

1,244,592.

Patented Oct. 30, 1917.

Fig. 1.

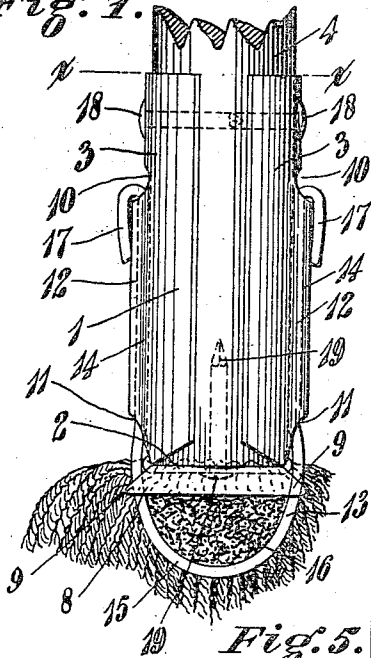


Fig. 4.

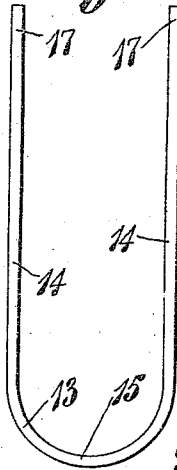


Fig. 2.

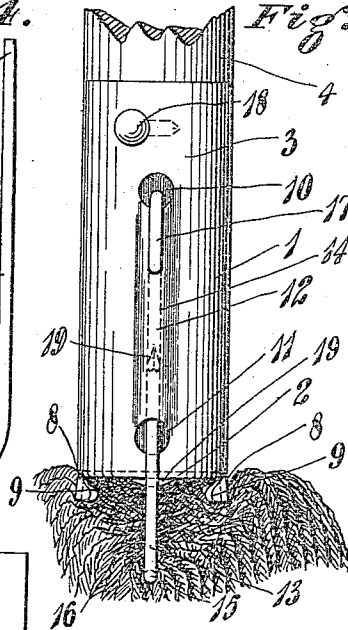


Fig. 3.

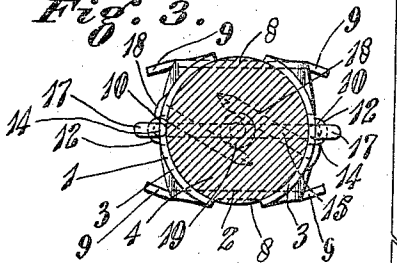


Fig. 6.

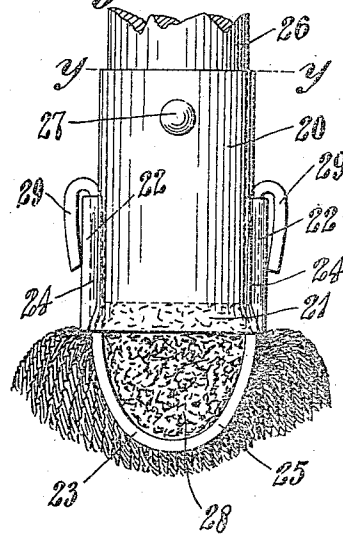
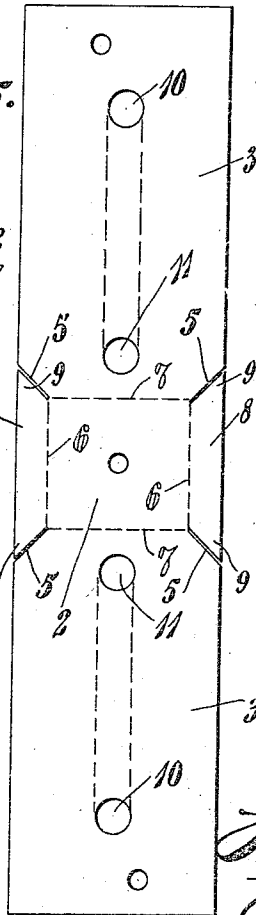
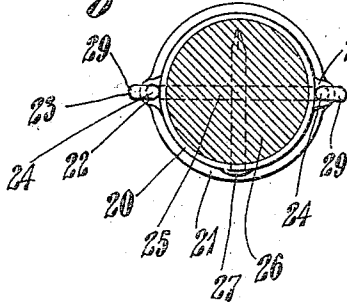


Fig. 7.



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MOP.

1,244,592.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN C. DE ROO, a citizen of the United States, and a resident of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Mops, of which the following is a specification.

My invention relates to permanent mop-head construction, and the object is to produce an economically constructed device that will bind the mop material to the handle securely and with less labor.

My invention consists in the parts and in the details of construction and arrangement of parts as will hereinafter be more fully described and claimed.

In the drawing:

Figure 1 is a side elevation of part of a mop embodying my invention;

Fig. 2 is another side elevation of the same;

Fig. 3 is a cross section of the same on the line $x-x$ of Fig. 1;

Fig. 4 is a detail of the wire clip;

Fig. 5 is a detail of the blank from which the socket shown in Figs. 1, 2 and 3 is formed;

Fig. 6 is a side elevation of part of a mop embodying a modification of my invention;

Fig. 7 is a cross section on the line $y-y$ of Fig. 6.

As I prefer to construct my invention and as illustrated in Figs. 1, 2, 3 and 5, the ferrule 1 comprises a straight horizontal bottom 2 which is substantially rectangular in shape, as seen in Fig. 3, with sides 3 projecting up from its ends to form a socket to receive the lower end of the handle 4 between them.

The specific formation shown is incident to the simplified formation of the blank which is shown in Fig. 5, this blank being merely an elongated rectangular flat strip of material with slits 5 extending convergently inward from its sides near its middle, the inner terminations of these slits marking the terminations of lines 6 and of lines 7, upon which lines the material is to be bent or folded. These lines 6 and 7 thus define the rectangular bottom of the socket, and the material extending from each line 7 and adjacent slits 5 to the respective end of the blank will be formed so as to have a concave cross section, so that when it is bent up on the line 7 it will conform sub-

stantially to the side of the handle 4. Each of these sides 3 will have a slight flaring at each corner where it merges with the rectangular bottom. The material outside each line 6 and between the adjacent slits 5 will be bent down in the opposite direction from the upward bending of the sides 3 and will thus form shoulder pieces 8. These shoulder pieces preferably are bent to a degree somewhat less than parallel with the line of the handle, so that they flare somewhat, and they also are given a concave form by bending their ends 9 inward, these ends 9 being the parts left on the shoulder pieces 8 due to the inwardly converging disposition of the slits 5 at each side of the blank.

Each of the sides 3 is interiorly fluted between an upper opening 10 and a lower opening 11, so that these flutes 12 run longitudinally of the sides parallel with the line of the handle, and the openings 10 and 11 form the open ends of the flutes.

A U-shaped clip 13 has its parallel parts 14 received in the flutes 12 with its bottom 15 coming under the bottom 2 of the ferrule, and, with this bottom of the ferrule embracing the strands of mop material 16, so that when the clip is drawn up tightly its ends 17 may be bent down over the upper ends of the flutes 12, upon which the mop material 16 is firmly bound to the ferrule. The ferrule is firmly secured to the handle 4 by nails 18 passing through the sides 3 above the upper ends of the flutes 12 into the handle, and also by a nail 19 that is driven up through the bottom of the ferrule into the end of the handle. It will of course be understood that the ferrule is thus secured to the handle before the mop material is bound in place, as above described.

By having the separate sides 3, the ferrule is adjustable to a considerable extent so that it may be made to practically fit handles of various diameters. For instance, a single ferrule, constructed as described, may be made to fit handles ranging from less than one inch in diameter up to diameters of one and one-quarter inch or more. This variation is possible due to the possibility of bending the material forming the separate sides of the ferrule, the change taking place chiefly in the flaring region where the concave sides join the rectangular bottom, as above described. This conformation of the ferrule to the handle is best produced by nailing the ferrule to the handle and then,

after the material has been bound in place and the ends 17 of the clip bent over, inserting the mop into a machine which is provided with suitable dies for stamping the sides 3 of the ferrule down close to the handle to which they are attached, at the same time stamping the ends 17 of the clip close to the outer sides of the flutes 12 and causing these bent-over ends to firmly hold the clip and bind the mop material, as above described.

The purpose of the bent-down shoulder pieces 8 with their extended and inwardly bent ends 9 is to make of the bottom 2 of the ferrule 1 a downwardly open channel or shallow cavity which receives the upper parts of the outermost strands of mop material 16 and causes them, when the clip 13 is drawn up tightly, to flare outwardly in such a manner as to produce a substantial shoulder on the mop, which shoulder, by extending up around the lower parts of the ferrule, clip and handle, forms a buffer, preventing contact of these parts with the floor or other objects encountered while using the mop. These shoulder pieces 8 also reinforce the bottom 2 of the ferrule and thereby strengthen the fastening of the ferrule to the handle, as made by means of the nail 19, and they also cooperate with the clip 13 in that they tend to maintain the proper disposition of the strands of mop material around the periphery of the lower end of the ferrule.

Where it is not desired to accommodate handles of different sizes, the modification shown in Figs. 6 and 7 may be employed, in which the cylindrical ferrule 20 has a flared end 21, upward from which, at opposite sides, lead flutes or ears 22. A clip 23, similar to the clip 13, has its parallel parts 24 extending through the flutes or ears 22 and joined by its bottom 25. The handle 26 extends only approximately to the beginning of the flaring of the end 21 of the ferrule 20, so that a downwardly open cavity is left after the handle 26 is inserted. The ferrule 20 is secured to the handle by means of a nail 27 through one side. When the clip 23 is drawn up tightly with the mop material 28 embraced by the clip 23 and the lower end of the handle 26 and flared end 21 of the ferrule 20, the upper ends 29 of the clip are bent down over the upper ends of the flutes or ears 22 as shown. The shallow cavity, left in the lower end of the ferrule and provided with the flaring ends 21, serves the purpose of giving the proper formation to the shoulder of the mop and of maintaining the disposition of the strands in cooperation with the clip 23 in a manner similar to the action of the shoulder pieces 8 in the example shown in Figs. 1, 2, 3 and 5.

The ferrule shown in the first example is preferably made of sheet metal, while that

shown in Figs. 1 and 7 may be of sheet metal or of tubing, with the flutes or ears 22 formed up therefrom, or it may be of cast metal. The ferrule of the first example is preferred on account of its adjustability to handles of different sizes. This becomes of especial importance where assortments of handles originally made for various other implements are utilized as mop handles, being disposed of in this way on account of some minor defect making them unsuitable for use in the implements for which they were originally made. There can be no guarantee of uniformity of size of such handles, and unless the mop-head construction is such that it is readily adjustable to these handles of various sizes, it is necessary to cut down the larger handles, and it becomes impossible to use those which are too small for the ferrule. The ferrule, with parts that may yield from each other and thus be readily adjustable as described, may be firmly attached to the handle after the parts have been adjusted thereto, and then, by their flutes, with the ends of the clip extending therethrough and bent thereover, this ferrule affords a rigid and permanent holding means for the mop material. Thus, I am enabled to produce a mop head construction that allows the mop material to be thrown back and thoroughly dried out, and that will firmly hold the mop material until it is completely worn out. At the same time, the head construction is so simple and light that it allows of considerable economy of labor and material in its production, as well as being highly satisfactory in use, because there are no complicated details to get out of order, and because the weight of the connecting element compared to the weight of the entire mop is practically negligible. This is especially the case when the ferrule is constructed from a simple rectangular strip of sheet metal as shown and described.

I also attain an important advantage in that the only mutilation or weakening of the wooden mop handle is that involved in driving the two nails into it near the top of the ferrule and, as preferred, the other nail 19 in the end of the ferrule and handle, which latter nail does not weaken the handle in the least; and in the example of Figs. 6 and 7 merely driving one nail into the handle near the top of the ferrule. No cutting away of the handle is required to accommodate the parts of the clip, because the flutes at the sides of the ferrule, in either case, receive the clip; and, what is especially important, the wood of the handle is not depended upon to hold the clip except indirectly through the nails that hold the ferrule on the handle, because the clip is made to engage out over the upper ends of the flutes in either example. With the resistance to

separation of the mop material from the handle provided by a nail or nails driven into the handle within the limits of the ferrule and thereby holding the ferrule tight to the handle, there is no loosening of the mop head elements, even after long continued use of the mop.

In the above connection it is to be noted that by having the upper ends of the flutes some distance down the sides of the ferrule, in Figs. 1 to 3, inclusive, the upper part of the ferrule at each side is left continuous interiorly, thus making a continuous and firm contact at each side, so that when the sides of the ferrule are held down by the nails 18 they are very rigidly secured; and also so that these continuous and uninterrupted parts of the ferrule afford a very firm reinforcement for the handle in this part of the mop, whereby the weakening occasioned by driving the nails into the handle is compensated, and the liability of the handle to break where thus mutilated without reinforcement is practically eliminated. This advantage is present in somewhat greater degree in the modification shown in Figs. 6 and 7, because here the upper part of the socket not only has no interior grooves or interruptions but is continuous entirely around the handle.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. In a mop, a handle, a ferrule secured to the handle, flutes on said ferrule opening near the lower end of the ferrule and opening at their upper ends to the exterior of the ferrule, down from the upper end of the ferrule, and leaving the part of the ferrule above the open upper end of the flutes uninterrupted to have a continuous bearing on the handle, mop material, and a clip having parts extending through the flutes and engaged over the upper ends of the flutes, said clip thereby binding said mop material to the handle and ferrule, and fastening means extending through the upper uninterrupted part of the ferrule into the handle and holding said part of the ferrule firmly against the handle, and said part of the ferrule reinforcing the handle where the fastening means extends into the handle.

2. In a mop, a handle, a ferrule secured to the handle, downward projections on the lower end of the ferrule past the end of the handle, flutes on said ferrule opening near the lower end of the ferrule substantially at right angles to the location of the downward

projections on the ferrule, and open at their upper ends to the exterior of the ferrule, means securing said ferrule to the handle, mop material, a U-shaped member extending around the strands of mop material with its side parts extending up through the flutes on the socket and engaging over the upper ends of the flutes, thereby rigidly binding the mop material up against the end of the handle, and said downward projections on the ferrule defining a concavity at the lower ends of the handle and ferrule, in which the mop material is embedded as bound by said clip, and the mop material being disposed and distributed outside the downward projections to form shoulders, and being maintained in its distribution by said projections, for the purposes set forth.

3. In a mop, a ferrule made from a single flat elongated rectangular piece of material, having inwardly converging slits in its respective longer sides substantially midway of its length, bent upward on transverse lines joining the ends of opposed slits, whereby the part of the material between these lines of bending forms a rectangular bottom for the ferrule, and whereby the parts between these lines and the respective adjacent ends of the material form the sides of the ferrule, said sides being formed into concave cross section with their concavities presented toward each other, and each flaring from its concave cross section to where it joins the rectangular bottom, each of said sides having an upper and a lower opening, and being fluted interiorly from the upper to the lower opening, whereby a flute is formed opening upwardly and downwardly on the outside of the ferrule, the parts between the slits on each side of the piece of material being bent downward on a line joining the ends of these slits, these parts thereby having projected ends, and these ends being bent inwardly, whereby these bent-down parts form shoulder pieces for the ferrule and inclose a cavity below the bottom of the ferrule to receive the mop material, said flutes being adapted to receive a clip to bind the mop material to the ferrule and said sides of the ferrule being adapted to receive the handle of the mop in their concavities and be adjustable to the handle.

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