No. 862,251. PATENTED AUG. 6, 1907.

A. B. HERR.

MILK CAN WASHING MACHINE.

APPLICATION FILED JAN. 18, 1905.

2 SHEETS—SHEET 1.

Fig. 1.

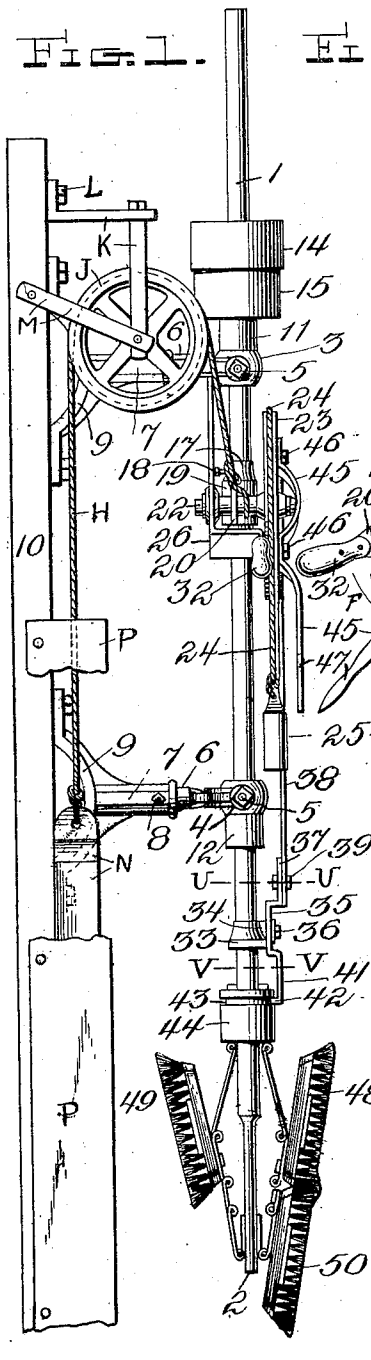


Fig. 2.

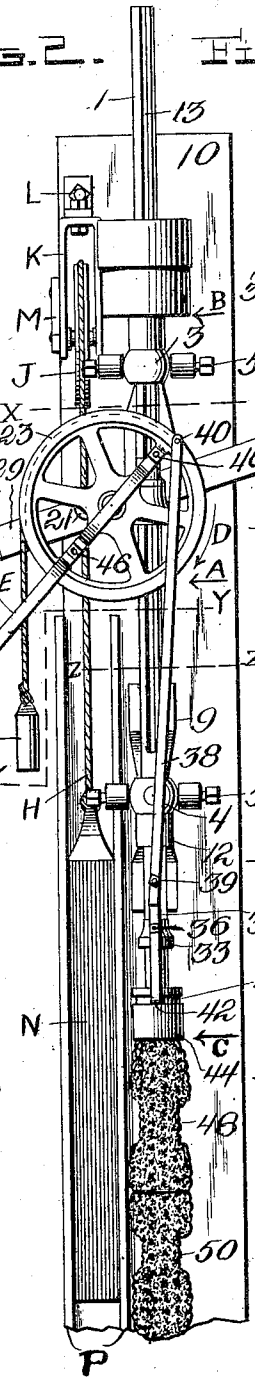


Fig. 3.

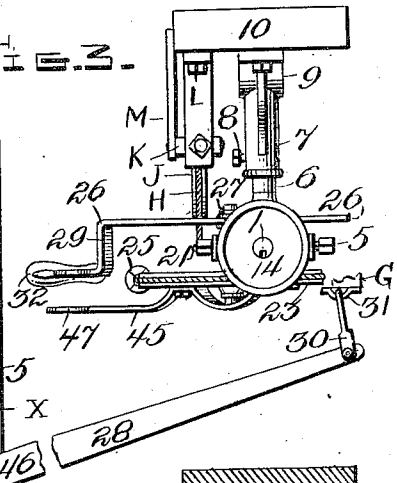


Fig. 4.

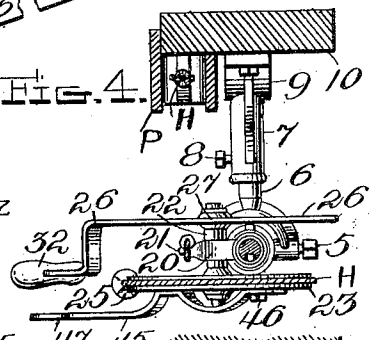


Fig. 5.

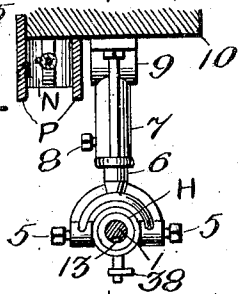


Fig. 10.

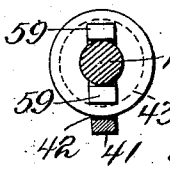
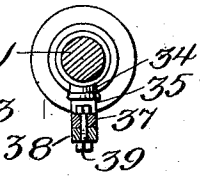


Fig. 9.



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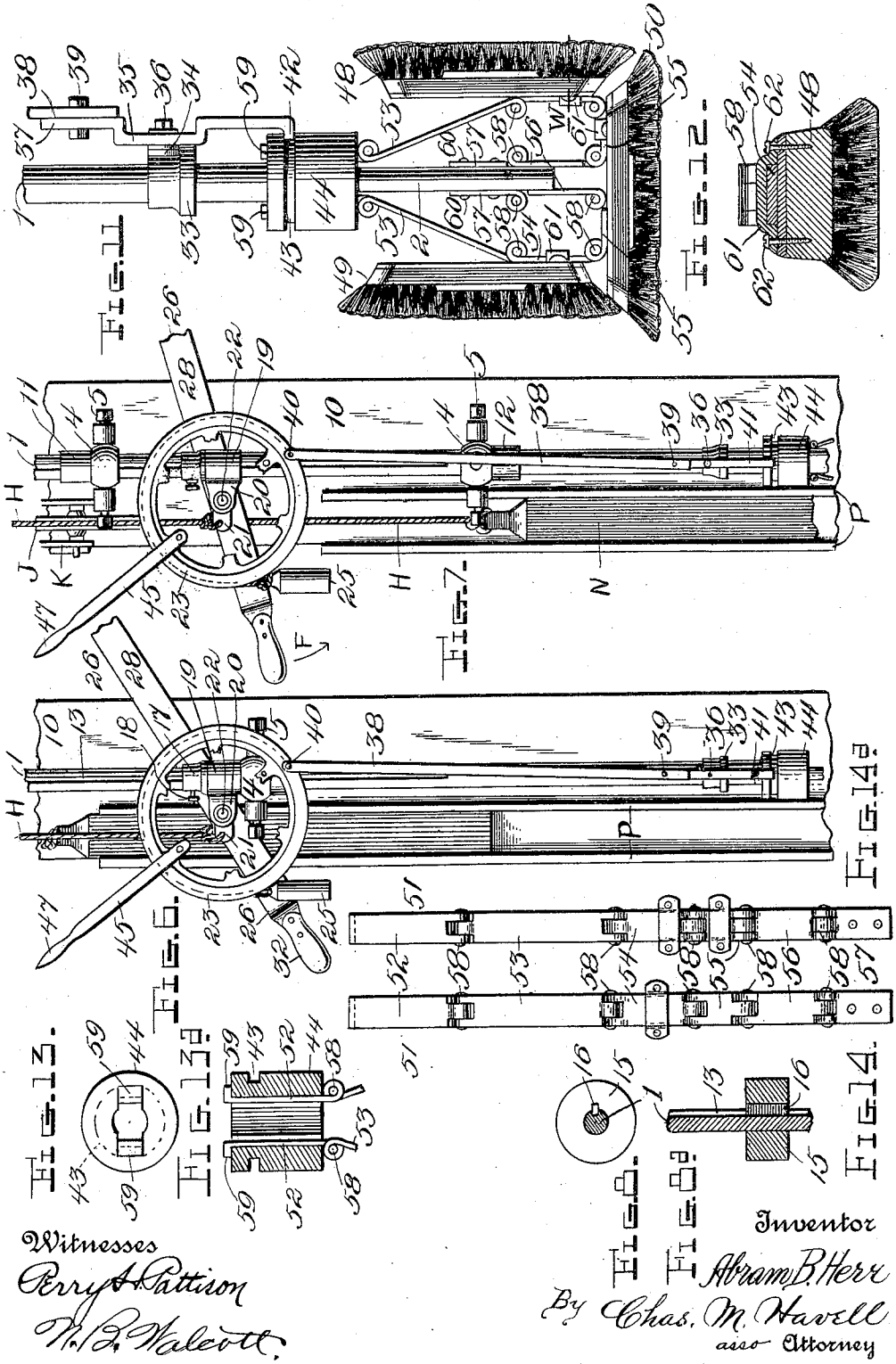

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UNITED STATES PATENT OFFICE.

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MILK-CAN-WASHING MACHINE.

No. 862,251. Specification of Letters Patent. Patented Aug. 6, 1907.

Application filed January 18, 1905. Serial No. 241,619.

To all whom it may concern:

Be it known that I, ABRAM B. HERR, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain new and useful Improvements in Milk-Can-Washing Machines; and I do hereby 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 milk-can washing machines of that class in which a vertically disposed revoluble shaft has arranged at its lower end a number of brushes to be passed within the can for the purpose of scrubbing or cleansing the inner side thereof, and in which provision is made to raise or lower said brushes to any desired position while said shaft is revolving, or not in motion.

The object of the invention is the production of a machine to conveniently and expeditiously wash or cleanse any ordinary milk can or such as is used in transporting milk to market; one that is easily operated, effective in action and not readily gotten out of order.

The purposes of the invention are attained by the mechanism, devices, and means illustrated in the accompanying drawings, with similar reference characters to designate like parts throughout the several views, in which:

Figure 1, is a side elevation of a milk can washing machine embodying the elements of the invention, with the brushes in the position of being placed within the can for cleansing the same, Fig. 2, is a front elevation of the same machine showing said elements in the several positions in which they appear in Fig. 1 when viewed from the right, Fig. 3, is a top plan view of Fig. 2, comprehending the portion thereof above the broken line Y—Y, Fig. 4, is a cross sectional view taken on the line X—X of Fig. 2 and viewed from above, Fig. 5, is a cross sectional view taken on the line Z—Z of Fig. 2 and viewed from above, Fig. 6, is a view in front elevation of the portion below the arrow A, in Fig. 2 with the central part of the wheel and lever arm removed, and the brush mechanism lowered, with the main shaft stop-block engaging on the bearing of the lower bracket arm, Fig. 7, is a view in elevation of the portion comprehended between the arrows B and C in Fig. 2 with the main shaft raised to its first position, Fig. 8, is a plan view of the driving pulley, showing the slotted shaft with the pulley key engaging therein, Fig. 8^a, is a vertical sectional view of Fig. 8, Fig. 9, is an enlarged sectional plan view taken on the broken line U—U of Fig. 1, Fig. 10, is an enlarged sectional plan view taken on the broken line V—V of Fig. 1, Fig. 11, is an enlarged view of the main shaft, lowered, showing the brushes in the position in which they appear at the bottom of the can, Fig. 12, is an enlarged cross sectional view taken on the broken line W— of Fig. 11, Fig. 13, is a plan view of the brush lowering and raising block as it appears when detached from Fig. 11, showing the brush supporting hangers in place, Fig. 13^a, is a vertical sectional view of Fig. 13, and Figs. 14 and 14^a are detached and elongated plan views of the jointed brush hanger plates, showing the brush securing clamps in position thereon.

In the drawings, 1 designates a cylindrical shaft of the required dimensions having its lower end 2 narrowed by having the opposite sides slightly cut-away as shown in Fig. 1. The shaft is vertically disposed and journaled in bearings 3 and 4, mounted and secured between pairs of jaws by set screws 5, said jaws being integral with the forward ends of horizontally disposed bracket arms 7 and adjustably secured in place by set screws 8, said bracket arms having their bases 9 rigidly secured by tap bolts to a suitable plank or vertically arranged plate 10, supporting the same, said bearings 3 having at the upper surface thereof a cylindrical extension 11, integral therewith and encircling the shaft, and said bearing 4 having at its under surface a similar extension 12, integral therewith, also encircling the shaft, while the shaft is provided in one side thereof with a longitudinal slot 13 of the required length and depth to serve as a guide way for a key securely seated in the bore of the driving pulley yet to be described.

Mounted on shaft 1 are pulleys 14 and 15, the pulleys 14 being loose on the shaft, and the pulley 15, which supports pulley 14 and is supported by extension 11 of the bearing 3, being keyed to the shaft to rotate the same. A key 16 is secured within the bore of pulley 15 and is slidably seated in slot 13 extending longitudinally in the shaft 1, this arrangement permitting the shaft 1 to be reciprocated axially through the pulleys while being rotated by the said pulley 15.

At the required point below the bearing 3, is seated upon the shaft a stop-block 17, rigidly secured in place by a set screw 18. At the desired point below said stop-block is loosely sleeved on the shaft a block 19, provided with a side projecting arm 20 having at its outer end a forwardly-projecting lug 21 with an orifice therethrough adjacent its outer end for securing the end of a weighted carrying cord yet to be described.

Through the side projecting arm 20 is rigidly secured the center of a double ended spindle or shaft 22 having journaled on one end thereof a peripherally grooved wheel 23, carrying in its groove a cord 24 of the required length, with one end secured to the periphery of the wheel in any approved manner, and the other or free end thereof having secured thereto a balance weight 25 of the required dimensions. Onto the other end of the said shaft 22 is pivoted a lever arm 26 at 27 so as to form two branches 28 and 29, said branch 28 being of greater length than said branch 29 and having its free end pivoted to the lower end of a swinging link

30, which link is journaled at its upper end in a bearing 31 rigidly secured to the under surface of a ceiling, a portion of which ceiling is indicated by the reference character G in Fig. 2. The other branch 29 of the lever 26 has secured to its free end a handle or hand-grip 32, whereby said lever arm 26 may be oscillated or rocked on the pivot joint at 27, said swinging link allowing motion back and forth to the forward end of said branch 28, while the rocking or oscillating of said lever arm 26 serves to raise or lower said shaft with all the parts supported thereby. Through the orifice adjacent to the outer end of said projecting lugs 21 is rigidly secured one end of a cord H which, passing upwardly a required distance, engages in a groove formed in the periphery of a wheel J having its center pivoted to a bracket arm K with its foot rigidly secured to said base-plate 10 by a tap bolt L and having its pivot end braced by a bar M secured against the side of said base plate 10. The said cord engages in the peripheral groove of the wheel over the top thereof and extends downwardly a required distance where its other end is secured to a weight N moving within a casing P, the latter being also secured to said base plate as shown. This weight N serves to counterbalance the block 19 with all the mechanism supported thereby together with the shaft and all the parts secured thereto and with its stop-block 17 engaging on the top surface of asid block 19.

At the required point below the bearing 4, is loosely sleeved on the shaft 1 a block 33 provided with a side boss 34 against the outer surface of which is secured a bar 35 by a tap bolt 36. To the upper end 37 of said bar 35, against the outer surface thereof, is pivoted the lower end of a connecting bar 38 as by a bolt 39 with a nut thereon, said connecting bar having its upper end pivoted to the outer surface of the peripheral rim of said wheel 23 as by a pivot pin 40 attached or secured into its rim. Said bar 35 with its lower end 41 downwardly extending, has formed at its lower extremity an introverted hook 42 engaging in a peripheral groove 43 formed in the convex surface of a cylindrical block 44 adjacent to the upper end thereof to raise or lower said block, with the brushes attached thereto as will hereinafter be explained, said block being loosely sleeved on the body of the shaft 1 so as to be freely movable up and down thereon. Extending diametrically across the center of the wheel 23, is a lever arm 45 rigidly secured to two oppositely disposed spokes of said wheel by tap bolts or screws 46, said lever arm extending the required distance beyond said wheel, has formed at its outer end a handle or hand-grip 47, whereby said wheel is rotated to raise or lower said block 44 with all the parts thereto attached.

A series of brushes 48, 49 and 50 are arranged about the lower end of the shaft 1, so as to be variously folded with reference to each other according to the positions of the surfaces of the cans intended to be washed or cleansed. Supporting said brushes in any of said folded positions, a pair of oppositely disposed strips 51 are provided, and to the ends, that said strips may properly perform their functions, each strip is composed of sections 52, 53, 54, 55, 56 and 57 with hinge joints 58 therebetween, joining them, whereby said sections may be folded, the sections 52 having at their upper ends outwardly turned flange-hooks 59. Within the bore of the blocks 44, lengthwise therethrough and on opposite sides thereof, are formed recesses into which are placed said sections 52 with the hooks 59 engaging on the upper end of said block, and their hinge-joints 58 in close proximity to its lower end; said sections having a space between them to freely admit the shaft 1 therebetween, allowing freedom of up and down motion to said shaft therethrough, and said sections 57 have their adjacent surfaces placed against the outer surfaces of the narrowed end 2 of said shaft and rigidly secured thereto as by bolts or rivets 60, leaving the intermediate sections 53, 54, 55 and 56 free to be folded by reason of their intermediate hinge-joints 58, to assume any desired position in inclination. Against the outer surface of the sections 54 are placed the backs of the brushes 48 and 49 adjacent to the lower ends thereof and secured in place by means of clamp plates 61 crossing the sections with bolts or screws 62 passing therethrough and screwed home into the backs of said brushes, but not so firmly as to prevent slight motion back and forth of the brushes on said sections allowing them to be folded without too much crowding of their ends. And the brush 50 has its back, adjacent to one end thereof, placed against the outer surface of one of said sections 55, with a clamp plate 61 crossing the same and similarly secured, while the other of said sections 55, together with the sections 56 remain free to be folded, allowing the brushes then secured to assume the positions illustrated in Figs. 1 and 11, as well as any desired or required position therebetween.

The several parts hereinbefore described, occupying the respective positions indicated in the drawing, the main shaft either stationary or revolving, with the stop-block 17 in engagement with the upper end of the sleeved block 19, and the lever arms 26 and 45 in the respective positions illustrated in Figs. 1 and 2, with the brushes as described, and being supported at the lower end of the shaft as shown, said brushes may be lowered by moving the lever arm 45 in the direction of the arrow E, rotating the wheel 23 in the direction of the arrow D and when the said lever arm attains to the position illustrated in Figs. 6 and 7, said brushes will be lowered to the full extent and moving the handle 32 of the lever arm 26 in the direction of the arrow F, oscillates or rocks said lever arm on its pivot joint 27, lowers the block 19 with all the mechanism supported thereby and when said block attains to the position on top of the bearing 4, said brushes may assume the respective positions illustrated in Fig. 11. It will here be remarked, that by reason of these several movements of said lever arms 26 and 45, the operator of the machine will have complete control of the brushes enabling them to fully perform the function of washing or scrubbing any surface of the milk can desired to be cleansed.

Having fully described the invention, what is claimed as new and useful and desired to be secured by Letters Patent, is:

1. In a can washing machine, a shaft, brushes carried thereby, a wheel mounted on the shaft, a lever for rotating the wheel, means connected with the wheel for placing the brushes in position for operation, and a weight for turning said wheel to return the brushes to their normal inoperative position.

2. In a can washing machine, an operating shaft, an element movable thereon, links on each side of said shaft comprising sections hinged to one another, the extreme

sections having their outer ends hinged to said element and to said shaft, brushes carried upon said sections, one of said brushes being carried by the lowermost of said sections and adapted in a position at right angles to said shaft to engage the lowermost of said sections on the other side thereof as a stop, and means for moving said element axially of said shaft.

3. A can washing machine comprising a shaft suitably mounted for endwise movement, means slidably connected therewith for rotating the same, two levers, a pivot therefor common to both levers and vertically slidable on said shaft, expansible brushes normally contracted on the shaft, one of the levers being connected to the brushes for expanding them, and the other of said levers serving to lower and raise the shaft and brushes, said levers being independent of each other.

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

ABRAM B. HERR.

Witnesses:
HARVEY B. LUTZ,
PAUL A. HERR.