Jan. 5, 1932. C. J. EVANS 1,839,748

MOP WRINGER

Filed Nov. 22, 1930

FIG. 2

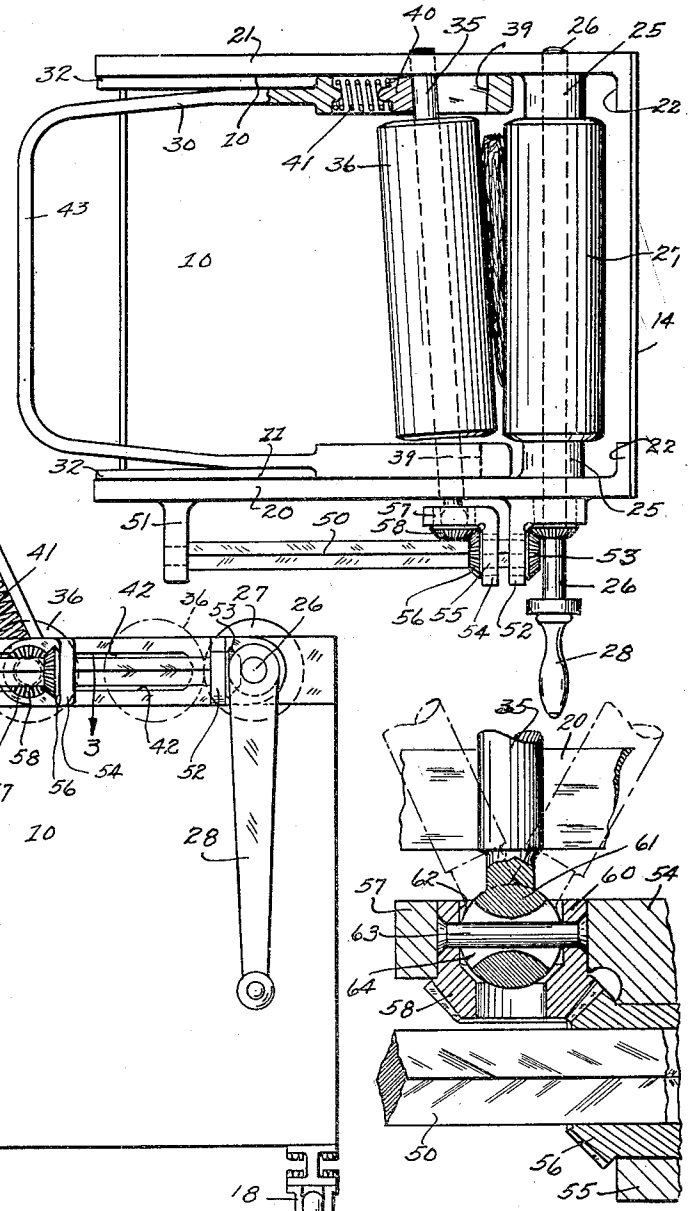



FIG. 1




FIG. 3

Inventor

Clarence J. Evans

By Bates, Golrick & Teare

Attorneys

Patented Jan. 5, 1932 1,839,748

# UNITED STATES PATENT OFFICE

CLARENCE J. EVANS, OF CLEVELAND, OHIO

## MOP WRINGER

Application filed November 22, 1930. Serial No. 497,445.

This invention relates to a mop wringer of the type wherein there is a portable tank adapted to contain liquid, which tank is provided with a pair of rollers adjacent the top thereof, which are separate to allow the insertion of a mop and may then be brought together under spring pressure to enable them to coact and squeeze the liquid from the mop as the rollers are turned. This type of mop wringer is illustrated and claimed in my Patent No. 1,315,824 issued to me September 9th, 1919.

The object of the present invention is to provide means whereby the rollers may be positively driven regardless of the thickness of mop which is placed between them.

A further object is to provide a driving mechanism which will positively drive both rollers, even though they should be disaligned due to the excessive thickness of one side of the mop.

The invention is hereinafter more fully described in connection with the drawings which show a preferred embodiment thereof, and the essential novel features are summarized in the claims.

In the drawings, which show a preferred form of my wringer, Fig. 1 is a side elevation of the wringer in position to receive a mop; Fig. 2 is a plan of the wringer with a mop in position between the rolls, certain portions being cut away to more clearly illustrate the construction thereof; Fig. 3 is a detail in section illustrating a portion of the driving mechanism for the rollers and is indicated by the lines 3—3 in Fig. 2.

Referring again to the drawings, the tank is illustrated as a rectangular metal receptacle 10 consisting of four sides and a bottom which may be welded or otherwise secured together. 15 and 16 represent supporting rollers which are carried by suitable brackets 18 secured to the bottom corners of the receptacle. This construction may be varied if desired.

At the top of two opposite sides 10 and 11 are frame castings 20 and 21 which are secured in place by means of suitable bolts, not shown. At one end these castings have ears 22 which overlie the end 14 of the receptacle and are secured thereto by suitable bolts. Integral with these castings adjacent the forward end thereof, are bearings 25 which support a shaft 26 to which is secured the wringer roll 27.

Suitable means is provided to rotate the roll 27. Rigidly secured to an extending portion of the shaft 26 is a crank or handle 28 by means of which the rolls may be manually rotated. Suitable power mechanism may be used for this purpose if desired.

The rearmost wringer roll 36 is resiliently mounted in such a manner that it may be moved to and from the operating or wringing position. As shown in the drawings, the roll 36 is carried in a yoke or bail 30 which is pivoted to the rear portion of the frame castings 20 and 21 by means of suitable links 32. Extending through slots in the forward portion of the yoke 30 is a shaft 35 which carries rigid with it, the rear wringer roll 36. The shaft is urged towards the foreward end 39 of the slots by suitable bearing members 40 which embrace a portion of the shaft and are maintained in contact therewith by suitable compression springs 41. The shaft 35 passes through suitable slots 42 in the frame members 20 and 21 which serve to maintain the rolls 27 and 36 in the same horizontal plane. The construction is such that when the handle portion 43 of the bail 30 is raised to the position shown in Fig. 1, the rearmost roller shaft slides rearwardly in the slots 42, thereby separating the wringer rolls, the mop is inserted between the rolls, the handle portion 30 of the yoke is then depressed thereby locking it in a horizontal position. In this position the springs 38 resiliently urge the rollers 36 towards the roll 27, thereby squeezing the mop.

It is desirable to provide a positive driving connection between the two rollers that will positively drive the rearmost roll regardless of the distance which separates the rolls due to variations of the thickness in the mop. To this end I prefer to mount a cross-shaft 50 in suitable brackets 51 and 52 which are secured to the outer face of the frame casting 20. Rigidly secured to the forward end of the shaft 50 is a bevel gear 53 constantly in mesh with a bevel gear which

is drivingly secured to the forward roller shaft 25. Slidably mounted on the shaft 50, which is preferably a squared shaft as illustrated in Figs. 2 and 3, is a bearing bracket 54 one arm 55 of which carries a bevel gear 56 which drivingly embraces the shaft 50. Another bevel gear 58 is carried by another arm 57 of the bracket 54. The gear 58 is disposed in the same horizontal plane and substantially normal to the bevel gear 56 and is provided with a driving connection to the shaft 35 to drive the roll 36.

It will be noted that with this construction, as the rearmost wringer roll is drawn rearwardly, the bevel gears 56, 58 will remain in mesh and be driven by the shaft 50 regardless of their longitudinal position on the shaft. Means is provided between the bevel gear 58 and the shaft 35 to permit an angular movement of the shaft without disturbing the driving connections between them. To this end I prefer to rotatably mount the hub 60 of the bevel 58 in the bracket member 54 and provide a universal connection between this bevel gear and the shaft 35.

As shown in the drawings, the shaft 35 extends through the slot 42 in the frame member 20 and has a ball portion 61 formed on the end thereof. The ball portion 61 enters a substantially cylindrical socket 62 in the bevel gear 58. The driving connection between the gear and the shaft comprises a pin 63 which is rigidly secured to the hub 60 of the bevel gear and passes through an opening 64 in the ball portion of the shaft. The walls of the opening 64 are arcuately shaped and diverge towards the center of the ball to the end that the shaft 35 may be rocked about the pin. Sufficient clearance is provided between the pin and the walls of the opening to permit such rocking movement and eliminate a binding contact between the shaft and the pin.

It will be noted that the construction is in effect a universal joint and therefore permits the driving connection between the rolls 27 and the roll 36 to be made regardless of the thickness of the mop or the relationship of the two rolls due to an excessive thickness of one end of the mop as it passes between the rolls, as illustrated in Fig. 2.

I claim:

1. In a mop wringer, the combination of a frame having a pair of slots therein, a shiftable roller having a shaft adapted to slide in said slots, a non-shiftable roller having a shaft rotatably mounted in the frame, means to drive the non-shiftable roller and a driving connection between the shiftable roller and non-shiftable roller adapted to positively drive the latter from the former in any of its shifted positions, a handle member pivoted to the frame and adapted to move the shiftable roller in said slots and lock the same in a position adjacent the non-shiftable roller, there being additional means to allow said shiftable roller to move with relation to said non-shiftable roller when in said locked position.

2. In a combination mop pail and wringer, a receptacle, a roller rotatably mounted in the receptacle, a second roller rotatably and slidably mounted in said receptacle, means for moving said slidably mounted roller away from said first-mentioned roller, to permit insertion of a mop into the receptacle between said rollers, and then for moving said slidably mounted roller to a position adjacent the first-mentioned roller and locking it in said position, said means including a resilient member for allowing movement of said slidably mounted roller away from the first mentioned roller when in said locked position, and means for positively driving both rollers in any position.

3. The combination of a stationary frame, a non-shiftable roller, a shaft for said roller mounted in the frame, said frame having a pair of slots, a shiftable roller having a shaft extending through said slots, resilient means adapted to urge the shiftable roller into contact with the non-shiftable roller, driven means associated with the non-shiftable roller and gearing mechanism interposed between the shiftable roller and the non-shiftable roller, said mechanism including a splined shaft, gearing adapted to drive said shaft from the non-shiftable roll, a power transmission unit slidably mounted on said shaft and including a pair of meshing bevel gears and a bracket for maintaining them in mesh, and a wabbling connection between the driven gear of said unit and the shiftable roller.

4. In a mop wringer, the combination of a receptacle, frame members at the top thereof provided with guiding slots and stationary bearings, a shaft journalled in the bearings, a roller mounted on the shaft, another roller having a shaft extending through said slots, a bail having its arms extending about the shaft of the last mentioned rollers, said arms having elongated slots which extend around said shaft, compression springs within said slots adapted to press against said shaft, driving means associated with the first named shaft, and means including a splined shaft associated with said driving means, a shiftable, constantly-engaged pair of gears, associated with the splined shaft and a wabbling connection between the driven gear and the shiftable roller.

5. In a mop wringer, the combination of a frame, a roller journalled therein, a shiftable roller having an axle slidably mounted in the frame, means engaging the axle to press the shiftable roller toward the first mentioned roller, a shaft geared with the first

mentioned roller, a bracket slidable along said shaft and carrying two meshing bevel gears, one of said gears being splined on the shaft and the other journalled in the bracket, the shaft of the shiftable roller extending into a cavity in the last mentioned gear, and a pin carried by said gear passing through a doubly divergent opening in the head of the shaft whereby the shaft may wabble with reference to the gear.

6. In a mop-wringer, the combination of a receptacle, frame members at the top thereof provided with guiding slots and stationary bearings, a shaft journalled in the bearings, a roller mounted on the shaft, another roller having a shaft extending through said slots, a bail having its arms extending about the shaft of the last mentioned roller between the rollers and the frame member, said arms having elongated slots which extend around said shaft, blocks in the slots adapted to be pressed against the shaft by compression springs, driving means associated with the first named shaft and means including a splined connection associated with said driving means to drive said last named shaft.

7. In a mop wringer, the combination of a receptacle, frame members at the top thereof provided with guiding slots and stationary bearings, a shaft journalled in the bearings, a roller mounted on the shaft, another roller having a shaft extending through said slots, a bail having its arm extending about the shaft of the last mentioned roller between the rollers and the frame member, said arms having elongated slots which extend around said shaft, blocks in the slots adapted to be pressed against the shaft by compression springs and adapted to permit angular movement of said shaft, driving means associated with the first named shaft, a splined shaft rotatably mounted on one of said frame members, means to positively drive said splined shaft whenever the first named roller is driven, a bracket slidably mounted on said splined shaft, a pair of bevel gears associated with said bracket, one of said gears having a driving connection with the splined shaft and the other having a driving connection with the second named shaft wherein one of said driving connections includes a universal joint adapted to permit angular movement between the two shafts.

In testimony whereof, I hereunto affix my signature.

CLARENCE J. EVANS.