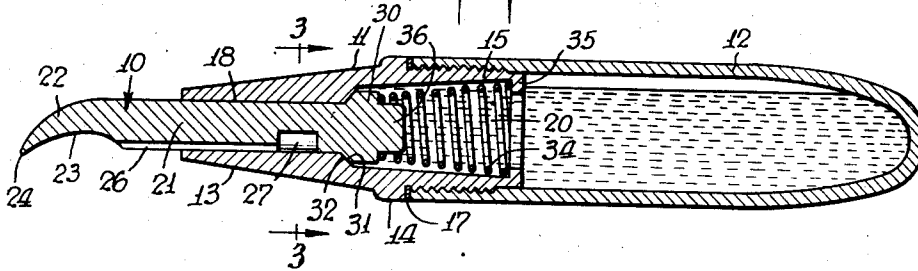


FIG. 2.

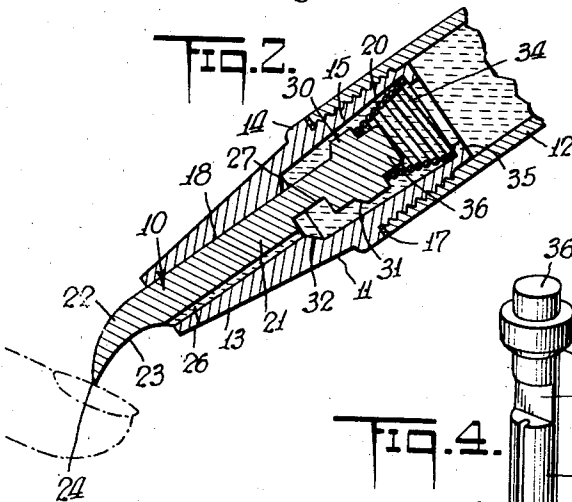


FIG. 3.

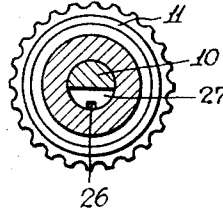


FIG. 4.

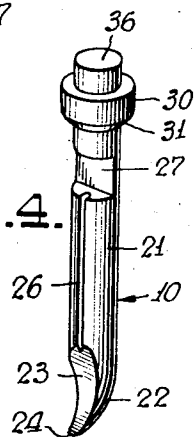


FIG. 8.

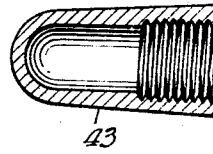


FIG. 5.

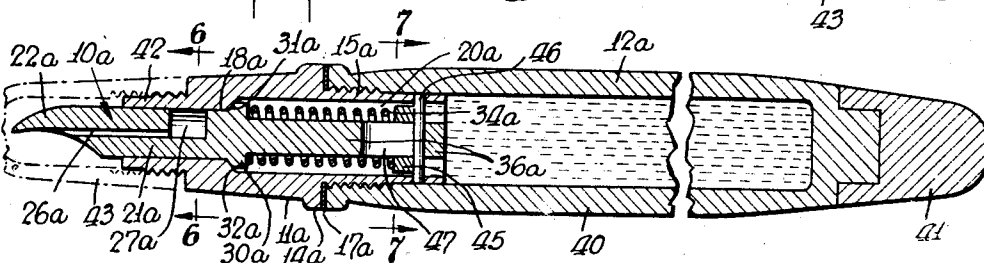


FIG. 6.

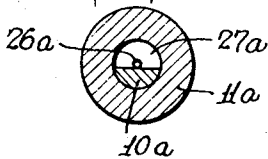
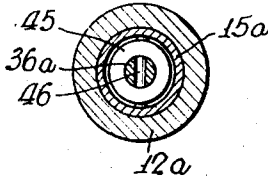


FIG. 7.



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2,299,627

MANICURE IMPLEMENT

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Application January 18, 1941, Serial No. 374,988

13 Claims. (Cl. 132—74.5)

The present invention relates to manicure appliances, and more particularly to an instrument for applying a liquid preparation to the nails for cuticle removing operations.

Among the objects of the present invention is to provide a manicure appliance of the type referred to, which is of maximum capacity and of minimum bulk, which is made of a minimum number of parts, which is capable of easy and expeditious assembly or disassembly, which is easily controllable to effect liquid flow therefrom in small regulated quantities, which is constructed to reduce to a minimum the possibility of leakage therefrom, which has its parts so constructed and assembled as to eliminate the possibility of its parts becoming loose or being lost, which is constructed and designed for handy and convenient manipulation, which lends itself easily to manufacture from plastic material, and which meets the requirements of economical manufacture.

Various other objects of the invention will be apparent from the following particular description, and from an inspection of the accompanying drawing, in which:

Fig. 1 is a longitudinal enlarged section of one form of manicure implement, embodying the present invention, and shown with its liquid applicator in closed position to bar flow of cuticle treating liquid therefrom,

Fig. 2 is a longitudinal enlarged section of the forward portion of the implement of Fig. 1, but showing its liquid applicator in open position to effect flow of liquid therefrom,

Fig. 3 is a transverse section taken on line 3—3 of Fig. 1,

Fig. 4 is a perspective of the applicator of Fig. 1,

Fig. 5 is a longitudinal enlarged section of another form of manicure implement embodying the present invention,

Fig. 6 is a section taken on line 6—6 of Fig. 5, and Fig. 7 is a section taken on line 7—7 of Fig. 5,

Fig. 8 is a longitudinal section of a protective cap for the applicator tip in the construction shown in Fig. 5.

In accordance with a specific embodiment of the invention shown in Figs. 1 to 4 of the drawing, there is provided a liquid applicator 10 of the plunger type, slidable in a stock or sleeve 11 to which is detachably secured a barrel 12, serving as a reservoir for the liquid preparation to be dispensed. This barrel 12 is desirably made of glass or other suitable transparent material

so as to afford visual inspection of the liquid contents thereof.

The sleeve 11 is desirably made of suitable plastic material, and is provided with a forwardly tapering section 13, an external collar 14 desirably knurled or otherwise ornamented to afford a firm finger grip in the manipulation of the shipment, and an externally threaded rear section 15 of reduced diameter. The forward open end section of the barrel 12 is internally threaded and is screwed over the threaded sleeve section 15 and against the collar 14. A washer 17 of suitable sealing material such as rubber may be clamped between the collar 14 and the forward end of the barrel 12.

The sleeve 11 is provided with a cylindrical bore or cavity 18 along its forward section for slidably receiving the applicator 10, and a bore or cavity 20 of larger diameter along its rear section in open communication at all times with the liquid contents of the barrel 12.

The applicator 10 is desirably made of plastic material, and is provided with an intermediate cylindrical section 21, having a snug slide sealing fit in the sleeve bore 18, and a tip section 22, projecting outwardly and forwardly beyond the sleeve 11. This tip 22 is longitudinally curved as shown, and is provided with a slightly concave bevel 23 to form a comparatively sharp edge 24. In this form, the tip 22 can accommodate itself to the curvature of the nail being treated, and can easily reach the corners and recesses of the nail. The tip 22 can also be easily pried underneath the cuticles after they have been softened by the liquid preparation, and can be effectively used to push these cuticles back.

The applicator slide section 21 is provided with a capillary channel or groove 26, extending longitudinally along one side thereof, and serving as part of the feed duct for the cuticle treating liquid. This groove 26 terminates at its forward end substantially near the rear end of the tip bevel 23, and at its rear end communicates with a transverse groove 27 formed in the cylindrical slide section 21 of the applicator.

Formed near the rear end of the applicator 10 is an enlarged cylindrical head 30, having a conical valve section 31 adapted to engage a corresponding conical valve seat 32 at the forward end of the applicator bore 20.

The applicator valve head 30 is normally urged forwardly against its seat 32 in the position shown in Fig. 1, to prevent outward flow of liquid from the applicator while the implement is not in use or while the applicator tip 22 is oper-

ating on the cuticle. For that purpose, a coil spring 34 is housed in the bore 20 with one end thereof bearing against the valve head 30, while the other end bears against abutments 35 rigid with the sleeve 11. These abutments may be in the form of radially inwardly extending spaced lugs, formed integrally at the rear end of the sleeve 11, or may be in the form of a washer, press-fitted into position after the spring 34 has been inserted in the sleeve.

In assembly operation, the spring 34 may be sprung past the abutments 35 for insertion in the sleeve 13, or may be screwed in position past these abutments.

In order to center the spring 34 in its contracting and expanding movement, and at the same time hold the applicator 10 against transverse spring pressure tending to bind or seize said applicator against slide movement in the sleeve 11, the rear end of said applicator beyond its valve head 30 is axially provided with a reduced stud 36, extending into said spring. The spring 34 tapers forwardly towards this stud 36. To further assist in this spring centering operation, the bore 20 desirably tapers forwardly, so that the spring 34 is confined against transverse tilting while it is expanding or contracting.

When the implement is not in use, the spring 34 will urge the applicator 10 forwardly in the valve closed position shown in Fig. 1 with the feed passages 26 and 27 out of communication with the liquid in the bore 20. The implement is held in the hand like an ordinary pencil, and when pressure is applied to the applicator tip 22 as for instance by pressing said tip against the nail to be treated, the applicator 10 will be pushed inwardly in the sleeve 11 as shown in Fig. 2 against the action of the spring 34 until the transverse groove 27 extends in the bore 20, and is consequently in communication with the liquid therein. Due to the plunger action of the applicator 10 inwardly towards the barrel 12, a drop of the liquid will be forced out through the grooves 26 and 27 and onto the nail being treated. Due to the fact that the groove 26 is very small in cross-section, no further liquid will flow out through this groove, even though the applicator may still be in the valve open position shown in Fig. 2. An additional drop of the liquid can only be dispensed by releasing the applicator 10 and repeating its inward plunger action.

It should be noted that the applicator 10 can only be removed from the sleeve 11 through the rear open end thereof, so that there is no possibility of this applicator becoming accidentally separated from the assembly as long as the barrel 12 is fastened to said sleeve.

It should also be noted that the feed passages 26 and 27 are cut off from the liquid in the barrel 12 when the implement is not in use or when the applicator tip 22 is operating on the cuticle, so that leakage through these passages during such periods is obviated.

The spring 34 is powerful enough to hold the applicator tip 22 into extreme outward position against accidental withdrawal into sleeve 11, while this tip is being used to spread the drop of liquid previously dispensed on the nail or while it is being used to force the cuticle back. At the same time, the spring 34 is weak enough to permit liquid feeding slide movement of the applicator upon application of nail pressure thereto, without the necessity of digging into the nail or otherwise injuring or marring it.

In the form of implement shown in Figs. 5 to 8, the barrel 12a has a main transparent section 40, and an ornamental cap 41, press-fitted or otherwise attached to the rear end of said barrel, and desirably made of colored plastic material to afford decorative contrast with said main barrel section, and to attractively blend with the other plastic parts at the forward section of the implement. At the forward end, the barrel 12a is threaded over the rear section 15a of the plastic stock or sleeve 11a, and bears against the shoulder 14a of said sleeve through the interposition of the sealing ring 17a.

The sleeve 11a is desirably formed near its forward end with a reduced threaded section 15 for receiving a plastic protective cap 43 over the tip 22a of the applicator 10 when the implement is not in use.

The plastic applicator 10a has its tip 22a substantially the same as that in the construction of Figs. 1 to 4, and has an intermediate cylindrical section 21a with a snug slide sealing fit in the cylindrical bore 18a of the sleeve 11a, a valve head section 30a operable in the enlarged sleeve bore 20a, and a rear valve stem section 36a. The valve head 30a has a conical seating section 31a adapted to engage a conical seat 32a at the forward end of the applicator bore 20a.

The feed passages in the applicator 10a are formed by an axial capillary hole 26a and a transverse groove 27a forwardly beyond the valve head 30a.

For urging the applicator 10a forwardly in closed valve seating position shown in Fig. 5, a cylindrical coil spring 34a encircles the valve stem 36a, and bears at one end against the valve head 30a, and at the other end against a washer 45 encircling said valve stem. This washer 45 bears against a transverse pin 46 diametrically fixed to the sleeve 11a, and passing loosely through a diametrical slot 47 in the valve stem 36a. This slot 47 permits axial movement of the applicator 10a without interference from the pin 46.

The operation of the implement of Figs. 5 to 8 is similar to that of Figs. 1 to 4. When the applicator 10a is pushed inwardly from the position shown in Fig. 5 to effect communication of the transverse feed passage 27a with the liquid in the sleeve bore 20a, a sole drop of the liquid is forced out through the applicator tip 22a. When nail pressure on the applicator 22a is released, the applicator 10a returns to the closed position shown in Fig. 5 under the action of the spring 34a.

As many changes could be made in the above construction, and many apparently widely different embodiments of this invention could be made without departing from the scope of the claims, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

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

1. A manicure appliance including a reservoir barrel for a liquid preparation, a one-piece sleeve secured to the forward end of said barrel and internally provided with a rearwardly facing seat, an applicator slidable in said sleeve and projecting forwardly therefrom, said applicator having a feed duct from which reservoir liquid is dispensed, and having a shoulder member adapted

to engage said seat to limit forward movement of said applicator, and means for controlling the flow of liquid through said feed duct in accordance with the slide movement of said applicator in said sleeve.

2. A manicure appliance including a reservoir barrel for a liquid preparation, a one-piece sleeve secured to the forward end of said barrel, and provided with a bore extending lengthwise thereof to its forward end, and a larger bore near its rear end, said sleeve being provided with a rearwardly facing seat, an applicator having a section with a snug slide sealing fit in said first-mentioned sleeve bore, and an enlarged head in said second-mentioned sleeve bore adapted to engage said seat in limiting forward position of said applicator, said applicator having a feed duct from which reservoir liquid is dispensed, and means for controlling the flow of liquid through said duct in accordance with the slide position of said applicator.

3. A manicure appliance including a barrel for liquid preparation, a sleeve secured to the forward end of said barrel, and having a cylindrical bore extending to the forward end thereof, and an enlarged bore to the rear of said cylindrical bore, said bores defining a rearwardly facing seat therebetween, an applicator having a cylindrical section with a snug slide sealing fit in said cylindrical bore, and having a head adapted to engage said seat to limit outward slide movement of said applicator, said applicator having a feed duct for dispensing liquid therethrough, and valve means for controlling flow of liquid through said feed duct in accordance with the slide position of said applicator.

4. A manicure appliance including a barrel for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a guide bore along a section thereof, an applicator having a snug slide sealing fit in said guide bore, and having a feed duct from which liquid from said barrel is dispensed, means for normally urging said applicator forwardly from said sleeve, means for limiting the forward position of said applicator, said feed duct terminating at its rear end forwardly of the rear end of said guide bore when said applicator is in its forward limiting position, whereby said feed duct is cut off from communication with the liquid from said barrel, said feed duct being in communication with the liquid in said barrel when said applicator is moved rearwardly in its sleeve.

5. A manicure appliance including a reservoir for a liquid preparation, a sleeve secured to said reservoir, and having a guide bore, an applicator having a longitudinal section with a snug slide sealing fit in said guide bore, said applicator section being provided with a passage extending lengthwise thereof, and a transverse groove at the rear end of said passage and in communication with said passage, said groove forming with said passage a feed duct for said liquid preparation, spring means normally urging said applicator forwardly from said sleeve, and means for limiting the forward position of said applicator in said sleeve, said applicator in said forward limited position having said transverse groove spaced forwardly from the rear end of said guide bore, whereby said feed duct is out of communication with the reservoir liquid, said transverse groove being in communication with the reservoir liquid when said applicator is moved inwardly to effect feeding of the liquid through said duct.

6. A manicure appliance including a reservoir for a liquid preparation, a sleeve secured to said reservoir, and having a valve seat, an applicator slidable in said sleeve and provided with a liquid dispensing feed duct, a valve member rigid with said applicator, and disposed rearwardly beyond said duct, said valve member being adapted to engage said seat to cut off communication between said duct and the liquid in said reservoir, and to limit outward slidable movement of said applicator in said sleeve, and means for establishing communication between said duct and the liquid in said reservoir when said applicator has been moved inwardly in said sleeve beyond a predetermined slide position, and said valve member has been unseated.

7. A manicure appliance including a barrel serving as a reservoir for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said barrel, said sleeve presenting a rearwardly facing valve seat between said bores, an applicator having a longitudinal section extending with a snug slide sealing fit in said slide bore, and having a valve head rearwardly beyond said longitudinal section adapted to sealably engage said valve seat, and a spring in said enlarged bore for urging said applicator forwardly with said valve head against said valve seat, said applicator having a liquid dispensing feed duct, the rear end of which terminates forwardly of said valve head, whereby said duct is out of communication with the liquid in the enlarged bore of said sleeve when said valve head is in seating position, said duct being adapted to extend in said enlarged bore when said applicator is pushed inwardly to dispense liquid through said duct.

8. A manicure appliance including a barrel serving as a reservoir for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a cylindrical slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said barrel, said sleeve presenting a rearwardly facing conical valve seat between said bores, an applicator having a longitudinal cylindrical section extending with a snug slide sealing fit in said slide bore, and having a cylindrical valve head rearwardly beyond said longitudinal section with a conical seat section adapted to sealably engage said valve seat, and a spring in said enlarged bore bearing against said valve head for urging said applicator forwardly with said valve head against said valve seat, said applicator having a liquid dispensing feed duct, the rear end of which terminates forwardly of said valve head, whereby said duct is out of communication with the liquid in the enlarged bore of said sleeve when said valve head is in seating position, said duct being adapted to extend in said enlarged bore when said applicator is pushed inwardly to force liquid through said duct.

9. A manicure appliance including a barrel serving as a reservoir for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said barrel, said sleeve presenting a rearwardly facing valve seat between said bores, an applicator having a longitudinal section ex-

tending with a snug slide sealing fit in said slide bore, and having a valve head rearwardly beyond said longitudinal section adapted to sealably engage said valve seat, and a spring in said enlarged bore for urging said applicator forwardly with said valve head against said valve seat, said applicator having a passage extending longitudinally along its forward section, and a transverse groove at the rear end of said passage communicating therewith and forming with said passage a liquid dispensing feed duct, said groove terminating forwardly of said valve head, whereby said groove is out of communication with the liquid in the enlarged bore of said sleeve when said valve head is in seating position, said groove being adapted to extend in said enlarged bore when said applicator is pushed inwardly to dispense liquid through said duct.

10. A manicure appliance including a barrel serving as a reservoir for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said barrel, said sleeve presenting a rearwardly facing valve seat between said bores, an applicator having a longitudinal section extending with a snug slide sealing fit in said slide bore, and having a valve head rearwardly beyond said longitudinal section adapted to sealably engage said valve seat, and a spring in said enlarged bore for urging said applicator forwardly with said valve head against said valve seat, said applicator having a channel on its periphery extending along its forward section, and a transverse groove at the rear end of said channel, communicating therewith and forming with said channel a liquid dispensing duct, said groove terminating forwardly of said valve head, whereby said groove is out of communication with the liquid in the enlarged bore of said sleeve when said valve head is in seating position, said groove being adapted to extend in said enlarged bore when said applicator is pushed inwardly to dispense liquid through said duct.

11. A manicure appliance including a barrel serving as a reservoir for a liquid preparation, a sleeve secured to the forward end of said barrel, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said barrel, said sleeve presenting a rearwardly facing valve seat between said bores, an applicator having a longitudinal section ex-

tending with a snug slide sealing fit in said slide bore, and having a valve head rearwardly beyond said longitudinal section adapted to sealably engage said valve seat, and a spring in said enlarged bore for urging said applicator forwardly with said valve head against said valve seat, said applicator having a central hole extending longitudinally along its forward section, and a transverse groove at the rear end of said hole communicating therewith, and forming with said hole a liquid dispensing duct, said groove terminating forwardly of said valve head, whereby said duct is out of communication with the liquid in the enlarged bore of said sleeve when said valve head is in seating position, said groove being adapted to extend in said enlarged bore when said applicator is pushed inwardly to dispense liquid through said duct.

12. A manicure appliance including a reservoir for a liquid preparation, a sleeve secured to said reservoir, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said reservoir, an applicator having a longitudinal section extending with a snug slide sealing fit in said slide bore, a conical spring in said enlarged bore having its smaller forward end bearing against the rear end of said applicator to urge said applicator forwardly in said sleeve, said applicator having a liquid dispensing feed duct, and means for controlling flow through said duct in accordance with the slide position of said applicator.

13. A manicure appliance including a reservoir for a liquid preparation, a sleeve secured to said reservoir, and having a slide bore along the forward section thereof, and an enlarged bore along the rear thereof in constant communication with the liquid in said reservoir, an applicator having a longitudinal section extending with a snug slide sealing fit in said slide bore, and having a liquid dispensing feed duct, an abutment rigid with and extending radially inwardly from the rear section of said sleeve, a spring in said enlarged bore having one end bearing against said applicator, and the other end bearing against said abutment, said abutment permitting insertion of said spring in said bearing position through the rear open end of said sleeve during assembly, and means for controlling the flow of liquid through said duct in accordance with the slide position of said applicator.

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