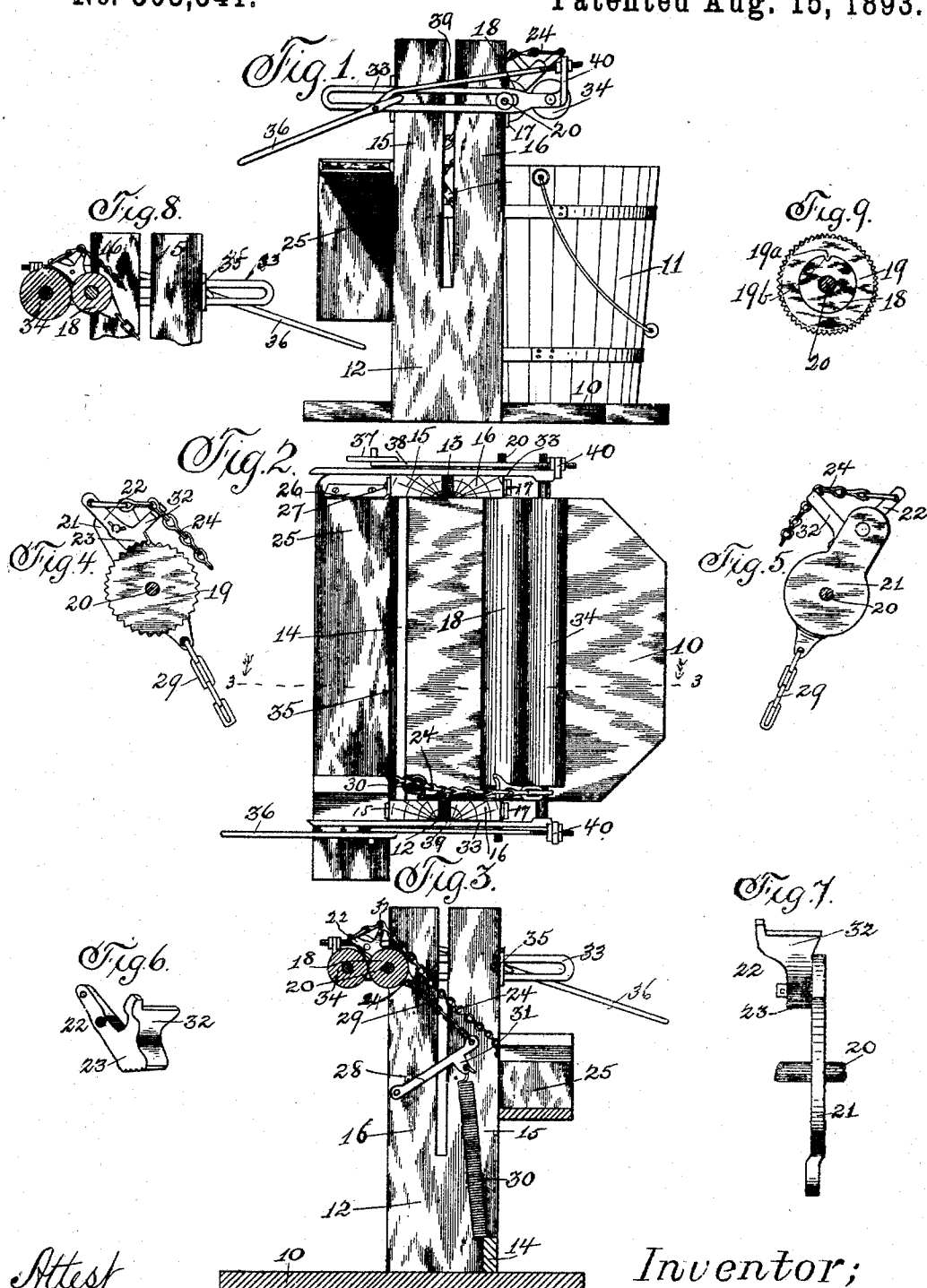


(Model.)

R. S. KIRKPATRICK.
APPARATUS FOR WRINGING MOPS.

No. 503,541.

Patented Aug. 15, 1893.



Attest
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UNITED STATES PATENT OFFICE.

ROBERT S. KIRKPATRICK, OF DES MOINES, IOWA.

APPARATUS FOR WRINGING MOPS.

SPECIFICATION forming part of Letters Patent No. 503,541, dated August 15, 1893.

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To all whom it may concern:

Be it known that I, ROBERT S. KIRKPATRICK, a resident of Des Moines, in the county of Polk and State of Iowa, have invented certain new and useful Improvements in Apparatuses for Wringing Mops, of which the following is a specification.

My invention appertains to that class of devices provided with separable rollers, between which a mop cloth can be inserted, the rollers pressed together and then rotated, for the purpose of subjecting the mop-cloth to compression between said rollers during such rotation in order that such mop-cloth may be freed from surplus moisture without wetting or soiling the hands of the operator.

My invention has for its object the obtaining by the devices herein described, means by which the rollers, between which the mop-cloth is compressed and by the rotation of which it is withdrawn and thereby relieved from its surplus moisture, may be readily separated for the insertion of the mop-cloth between them and easily brought together after such insertion for compression of such mop-cloth and the obtaining of devices by which such rollers may be pedally actuated when the mop-cloth is compressed between them without necessitating any downward bending of the body of the operator.

A further object of my invention is to obtain means whereby a yielding pressure is maintained upon a mop-cloth inserted between the rollers when the rollers are compressed thereon, and thereby a mop-cloth of varying thicknesses of material freed from the surplus moisture contained therein, as well as the parts of less thickness as those of greater thickness.

My invention consists of the several devices illustrated in the drawings, accompanying and forming a part hereof, and hereinafter described and claimed.

In the drawings referred to, Figure 1, is an end elevation of an apparatus for wringing mops embodying my invention; Fig. 2, a top plan view of the same; Fig. 3, a sectional view on line 3—3 of Fig. 2, viewed in the direction indicated by the arrows; Fig. 4, a detail enlarged view of one side of a ratchet and pawl mechanism preferably used by me in the con-

struction of the device embodying my invention; Fig. 5, a view of the ratchet and the pawl mechanism illustrated in Fig. 4 viewed from the other side thereof; Fig. 6, a perspective view of the pawl illustrated in Figs. 4 and 5; Fig. 7, a front view of such pawl and of the lever on which the pawl is pivoted; Fig. 8, a detail view of the rollers between which the mop-cloth is compressed, showing the pawl actuated roller of smaller diameter than the roller actuated by the pawl actuated roller; Fig. 9, a detail view showing a different manner of securing the ratchet-wheel upon the pawl actuated roller.

The same figure of reference is used to indicate a given part where more than one view thereof is shown in the several figures of the drawings.

10, is a base on which may be placed water containing receptacle 11 and to which standards 12 and 13, are, respectively, secured.

14, is a cross-tie rigidly secured to standards 12, 13 and to base 10.

15, 16, on each of the standards 12, 13, are arms formed by bifurcating the upper portion of such standards, respectively. The purpose of such bifurcation of standards 12, 13, is to obtain the yielding character desired in the compression of the rollers, forming elements in the device, against each other and upon the mop-cloth inserted between them, and such purpose is attained by constructing the standards of spring material, as wood, and mounting one, the pawl actuated roller, on or in arms 16, 16, and the other, the friction-actuated roller, on mechanism connected with arms 15, 15.

17, 17, are journal-bearings secured, respectively, on arms 16, 16.

18, is the pawl-actuated roller.

19, is a ratchet-wheel at one end of roller 18 rigidly secured to such roller or to the shaft 20 of such roller. Where ratchet wheel 19 is secured to the shaft 20 roller 18 is also secured to such shaft. Shaft 20 of roller 18 is rotatably mounted in such bearings 17, 17.

21, is a lever loosely fulcrumed on shaft 20; and 23, is a pawl pivoted on the upper portion of such lever 21. Pawl 23 projects from the side of lever 21 into the plane in which wheel 19 rotates, and the engaging arm 22 of

the pawl is faced with a series of serrations corresponding with the serrations on the periphery of wheel 19, and engaging therewith.

24, is a chain secured at one end thereof to the upper end of arm 22 of pawl 23 and at the other end thereof to pivoted treadle 25.

26, is an angle iron forming an abutment on treadle 25; and 27, is the pivotal bolt thereof extending through such angle iron into standard 13.

Connecting the lower end of lever 21 with the free end of lever 28 is chain 29. This lever 28 is pivoted on the inner side of standard 12, and is held in a retracted position by spring 30, engaging with offset 31 on lever 28 and with the base of the apparatus by an abutment secured on cross-tie 14. The chain 24 is illustrated as extending from treadle 25 over arm 32 of lever 22 to pawl 23 on the upper end of lever 21, where it is secured, and hence any depression of the free end of the treadle will turn lever 21 on shaft 20 of roller 18 and at the same time force pawl 23 against the periphery of wheel 19.

The devices for the separation and approximation of the rollers between which the mop-cloth is compressed in the operation of the apparatus consist of the traveler-bars 33, 33, disposed on the outer sides, respectively, of the superstructure or frame, means for operating such traveler-bars, and for locking them in a given position.

The roller heretofore termed the friction actuated roller is rotatably mounted in the extremities of the traveler-bars 33, 33, and is designated by the numerals 34.

35, is a rock-shaft journaled on arms 15, 15, of the standards, and extending from one thereof to the other, so that its axis is parallel with the axes of rollers 18 and 34, respectively.

36, is a crank-arm forming the lever of rock-shaft 35 by which such rock-shaft is operated; and 37, is a crank-arm at the other end of rock-shaft 35, extending outward from such rock-shaft in the same plane in which lever 36 is extended.

38 and 39, are, respectively, links or connecting-rods extending from the upturned portions 40, 40 of the traveler-bars 33, 33, to the lever 36 and crank-arm 37, respectively. Connecting rods 38 and 39, respectively, are made adjustable in upturned portion 40 of traveler-bars 33, 33, and are pivotally secured to the lever 36 and crank-arm 37 on rock-shaft 35. And further, connecting rods 38, 39, are, respectively, at that portion thereof in proximity to the end connected with lever 36 and crank-arm 37, so bent as to permit such end to extend below the plane of the rock-shaft 35, that is, to pass the center of such rock-shaft and thereby become locked in position. The traveling-bars are slotted and through the slots thereof shaft 20, and rock-shaft 35 extend constituting the supports of such traveler-bars and the ways on which they move. The bifurcations of the standards 12 and 13

are made for the purposes of obtaining a yielding compression of the rollers 18 and 34 upon the mop-cloth and upon each other. It will be observed that roller 18 is mounted upon or in arms 16, 16, and roller 34 is mounted in the traveling-bars 36, 36, respectively, such traveling-bars being in effect secured to arms 15, 15, of the bifurcated standard through the connecting rods 38 and 39, extending, respectively, from the traveling bars to the crank-arm 37 and lever 36, such crank-arm and lever being journaled directly to the arms 15, 15. By the yielding compression obtained through the spring of the arms 15 and 16 when a mop-cloth of uneven thickness is compressed between the rollers, arms 15 and 16 may vibrate or spring thereby enabling the rollers to yield to a certain extent to the inequalities in the mop-cloth. I thus maintain at all times, sufficient compression to accomplish the result desired, that is, to expel the water from the mop-cloth as such mop-cloth passes between the rollers in the intermittent turning thereof. It will be understood that the yielding compression of the rollers upon the mop between them, and upon each other, forms an essential feature of my invention.

The operation of the device embodying my invention is as follows:—Roller 34 is separated from roller 18 by rotating lever 36 from the position in which it is illustrated in Fig. 1 of the drawings, partially round toward the right, as by reason of such rotation, the ends of connecting-rods 38 and 39 pivotally attached to lever 36 and crank-arm 37 are carried to the right and thereby the other ends of such connecting rods which are attached to the traveling bars 33, 33, are with such traveling-bars also carried to the right as well as roller 34 which is journaled in such traveling bars, respectively. The mop-cloth is then inserted in the liquid containing receptacle between rollers 18 and 34, and rinsed, as desired, after which the mop is withdrawn to a point above the plane of the rollers, leaving the mop-cloth between the rollers, and such rollers are then brought together by turning lever 36 to the left, and into about the position illustrated in Fig. 1. The mop-cloth is thereby compressed between the rollers. To remove the mop-cloth while so compressed between rollers 18 and 34, such rollers should be actuated, that is, rotated, or partially so, and to effect such partial rotation the operator presses downward upon the treadle 25, preferably with the foot, thereby pulling chain 24 and so actuating pawl 23, such pawl engaging wheel 19 and rotating roller 18 a given distance. The roller 18 being revolved by the movement of the treadle 25 and roller 34 being compressed against roller 18 or against the mop-cloth inserted between rollers 18 and 34, the rotation of roller 18 will cause rotation in roller 34 in the opposite direction to that in which roller 18 is revolved, and the mop-cloth compressed between the two rollers will, because of the direction in which such rollers are rotated and

of the compression of such rollers on the mop-cloth, be moved upward in unison with the movement of the periphery of the rollers in contact therewith. If the mop-cloth is of such length that a single depression of the treadle 25 and consequent rotation of the rollers 18 and 34 will not fully expel or force the mop-cloth out from between the rollers more than one depression of such treadle is required. In the movement of pawl 23, caused by the drawing of the chain 24 thereon, when the treadle is depressed, the lower end of lever 21 describes an arc, thereby drawing connecting chain 29 attached to such lever 21, along longitudinally, and the movement of such chain causes movement in the upper end of the pivoted lever 28 to which one end of such chain is attached, and thereby spring 30 attached to such pivoted lever 28 is extended. When the pull of chain 24 upon pawl 23 is released, that is, when the pressure of the foot upon the treadle is removed, the tendency of spring 30 to regain its initial position causes such movement in lever 21 and pawl 23 as will return them to their initial position, and such lever 21 and pawl 23 are so returned to their initial position by such spring 30. The mop-cloth being actuated by the movement of the pressure of the rollers 18 and 34 while the same are compressed on and against such mop-cloth and each other, it will be evident to those skilled in the art that all tendency to injure such mop-cloth as by tearing or straining it is obviated.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In an apparatus for wringing mops the combination of a rotatable roller yieldingly mounted upon a suitable supporting frame, a rotatable roller mounted on horizontally movable traveling bars supported on such frame, such frame being adapted to have a vessel containing a cleansing fluid or compound placed thereon underneath such rotatable rollers, lever mechanism for actuating the traveling bars and thereby separating and approximating such rollers, and pedally operated mechanism connected with the first named one of the rollers whereby it may be rotated; substantially as described.

2. In an apparatus for wringing mops the combination of a rotatable roller yieldingly mounted upon a suitable supporting frame, a rotatable roller mounted on horizontally movable traveling bars supported on such frame, lever mechanism consisting of a shaft having arms thereon and links connecting such arms with the traveling bars, respectively, for separating and approximating such rollers, the axis of such rollers being parallel and the rollers adapted to have a mop cloth placed between them and to be compressed

on such mop cloth, and pedally operated mechanism for operating one of such rollers, such roller actuating by frictional contact therewith with the mop cloth and the other roller.

3. In an apparatus for wringing mops the combination of a plurality of rotatable rollers between which the mop cloth is adapted to be held, said rollers being mounted upon a suitable frame and located in juxtaposition to a containing receptacle, mechanism for separating and approximating said rollers, a lever mounted upon one of the rollers, engaging mechanism carried by said lever, a treadle operated by the foot, means of connections between said treadle and the lever by which one of the rollers is pedally rotated and spring actuated mechanism for returning the lever and engaging mechanism to a normal position.

4. In an apparatus for wringing a mop the combination of plurality of rotatable rollers between which the mop cloth is held, said rollers being rotated in juxtaposition to a fluid containing receptacle, mechanism for separating and approximating said rollers, a lever mounted loosely upon one of the rollers, pawl and ratchet mechanism carried, respectively, by the lever and roller, a treadle, connections between said treadle and one end of the lever, an arm pivoted to the frame, a spring acting upon said arm, and connections between the arm and the remaining end of the lever mounted upon the roller.

5. In an apparatus for wringing a mop the combination with a plurality of rollers, and lever mechanism for separating and approximating one of said rollers to the other thereof, of a frame comprising a plurality of springing arms arranged in pairs, one of said rollers being held rigidly upon one pair of said arms, and the other held by horizontally movable traveling bars connected, respectively, by links to the arms of a rotatable shaft, the point of connection of such arms and links being adapted to extend below the center of the shaft when the rollers are approximated by the turning of such shaft, such traveling bars, connecting links and rotatable shaft constituting a separating and approximating lever mechanism which is mounted upon the other of said pairs of arms, whereby said rollers can be compressed on the mop cloth placed between them and will automatically yield to inequalities of thickness of the mop cloth.

In testimony whereof I have hereunto affixed my signature, at Des Moines, Iowa, this 6th day of January, 1892.

ROBERT S. KIRKPATRICK.

In presence of—

C. C. BULKLEY,
G. R. GREEN.