No. 891,744. PATENTED JUNE 23, 1908.

L. STOCKER.

METHOD OF MAKING MOPS.

APPLICATION FILED FEB. 10, 1908.

2 SHEETS—SHEET 1.

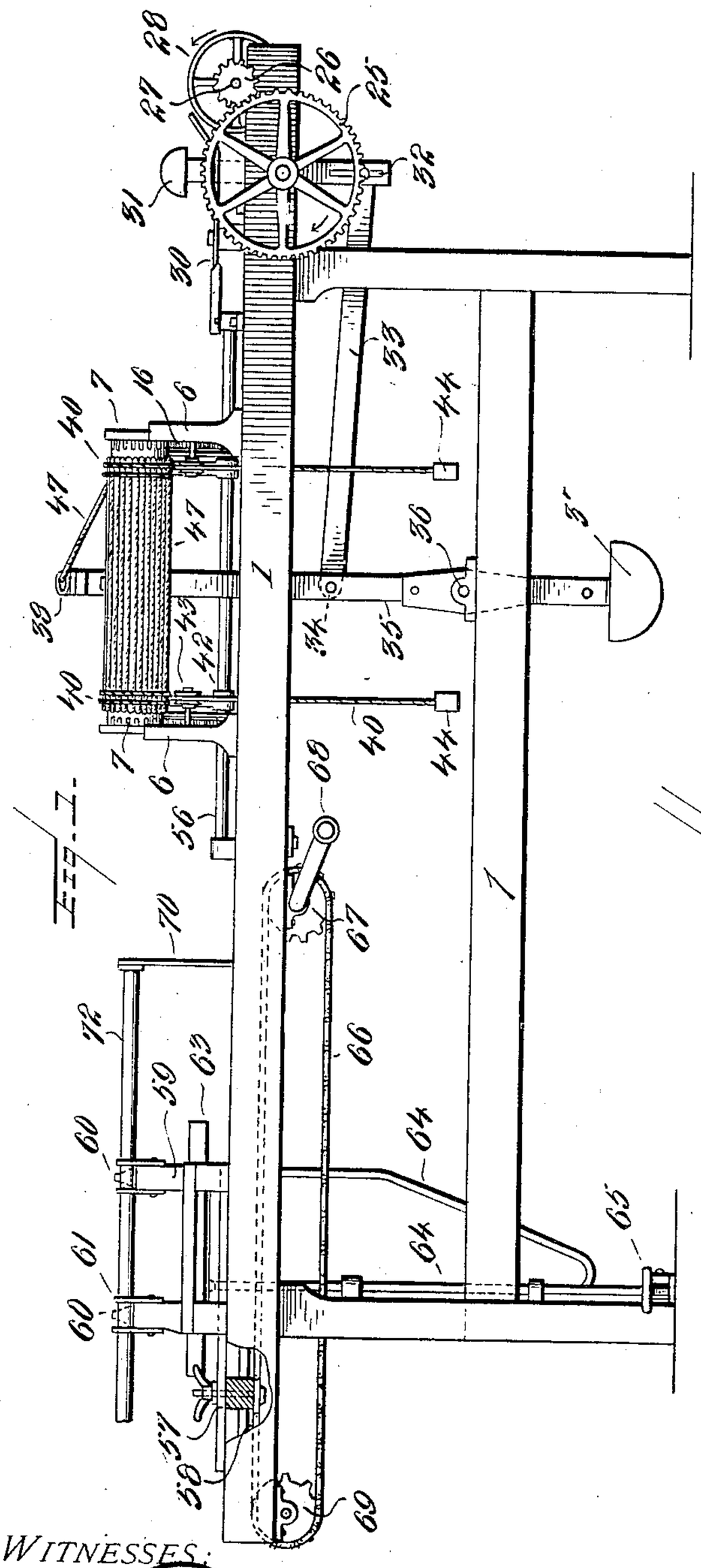

Fig. 1.

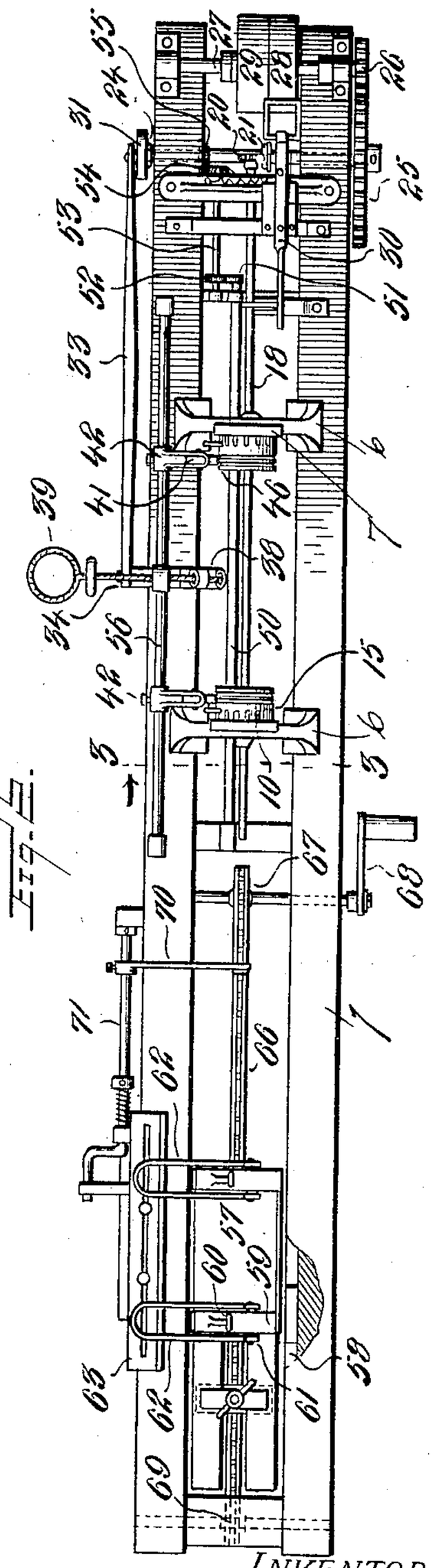

Fig. 2.

WITNESSES:

Wm. F. Kor[illegible]e.

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2 SHEETS—SHEET 2.

Fig. 4.

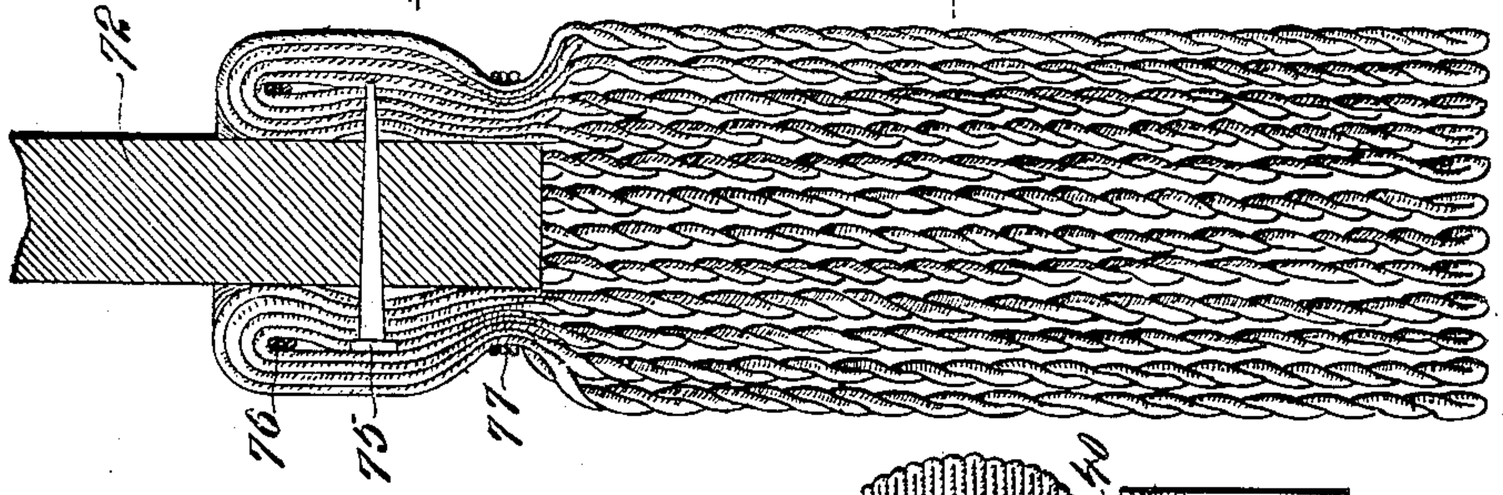


Fig. 5.

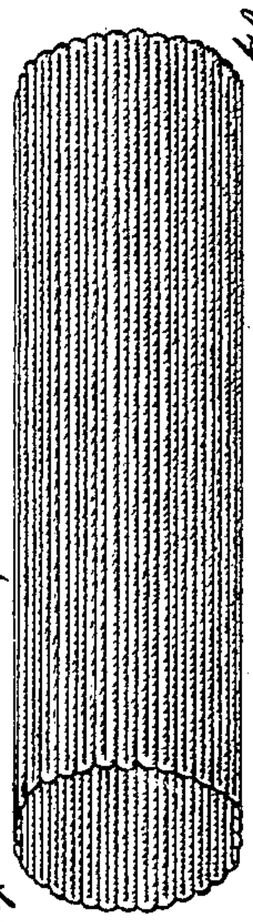


Fig. 6.

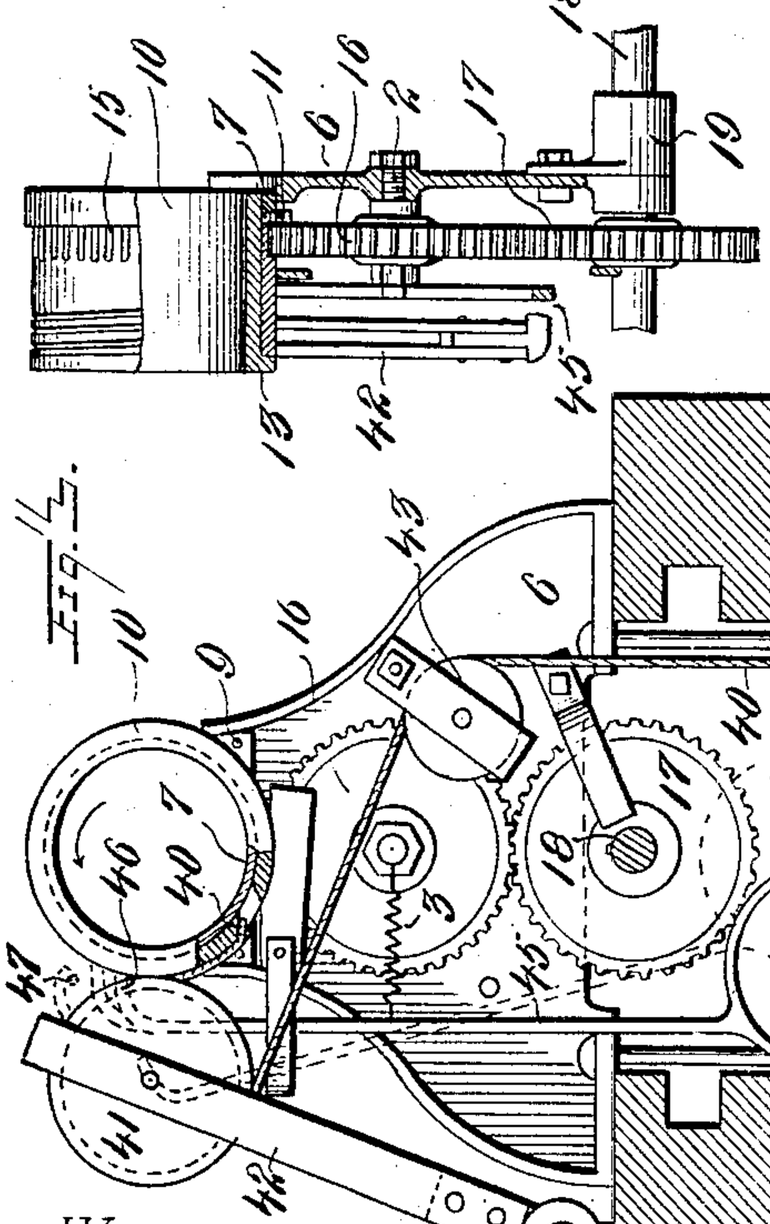
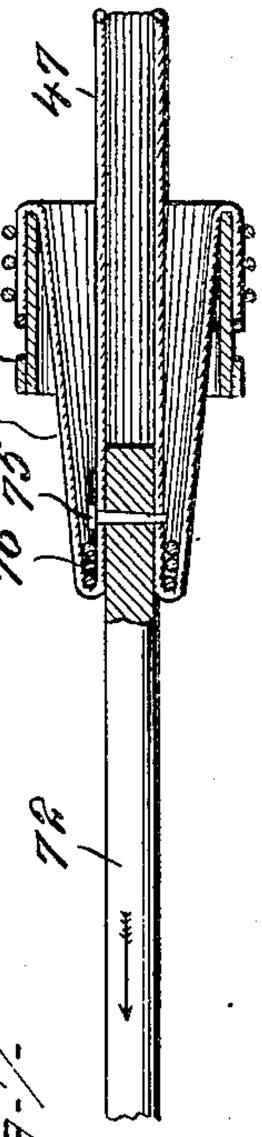


Fig. 7.

Fig. 8.

Fig. 9.



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UNITED STATES PATENT OFFICE.

LOUIS STOCKER, OF LOUISVILLE, KENTUCKY, ASSIGNOR TO MYER BRIDGES COMPANY, OF LOUISVILLE, KENTUCKY, A CORPORATION OF KENTUCKY.

METHOD OF MAKING MOPS.

No. 891,744. Specification of Letters Patent. Patented June 23, 1908.

Original application filed September 17, 1906, Serial No. 334,977. Divided and this application filed February 10, 1908. Serial No. 415,247.

To all whom it may concern:

Be it known that I, LOUIS STOCKER, citizen of the United States, residing at Louisville, county of Jefferson, and State of Kentucky, have invented certain new and useful Improvements in Methods of Making Mops, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to a method of making mops in which cords or similar devices are folded upon themselves to form an endless fabric, and comprises a division of my application filed September 17, 1906, Serial No. 334,977.

The invention has for an object to provide a method of making mops consisting in folding a cord or cords back and forth and supporting such folds to provide a space adapted to receive a mop handle to which the cords are attached.

A further object of the invention consists in the method of attaching these cords at one side of the retaining device carried by the handle and turning the folds of cords at one side of the plane of attachment over the folds at the opposite side thereof so as to conceal and protect the retaining device, while providing free folded ends for most efficiently retaining the moisture in the use of the endless mop.

Other and further objects and advantages of the invention will be hereinafter fully set forth and the novel features thereof defined by the appended claims.

In the drawings:—Figure 1 is a side elevation of a machine adapted to carry this method into effect; Fig. 2 is a plan thereof; Fig. 3 is an enlarged section on the line 3—3, Fig. 2; Fig. 4 is a detail sectional elevation of one of the cord supports; Fig. 5 is a perspective of the folded cords; Fig. 6 is a section of these cords with the handle first tied thereto; Fig. 7 is a similar view showing the method of overturning the cord ends; Fig. 8 is an enlarged section through the completed mop attached to its handle.

Like numerals refer to like parts in the several views of the drawing.

This method may be performed by manual operation or by any desired apparatus, one form of which is herein shown as adapted for the purpose and comprises the apparatus disclosed in my original application filed September 17, 1906, Serial No. 334,977. In this form the numeral 1 designates the supporting base or frame of the machine which may be of any desired construction or configuration and is provided with parallel standards 6 adapted to retain the supporting rings 7 in position. This ring is secured to the standard by means of the ears 9 attached thereto, and within the ring 7 a tubular member 10 is inserted and secured thereto by any means, for instance, a set screw 11, as shown in Fig. 4. This member 10 is provided at one end with an annular flange 13 and rotatably mounted upon the member is a cylinder having spurred gear teeth 15 adapted to mesh with the gear wheel 16 which is supported upon the stub shaft 2 carried by the standard. The wheel 16 meshes with a gear 17 keyed upon the shaft 18 which is supported in bearings 19 carried by the standards. The shaft 18 is provided with a spur gear 20 at one end which meshes with a cam wheel 21 mounted upon a cross shaft 24 which at one end is provided with a driving gear 25 adapted to mesh with a pinion 26 on the shaft 27 which shaft also contains the fast pulley 28 and loose pulley 29. By this means the supporting rings are rotated during the operation of laying the cord thereon.

Coöperating with the pulleys 28 and 29 is the belt shipper 30 of any desired form, while the end of the shaft 24 is provided with a crank arm 31 having a slotted end 32 to which a pitman connection 33 is adjustably connected. This pitman is connected at its opposite end 34 with an oscillating bar 35 which is pivoted upon the frame at 36 and provided with a weighted lower end 37. The upper end 38 of the bar is provided with suitable guide eyes through which the yarn or cord for the mop passes from a source of supply as indicated at 39. In the oscillation of this bar it swings from end to end of the supports and carries the cords in successive loops or folds between these supports.

For the purpose of retaining the folded cords upon the supports each support is provided with a flexible connection, for instance a strap or cable 40 secured thereto at one end and extending thence over a guide pulley 41 mounted in a pivoted support 42 and downward over an idler 43. To the free end of this cable a suitable weight 44 is attached to

exert the desired tension upon the flexible retainer in the rotation of the support which draws the cable in contact therewith, while the weight returns the parts to their initial position.

For the purpose of providing a device over which the cord may be looped or folded at each support a finger 45 is provided, the free end 46 of which is adapted to swing into contact with the holder and in its inward movement, as shown by dotted lines in Fig. 3, it passes over the cord 47 so that the cord is folded thereon. The movement of this finger is controlled by a spring 3 and an eccentric 48 disposed within the strap 49 carried by the fingers and the eccentric is secured upon a driving shaft 50. The shaft 50 may be driven in any desired manner, for instance, by gear 51 at one end thereof meshing with the gear 52 upon the countershaft 53, said countershaft being provided with bevel gear 54 adapted to mesh with the coöperating gear 55 upon the shaft 20. The arm 42, before described, may be adjustably mounted upon the rock shaft 56 supported upon the frame at the rear of the machine, as shown in Figs. 2 and 3.

For the purpose of supporting and feeding the mop handle any mechanism may be used, for instance, a carriage 57 slidably mounted upon the ways 58 of the frame and provided with standards 59 each having a fixed jaw 60 adapted to coöperate with a movable jaw 61 pivoted upon the standard and having the extended operating lever 62 adapted to contact with the plate 63 supported from a slide bar 64 connected to the treadle mechanism 65, as shown in Fig. 1. This carriage may be shifted by means of the endless chain 66 extending over the sprocket 67, the shaft of which is provided with an operating handle 68 and at its opposite end over the idler sprocket 69. Coöperating with the handle support is a gage 70 to determine the longitudinal position of the handle upon the support, and this gage is adjustably mounted upon a rock shaft 71 at one side of the machine so as to throw it out of the path of travel of the handle 72 in its movement toward the cord support.

In the operation of the apparatus shown for carrying this method into effect, the reciprocating arm carries the endless strands or cords from one supporting ring to the other, and it is then looped over the finger to form a fold or bend, this finger being subsequently withdrawn from the loop and the same caught and held by the flexible connection which lies upon the cords in the rotative movement of the supports and retains them in position thereon. After a complete rotation of the support the cords 47 are formed into cylindrical body, as shown in Fig. 5, the ends of which are composed of folded portions of the cord which are particularly efficient in retaining moisture and do not present any free ends for fraying or wear. At this time the handle is moved forward by the carriage until it reaches substantially the mid length of the cylindrical mass of cords, as shown in Fig. 5. This handle is provided with a retaining device such as a pin or nail 75 and the cords are tied to the handle by any desired means as indicated at 76, such means being applied at the side of the retaining device next the longer end of the handle. The movement of the carriage is then reversed which withdraws the strand or cord from the flexible retaining or holding means at the right end thereof and the handle moves outward through the tubular support at the left end thus turning one layer of the cords upon the other, as shown in Fig. 7, when the second tie or securing device 77 is applied, as shown in Fig. 8, thus completing the mop, the ends of which may be subsequently twisted if so desired, as shown in the latter figure. In this withdrawal movement after the last tie is completed the free end of the other strand portion is withdrawn from the frictional retaining means upon the support and the mop removed from its holder. It will be seen that this method produces a mop securely attached to its handle and having the securing means protected or covered to prevent contact thereof with the floor or surface upon which the mop is used, and also a mop having endless strands folded at their free ends which increases their capacity for retaining or holding liquid while also preventing the fraying or raveling thereof which occurs in the use of a free end mop.

Having described my invention and set forth its merits, what I claim and desire to secure by Letters Patent is:—

1. The method of making mops consisting in folding a cord back and forth, supporting the folds to provide a space adapted to receive a mop handle, inserting the handle in said space, and securing said cords to said handle.

2. The method of making mops which consists in folding a cord back and forth, supporting the folds to provide a space adapted to receive a mop handle, inserting the handle in said space, and securing said cords to said handle at substantially the mid-length between the ends of the folds of the cord.

3. The method of making mops consisting in folding cords back and forth, supporting the folds to provide a space adapted to receive a mop handle, inserting a handle in said space, securing said cords to said handle, turning said folds at one side of the plane of attachment to the handle over the portion of the folds at the other side of said plane, and then again securing all of said folds to said handle.

4. The method of making mops consisting in folding a cord back and forth to form approximately parallel folds said folds being placed around a space adapted to receive or be occupied by a mop handle, inserting a handle in said space then tying the middle portion of said folds to a handle, then turning said folds at one side of the plane of tying over the portion of the folds at the other side of said plane, and then again tying said folds.

In testimony whereof I affix my signature in presence of two witnesses.

LOUIS STOCKER.

Witnesses:
E. R. RUPPERT,
G. J. WEBER.