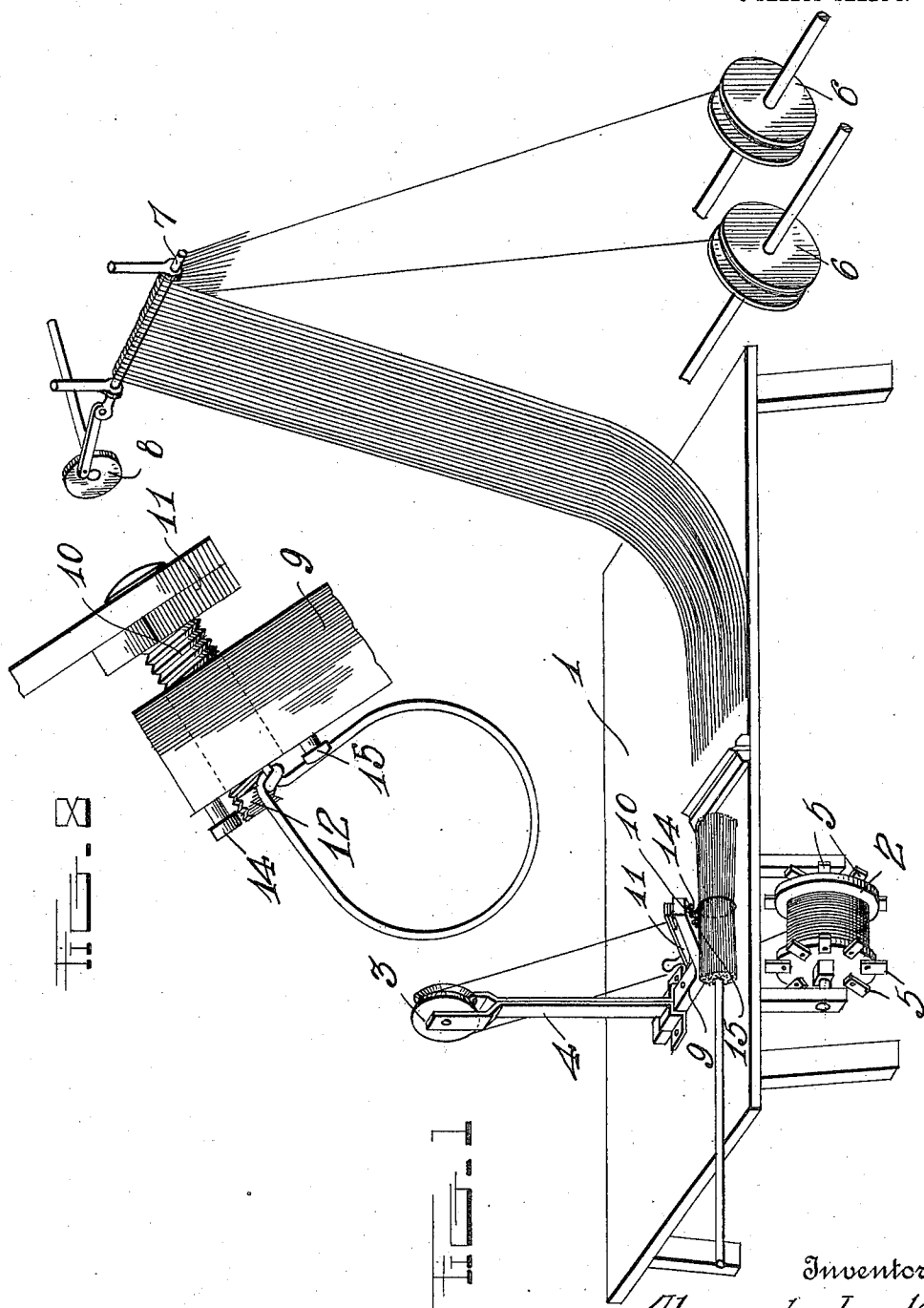


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MOP MAKING MACHINE.
APPLICATION FILED SEPT. 1, 1910.

Patented Feb. 14, 1911.

3 SHEETS-SHEET 1.



Witnesses
C. P. Hardy
O. B. Hopkins

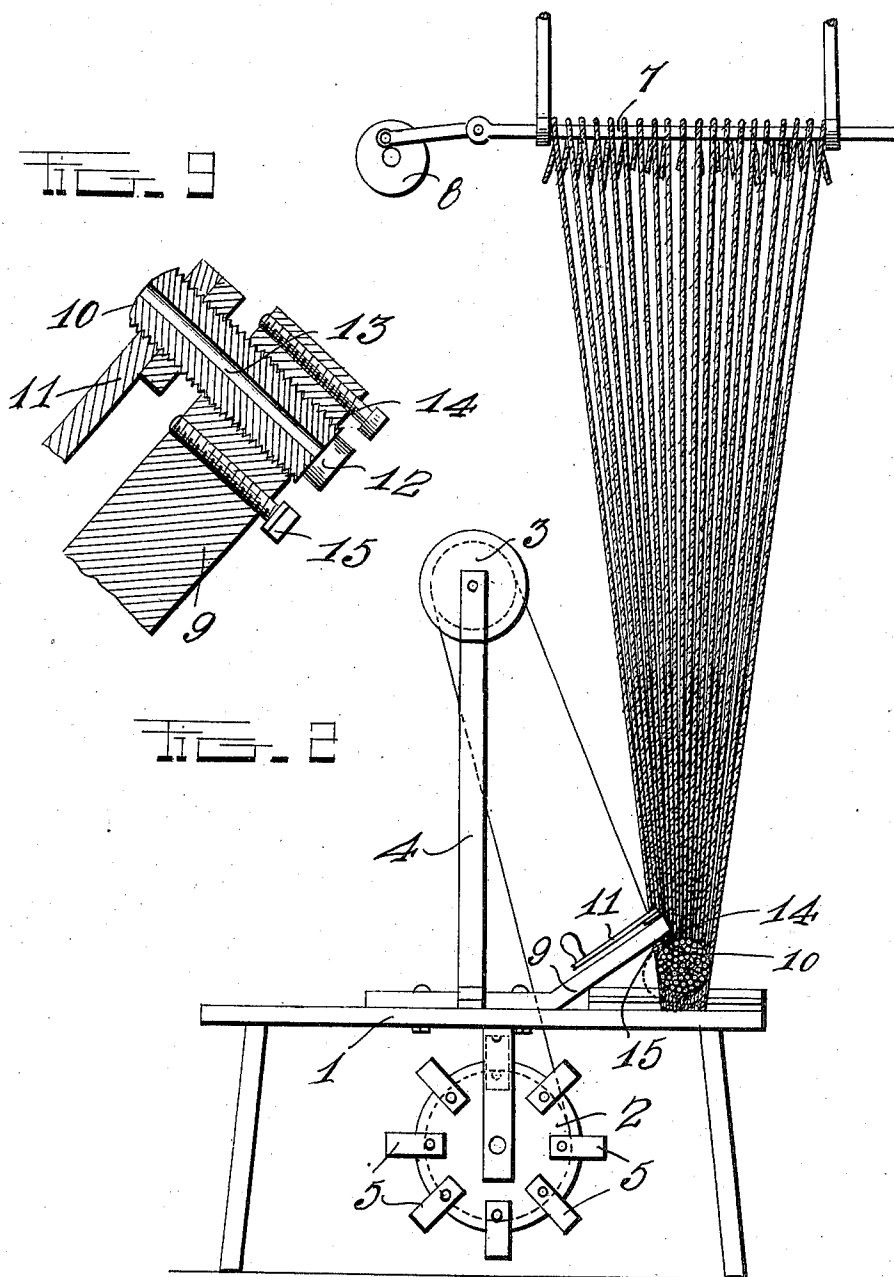
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3 SHEETS-SHEET 2.



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3 SHEETS—SHEET 3.

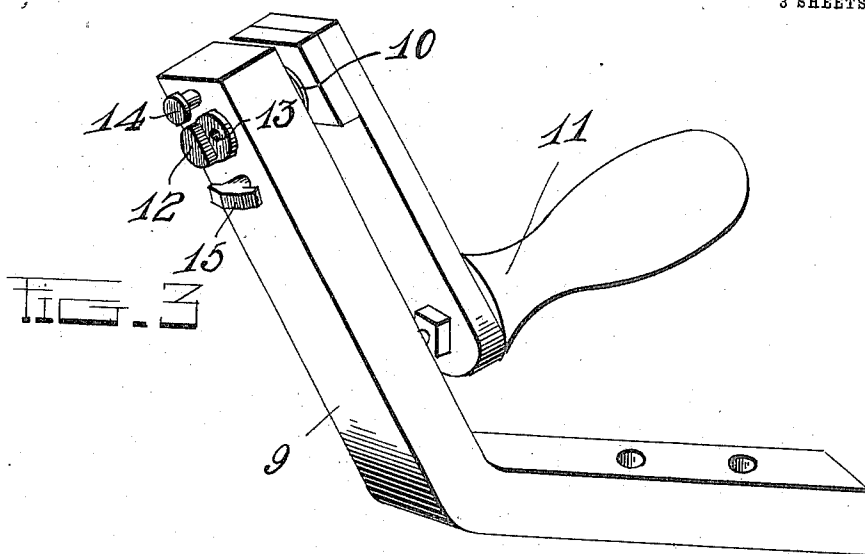


FIG. 4

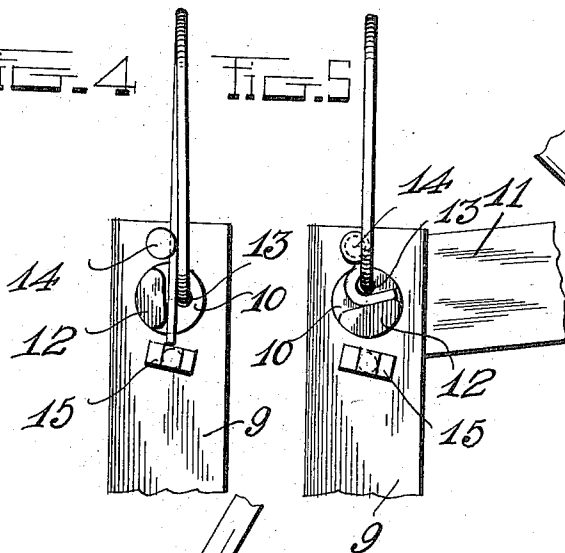


FIG. 5

FIG. 6

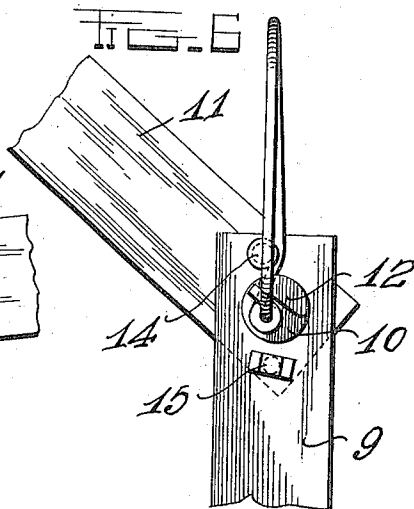
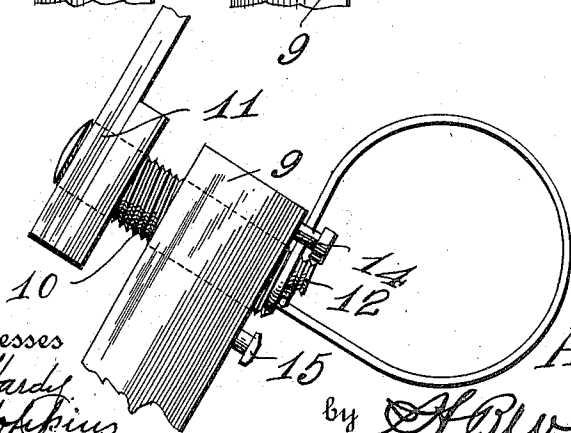


FIG. 7



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UNITED STATES PATENT OFFICE.

ALEXANDER LACKEY, OF ST. LOUIS, MISSOURI.

MOP-MAKING MACHINE.

984,093.

Specification of Letters Patent.

Patented Feb. 14, 1911.

Application filed September 1, 1910. Serial No. 580,016.

To all whom it may concern:

Be it known that I, ALEXANDER LACKEY, a subject of the King of Great Britain, residing at St. Louis, in the State of Missouri, have invented certain new and useful Improvements in Mop-Making Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in mop making machines.

The object of the invention is to improve the construction of the machine shown in United States Patent No. 935,264, granted to me September 28, 1909, whereby the operation of producing the mop is expedited.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings: Figure 1 is a diagrammatic perspective view of my improved mop making machine; Fig. 2 is a side view of the same; Fig. 3 is a perspective view on a large scale of the loop forming and wire clenching mechanism of the machine; Fig. 4 is a bottom plan view of said mechanism with the parts in the position in which they would appear at the beginning of the clenching operation; Fig. 5 is a similar view showing the position of the parts when the free end of the wire has been partially clenched; Fig. 6 is a similar view showing the position of the parts when the free end of the wire has been entirely clenched or bent around the main portion of the wire; Fig. 7 is a side view of the parts when in the position shown in Fig. 6; Fig. 8 is a similar view of the opposite side of said parts showing the manner in which the main portion of the wire is clenched to complete the forming of the binding loop; Fig. 9 is a vertical longitudinal sectional view through the center of the wire clenching mechanism.

Referring more particularly to the drawings, 1 denotes the bench or table on which my improved mop making machine is mounted. Arranged below the bench or table and revolubly mounted in suitable supports is a wire holding reel 2, from which the binding wire for the mop strands passes upwardly through the top of the table or

bench 1 and thence around a guide pulley 3 mounted in a suitable supporting standard 4 on the table 1. The binding wire after passing around the guide pulley 3 extends to a clenching mechanism hereinafter described.

On the opposite heads of the reel 2 are arranged a series of radially projecting operating lugs or arms 5 which project a suitable distance beyond the edges of the heads and form short levers by means of which the reel may be turned by the foot of the operator for the purpose of rewinding the wire in order to draw the loop therein into tight engagement with the mop material, which operation will be hereinafter more fully described. The strands of material from which the mop is formed are preferably arranged on spools or reels 6 which are revolubly supported in any suitable manner (not shown). The strands of material pass upwardly from the spools and over a suitably supported guide rod 7, said rod being preferably connected with a suitable reciprocating mechanism 8 whereby the same is shifted back and forth in its support. The strands of the mop material are thus agitated and the kinks and wrinkles shaken out of the same.

My improved loop forming and clenching mechanism for fastening the wire binding loop around the strands of mop material, whereby the latter are bound onto the handle, comprises a supporting bar 9 which is preferably formed at an obtuse angle and is provided at one end with bolt holes whereby said end is securely bolted to the stand or table 1, while the opposite end of the bar projects upwardly at the proper angle for supporting the wire clenching mechanism. The wire clenching mechanism comprises a short screw shaft 10 which has a threaded engagement with a screw threaded aperture formed through the free upper end of the supporting bar 9. On the rear end of the screw is rigidly secured an operating handle 11 by means of which the screw 10 is turned in the proper direction for clenching the end of the binding wire for the mop. On the inner or forward end of the screw shaft 10 adjacent one side thereof is formed a wire clenching lug 12, while through the screw shaft is formed a longitudinal eccentrically arranged passage 13 through which the binding wire of the mop is adapted to be drawn.

On the forward or lower side of the inclined portion of the supporting bar 9, adjacent the forward side of the screw shaft, is arranged an anvil pin or stud 15, while on said side of the bar adjacent the opposite side of the shaft is arranged a stop pin or stud 14, said pins or studs acting in connection with the lug 12 on the end of the short shaft to bend the free end of the wire around the main wire after the loop has been formed for binding the mop material to the handle.

In forming the binding loop, the end of the wire is drawn through the aperture in the screw shaft 10 and passed around the mop material which has been previously drawn from the spools 6 and cut and arranged in the desired length and applied to the handle. After the wire has thus been passed or looped around the mop material the free end of the wire is turned down and inserted between the clenching lug 12 and anvil pin or stud 15 and the main portion of the wire as clearly shown in Fig. 4 of the drawings. After the free end of the wire has thus been arranged the handle 11 is operated to turn the screw shaft 10 in the proper direction to cause the clenching lug 12 to bend the end of the wire around the main portion thereof as clearly indicated in Figs. 5 and 6 of the drawings. It will be noted that as the screw shaft is thus turned by the handle to cause the clenching lug thereon to bend the free end of the wire around the main portion thereof said shaft, by reason of its threaded engagement with the upper end of the supporting bar will be screwed through the bar a short distance, which forward movement of the shaft will cause the free end of the wire, when clenched, to be forced down or inwardly beneath the adjacent portion of the wire loop, thus guarding said end, which will prevent the same from injuring the hands of the operator or catching into other objects. After the binding loop has thus been formed and the free end of the wire clenched to the main portion thereof, power is applied to the wire supporting reel 2 by the engagement of the operator's foot with one of the arms 5 or in any other suitable manner to turn the reel backward, thus rewinding and drawing back the wire which will draw the binding loop therein into tight engagement with the mop material until the latter has been bound into sufficiently tight engagement with the handle. After the binding loop has thus been drawn up, the operator pulls the mop thus formed toward himself from the supporting arm without permitting the mop to turn. This movement of the mop will bend the main portion of the wire back, thus doubling the same around the clenched end of the loop which will securely fasten the ends of the binding loop together.

After the second clenching operation has thus been performed the wire is cut and the last bent or clenched end thereof is driven or forced down into a full clenched position against the side of the mop. It will also be noted that the wire passage through the screw shaft is arranged slightly eccentric thereto, so that when the shaft is rotated, the main length of the wire will be carried against the intersecting strand as shown in Figs. 5 and 6, and said intersecting portion bent against the pin 14. The loop produced is consequently stronger than those heretofore made and the ends of the wire, or the loops thereon forming the tie, are thus brought into alinement so that they pull more directly against each other and thereby hold the loop more tightly than when they were disposed slightly out of alinement as heretofore. The threaded mounting of the shaft also holds the same firmly so that it will not slip under the pressure of the wire against the clenching lug. It will be noted that the supporting bar for the wire clenching mechanism is comparatively narrow and will consequently allow the binding loop to sink more deeply into the material forming the mop thus binding the material more tightly to the handle.

From the foregoing description taken in connection with the accompanying drawing, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention as described in the appended claims.

Having thus described my invention, what I claim is:

1. In a mop making machine, a wire clenching mechanism comprising a supporting bar, a screw shaft operatively mounted in one end thereof, said shaft having formed therethrough a passage adapted to receive the binding wire of the mop, an operating handle secured to said screw shaft, a clenching lug formed on the forward end thereof, an anvil stud and a stop stud, arranged on said supporting bar adjacent the opposite sides of said screw shaft and adapted to coact with the latter to clench the free end of the wire around the main portion thereof.

2. In a mop making machine, a supporting bar, a screw shaft having a threaded engagement with the outer end of said bar, said shaft having formed therethrough an eccentrically disposed wire passage adapted to receive the binding wire of the mop, a clenching lug formed on the forward end of said shaft, an operating handle secured to the opposite end thereof, an anvil stud arranged on said arm adjacent one side of said

shaft, a stop pin arranged at the opposite side of said shaft, and means whereby the wire forming the loop is drawn into tight engagement with the mop material to bind 5 the same onto the mop handle.

3. In a mop making machine, a supporting stand, a wire holding reel revolubly mounted on said stand, a series of radial projecting foot levers arranged on the opposite heads of said reel whereby the latter 10 may be turned in the proper direction for rewinding the wire thereon, said levers also forming guide arms for the wire of the reel, a guide pulley revolubly mounted on said 15 bench, a wire clenching mechanism comprising a supporting arm adapted to be secured to the bench, a screw shaft having a threaded engagement with said arm, said shaft having formed therethrough an eccentrically 20 disposed passage adapted to receive the wire from said reel and guide pulley, an operating handle arranged on one end of said shaft, an offset clenching lug formed on the opposite end thereof and adapted to bend 25 the end of the wire around the main portion thereof thereby securing one end of the binding loop, an anvil stud arranged on said supporting bar adjacent to one side of said shaft and adapted to coöperate with the lat-

ter in clenching the end of the wire, and a 30 stop pin arranged on said bar adjacent to the opposite side of said shaft.

4. The combination of a support, a rotatable and longitudinally movable shaft mounted therein having a wire receiving passage 35 therethrough, means for operating said shaft, a clenching lug on the end of the shaft spaced from the wire receiving passage to admit the end of the wire between the lug and the main length of the wire, and a stud 40 on the support disposed at one side of the shaft whereby as the shaft is rotated the wire will be bent against the stud and its end wrapped around its main portion.

5. The combination of a support, a shaft 45 mounted therein having an eccentric, longitudinal wire receiving passage, means for rotating said shaft, a clenching lug on the end of the shaft, and a stud on the support adjacent the shaft against which the wire is 50 bent by the rotation of the shaft.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

ALEXANDER LACKEY.

Witnesses:

MARY KRAMER,
ALPHONSE J. WALSH.