April 14, 1959 T. H. LAINE 2,881,554

FLY SWATTER

Filed Oct. 21, 1958

Fig. 1

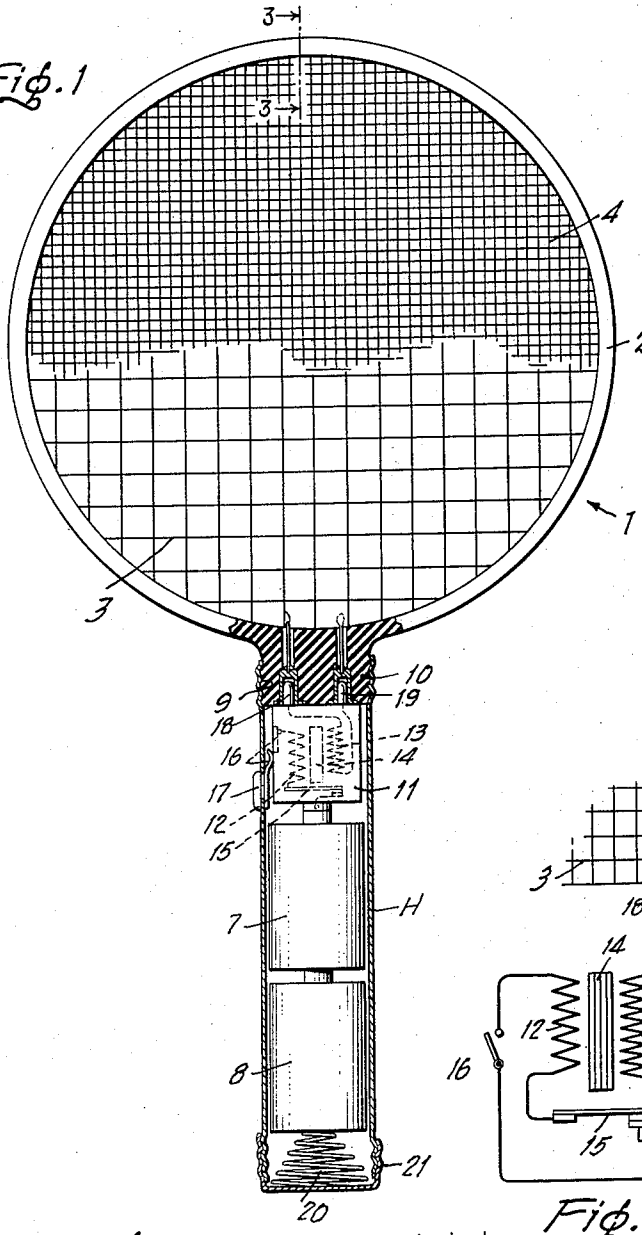


Fig. 2

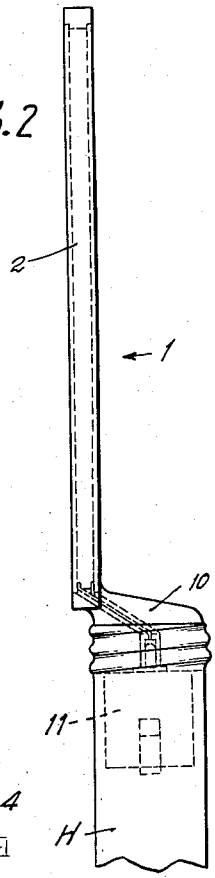
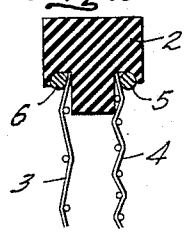


Fig. 4

Fig. 3



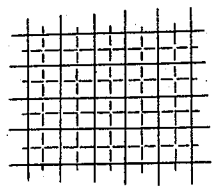


Fig. 5

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FLY SWATTER

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5 Claims. (Cl. 43—137)

My invention relates to fly swatters and particularly to a fly swatter which when merely brought in contact with a fly will kill it.

One of the objects of my invention is to provide a swatter by means of which a fly or insect can be killed without a firm or solid material against which it must be crushed by impact of the swatter. Another object is to provide a swatter by means of which a fly or insect may be killed but will not be crushed or otherwise mutilated in a messy manner. A further object is to provide a swatter of such design that the flies or insects killed thereby will remain in or attached to the swatter but can be easily removed by merely tapping the swatter head against the side of a refuse container or other firm object.

I accomplish these ends by the means described below and illustrated in the accompanying drawing in which:

Fig. 1 is an elevation view of my swatter with parts broken away and parts in section;

Fig. 2 is a side elevation view of the swatter with the lower end of the handle broken away;

Fig. 3 is a section of Fig. 1 in the plane 3—3 drawn to an enlarged scale;

Fig. 4 is a wiring diagram; and

Fig. 5 is an elevation view showing a modified arrangement of the screens both of which are of comparatively coarse mesh but are disposed in staggered relation to each other.

Referring to the drawing, my device comprises a swatting head or element represented generally by the numeral 1 which is illustrated as circular in form. It comprises a rim 2 of electrical insulating material, such as a suitable plastic resin, and within which, as illustrated in Figs. 1, 3 and 4, are secured a coarse mesh wire screen 3 and a fine mesh wire screen 4. The side of the swatting element in which the coarse mesh screen is located is the side which is brought into contact with the fly or insect, and the mesh of the screen is sufficiently large to let the fly pass therethrough. Behind the coarse mesh screen is the fine screen having a mesh through which the fly cannot pass. These screens are quite closely spaced together so that a fly struck thereby will have parts in contact with each of the screens. The screens may be molded in the rim or secured therein by metal rings such as shown at 5 and 6 in Fig. 3.

The swatter is provided with a hollow metal handle H such, for example, as is found in a flash light. Within this metal shell are dry cells 7 and 8, and the shell is internally threaded at the top as shown at 9, in order that it may be secured to the externally threaded projection 10 on the swatting element.

Within the handle, above the batteries, is an induction coil 11 having a primary winding 12, a secondary winding 13, a soft iron core 14 and a vibrator 15. The dry cells or batteries may be the same as are used in flash lights and they are connected in series with the vibrator, the primary winding 12 of the induction coil 11, and a switch 16 which has an operating button 17 on the outside of the handle. One of the terminals 18 of the secondary winding 13 of the induction coil is electrically connected to the coarse mesh screen and the other terminal 19 is electrically connected to the fine mesh screen.

The bottom of the lowermost cell 8 is electrically connected to the handle H by means of the spring 20 and the handle is closed at the bottom by means of the screw cap 21.

When the button is pressed, the circuit is closed through the battery, the vibrator 15 and the primary winding 12 of the induction coil. This magnetizes the core 14 which draws the vibrator 15 toward it thereby breaking the electrical circuit through the primary winding. The breaking of the circuit demagnetizes the core 14 and allows the vibrator 15 to return to the position shown in the drawings which again closes the electrical circuit through the primary winding and remagnetizes the core 14. The operation of induction coils is well understood and the making and breaking of the circuit through the primary winding of the induction coil occur very rapidly.

From the foregoing it will be apparent that a fly which is struck by the coarser screen will pass, or at least a part of it, will pass through said screen and come in contact with the finer mesh screen thus closing a circuit of high voltage through the body of the fly and killing him. The fly is not crushed into a messy mass, and while his body generally remains between the screens, it is easily removed by tapping the swatter.

Instead of using a fine mesh screen behind a coarse mesh swatting screen, both screens may be of coarse mesh provided the wires of which they are made are disposed in staggered relation to each other so that a fly passing through the swatting screen will contact a wire in the other screen and will not pass directly through the swatter. In Fig. 5 I have illustrated such an arrangement in which the solid lines indicate one of the screens and the broken lines indicate the other screen. As illustrated here both screens are of the same large mesh.

While I have described my invention in its preferred embodiment, it is to be understood that the words which I have used are words of description rather than of limitation and that changes, within the purview of the appended claims, may be made without departing from the true scope and spirit of my invention in its broader aspects.

What I claim is:

1. A fly swatter comprising a swatting element having a swatting surface on one side thereof comprising a wire screen of a mesh sufficiently large to allow a fly, when hit thereby, to be forced therethrough; and, on the other side of said element, a wire screen of a mesh small enough to intercept a fly passing through said first mentioned screen; said screens being parallel to and insulated from each other but so closely spaced that a fly between said screens will have a part in contact with each; a handle for said element; and means in said handle, electrically connected to said screens as terminals, for producing electricity at a voltage sufficiently high to kill a fly when in contact with both screens.

2. A fly swatter comprising a swatting element having a swatting surface on one side thereof comprising a wire screen of a mesh sufficiently large to allow a fly, when hit thereby, to be forced therethrough; and, on the other side of said element, a wire screen of a mesh small enough to intercept a fly passing through said first mentioned screen; said screens being parallel to and insulated from each other but so closely spaced that a fly between said screens will have a part in contact with each; a handle for said element; and a manually operable switch on said handle for electrically connecting said screens as the terminals of an electric circuit of a voltage sufficiently high to kill a fly when in contact with both screens.

3. A fly swatter comprising a swatting element having a swatting surface on one side thereof comprising a wire screen of a mesh sufficiently large to allow a fly, when hit thereby, to be forced therethrough; and, on the other side of said element, a wire screen of a mesh small enough to intercept a fly passing through said first mentioned screen; said screens being parallel to and insulated from each other but so closely spaced that a fly between said screens will have a part in contact with each; a hollow handle for said element; a battery and an induction coil in said handle; means electrically connecting said screens to the secondary winding of said coil to form the terminals thereof; and a switch for electrically connecting said battery to the primary winding of said coil.

4. In a fly swatter, the combination with a swatting portion comprising two electrical conducting elements having bare surfaces so closely spaced to each other that a fly between said elements will have a part in contact with each; at least one of said elements being a screen of a mesh adapted to pass a fly therethrough; a handle for said portion; a source of electricity at a voltage sufficient to kill a fly when subjected thereto; and a switch on said swatter for electrically connecting said source to said conducting elements as the terminals of said source.

5. A fly swatter comprising a swatting element formed of two, bare, wire screens each of a mesh large enough to allow a fly struck thereby to be forced therethrough; a rim holding said screens in parallel relation and electrically insulated from each other but so closely spaced that a fly between said screens will have a part in contact with each; the wires forming one of said screens being so disposed with respect to the wires forming the other of said screens that a fly forced through one of said screens will contact a wire in the other of said screens before passing through said other screen; a handle for said swatter; and means in said handle controllable by the user of said swatter for connecting said screens as the terminals of a source of electric energy of a voltage sufficiently great to kill a fly having parts in contact with each of said screens.

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