Sept. 29, 1959 E. A. SANNES 2,905,958

ROOFING MOP AND METHOD OF MAKING THE SAME

Filed May 23, 1955 2 Sheets-Sheet 1

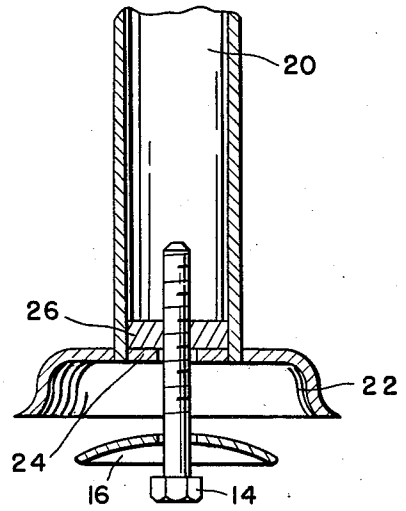


FIG. 2

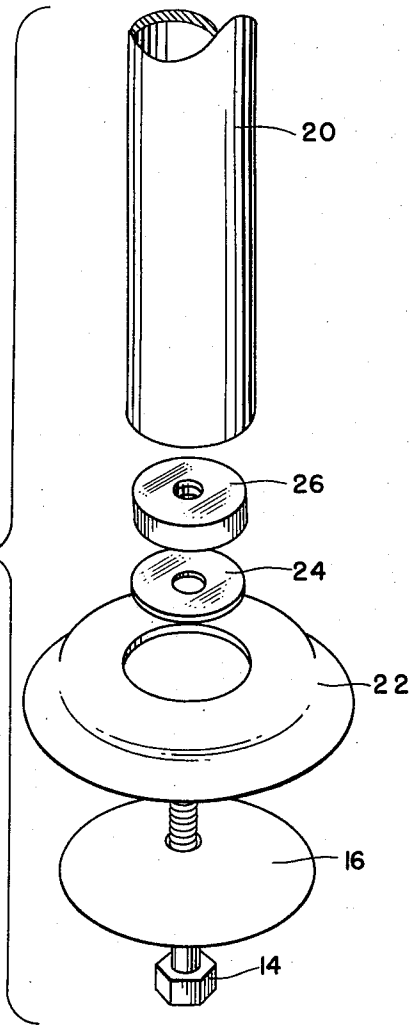


FIG. 3

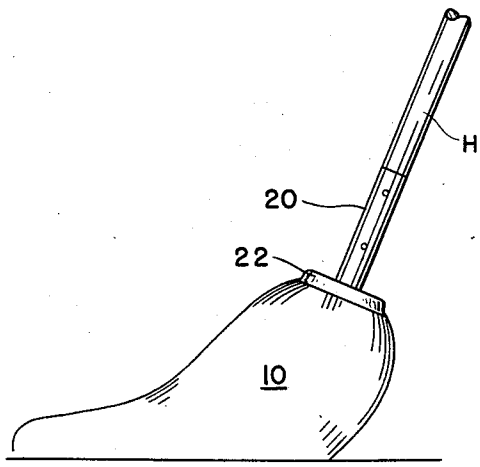


FIG. 1

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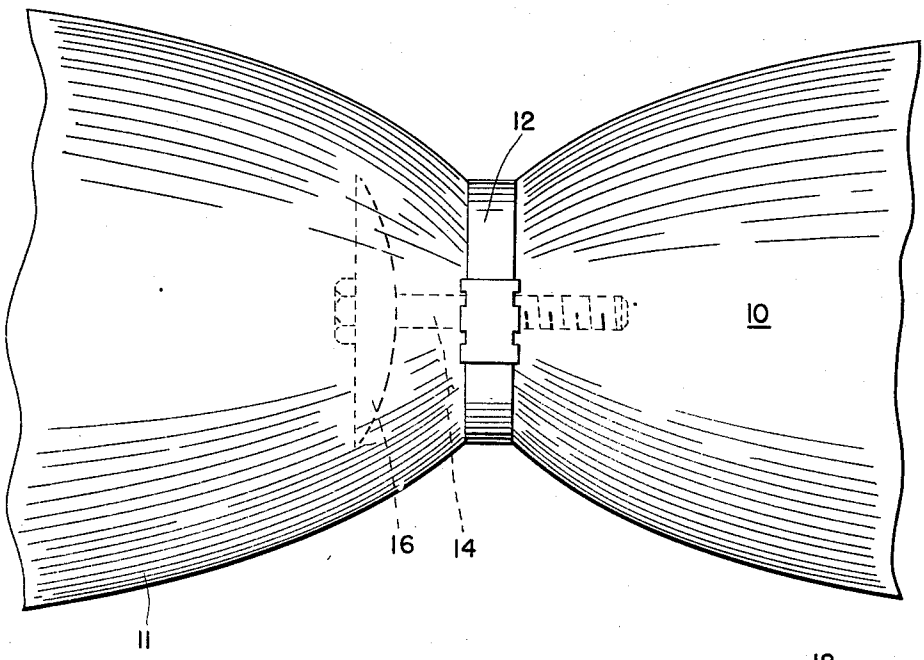
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FIG. 4



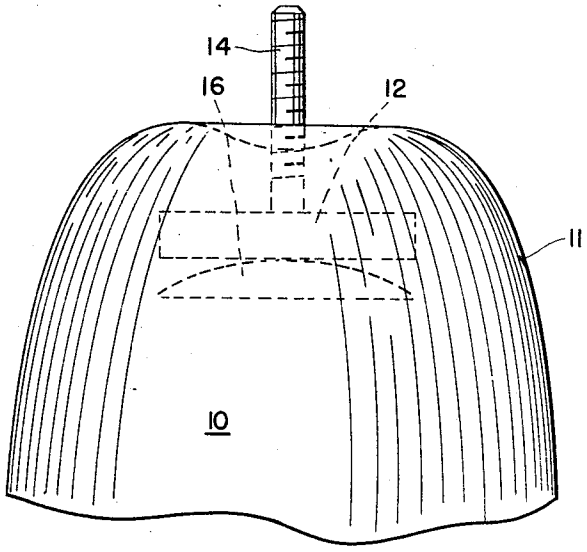


FIG. 5

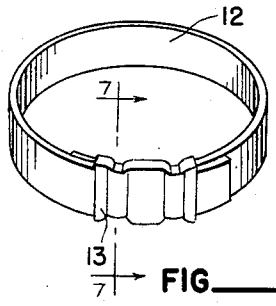


FIG. 6

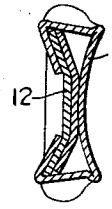


FIG. 7

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ROOFING MOP AND METHOD OF MAKING THE SAME

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Application May 23, 1955, Serial No. 510,353

3 Claims. (Cl. 15—229)

This present invention relates to the mop making art and more particularly to heavy mops of the type used by roofers in applying bituminous materials in the process of building up roofs for buildings. This present mop is made from long strands which are equal to twice the length of the finished mop-head, and the means for holding the threads in the form of the finished mop is such that when the strands become broken or matted from continuous use, the same can easily be disconnected from the expensive portions of the mop structure, to the end that the handle and the elements holding the strands, forming the mop head, can be easily disjoined from the strands for subsequent use with new strands.

Many arrangements have been employed in the past for holding a plurality of strands together in the form of a mop for various uses. Many of these mops are of inexpensive construction and when they become worn from use must, of necessity, be discarded. There are certain fields of endeavor, however, where mops must be especially constructed and be of considerable size in order that they will be suitable for the application of viscous liquids. These mops are expensive and it is therefore very desirable to have arrangements wherein the worn or matted portions of the mop-head can be discarded and the expensive structure elements re-employed with fresh strands. This present invention contemplates a mop that will serve many of these purposes and one which is particularly adapted to handling bituminous materials, often hot materials such as are employed in the building-up of roofs for buildings where it is quite common to employ several layers of paper or sheet felted materials and to successively impregnate each layer with, normally, hot bituminous materials in order that truly water-tight roof be provided. With the advance of chemical knowledge many synthetic materials are now being used as substitutes for bituminous materials, and these too having a potentiality for quickly wearing out the expensive mops employed in this practice. My present mop is believed to provide an excellent solution of this perplexing problem.

The principal object of my present invention, therefore is to provide a unique mop construction which permits the easy removal of worn or matted fibers, of accepted types, from the mop head and to replace the same with a new bundle of fibers, of the same or different types, with a minimum loss and with means which permit even unskilled labor to quickly discard the old fibers of the mop-head and to replace them with new material.

A further object of this present invention is to provide structural means which can be suitably made to give a sturdy and easily used mop structure in which the handle and mop-head portions can be used with many replacements of the stranded material of any desirable types, forming the mop proper.

A further object of this invention is to provide clamping means which will make it convenient to form a mop from the newer strands, such as fiber glass, nylon, rayon, and the like which, because the individual fibers are

hard and dense they require a great deal more gripping pressure than was required in the natural fibers which were formerly used for making mops of this order.

Further objects, advantages and capabilities will be apparent from the description and disclosure in the drawings, or may be comprehended or are inherent in the device.

In the drawings:

Figure 1 is a side elevation showing a mop made after the teaching of this present invention and illustrating the manner in which it is normally used;

Figure 2 is a vertical sectional view through the metal portions used in making up my improved mop-head;

Figure 3 is a bracketed perspective view illustrating in exploded relationship the various elements employed in making up the metal portions of my mop-head;

Figure 4 illustrates the first step in forming a mop after the present invention;

Figure 5 illustrates the second step in forming my mop;

Figure 6 is a perspective view illustrating a preferred form of banding for the strands used in forming my mop.

Figure 7 is a cross-sectional view taken along the line 7—7 of Figure 6.

Referring more particularly to the disclosure in the drawings, the mop portion proper, **10**, is made up, preferably, of a large number of fiber glass or monofilament strands, as **11**. These strands are preferably very small in diameter in comparison to the natural fiber strands formerly used in mops of this order. When using fiber glass or the so-called spun glass or nylon monofilaments both of which produce excellent mops, it is preferred that the diameter of individual strands does not exceed .003 to .005 inch in diameter. This produces a mop-head that, because of the large numbers of strands over the cotton or hemp or sisal strands formerly used, will actually carry out of the mop kettle a greatly increased amount of the roofing liquid, whether it is the bituminous variety or the synthetic roofing compounds. Both of these liquids are normally heated to increase their flowing ability and are quite viscous and tend to stiffen materially as they cool until ultimately they approach solidification. In using the natural fiber mops made of cotton, hemp and the like, it is found that the twisted strands of these materials soon would become filled with the roofing material and this would cause a matting or solidification of the entire upper portion of the mop and this solidification gradually works toward the end of the mop and the same then has to be discarded. The newer synthetic monofilament materials do not have this matting propensity and the liquid is drawn out of the mass of strands, in use, very similarly to paint out of a good paint brush. This makes it much easier for the workman in spreading the roofing material, because it permits him to cover a much greater area in a given length of time and the roofing liquid is actually quite fully drawn out of the mop-head.

In the past, many attempts have been made to employ the monofilament fiber strands in mops but considerable difficulty has been encountered in holding the strands in place. For considerable period it was felt that mops could only be made of the monofilaments by cementing the mass together at the handle end of the mop. This was an expensive procedure and did not produce the desirable working characteristics in the mop which had bene common in the older forms of twisted natural fiber mops. In my present mop, I provide means for binding the strands very securely together using many times the pressure formerly used on, for instance, cotton mops. This increased pressure is not only very desirable in that it holds the strands, which tend to slide very easily on each other, firmly in place, but because of the firmness of the

individual strands they are in no way injured by this greatly increased pressure.

A preferred form of binding the fibers together is illustrated in Figures 4 through 7, in which banding material is used in a circular form, and as is illustrated in Figures 6 and 7. The ratchet type banding devices such as are used in tightening steel bands on small packages, are used to put maximum compression on the bundle of strands, after the showing of Figure 4. The banding devices suitable for such small diameter bands as are required in this operation normally tighten the bands by gripping the opposite ends of the bands in separate clamping means and then by means of a ratchet, normally operated by a short lever, the two ends are gradually brought toward each other, by a step by step operation until the desired pressures are achieved. A locking sleeve, as **13**, is then passed over the overlapping ends and the sleeve and the two ends are simultaneously crimped or notched together to form a fixed lock.

Prior to the compression of band **12** the assembly bolt **14** is passed through the center of the bundle carrying with it the dished locking washer **16**. When the banding has been completed that portion of the mop which appears on the right, as viewed in Figure 4, is allowed to fall down over the portion shown on the left. This is easily achieved by merely grasping the threaded end of bolt **14** and shaking the same when held in the vertical position. This then produces a mop after the showing of Figure 5 in which the band **12** will approach rather closely to the cupped washer **16**. Band **12** is placed at the center of the length of the fibers and then when one half is folded down over the other half, the desirable feathered-out brush end is achieved similar to a paint brush.

Adapted for attachment to bolt **14** are the handle members consisting of the metal handle ferrule **20**, to which any desired length of handle H may be secured. Fixedly secured, as by welding, to ferrule **20** is a cupped washer or socket member **22**. This washer is proportioned so as to fit over band **12** and still permit the mop strands to be seated up in the dome formed by the washer **22**. In the inner bore of ferrule **20** a washer as **24** is fixedly secured, as by welding, so that its lower surface is a continuation of the inner surface of the dome portion of cup **22**. This relationship is best shown in Figure 2. Resting on washer **24** is an axially threaded nut washer **26** having a thickness normally about equal to the diameter of the bolt **14** with which it is employed. This washer is preferably not secured inside the ferrule in a fixed relationship, but dropped into the same so that it comes in seating abutment with washer **24** and any tendency it may have to turn when engaged by the threads of bolt **14**, can be overcome by a small amount of roofing liquid which can be initially smeared on the outside of member **26**. When the unit is in use, a re-supply of this material will be achieved by having reasonable clearance in the hole pierced in washer **24**, so that the roofing material can pass up through this opening and keep nut **26** sealed in place. It is intended that it may be necessary from time to time to replace nut **26** and if it is made after the mode outlined it is only necessary to remove handle H and then with a suitable drift, which would be the size of the enlarged opening in washer **24**, nut **26** can be easily driven out of ferrule **20**. A new nut **26** will, of course, have new threads of suitable pitch to engage possibly the new and replacement bolt **14**.

The final step in forming my mop is to engage the structure, as shown in Figure 5, into the cup and ferrule assembly of Figure 2 and then, preferably, by means of a socket wrench applied to the head of bolt **14** the mop proper is drawn up into cup **22** so that a very firm engagement is obtained. The mop is now ready for use.

When it is desired to replace the mop portion **10**, bolt **14** is unscrewed from nut **26** and a new assembly, after the showing of Figure 5, may be readily inserted in lieu of the worn out unit. It is the usual practice to remove bolt **14** and dished washer **16** from the worn out mop. This is usually easily arranged in that even after extended use there normally is not an excessive hardening of the roofing material in the head portion, consequently both bolt **14** and washer **16** are readily salvageable for reuse.

It is believed that it will be clearly apparent from the above description and the disclosure in the drawings that the invention comprehends a novel construction of a roofing mop and method of making the same.

Having thus disclosed my invention, I claim:

1. A mop, comprising: a handle bearing at its lower end a metal ferrule; a socket member fixedly secured to said ferrule cupped axially of and away from the handle and broader than the handle; said socket member having a central opening adapted to pass over the ferrule; a locking washer positioned below said socket member and presenting thereto a convex face of less width than the socket member and concentric therewith; an assembly bolt between said washer and the lower end of said handle operable to pull said locking washer toward said socket member; a metal washer fixedly secured into the lower end of said ferrule and in continuation of the inner surface of said socket member and having an axial opening appreciably larger in diameter than the assembly bolt associated with said washer; a nut washer of a diameter to snugly pass through said ferrule and to threadedly engage said bolt; and a multiplicity of thrum strands compressed at their center around said bolt by banding means and folded double and the loop formed by the fold caught between said socket member and said locking washer and spaced around the perimeter of said washer forming a ring of double thrum strands.

2. A mop, comprising: a handle bearing at its lower end a metal ferrule; a socket member cupped axially of and away from the handle and broader than the handle and fixedly secured to said ferrule; a locking washer positioned below said socket member and presenting thereto a convex face of less width than the socket member and concentric therewith; a metal band encircling means, of final tubular form, disposed concentrically between and spacing apart the socket member and said locking washer; an assembly bolt between said washer and the lower end of said handle operable to pull said locking washer toward said socket member; means substantially closing the lower end of said ferrule and having an axial opening appreciably larger in diameter than the assembly bolt associated with said washer; a nut washer of a diameter to snugly pass through said ferrule and to threadedly engage said bolt; and a multiplicity of thrum strands compressed at their center around said bolt by said band encircling means to prevent slippage of the strands and folded double and having the loop formed by the fold caught between said socket member and said locking washer and spaced around the perimeter of said washer forming a ring of double thrum strands, and said tubular metal band comprising a strip the ends of which are locked together by crimping means.

3. A mop, comprising: a handle bearing at its lower end a metal ferrule; a socket member fixedly secured to said ferrule cupped axially of and away from the handle and broader than the handle; said socket member having a flat upper portion, a downwardly extending rim and a central opening adapted to pass over the ferrule; a locking washer positioned below said socket member and presenting thereto a convex face of less width than the socket member and concentric therewith; bolt means between said washer and the lower end of said handle operable to pull said locking washer toward said socket member; a metal washer fixedly secured to the lower end of said ferrule and in continuation of the flat upper portion of said socket member and having an axial opening appreciably larger in diameter than the bolt means associated with said washer; a nut washer of a diameter to snugly pass through said ferrule and to threadedly engage said bolt; and a multiplicity of thrum strands compressed at

their center around said bolt by encircling means and folded double and the loop formed by the fold caught between said socket member and said locking washer and spaced around the perimeter of said washer forming a ring of double thrum strands.

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