

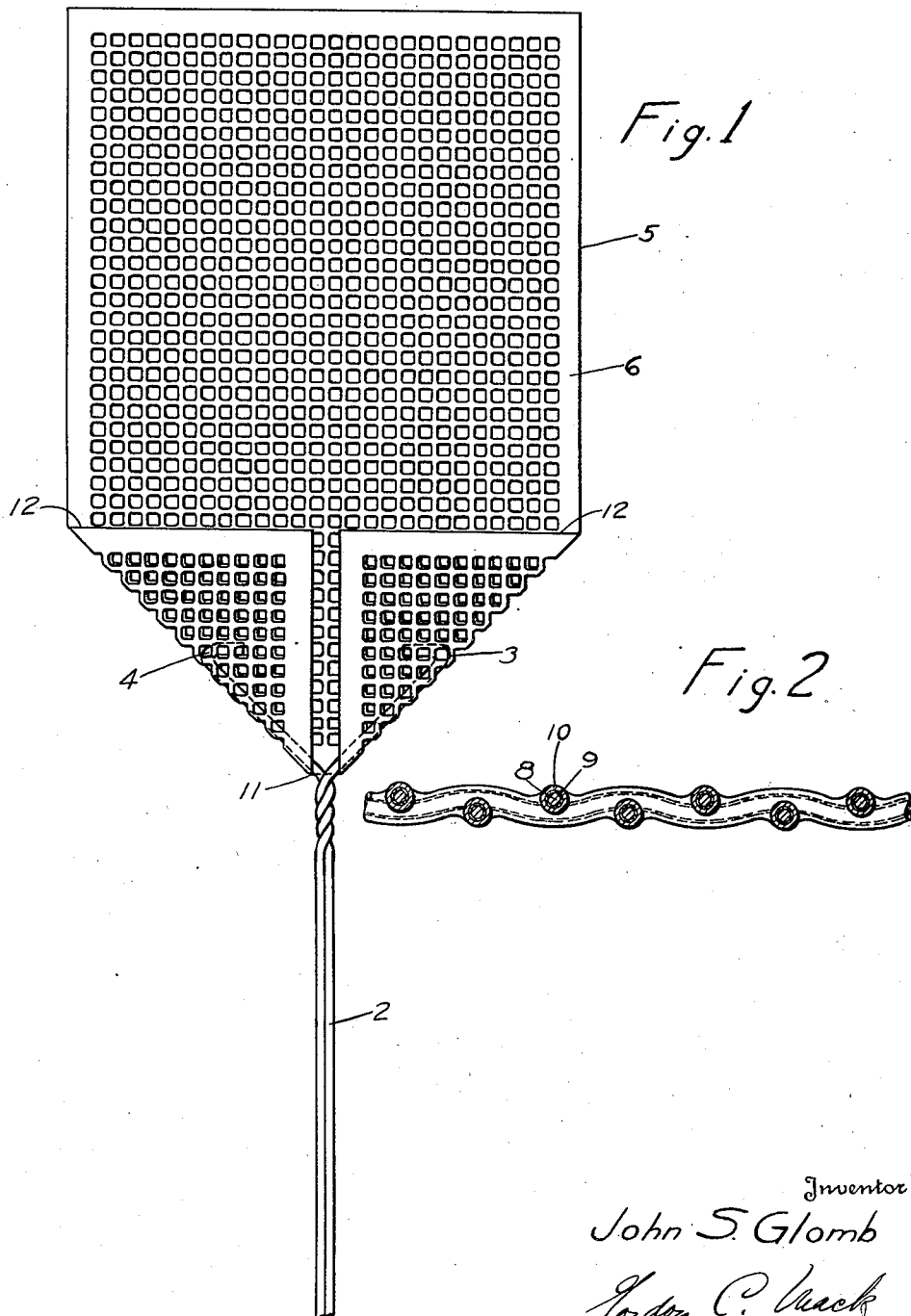
Oct. 24, 1944.

J. S. GLOMB

2,361,023

FLY SWATTER

Filed Sept. 19, 1940



By

Inventor
John S. Glomb
London C. Mack

Attorney

UNITED STATES PATENT OFFICE

2,361,023

FLY SWATTER

John S. Glomb, Coventry Township, Summit
County, Ohio, assignor of one-half to T. C.
Dethloff, Akron, Ohio

Application September 19, 1940, Serial No. 357,482

1 Claim. (Cl. 43—137)

This invention relates to an improved fly swatter. It includes the fly swatter, the blade from which it is made, and the fabric from which the blade is made. The blade of the swatter is made of twisted paper or twine or the like which has been coated to give it the desired stiffness and resiliency, and the coated paper, etc. is given a further coating of rubber deposited from latex.

It has previously been suggested that fly swatter blades be made from twisted paper or twine or the like coated with rubber deposited from latex. I believe these blades have never been put into commercial use. When made according to Buhler United States Patent 1,966,198 they are too limp for satisfactory use.

The swatters of this invention are made from a fabric of twisted paper or twine or the like but the fabric has been stiffened and made resilient so that when the swatter is held perpendicularly, with the handle down, the blade stands upright, but wavers when the base of the blade is moved toward either face of the blade. Furthermore the surface of the blade of this invention preferably comprises a central portion which is reticulated, whereas the border of the blade is solid. This gives desired weight to the swatter and the solid border prolongs the life of the blade as its edges do not readily become frayed.

The invention will be further described in connection with the accompanying drawing in which Fig. 1 shows the finished swatter (without the whole of the handle), actual size, and Fig. 2 is an enlarged section through a portion of the blade.

Referring to the drawing the handle 2 may be of any desired type, for example, it may be made from two strands of stiff wire which are bent at the corners 3 and 4 to outline a triangle which serves as a support onto or over which the blade is fastened.

The blade 5 is composed of the latex-coated fabric surrounded by the border 6. The fabric is coated with the latex after weaving and therefore the overlapping threads do not stand out distinctly but at each intersection the coating covers both threads with a single latex layer.

Fig. 2 shows an enlarged section of the fabric. In this preferred example the blade is woven from strands of twisted paper 8. The strands of twisted paper are coated with a very thin layer of stiffening material 9. Instead of twisted paper twine, cotton strands or the like may be employed. The stiffening may be applied to the individual strands of paper before weaving, or the stiffening may be applied after weaving. The

stiffening material may impregnate the cellulosic base or it may form a coating on the surface of the base. I prefer to apply the stiffening after weaving so that it holds the strands together where they cross. The treated paper, etc. is in turn covered with the latex coating 10.

Because of the stiffening of the twisted paper it is not necessary that the triangle formed by the bent handle cover any more than half the distance between the point 11 of the folded blade and the folded down edges 12. Although a handle with a support which is generally triangular, as shown in Fig. 1, is preferred, any sort of handle may be employed. It is not essential that the top of the blade be folded over the handle. However, by folding the blade over as shown and uniting the folded over portions to the blade the portion of the blade adjacent the handle is stiffened and this helps to support the blade and impart to it the smooth flexing of the blade which is desired when the swatter is swung to hit a fly.

In the preferred example the blade of the swatter is made up of ordinary twisted paper strands which are preferably about $\frac{1}{2}$ of an inch in diameter or thereabouts. The grade known as Saxolin and sold by The Chase Bag Company of Goshen, Indiana, has been found satisfactory. Strands somewhat larger or somewhat smaller may be used but a strand of about this size is preferred. Strands of about this size make possible the production of a blade with large openings which cut down the resistance of the air to the swatter when it is swished through the air, yet the blade has the desirable resistance and stiffness with flexibility required for producing an effective swatter that has long life.

The mesh of fabric employed may vary. Ordinarily about six or eight meshes to the inch will be desirable for producing a swatter which has all of the desired properties referred to.

The twisted paper is very flexible. I have not found it possible to coat the paper or twine or cotton or the like with latex directly and produce a blade having the stiffness, etc. that is desired. To obtain these desired properties I coat or impregnate the paper strands, etc. with a stiffening agent. As a stiffening agent I prefer to use a water-proofing material and I prefer to use it as a coating to prevent the serum of the latex from saturating the paper fabric. A variety of stiffening materials are available for use. These include the water-proofing and moisture-proofing materials available on the market and also coatings which do not water-proof. The thickness of the coating of the stiffening agent will be

varied depending upon the stiffening agent employed, and by varying the thickness of the stiffening coat the desired degree of stiffness may be obtained.

To determine the desired stiffness the fly swatter is held upright with the handle down. The fabric giving the required stiffness will, after coating with the latex, give a blade which stands upright unaided. However, this blade is sufficiently flexible so that when the base of the blade is quickly moved even a fraction of an inch toward either face of the blade, the blade promptly responds by a smooth flexing motion. If the blade is not stiffened it will be limp and fold over of its own accord when the swatter is held in the upright position described. Such a blade is not satisfactory for a fly swatter because in use it is too limp and lops over when held in a horizontal position and is too limp to be effective when swished through the air at a fly. A stiffer blade is required to cripple the fly. A blade which is too stiff may mar any furniture hit by it and if brittle it will of course shatter and have but a short life. A blade which is not too limp, yet will flex when swished through air, and which will "give" when it strikes a hard surface forms the preferred swatter of this invention.

Although casein and glues may be used for stiffening I prefer a water-proof composition such as one of those now on the market made from a natural or synthetic resin. Coatings containing wax and in addition any one of various cellulose derivatives or rubber derivatives, etc., are available in addition to the synthetics which include vinyl compounds, etc.

I have prepared a satisfactory coating for twisted paper strands about $\frac{1}{2}$ of an inch in diameter from a nitro-cellulose lacquer. The lacquer which I prefer to use is a "Duco" lacquer sold by E. I. Du Pont de Nemours and Company as "1608 Clear Lacquer." I dilute this lacquer with three volumes of a regular thinner. On dipping the woven fabric into this diluted solution at room temperature and then removing it and allowing it to drain I form a thin nitro-cellulose coating of the lacquer on the paper. This coating is somewhat horn-like. It produces a material from which a tough fibrous fabric is formed. I stretch the fabric taut on a frame and dip it in the stretched condition. The coating stiffens the material to such an extent that the nitro-cellulose coated fabric with or without the latex coating stands upright when held perpendicular at the bottom.

The blade which I prefer to use is about $4\frac{1}{2}$ by $6\frac{1}{2}$ inches. A larger or smaller blade may be used. It may vary for example, from $3\frac{1}{2}$ by $5\frac{1}{2}$ inches up to a blade 5 by 8 inches. Such a blade when folded over a triangular handle support, as described, gives a very satisfactory fly swatter blade. The folded portion of the blade will be

held to the base portion by staples or rivets or a suitable adhesive. A latex adhesive may be used. Instead of applying an adhesive, the latex coated product before curing and while tacky may be folded over and pressed to itself so that when cured it will form a permanent bond.

The latex coating may be any one of a variety of suitable formulas. It should contain filler and a vulcanizing agent and may or may not contain an accelerator, anti-oxidant etc. The latex may be vulcanized or not as desired. I prefer to use a composition which vulcanizes in the air at room temperature. Stiffening ingredients may be compounded with the latex. Whether any stiffening of the latex is desired, and how much, will depend upon whether stiffening in addition to that of the stiffening or waterproofing coating is required. The latex composition preferably contains a pigment to give the blade an attractive color.

The composition of the latex solution should be such that in dipping the treated fabric into the latex and then removing it and allowing it to drain the fibres retain a sufficient deposit of latex so that when vulcanized the latex-coated strands have a diameter only about twice that of the uncoated nitro-cellulose treated strands, or somewhat less.

In order to form a solid border around the blade I prefer to fill one whole row of the woven fabric holes with a thick latex composition. When dry this gives a highly flexible border. I take a large sheet of the fabric, mark out upon it the blades that are to be cut from it and then before cutting the blades I extrude a thick latex paste from a tube to fill two or more rows of holes to form the borders of adjacent blades at one time. In this way the fabric is divided into sections by these filled-in rows, each section being the size of an individual blade. By cutting these filled-in dividing lines in two the individual blades are formed. These may be assembled on to the handles in any desired manner.

A somewhat stiffer coating is required for a large blade than for a small blade. Also if the blade is not supported, as by folding the corners over the end of the handle as shown in Fig. 1, a smaller blade should be used or more stiffening will be required. The character and amount of the stiffening coat and the latex coat will be varied to give the blade desired properties.

It is to be understood that the above description is illustrative and the scope of the invention is not limited thereto.

I claim:

In combination with a handle, a fly swatter blade composed of reticulated woven fabric of twisted paper, the strands of the fabric being stiffened with nitro-cellulose and the whole being coated with rubber deposited from latex.

JOHN S. GLOMB.