July 29, 1924. 1,502,915

P. NEUWERK

TIMING DEVICE FOR WASHING MACHINES

Filed Dec. 27, 1920

Fig. 1.

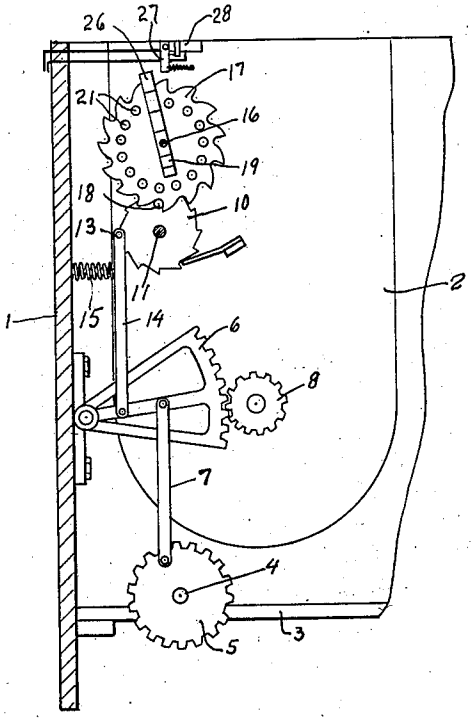


Fig. 2.

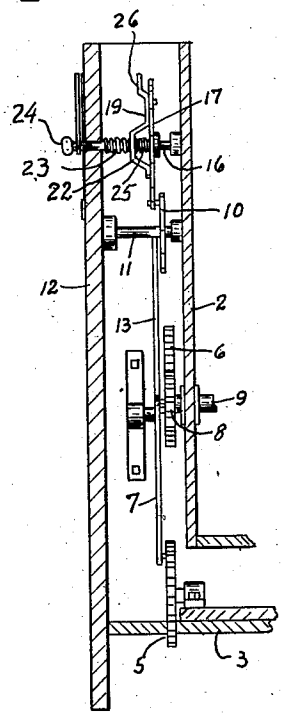


Fig. 3.

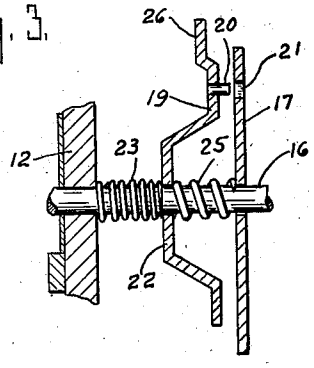
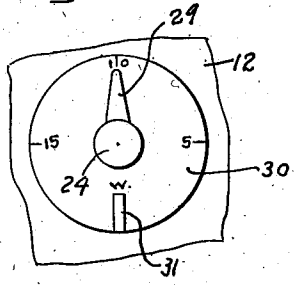


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TIMING DEVICE FOR WASHING MACHINES.

Application filed December 27, 1920. Serial No. 433,268.

To all whom it may concern:

Be it known that I, PETER NEUWERK, a citizen of the United States, residing at Moline, in the county of Rock Island and State of Illinois, have invented certain new and useful Improvements in Timing Devices for Washing Machines, of which the following is a specification.

My invention relates to timing devices for washing machines, of that class by the use of which the movement of the operating devices of the machine is automatically interrupted after having been in movement for a desired length of time. The present invention relates to means for imparting the movement of the washing machine devices to a rotatable wheel, from the movement of which a switch can be closed or opened, as desired, to shut off the power which is being supplied to the machine. The means for operating the switch consists of a frame associated with such wheel so as to have movement therewith, and capable of being held in adjusted positions with relation thereto. One of the purposes of the invention is to provide a connecting means between said frame and the wheel of a positive character, and which can be easily manipulated.

Another purpose of the invention is to provide means for operating the rotary wheel at a greatly reduced rate of speed, so as to extend the period of time for which the machine may be operated before its movement is interrupted, and thereby increase the scope thereof.

The particular construction, arrangement, and operation of the parts of my invention will be more fully apprehended from the following specification, reference being had to the accompanying drawings, showing the preferred embodiment of the device, as applied to a washing machine of conventional type, in which drawings:—

Fig. 1 is a fragmentary view of a washing machine, equipped with my invention.

Fig. 2 is a vertical section, showing the invention in side view.

Fig. 3 is a detail, in section, of the frame adjustment devices.

Fig. 4 is a fragmentary view of the plate 12, with the dial 30 thereon.

Similar parts are indicated by corresponding reference characters throughout the several figures.

1 represents a portion of the frame of a washing machine, and 2 the tub thereof. In the lower part of the frame is a cross-piece 3, on which is journaled a shaft 4, to which power may be applied in any usual manner. Fixed on the shaft 4 is a wheel 5, above which is pivoted a rack-frame 6, to which movement is imparted from said wheel by means of a pitman 7. The rack 6 is in engagement with a gear-pinion 8 on the end of a shaft 9, rotatably mounted in the tub, and which shaft is adapted to carry a cylinder or other operative devices of the tub.

Above the rack 6 a ratchet-wheel 10 is secured on a shaft 11, rotatably mounted in bearings on the tub 2 and a plate 12, forming one side of the machine. Movement is imparted from the rack 6 to the ratchet-wheel by means of a pin 13 in the end of an arm 14, the other end of which arm is pivoted on the rack 6. The reciprocating movement of the arm 14 gives an intermittent rotary movement to the wheel 10, each movement of said arm advancing the wheel to the extent of one of the teeth thereon. Engagement of the pin 13 with said teeth is made positive by means of a spring 15 interposed between the frame 1 and arm 14. Above the shaft 11 is rotatably mounted a shaft 16, upon which is supported a toothed wheel 17, so as to rotate freely thereon. Rotation is imparted to the wheel 17 from the ratchet-wheel 10 by means of a pin 18 in said ratchet-wheel, which successively engages the teeth of the wheel 17, and moves such wheel to the extent of one of the teeth thereon.

The shaft 16 is supported so as to be capable of a slight movement outwardly, and fixed to said shaft is a frame 19, provided with a pin 20, adapted for alternative engagement with a series of openings 21 in the wheel 17, equi-distant from the center thereof. The frame 19 is centrally provided with an arch 22, between which and the plate 12 is interposed a coiled spring 23, the tension of which operates to hold the frame 19 normally in engagement with the wheel 17. At its outer end the shaft 16 is provided with a handle 24, by means of which said shaft may be pulled outwardly sufficiently to disengage the pin 20, whereupon the shaft and frame 19 can be turned to any desired position, with relation to the wheel 17, and locked in such position by engaging the

pin 20 with one of the openings 21. Between the arch 22 and wheel 17 is a coiled spring 25, of comparatively less expansive power than the spring 23, which spring 25 prevents movement of the wheel 17 outwardly upon the outward movement of the frame 19. At one of its ends the frame 19 is fitted with a trip 26, adapted for engagement with the movable arm 27 of an electrical switch 28, which has suitable connections, not shown herein, with an electrical system by means of which the washing machine devices are driven or controlled. In the rotation of the wheel 17 the trip 26 is brought into contact with the switch arm, to suitably actuate the same. The length of time which will elapse before the switch is actuated will depend upon the position of the trip with relation to the switch when the machine is started, and this is governed to a large extent by the proportionate construction and arrangement of the wheels 10 and 17.

Assuming that the wheel 10 is provided with twelve teeth, and that the arm 14 has twelve strokes to the minute, the wheel 10 will be rotated once in each minute of time. If the wheel 17 possesses thirty teeth, it will describe a complete revolution in thirty minutes, and by setting the frame 19 at a proper point that amount of time will elapse before the movement of the machine would be interrupted. If it were attempted to apply the movement of the rack 6 directly to the wheel 17, such wheel would have to be fitted with three hundred and sixty teeth, to secure the same period of time. This might be impractical. In some machines the movement of the racks 6 or other movable part of the machine, might be more rapid than above stated, in which case a greater reduction of speed would have to be secured through the wheels 10 and 17.

The holes 21 are equal in number to the teeth on the wheel 17. It is obvious that changes can be made in the form and operation thereof.

On the outside of the plate 12 the shaft 16 is provided with a pointer 29, to be used in connection with a dial 30 on the face of such plate, said dial having characters arranged thereon to show the length of time that the machine will operate before being stopped by the trip mechanism. A support 31 is also provided for engagement by the pointer, to hold the frame 19 in disengaged position.

What I claim as my invention, and desire to secure by Letters Patent, is:

1. In a device of the class described, in combination with the frame of the machine and operating mechanism thereof, a shaft mounted therein so as to be rotatable and also capable of a limited longitudinal movement; a toothed wheel loosely mounted on said shaft; a frame fixed to said shaft and provided with a switch-throwing member; means for compelling a normal engagement of said last-named frame with said toothed wheel; yieldable means for holding said last-named frame and toothed wheel in spaced-apart relations, when disengaged; a movable member in proximity to said toothed wheel, adapted to receive intermittent progressive movements, and provided with means for engagement with said toothed wheel to impart a partial rotation thereto for each cycle of operation of said member; and means for imparting the movement of said operating mechanism to said movable member, to give intermittent action thereto.

2. In a device of the class described, in combination with the frame and operating mechanism thereof, a toothed wheel rotatably mounted in said frame; a frame connected with said wheel so as to be adjustable with relation thereto and provided with a switch-throwing device; means for adjustment of said last-named frame with relation to said wheel; means for holding said switch-throwing frame normally in engagement with said wheel; means for holding said last-mentioned frame out of engagement with said wheel; means for indicating the position of said last-mentioned frame with relation to said wheel; means for holding said wheel in spaced-apart relation with said switch frame when it is out of engagement therewith; and a ratchet-wheel in operative connection with said operating mechanism, and provided with means for engagement with the teeth of said first-mentioned wheel to impart a step-by-step movement thereto.

In testimony whereof I affix my signature.

PETER NEUWERK.