Feb. 11, 1941. H. I. KLAWANS 2,231,272

METHOD OF MAKING A MOP

Filed Aug. 29, 1938

Fig. 1.

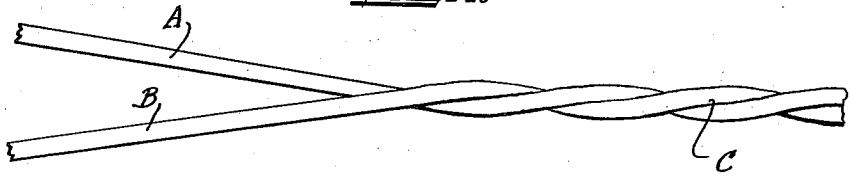


Fig. 2.

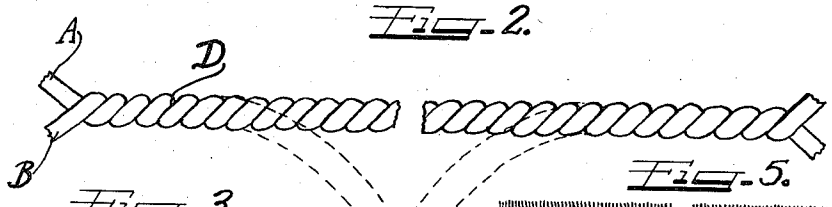


Fig. 3.

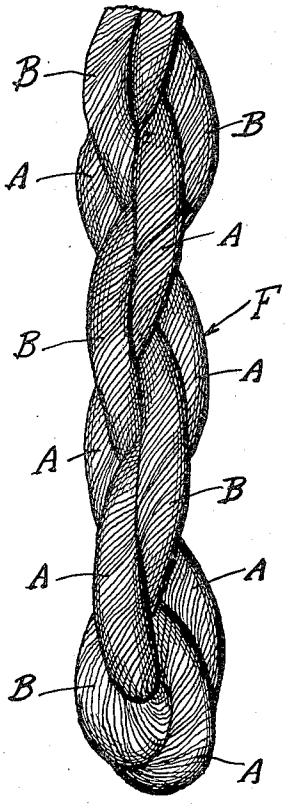


Fig. 5.

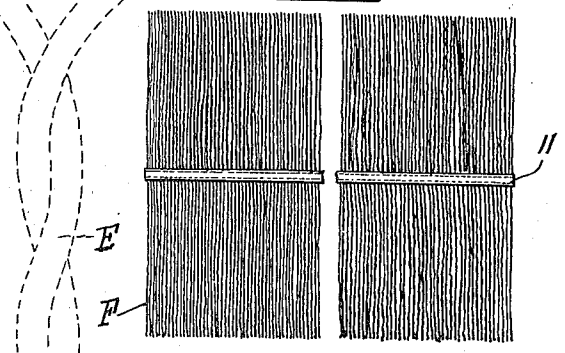
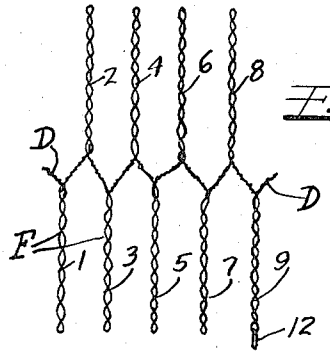


Fig. 4.



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by Charles Fellows Atty.

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UNITED STATES PATENT OFFICE

2,231,272

METHOD OF MAKING A MOP

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Application August 29, 1938, Serial No. 227,253

2 Claims. (Cl. 300—21)

The present invention relates to a mop and to a method of making the same. More particularly, this invention is concerned with the construction of a mop formed of a continuous multiply strand of yarn or roving, which is initially given a sufficient overtwist to equalize the back twist and form twisted, closed loop cords in the finished mop. The overtwisting of the multiply strand holds each cord in compact, twisted relationship in service and prevents its closed end from opening up in use.

It is therefore an object of this invention to provide a mop formed of a continuous multiply strand with twisted, closed loop cords that remain tightly twisted in use due to the amount of overtwist initially given the multiply strand.

It is a further object of this invention to provide a method of making a mop wherein a multiply strand is initially given an amount of overtwist that is sufficient, when the strand is looped, to form a tightly twisted, closed loop strand that will not untwist or open up in use.

The above, other and further objects of the present invention will be apparent from the following description and the accompanying drawing.

The accompanying drawing illustrates steps followed in the practice of the novel invention and the views thereof are as follows:

Figure 1 is a fragmental view of two strands of yarn or roving, given a normal twist.

Figure 2 is a fragmental view of an overtwisted portion of the multiply strand of Fig. 1 showing the overtwisted strand in full lines, and in dotted lines showing the back twist produced when a loop is formed in such overtwisted multiply strand.

Figure 3 is an enlarged fragmental view of a cord formed from a loop such as that shown in dotted lines in Figure 2, as it appears in a finished mop.

Figure 4 is a diagrammatic view showing the manner of forming a mop by arranging an overtwisted multiply strand, such as that illustrated in Figure 2, into a plurality of loops alternately arranged with respect to a median line, the loops being twisted into closed loop cords, such as shown in Figure 3.

Figure 5 is a plan view of a mop head constructed in accordance with the principles of the present invention.

The drawing will now be explained.

In Figure 1, two plies of yarn or roving A and B are shown with a normal or loose twist to form a multiply twisted strand C. By the term "normal twist" is meant that amount of twist that will persist when an end of the strand hangs free. In accordance with this invention instead of merely giving the strands A and B a normal twist they are given an overtwist to produce an overtwisted, multiply strand D (Fig. 2). Such a strand may be made in as long lengths as manufacturing conditions warrant. Because of the overtwist, the multiply strand if permitted to loop upon itself, will backtwist to form a twisted, closed end loop, or cord E, shown in dotted lines in Fig. 2.

When an overtwisted multiply strand D has been formed, as illustrated in full lines in Figure 2, it is looped about a median line to successively form a plurality of twisted, closed end loops such as loops 1 to 9 inclusive, loops 1, 3, 5, 7 and 9 being on one side of the median line and loops 2, 4, 6 and 8 being on the opposite side of the median line as illustrated diagrammatically in Figure 4.

One manner in which the loops 1 to 9 may be mechanically held during formation is indicated in my prior Patent No. 2,035,130, wherein successive portions of the strand are looped about a hook and the hook twisted to impart the desired twist to the looped ends. In the present method, although similar hooks 12 (Fig. 4) may be used, they serve merely to keep the loops from bunching up irregularly. The overtwist initially in the strand D is itself sufficient to impart the final twist to form the cords F. The hook 12, if used at all is thus merely suitably twisted in the same direction as the natural backtwist of the looped strand to facilitate the smooth twisting of each loop into a cord F.

As the successive loops 1 to 9 are formed along the median line, tape 11 or other securing means is stitched or otherwise fastened to the loops along such median line.

Because of the overtwist given to the multiply strand D, as described, the resulting cords F remain tightly twisted in service and the closed looped ends do not open. A mop head or mop swab is thus formed in accordance with my invention comprising a continuous multiply strand looped and the loops twisted into cords with their ends closed to thereby prevent frittering away of the mop material.

Figure 4 is shown diagrammatically with the successive loops spaced, for the purpose of clearly illustrating the continuous nature of the strand D. It is to be understood, however, that in the manufacturing of mop heads in accordance with the method of the present invention the twisted

loops forming the cords F are not so far apart as represented in Figure 4, but are actually close together, as shown in the finished mop swab illustrated in Figure 5.

Each cord F, as shown in Figure 3, is made up of the plies of yarn A and B, so twisted together by virtue of the overtwist given the multiply strand D as to simulate a chain or cable. This novel appearance of the cords F is not only attractive but the structure itself is particularly utilitarian in that it possesses unusual absorptiveness coupled with durability.

Figure 5 illustrates mop heads made in accordance with the present invention showing a plurality of twisted cords F extending each side of a median line, represented by the tape 11. Mop heads made as herein described prove satisfactory in use because the manner of overtwisting described ensures that the cords retain their tightly twisted, closed end structure regardless of use.

I am aware that many changes may be made and numerous details of construction may be varied through a wide range without departing from the principles of this invention and I, therefore, do not purpose limiting the patent granted hereon otherwise than necessitated by the prior art within the scope of the claims.

The invention is claimed as follows:

1. A method of making a mop head having twisted closed loop cords, which comprises the steps of overtwisting a plurality of plies of yarn into an overtwisted multiply strand, arranging the overtwisted strand to form a plurality of loops symmetrical with respect to a median line, and twisting the loops in the direction of the inherent backtwist produced by said overtwisting step to form twisted closed loop cords, and securing said cords along the median line.

2. A method of making a mop head having twisted closed loop cords, which comprises twisting a plurality of plies of yarn to form an overtwisted continuous multiply strand, overtwisted to such extent that, when portions of the strand are arranged as loops, the loop forming portions will inherently backtwist upon themselves to form twisted cords, and twisting looped portions of said strand in the same direction as said backtwist to form tightly twisted cords with closed ends.

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