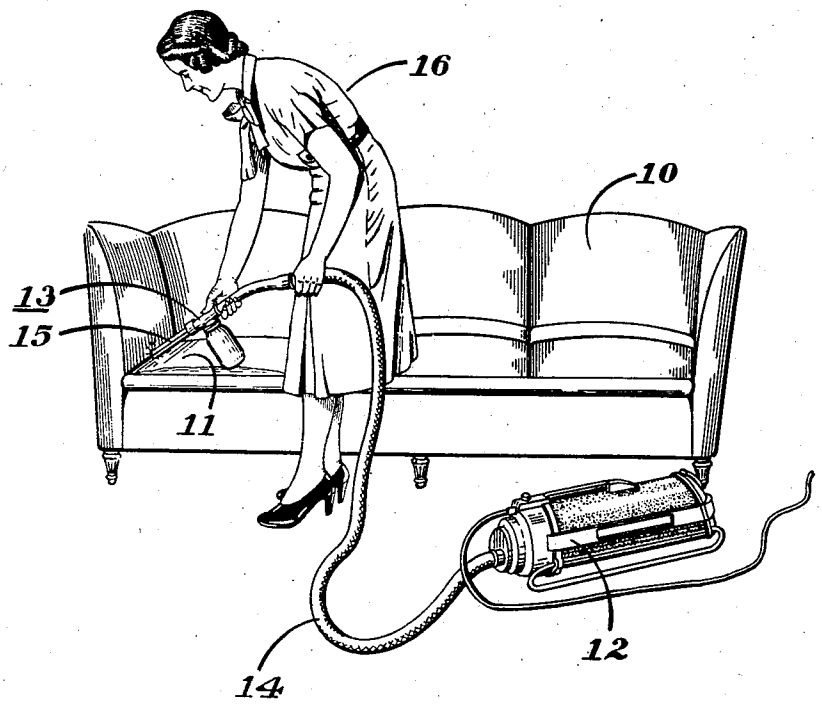
Aug. 4, 1942. C. L. BROWN, JR 2,291,946

METHOD OF MOTHPROOFING AND APPARATUS THEREFOR

Filed Dec. 28, 1939 2 Sheets-Sheet 1

Fig. 1.



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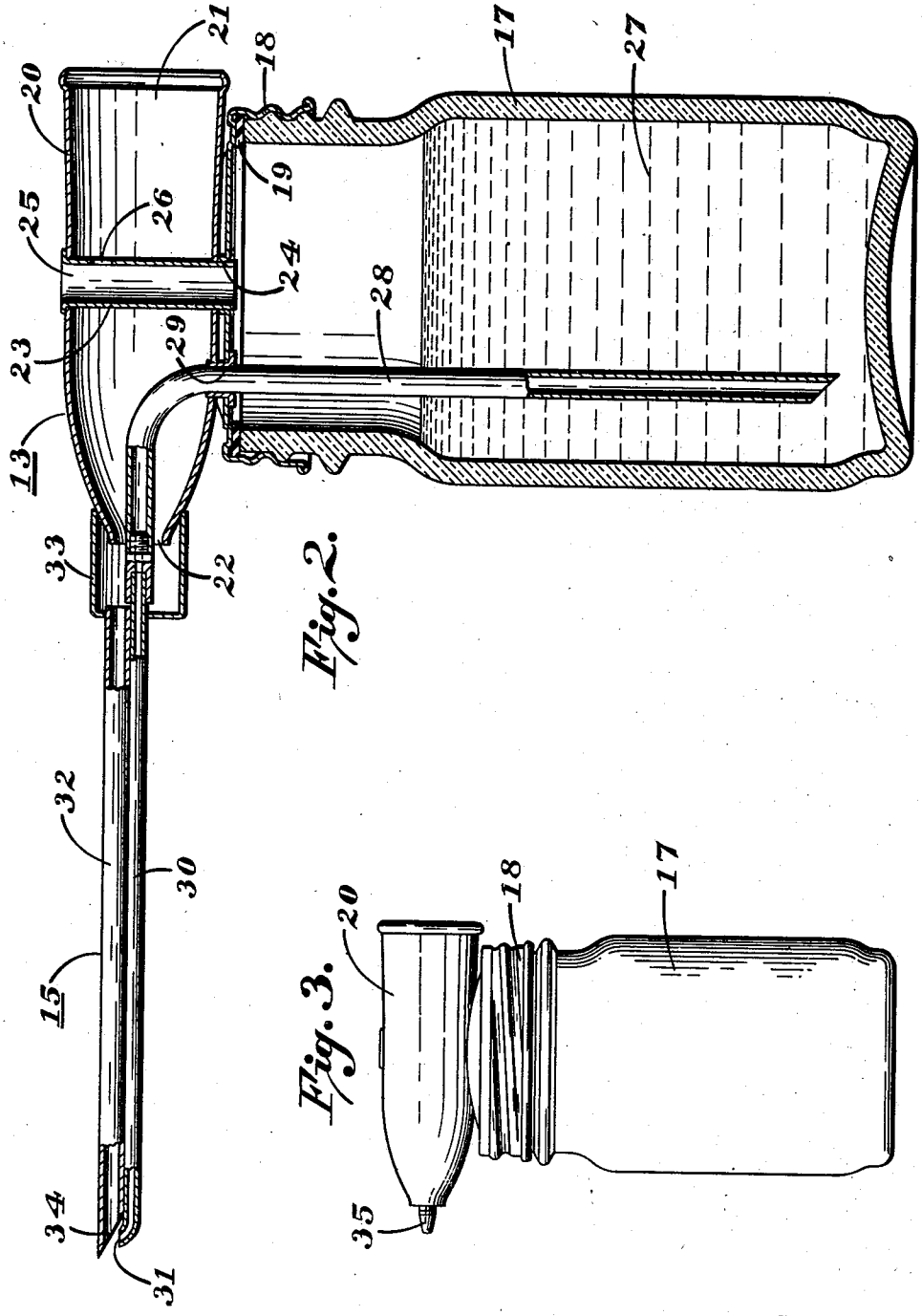


Fig. 2.

Fig. 3.

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Patented Aug. 4, 1942 2,291,946

UNITED STATES PATENT OFFICE

2,291,946

METHOD OF MOTHPROOFING AND APPARATUS THEREFOR

Charles L. Brown, Jr., Stamford, Conn., assignor to Electrolux Corporation, New York, N. Y., a corporation of Delaware

Application December 28, 1939, Serial No. 311,246

4 Claims. (Cl. 299—89)

My invention relates to a method of mothproofing and apparatus therefor, which is adapted for use with a household vacuum cleaner.

An object of my invention is to provide an improved method of mothproofing a fabric by contact spraying insecticide in the corners and crevices of the fabric.

A further object of my invention is to provide an improved apparatus for spraying insecticide, which may be operated even when in contact with a surface being sprayed.

What I consider to be novel and my invention may be better understood by reference to the following specification and appended claims when considered in connection with the accompanying drawings, in which

Fig. 1 shows a piece of furniture being sprayed by my improved method;

Fig. 2 is an enlarged sectional view of the sprayer shown in Fig. 1; and

Fig. 3 is a view of the sprayer of Fig. 2 with a different sprayer nozzle.

Referring to the drawings, 10 indicates a divan with a plurality of removable seat cushions. The divan 10 is the overstuffed type with the springs covered with a fabric covering 11.

It has been found that moths breed in dark corners and crevices, and not on the open surface of fabric. It has been customary in treating furniture of this type to use a sprayer which would spray insecticide over the surface of the furniture. A sprayer of the usual type must be held at some distance from the article being sprayed and so in a case of overstuffed furniture, the open fabric may be thoroughly impregnated with the insecticide but little, if any, of the insecticide may actually reach the corners or crevices where the moths are likely to be.

In my improved method of mothproofing the furniture, the insecticide is sprayed directly in the corners and crevices thoroughly impregnating the fabric covering of the furniture at these points. By this method, it is unnecessary to spray the open surface of the fabric, as the insecticide sprayed on such area is valueless. A considerable amount of insecticide, which otherwise would be wasted, may be put to good use by more thoroughly impregnating the fabric in the corners and crevices.

The source of air flow of the sprayer shown in Fig. 1 is the vacuum cleaner 12. The vacuum cleaner 12 is connected to sprayer 13 by means of a flexible hose 14. An elongated nozzle 15 is provided on the sprayer 13 and is adapted for direct insertion in the corners and crevices of the furniture. An operator 16 controls the operation of the sprayer 13 as the nozzle 15 is inserted at different points. As better indicated in Fig. 2, sprayer 13 consists of a container 17 for a liquid insecticide. A cap 18 covers the top of container 17 and a flexible gasket 19 is inserted between the cap 18 and top of container 17. Secured to the cap 18 is an air tube 20 which has an enlarged inlet opening 21 which may be connected to a source of air flow and an outlet opening 22. Intermediate the ends of air tube 20 is a control tube 23 which extends transversely of the air tube 20 and communicates through an opening 24 in cap 18 with the interior of container 17. The control tube 23 communicates at the opposite end through an opening 25 with atmosphere. A small opening 26 is provided in control tube 23 within the air tube 20. Opening 26 serves to communicate the pressure within the air tube 20 produced by the flow of air through tube 20 to the container 17 when the opening 25 is covered.

The pressure in the top of container 17 tends to force liquid 27 up through a liquid riser 28. Liquid riser 28 extends through an opening 29 in the top of cap 18 to the outlet opening 22 of air tube 20. Extension tube 30 is threaded into engagement with liquid riser 28 and is in communication therewith. The opposite end of extension tube 30 is bent at right angles to the lengthwise extent of the tube 30 and has an opening 31 in a plane parallel thereto. An extension air tube 32 is secured to tube 30 and communicates at one end with a hood 33 that covers the outlet opening 22 of air tube 20. The other end of tube 32 has an opening 34 in proximity to the opening 31 of tube 30, and is formed in a plane at an angle to the plane of opening 31. The tubes 30 and 32 make it possible to insert the sprayer into confined spaces. The arrangement of the opening 31 in a plane parallel to the lengthwise extent of the tube 30, and the opening 34 of tube 32 above the opening 31, and at an angle thereto, makes it possible to actually place the tubes 30 and 32 in contact with a fabric surface, or within a small opening without sealing either the opening 31 or the opening 34.

The liquid spray produced by the pressure in the top of container 17, and the air flow through the air tube 30 and tube 32, draws liquid up through the riser 28, passes it out through the tube 30 and opening 31 even when the ends of tubes 30 and 32 are in direct contact with a surface being sprayed. Similarly, the spray can be made effective even when the ends of tubes 30 and 32 are completely surrounded by fabric or

other materials, as for example, when the tubes are inserted in a small corner or crevice formed by a fold in the fabric. When it is desirable to spray a large area of a rug, or coat, the nozzle **15** may be removed by detaching tube **30** from the liquid riser **28**. Upon removal of the tube **30**, the tube **32** and hood **33** are also removed. A sprayer tip or nozzle **35**, as shown in Fig. 4, may be substituted therefor, and the sprayer may then be used in the usual manner.

What I claim is:

1. A sprayer comprising a liquid container; an air tube having an inlet opening and an outlet opening and a passage communicating with the interior of the container; a liquid riser extending from adjacent the bottom of the container to the outlet opening of the air tube; a liquid discharge tube connected to said liquid riser having a discharge opening at one side; a hood secured to said liquid discharge tube covering the outlet opening of said air tube; and an extension air tube secured to said liquid discharge tube communicating at one end with said hood, overlying the opening of the discharge tube at the other end, and having an opening in juxtaposition to said last-named opening of the discharge tube.

2. A sprayer comprising a liquid container, and an air tube having an outlet opening and an inlet opening and a passage communicating with the interior of the container, a liquid riser extending from adjacent the bottom of the container to adjacent the outlet opening of the air tube, a removable extension liquid tube connected to the end of the liquid riser and having a liquid discharge opening near its free end and a removable extension air tube communicating with the outlet opening of said first-named air tube, said extension air tube having its free end positioned adjacent the free end of said extension liquid tube and having an air discharge opening adjacent to and extending beyond said liquid discharge opening, said extension tubes being positioned in side by side relationship, said air discharge opening extending in a plane at an acute angle to the axis of said air extension tube.

3. A sprayer comprising a liquid container, an air tube having an inlet opening and an outlet opening, a control tube extending transversely across said air tube, said control tube having an opening communicating with the atmosphere and an opening communicating with said container, said control tube having an additional opening communicating with the interior of said air tube, a liquid riser extending from adjacent the bottom of the container to the interior of the air tube adjacent the outlet opening, an extension liquid tube removably connected to the liquid riser extending through the outlet opening of the air tube and terminating at its opposite end in an opening in a plane longitudinally extending in approximately the same direction as said extension liquid tube, a hood secured to said extension tube and covering the outlet opening of said air tube, and an extension air tube secured to said extension liquid tube communicating with said hood and having an opening adjacent to and facing the opening at the free end of said extension liquid tube and extending in a plane at an acute angle to the axis of said extension air tube. the extreme end of said opening in said extension air tube extending substantially over the opening in said extension liquid tube.

4. A sprayer comprising a liquid container and an air tube having an outlet opening and an inlet opening and a passage communicating with the interior of the container, a liquid riser extending from adjacent the bottom of the container to adjacent the outlet opening of the air tube, an extension liquid tube connected to the end of the liquid riser and having a liquid discharge opening near its free end and an extension air tube communicating with the outlet opening of said first-named air tube, said extension air tube having its free end positioned adjacent the free end of said liquid tube and having an air discharge opening adjacent to and extending beyond said liquid discharge opening, said extension tubes being positioned in side by side relationship, said air discharge opening extending in a plane at an acute angle to the axis of said air extension tube, said discharge openings being adapted by virtue of the length of the extension tubes to be inserted deep into openings that are narrow with respect to the dimensions of the sprayer.

CHARLES L. BROWN, JR.