S. Porter,

Washing Machine,

No. 5,482. Patented Mar. 21, 1848.

Fig. 2.

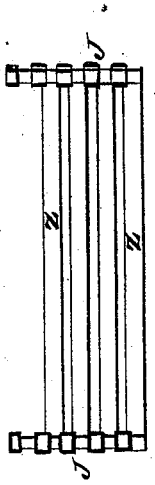


Fig. 3

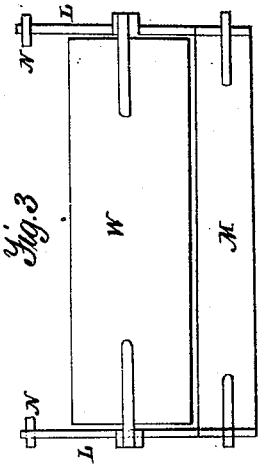


Fig. 4.

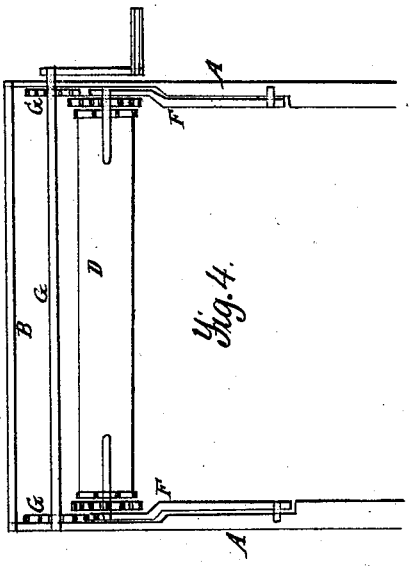
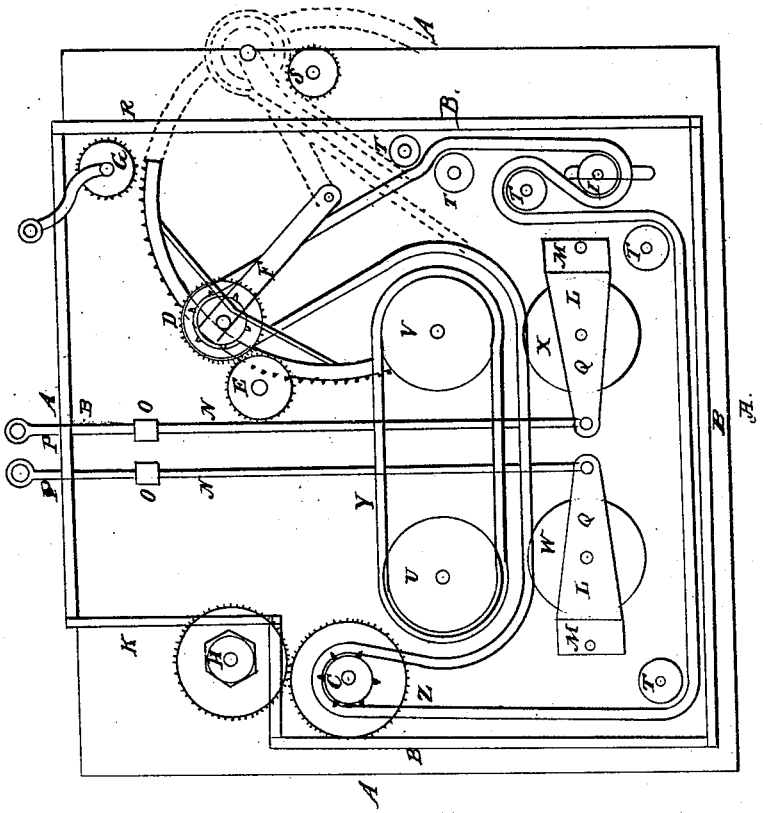


Fig. 1.



UNITED STATES PATENT OFFICE.

STEPHEN PORTER, OF SENECA, NEW YORK.

WASHING-MACHINE.

Specification of Letters Patent No. 5,482, dated March 21, 1848.

To all whom it may concern:

Be it known that I, STEPHEN PORTER, of the village of Geneva, in the town of Seneca and county of Ontario and State of New York, have invented a new and useful machine for washing thoroughly by steam or water power all kinds of cotton, linen, and woolen fabrics without rubbing or wearing the articles washed; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1 is a sectional elevation of said machine; Fig. 2 is a transverse section of the wrappers; and Fig. 3 a transverse section showing the construction of the eveners of said machine; Fig. 4 is a transverse section, showing the construction of the roller marked D.

In the sectional elevation drawing Fig. 1 the area within the four lines marked A, A, A, A, represents one side of the box containing the water, and in which the machinery operates.

The double lines B, B, B, B, represent the cover the two ends and the bottom of the box as connected with the sides. The two sides of the box are grooved on to the two ends and bottom and drawn together with iron rods and screws, so as to be made water tight, while one side of it is easily taken off to put in or take out the machinery at pleasure. The upper part however of the one end marked K and the other end marked R are movable in the grooves, so as to be raised and replaced at pleasure.

The four larger circles U, V, W, X, are cylinders 8 inches in diameter. The lesser circles G, D, H, H, and the five circles marked T, T, T, T, T, are rollers. The two circles E and G are cog wheels. The gudgeons of the cylinders U, V, and the gudgeons of all the rollers are inserted in the sides of the box. The double line Y extending around the two upper cylinders U, V, is the inner wrapper and the double line Z extending around the rollers and passing between the upper and lower cylinders is the outer wrapper. These wrappers are made of thin slats $1\frac{1}{8}$ inches wide fastened together at each end by a chain made of links and couplings to which the slats are riveted; see a transverse section of these wrappers in Fig. 2 showing the manner of their construction.

The double lines Z, Z, Z, Z, are slats, and J, J, are the chains to which the slats are riveted. The length of the cylinders, rollers, and slats to be equal and to vary from two to five feet as machines of different sizes may be wanted. The roller C, has a cog wheel at each end matching into the chains of the outer wrapper: and also a cogwheel outside of the box in front connected with a cogwheel on roller H, which marks the place where a feeder is to be attached to be used in filling the machine.

The roller D has a cogwheel at each end matching into the chains of the outer wrapper and also a cogwheel at each end (outside of the other, but within the box) matching into cogwheels E, which are hung upon an iron shaft extending across the machine and through the box at each end to receive a crank in front and a pulley on the backside to which the power may be applied. The roller D is hung at each end in standards F, which turn on a pivot at the lower end and have each a circular rack at the top matching into cogwheels G which are hung upon an iron shaft extending across the machine and turned by a crank in front, as further explained in the transverse section Fig. 4 which shows the position of D, with its two cogwheels at each end and of the two standards F, in which D is hung, the standards being placed outside of the two cogwheels at each end of this roller. A space is carved out in each side of box A to make room for the outside wheels and standards to operate.

G is the iron shaft with its cogwheels at each end matching into the rack at the top of the standards F, and B is the cover of the box. Around the roller H an apron for the feeder is to be attached made of slats connected with cords and extending out horizontally around another roller placed at a distance from H equal to the distance around the two upper cylinders U, and V. The roller I is the tightener to the outer wrapper Z, rising when the machine is filled and lowering when it is emptied.

The five rollers T, T, T, T, T, are designed to keep the outer wrapper in its place. The two lower cylinders W and X, are each hung in the evener Q, the arms of which are represented by the spaces included between the lines marked L, L, L, L, these arms are each

firmly attached to its shaft M M which extends across the machine and is fastened to the box by a gudgeon at each end. The perpendicular lines N, N, are iron rods inserted in a groove inside of the box extending upward from each arm and fastened to the cross bar O, O, in the center of each of which is a rod marked P, P, extending through the cover of the box, where it is designed to be attached by a cord to a spring lever over the machine for the purpose of exerting a pressure upon the clothes as they pass between the upper cylinder U, V, and the lower ones W, X, and also to prevent their working toward either side as they pass around in the process of washing.

The construction of the evener Q, is further explained in a transverse section of Fig. 3, where M is the shaft of the evener L, L, the two arms attached to the shaft, and W the cylinder hung in the arms of the evener, N, N, are the iron rods attached to the end of each arm.

To fill the machine the clothes are spread upon a feeder which was described in connection with roller H—then raise the slide K and apply a crank to C and give the machine a retrograde motion by drawing on that part of the outer wrapper Z which passes between the cylinder U, V, and W, X. By this motion the clothes are drawn into the machine, passing between the wrappers and around the two upper cylinders U V. Then apply the power to the iron shaft of cog wheel E which is described above as extending across the machine and through the box on the back side to receive a pulley, to which the power may be applied giving it a direct and rapid motion.

To bring the clothes out of the machine when washed raise the slide R then turn the crank or cog wheel G and the roller D with its wrapper is thrown out through the opening and held in connection with S as represented by the dotted lines. Apply the power by a crank to S and the clothes are drawn out on the wrapper. Then the roller D is turned back, the slide R is let down and the opening closed, another batch is introduced from the feeder and the washing goes on as before, while in operation the machine should be kept filled with water a little above the bottom of the upper cylinders.

The power employed in this machine is that of rolling cylinders pressed together and acting against each other, and the clothes are drawn in to receive this pressure between two wrappers so constructed that the power applied to move the machine acts on the outer wrapper. Thus the articles washed while saturated with water are made to pass rapidly between the cylinders so that the water is alternately absorbed and forced out of them as they pass around in the process of washing. But the cylinders and wrappers thus combined are found to be useless without the eveners. Such is the constant tendency of the clothes to work toward one side or the other as they pass around, that to keep them spread in a proper state to be washed, one cylinder in each set must be hung in an evener.

The combination of the parts of the machine herein described consisting of the wrappers and eveners and the movable roller D used in passing the articles washed between the cylinders and releasing them therefrom as above specified, is what I claim as my own invention and desire to secure by Letters Patent.

And I further claim that this security may be extended not only to the use of these wrappers and eveners in connection with the particular arrangement of the cylinders and rollers in this machine but also to any other arrangement of cylinders and rollers substantially the same when these wrappers are used in connection with the eveners as the means of passing clothes between rolling cylinders in the process of washing.

STEPHEN PORTER. [L. S.]

Witnesses:

CHAS. J. FOLGER,

HENRY E. WHITE.