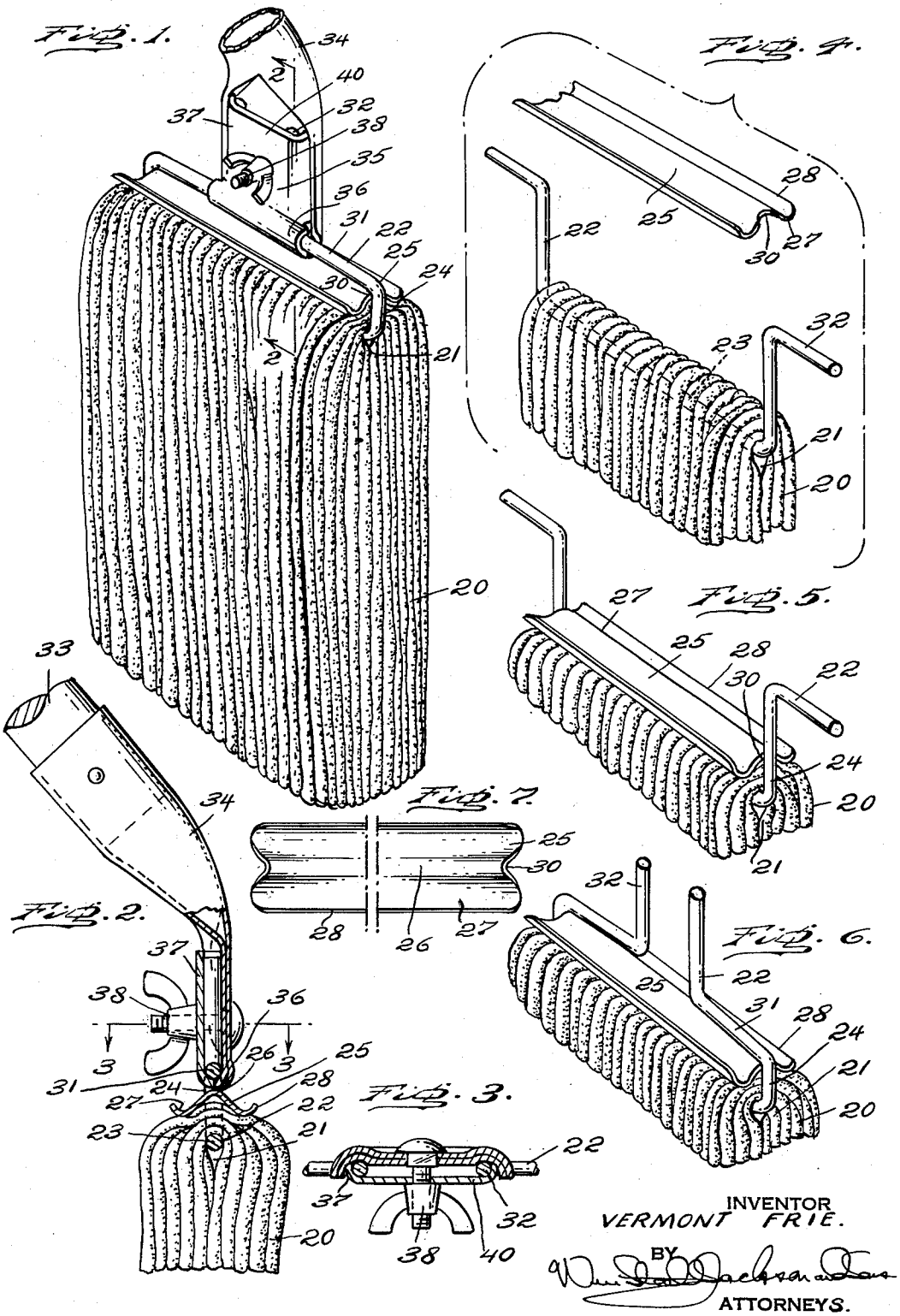
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MOP HEAD

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MOP HEAD

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2 Claims. (Cl. 15—229)

The present invention relates to improved mop heads of the character used for mopping floors.

The present application has been divided and the method of assembling a mop is claimed in divisional application, Serial No. 333,481, filed January 27, 1953.

A purpose of the invention is to simplify and facilitate the gripping of mop strands, especially cellulose sponge strands, by the wire of a mop.

A further purpose is to avoid the tendency of the strands to cut or tear at the point where they are clamped.

A further purpose is to create a tendency of the strands to double or form a U bend adjoining the clamp.

A further purpose is to extend the clamping plate, preferably substantially U-shaped in cross section, with the reverse bend of the U toward the strands, and preferably provided with notches in the ends, across the strands from one edge to the other of the mass, and to pass a wire across the width of the strands in line with the middle or base of the U of the clamping plate on the opposite side of the strands from the clamping plate, to extend the wire around the edges of the mass of strands and preferably in the notches, to extend the wire along the middle of the clamping plate, preferably at the base of the U on the side remote from the strands and to extend the wire transversely to the clamping plate.

A further purpose is to provide a handle which engages the wire and has forward jaws which engage the portion of the wire extending longitudinally of the clamping plate on the side remote from the strand, and side jaws which engage the portions of the wire which extend transversely to the clamping plate on the side remote from the strands.

Further purposes appear in the specification and in the claims.

In the drawings I have chosen to illustrate one only of the numerous embodiments in which my invention may appear, selecting the form shown from the standpoint of convenience in illustration, satisfactory operation and clear demonstration of the principles involved.

Figure 1 is a fragmentary perspective of the mop head of the invention broken away at the ferrule which connects to the handle.

Figure 2 is a section of Figure 1 on the line 2—2 with the handle broken away.

Figure 3 is a section of Figure 2 on the line 3—3, breaking away the wire.

Figures 4, 5 and 6 are progressive fragmentary perspectives showing the assembly of the mop.

Figure 7 is a fragmentary plan of the clamping plate.

Describing in illustration but not in limitation and referring to the drawings:

In many prior art mops difficulty has been encountered because the clamp for the mop strands either does not adequately hold them and they are allowed to pull out, or it applies so much holding pressure at such a concentrated area that the strands break or tear off near the point of clamping. The present invention is designed to provide adequate clamping pressure for the strands without mutilating the strands, and to simplify, cheapen and improve the clamp mechanism and the way in which clamping pressure is obtained.

While the invention is applicable to floor mops using the well known cotton strands of the prior art, it is especially suited to cellulose sponge strands which are made by coating cotton thread or yarn with regenerated cellulose.

The mop strands 20 form a mass of aligned strands which are reversely bent or doubled back on themselves at 21 as in common brackets. A wire 22 has a wire portion 23 extending across the width of the mass of strands inside the reverse bend 21. The wire along with the other metallic parts may be made of steel, aluminum, copper base alloy, a magnesium base alloy or other structural metal as preferred. At the edges of the mass of strands the wire bends toward the outside of the reverse bend to form end stretches 24 best seen in Figures 1, 2 and 6.

On the outside of the reverse bend of the strands, and in line with the wire portion 23 inside the reverse bend, is a clamping plate 25 which extends across the mass of strands from one edge to the other and presses or grips the strands between the clamping plate and the wire portion 23. As best seen in Figures 2 and 4, the clamping plate is substantially U-shaped in cross section with the reverse bend of the U directed toward the strands, so that the base 26 of the U corresponds with the middle and runs parallel to the wire portion 23.

The arms 27 of the U engage the strands near the ends of the arms and have reversely filleted portions 28 which protect the strands from any sharp or raw edges on the clamping plate. Thus as seen in Figure 2, the strands are gripped between the spaced contact points of the arms 27 of the U at the top and the portion 23 of the wire at the bottom, tending to hold the strands in their reverse bend form.

The clamping plate at its ends has notches 30 into which the edge portions 24 of the wire fit.

The wire is bent over the ends of the clamping plate and has portions 31 on the side of the clamping plate, remote from the strands, which converge toward one another and follow the middle, ridge or base of the U of the clamping plate. Near the ends, the wire has portions 32 which are bent and extend outwardly from the clamping plate transversely thereto in spaced relation from one another.

The handle 33 carries a suitable metallic ferrule 34 which is provided at its end toward the mop with a clamp 35 having forward jaws 36 and side jaws 37 at each side. The forward jaws 36 grip the portions 31 of the wire which extend along the clamping plate on the side remote from the strands. The side jaws 37 respectively grip the portions 32 of the wire which extend transversely to the clamping plate and away from the strands. Thus the wire cannot shift toward or away from the handle, laterally or angularly. A bolt and thumb nut combination 38 holds together the jaws, which desirably consist of a plate 40 carrying one of the forward jaws and one of each of the side jaws, cooperating with mating jaws at the front and sides formed from the ferrule.

The relation of the side jaws with outer wire portions 32 is best seen in Figure 3.

In assembling the mop, the wire is stretched with its portion 23 in horizontal position and the mass of strands is doubled over the wire. For convenience the other bends can be prebent except for the bend that places the wire portions 31 against the clamping plate. Thus as seen in Figure 4, the wire may at this time have the shape of a double crank. The clamping plate 25 is then placed across the strands on the outside of the reverse bend with its middle or base of the U in line with the wire portion 23, and the reverse bend of the U toward the strands as

best seen in Figure 5. In this position, the wire edge portions **24** extend into the notches **30** at the ends of the clamping plate.

The next step, as seen in Figure 6, is to bend the wire portions **31** down against the clamping plate. This bending tends to pull the wire portion **23** toward the clamping plate, due to the leverage exerted by the wire portions **31** as they bend, thus gripping the strands between the wire and the clamping plate. The mop head as shown in Figure 6 can be sold in this form, or can be attached to a clamp as shown in Figures 1, 2 and 3.

In operation, the components are assembled to make up the mop head in the manner shown in Figures 4, 5 and 6. The mop head is then clamped to the handle by loosening the bolt and thumb screw combination **38**, inserting the wire end portions **32** upwardly in the loosened side clamps and inserting the wire portions **31** in the loosened forward jaws. The bolt and thumb screw combination is then tightened.

If at any time it is desired to replace the strands, the clamp can be loosened and the clamping plate taken off by the reverse procedure of the assembly shown in Figures 4, 5 and 6. New strands can be inserted and the wire again bent down to engage the new strands between the wire and the clamping plate.

In view of my invention and disclosure variations and modifications to meet individual whim or particular need will doubtless become evident to others skilled in the art, to obtain all or part of the benefits of my invention without copying the structure shown, and I, therefore, claim all such insofar as they fall within the reasonable spirit and scope of my claims.

I claim:

1. In a mop head, a mass of substantially parallel strands, a clamping plate substantially U-shaped in cross section having the reverse bend of the U engaging the strands fully across the width along one side and having notches at the ends of the clamping plate adjoining the lateral limits of the mass of strands, a wire passing across the width of the strands in line with the base of the substantially U-shaped cross section of the clamping plate on the opposite side of the strands from the clamping plate, the wire extending around the edges of the mass of strands through the notches, the wire extending along the base of the U-shaped cross section of the clamping plate on the side remote from the strands and pressing against the clamping plate, and the wire then extending transversely to the clamping plate at both ends of the wire, and a clamp having forward clamping jaws engaging the portions of the wire which extend along the base of the substantially U-shaped cross section of the clamping plate and having side clamping jaws at each side which grip the portions of the wire extending transversely to the clamping plate at both ends of the wire.

2. A mop head of claim 1, in which the clamping plate has reverse filleted portions along the sides of the substantially U-shaped portion which protect the strands from being cut by the clamping plate.

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