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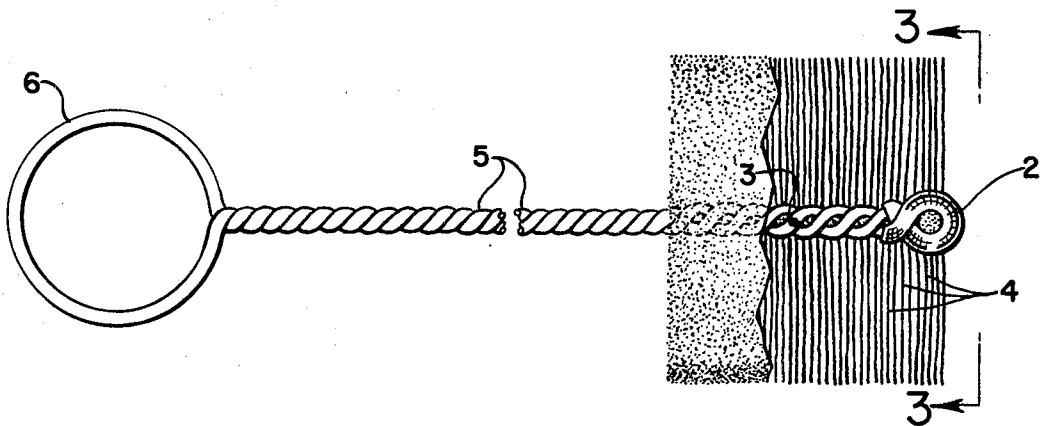
[50] Field of Search..... 300/21;
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[54] **BRUSH**
3 Claims, 4 Drawing Figs.
[52] U.S. Cl..... **300/21**
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ABSTRACT: Twisted wire-handled swabs for applying lubricant to molds and the like, which swabs are free of sharp wire ends or obstructions, and process for their manufacture are described.



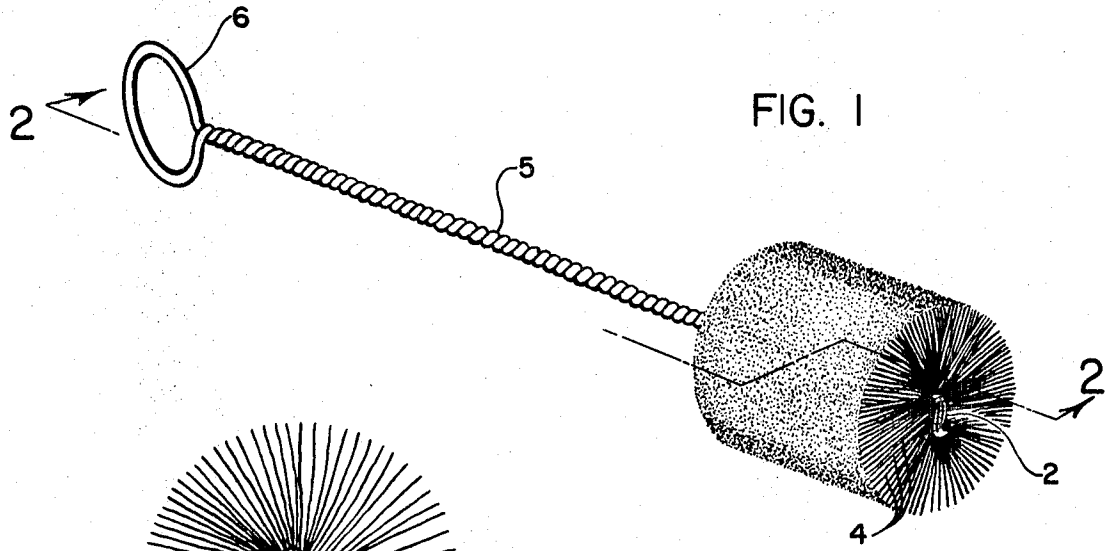


FIG. 1

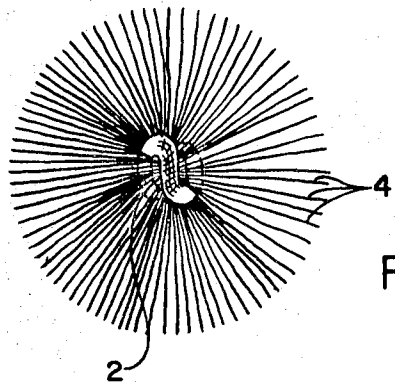


FIG. 3

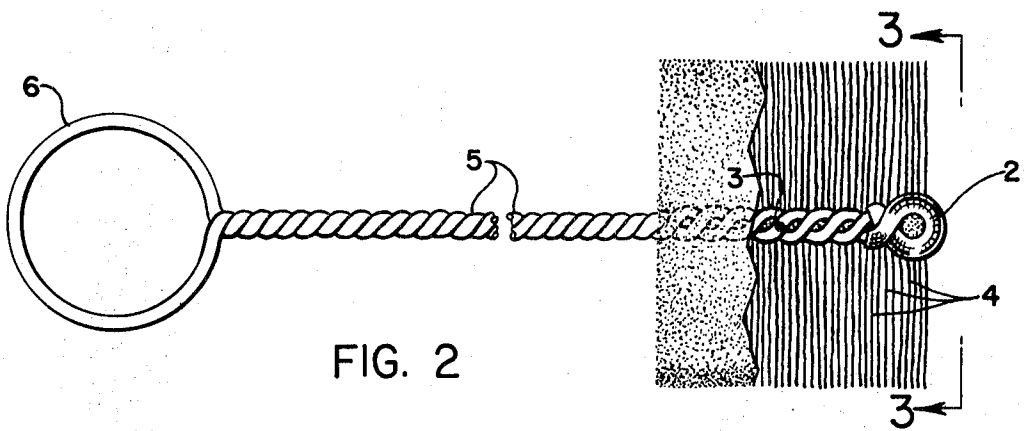


FIG. 2

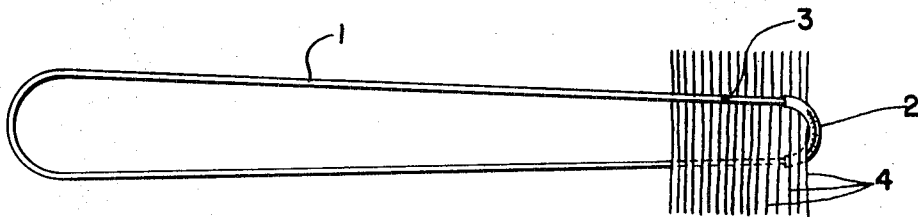


FIG. 4

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BRUSH

This invention concerns a brush and more particularly pertains to a wire-handled brush or swab which has a smooth handle and a fiber-containing brush head having no exposed metal parts and to a process for its manufacture.

It has been known previously that wire-handled swabs can be made by first bending a length of wire in a U-shape, wrapping some strands of yarn around the bent end of this shape, placing hanks of fiber or yarn between the two legs of the U-shaped wire, mechanically grasping the U-shaped wire at its two extremities and twisting the wire numerous times in a single direction so that the yarn is tightly clamped within the twists forming a brush or swab at one end of the wire. Usually in this type of operation one leg of the U-shaped wire is longer than the other, and this longer portion remains untwisted and is bent into a ring to make a round end on the handle.

In another prior art method a strand of wire is formed into a U-shape, but the hanks of yarn are placed between the legs near the open end of the U-shape. The wire is twisted as described above and results in a swab or brush having a closed ring at the end of the handle but leaves a short section of exposed twisted wire emerging from the swab or brush end.

There are other slight variations of the foregoing methods which have been used in the past to produce twisted wire-handled brushes or swabs. These prior art methods have some decided disadvantages. The first mentioned method above produces a swab or brush which does not always have a satisfactory closure of the ring on the handle end, and this can result in some danger to the operator using such a brush, for instance, when he is using the brush as a swab to coat the insides of a mold with a lubricant mixture for ease of release of the glass product formed in said mold and for reduction of friction wear on the mold surface with continued use in the glass industry. A poor closure on the ring at the end of the brush might cause danger to the operator when he is rapidly swabbing out many molds because the swab can be caught in the machinery and be pulled from him, possibly resulting in his getting the open portion of the ring at the end of the handle of the swab caught in his hand or glove and actually pulling his hand, arm and other parts of his body into the machine.

In regard to the second type of construction of the prior art mentioned above, the yarn wrapping around the swab end of the brush is not always as snug and tight as it should be; and if bare wire is exposed at this end of the brush, it can cause damage to the mold at the worst and will also present an area of the swab which will not carry lubricant properly. In order to avoid damage to the mold by a swab of this type of construction, the protruding wire end is usually doubled back upon itself and mashed tightly against the long axis of the shaft which forms the swab handle. The bare wire end then becomes embedded in the yarn and frequently becomes difficult to locate for mashing. The result of failure to properly mash the wire end creates a hidden wire hook which can become caught in the mold and result in either damage to the mold as it moves between stations or a personal safety hazard to the operator such as described in the preceding paragraph.

We have discovered a new method for producing twisted wire-handled brushes or swabs which are particularly useful in

the application of lubricants and release agents to molds which is further illustrated in the accompanying drawing wherein

FIG. 1 shows an overall view of the finished brush or swab,

FIG. 2 is a partial cutaway view of the brush end taken along line 2-2 of FIG. 1,

FIG. 3 is an end view of the brush taken from the brush-head end along line 3-3 of FIG. 2,

FIG. 4 shows the arrangement of the double-U end-shaped wire with sleeve and hank of yarn or fiber in proper position before the twisting operation.

The brush or swab of this invention is constructed from a strand of wire 1 which is bent into a double-U shape and upon which at one of the "U" ends is slipped a fabric sleeve 2. The wire is then brought together and welded or soldered at 3 to produce a completely closed loop. The fibers or hank of yarn such as cotton yarn 4 are next placed between the legs of the wire loop, the article is then mechanically grasped at each end and the wire is twisted upon itself several times to produce the final brush having a twisted wire handle 5 with a closed loop 6 at the end thereof.

Although the brush or swab described above has been specifically mentioned as being useful as a swab for applying lubricants and the like to glass molds, it is to be understood that this type of construction can be used in many other applications and for many other purposes, such as bottle brushes, vacuum bottle brushes, dust mops, swabs for greasing machinery, swabs for cleaning gun bores, radiator tube-cleaning brushes and the like.

Although the brush head-filling material 4 is preferably a natural or synthetic fiber or yarn, it is not meant to be so restricted. Strands of other materials, such as steel, stainless steel or brass wire, can be used as filling materials in the construction of tube-cleaning brushes, flue-cleaning brushes and the like.

We claim:

1. The method for manufacture of a wire-handle swab or brush comprising

1. bending a strand of wire into an elongated shape having two legs, two U-shaped opposite ends, and two abutting but not connected strand ends located at a point between the two U-shaped ends,

2. slipping a fabric sleeve upon one of the U-shaped ends,

3. joining said abutting strand ends by welding, soldering or other means,

4. placing a plurality of substantially mutually parallel fibers or strands of yarn between and at substantially right angles to the legs and near the U-shaped end bearing the fabric sleeve,

5. mechanically grasping the U-shaped ends and twisting the wire upon itself in a single direction a plurality of times so as to form a brush or swab having a twisted wire handle with a closed loop at the end opposite the swab or brush end thereof.

2. The process of claim 1 wherein the fiber or yarn material is cotton.

3. The process of claim 2 wherein the fabric sleeve is cotton fabric.

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