

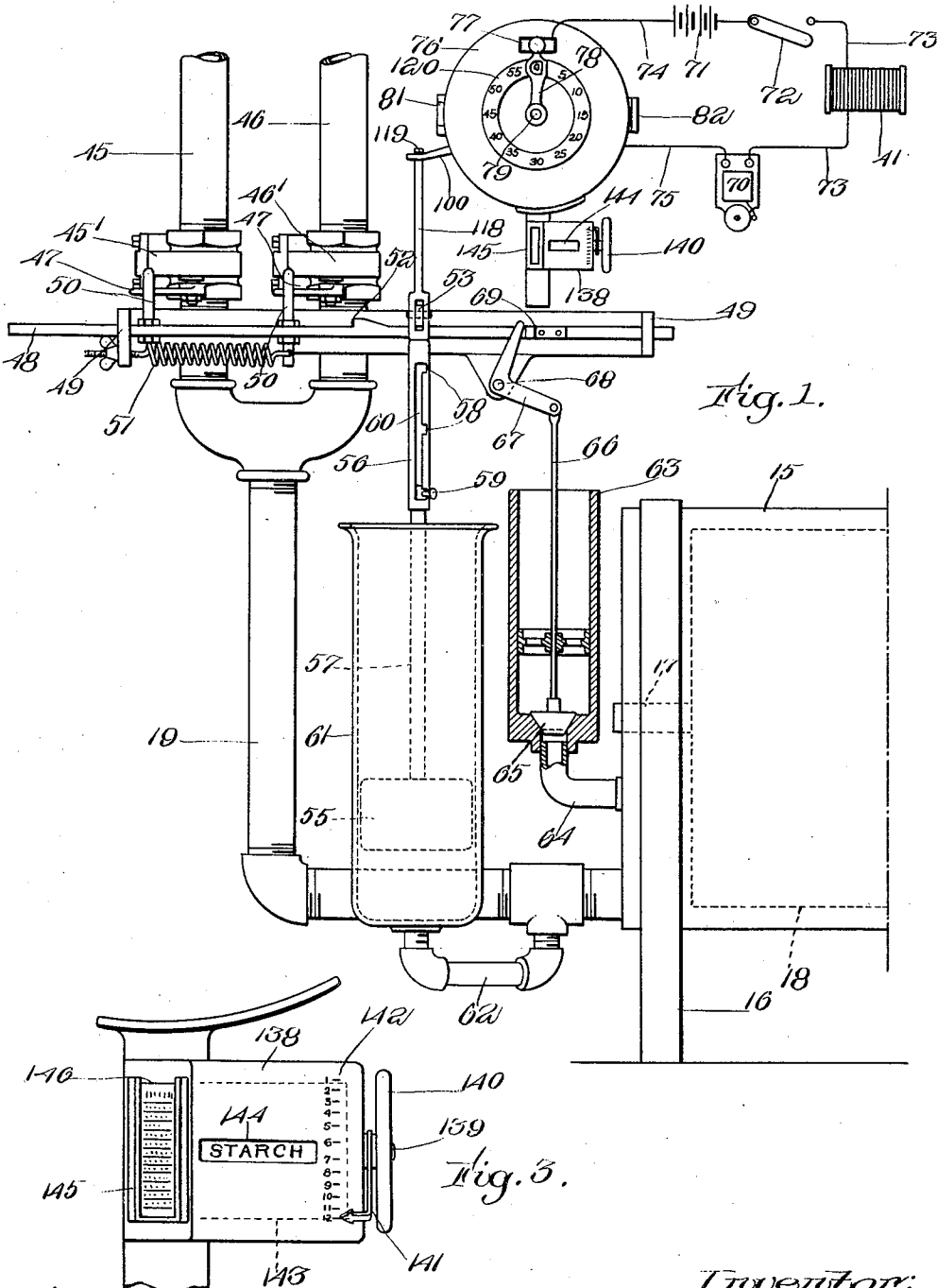
G. WILSON.
RECORDING MECHANISM.

APPLICATION FILED SEPT. 17, 1909.

Patented Mar. 18, 1913.

1,056,748.

4 SHEETS-SHEET 1.



Witnesses:
F. R. Runklestone
A. C. (Ratigan)

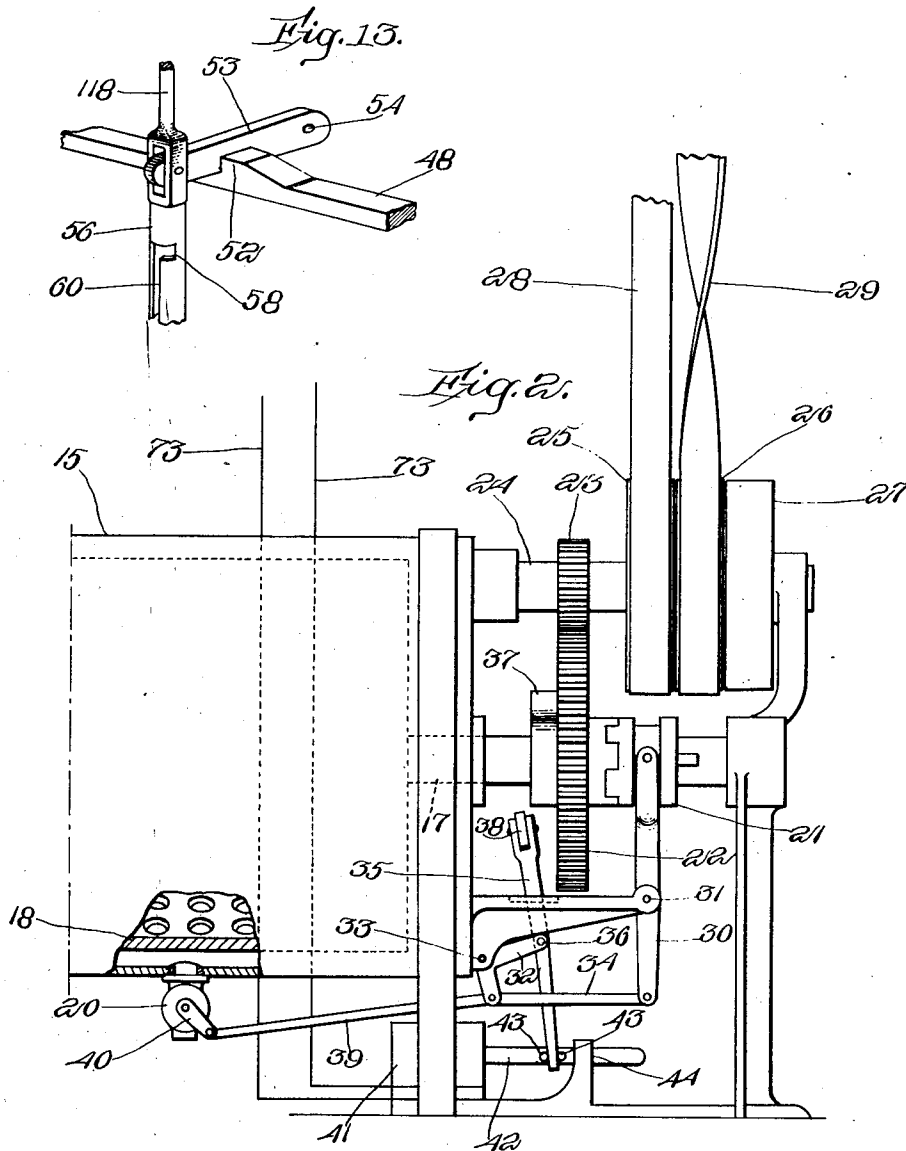
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George Wilson,
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4 SHEETS—SHEET 2.



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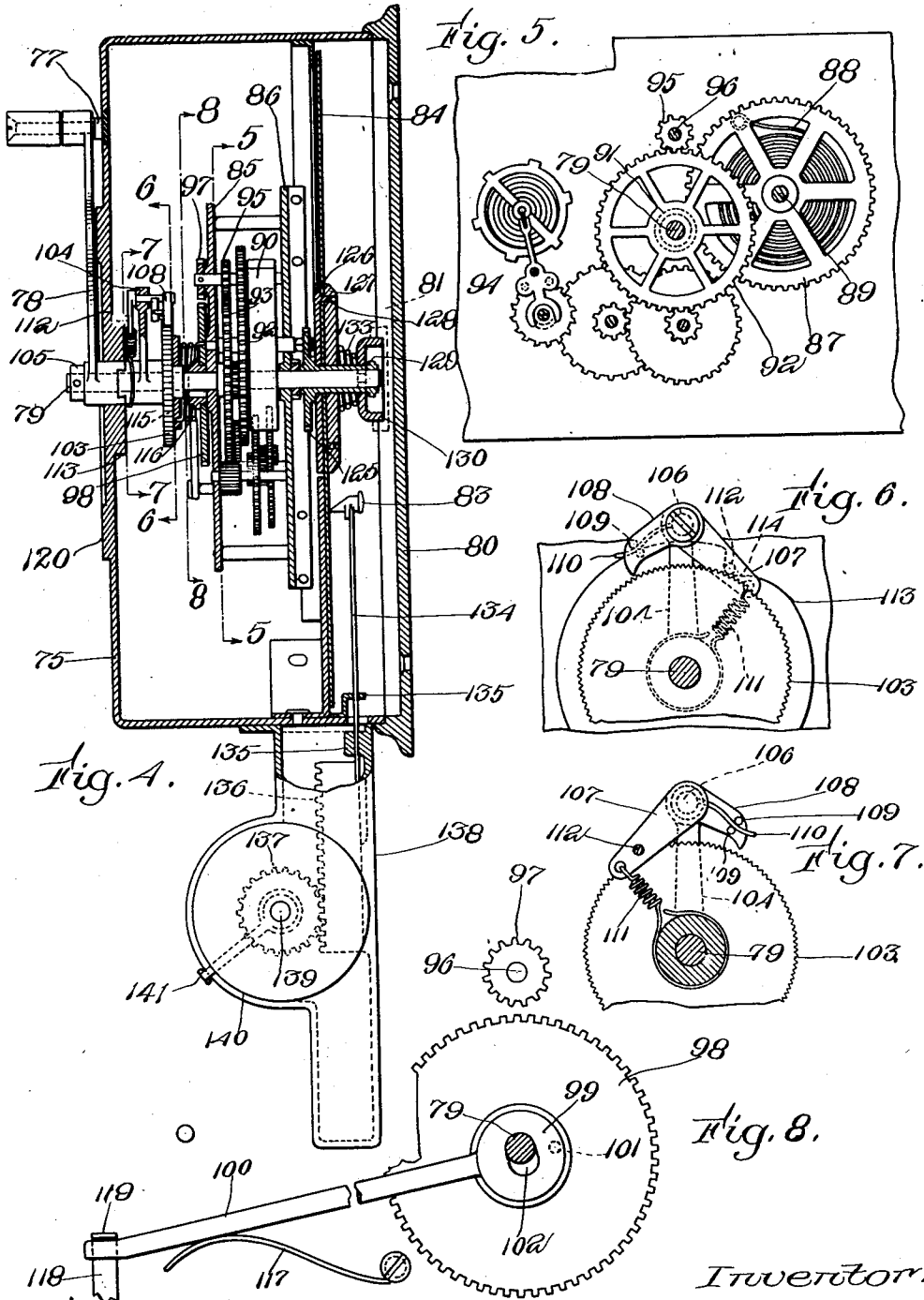
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4 SHEETS-SHEET 3.

1,056,748.



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Fig. 9.

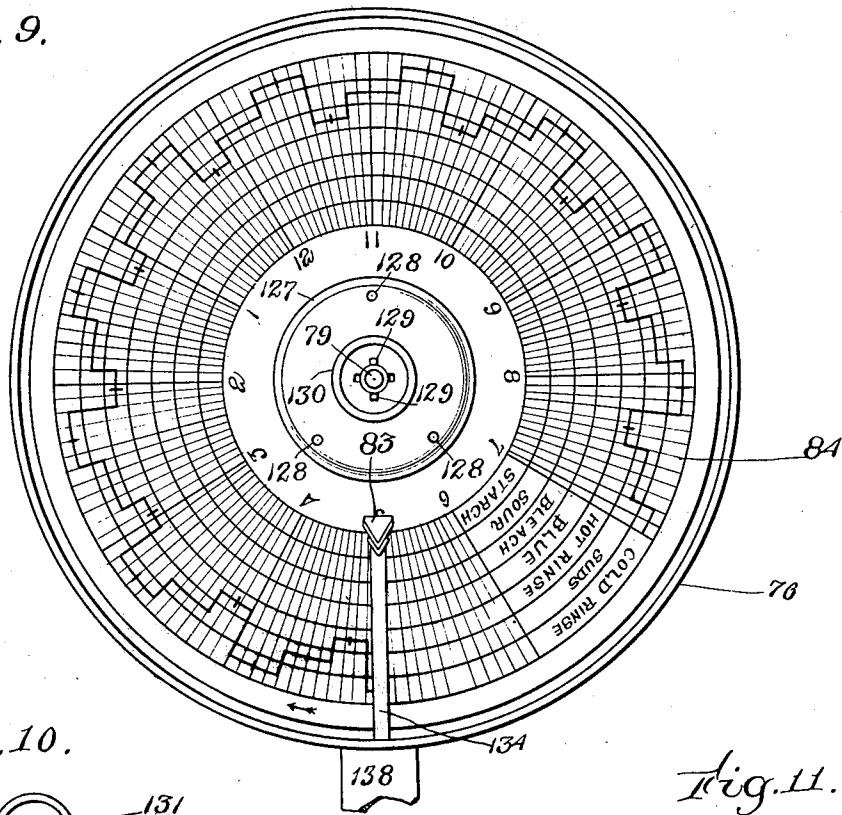


Fig. 10.

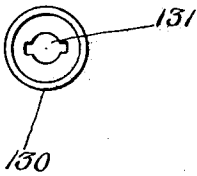


Fig. 11.

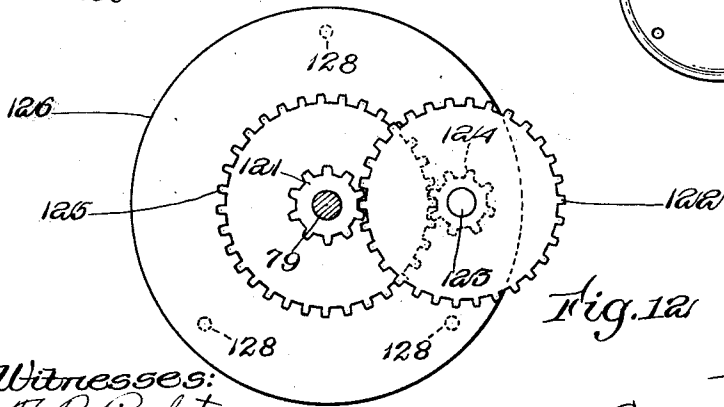
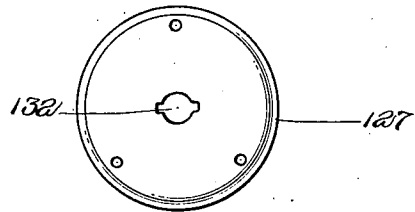


Fig. 12.

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UNITED STATES PATENT OFFICE.

GEORGE WILSON, OF BOSTON, MASSACHUSETTS.

RECORDING MECHANISM.

1,056,748.

Specification of Letters Patent.

Patented Mar. 18, 1913.

Application filed September 17, 1909. Serial No. 518,243.

To all whom it may concern:

Be it known that I, GEORGE WILSON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Recording Mechanisms, of which the following is a specification.

This invention relates to automatic mechanism for recording the operations of machines.

In the present embodiment of the invention the recording apparatus is especially adapted for recording successive operations of laundry machinery, and the invention is herewith illustrated in combination with a washing machine of the type commonly used by laundries.

The object of the invention is to record successive operations of a machine and likewise the duration and times of the operations so that the proprietor of a laundry may be enabled to keep a record of the work done by each machine, and may therefore be enabled to ascertain the time devoted to each operation, and incidentally the neglect of an attendant to operate the machine according to directions.

In carrying out the invention a clock movement or other timing mechanism is provided and equipped with a piece of material adapted to receive a mark, and with a marking device arranged to produce a mark, said elements being so related as to produce a mark in the form of a continuous line.

The device upon which the mark is recorded may for convenience be a disk of paper previously marked with divisions corresponding to units of time, whereby the mark recorded thereon may show the duration of each operation and the time of day when each operation is begun.

For the sake of clear illustration the invention is herewith illustrated in connection with other automatic mechanism, which forms the subject-matter of an application for patent filed by me July 27, 1909, Serial No. 509,881.

One advantage of the present invention inures to the benefit of the proprietor, as hereinbefore stated, by showing the work done by each machine. The proprietor is therefore in a position to know whether his operative is faithful in the performance of his duties. Another advantage is that the operative may, by means of the record, show

the proprietor what has been done with the machines under his direction. A third advantage is that both the proprietor and the operative may, by means of referring to a record and the quality of the work performed by the machine, determine whether the machine is being operated in such a way as to give the desired results. For instance, it is the custom in carrying on a laundry business to provide the operatives with formulas including explicit directions for the compounding of the various fluids and the periods required for operation. If, upon examination of the work it is found that the articles are washed, blueed or bleached more or less than is desired, and the record of the operation is consulted, it may be found that the formula calls for too short or too long a period of operation.

Referring now to the drawings, which illustrate one manner in which the invention may be applied, Figure 1 represents an elevation with a part in section, of one end of a washing machine equipped with automatic valve mechanism, automatic recording mechanism, and an electrical circuit including a signal. Fig. 2 represents the other end of a washing machine equipped with power-transmitting mechanism, a discharge valve and automatic means for controlling the same. Fig. 3 represents an elevation of an indicator. Fig. 4 represents a vertical section of the recording and timing mechanism including an indicator in elevation. Fig. 5 represents a section on line 5—5 of Fig. 4. Fig. 6 represents a fragment of a section on line 6—6 of Fig. 4. Fig. 7 represents a fragment of a section on line 7—7 of Fig. 4. Fig. 8 represents fragments of a section on line 8—8 of Fig. 4. Fig. 9 represents a rear elevation of a dial or recording disk. Figs. 10 and 11 represent elevations of detachable devices for securing the disk in operative position. Fig. 12 represents an elevation of gearing for rotating the recording disk. Fig. 13 represents a perspective view of portions of the mechanism for controlling the valve by which fluid is supplied.

The same reference characters indicate the same parts in all the figures.

Referring first to the machine which is described in my said co-pending application, it will serve to give a clear understanding of the present invention by briefly describing said machine.

In Figs. 1 and 2, 15 represents the cylindrical casing or shell of a washing machine, said casing being mounted upon supports 16 and provided with end bearings adapted to support the trunnions 17 of a rotatable container 18 arranged within the casing. For washing machines of this type it is customary to provide an inlet pipe 19 for water or other fluid, and a discharge valve 20. It is also customary to provide mechanism for revolving or oscillating the container 18 within the casing 15. Without attempting to describe in detail any particular form of power-transmitting mechanism, it may be stated that the form shown includes a sleeve 21 for rotating one of the trunnions 17, a gear 22 whose hub is formed as a clutch member adapted to be coöperatively engaged with a corresponding portion of the sleeve 21, a pinion 23 for driving the gear 22, a shaft 24 for the pinion, and pulleys 25 26 and 27 arranged upon the shaft 24. Straight and crossed belts 28 and 29 are provided for coöperating with the pulleys, one of which is loose, so as to drive the shaft 24 first in one direction and then in the other. Any appropriate means may be provided for shifting the belts to give the aforesaid result.

The machine is provided with automatic means for moving the clutch sleeve 21 to and from engagement with the coöperative hub of the gear 22. The means here shown comprises the lever 30 pivoted at 31, a bell crank 32 pivoted at 33, a connecting rod 34 joining the lever 30 and the bell crank, an arm 35 pivotally mounted at 36 in one arm of the bell crank, and a cam 37 carried by the gear 22. One end of the arm 35 is provided with a roll 38, and the arm is adapted to be oscillated on its pivot 36 so as to move the roll to and from the path of the cam 37. When the roll is moved into the path of the cam, the arm 35 is depressed by coöperation of the cam with the roll, and the bell crank is thereby turned about its pivot 33 and motion is thus imparted to the lever 30 for retracting the clutch sleeve 21.

The same motion of the bell crank 32 may be employed for operating the discharge valve 20 by providing a connecting rod 39 joining the bell crank with an arm 40 attached to the stem of the valve.

41 represents an electro-magnet of the solenoid type which may be provided for controlling the arm 35.

42 represents the core of the solenoid and 43 43 represent pins affixed to the core so as to embrace the lower end of the arm 35.

44 represents a bearing for the outer end of the core 42. In the position illustrated the core is retracted from the solenoid and the roll 38 is removed from the path of the cam 37. When the solenoid is energized, as hereinafter explained, it draws the core 42

to the left and the pins 43 therefore guide the arm 35 so as to place the roll 38 in the path of the cam. The downward motion of the arm 35, which is imparted by the cam, does not disturb the connection between the lower end of the arm and the pins 43, because the pins are so arranged as to permit the endwise movement of the arm.

The means herein illustrated for controlling the supply of fluid for the machine is also contained in my aforesaid co-pending application. Said means comprises branch pipes 45 and 46 which are connected to deliver fluid into the pipe 19. The branches are provided with valves 45' and 46'. Each valve has a swinging arm or lever 47 by which it may be opened and closed. 48 represents a sliding bar mounted in supports 49 and provided with fingers or pins 50 which are adapted to engage the arms 47. The slide 48 is connected to a spring 51 which exerts its tension to move the slide to the left, and the valves are so arranged as to be closed by the tension of the spring when the fingers 50 engage the arms 47. The slide is further provided with a lug or shoulder 52 by which it may be held in retracted position. Automatic means for controlling the valves includes an arm 53 pivoted at 54 so as to be adapted to coöperate with the lug 52 and hold the slide in retracted position. The free end of the arm 53 is pivotally connected with a rod at the lower end of which is affixed a float 55. The rod for supporting the float comprises a sleeve 56 and a rod 57 having telescopic connection with the sleeve. For the purpose of supporting the float at different positions, the sleeve and rod are provided respectively with notches 58 and a pin 59. The notches are formed at the side of a longitudinal slot 60, and the pin may be moved back and forth in the slot and placed in either of the notches.

The float 55 is contained in a receptacle 61 of which the upper end is open and of which the lower end is connected by a pipe 62 with the supply pipe 19 at or near its lowest point. When it is desired to admit a supply of fluid to the casing 15, the slide 48 may be manually moved to the right until the arm 53 engages and locks the lug 52, whereupon one or both of the valves 45' 46' may be manually opened. As the level of fluid rises in the casing 15, it rises equally in the receptacle 61, and when it rises sufficiently to raise the float 55, the arm 53 is raised by the buoyancy of the float, and thereby releases the lug 52. The spring 51 thereupon returns the slide 48 to its normal position, and in so doing, it closes the valve or valves which may be open, by coöperation of the fingers 50 with the arms 47. The quantity of fluid thus supplied depends upon the adjustment of the pin 59.

The branch pipes 45 and 46 are intended for supplying hot and cold water, but a third fluid may also be supplied from a receptacle 63 arranged sufficiently above the bottom of the casing 15 so as to cause the contents to flow by gravity to the casing. The receptacle 63 is intended for any secondary fluid, such as bluing, bleaching acid or prepared starch. The receptacle is connected with the casing 15 by a pipe 64 and the flow through the valve is controlled by a valve 65. A valve stem 66 is connected to one arm of a bell crank 67 pivoted at 68 and arranged to be engaged by a lug 69 carried by the slide 48. The valve 65 is normally closed by its own weight, provided the slide 48 is at its right-hand position. After retracting the slide and opening the valve or valves 45' 46', a quantity of secondary fluid may be deposited in the receptacle 63, to be thereafter delivered into the casing 15, when the slide 48 is released to close the aforesaid valves. The secondary valve 65 is opened simultaneously with the closing of the primary valves, and the secondary fluid is therefore delivered into the casing after the desired quantity of primary fluid has been delivered.

The devices hereinbefore described are all included in the aforesaid co-pending application, together with an electrical circuit including the winding of the solenoid 41. This circuit is shown by Fig. 1, and includes also a bell 70 or other equivalent signal, a source 71 of current, a manually operative switch 72, conductors 73 74 and 75 and an automatic switch hereinafter described.

Referring now to the subject-matter of the present invention, and especially to the automatic switch for closing the electrical circuit, Figs. 1, 4 and 9 show a metallic case 76 to which one of the conductors 74 75 is connected. Fig. 1 shows the conductor 75 leading to the casing 76 and the conductor 74 leading to an insulated contact 77 mounted upon the front of the casing. 78 represents a crank or handle loosely mounted upon an arbor 79 in the center of the casing, said handle being adapted to pass by and engage the contact 77 and thereby close electrical connection between the conductors 74 and 75. The handle 78 is adapted to be operated by a clock movement or any other appropriate timing mechanism, of which one form is illustrated by Figs. 4 and 5. The timing mechanism forming a part of this invention performs two functions, namely, the driving of the movable contact 78 for the purpose of controlling the electrical circuit, and secondly the driving of automatic means for recording the operations of the machine to which it is attached.

Timing mechanism.—For the sake of convenience, the casing 76 is provided with a back plate 80 to which it may be connected

by a hinge 81 and a lock 82. In carrying out the invention the casing remains locked during the operations of the machine, and it is intended that access to the casing shall be possible only to an individual having authority to inspect the interior thereof. Figs. 4 and 9 include a marking device 83 and a disk or dial 84 of any suitable material, for receiving and recording the mark of the device 83. According to the present embodiment of the invention the disk is designed to record the successive operations of one working day, and the timing mechanism hereinafter described is designed to impart one complete revolution to the disk in twelve hours. The disk may therefore be conveniently divided into twelve equal segments each corresponding to one hour. The hourly segments may be conveniently subdivided into twelve equal segments each corresponding to a period of five minutes. The marking device 83 is mounted so as to be "dead", that is, free from the influence of changes of temperature or other climatic conditions. In performing its functions it remains in coöperative engagement with the disk at all times, and in the course of twelve hours the disk will receive from the marking device a continuous line including 360° of a circle.

For the purpose of recording successive operations of different characters, the dial may be provided with concentric lines dividing the recording surface into concentric zones. To complete this arrangement, the marking device 83 is adapted to be moved radially with relation to the axis of rotation of the disk so that its marking point may be placed in any one of said zones. So long, therefore, as the position of the marking device remains unchanged, a concentric line will be recorded on the disk, the length of which will depend upon the period of time during which the marking device remains unchanged.

As an illustration by which successive operations may be recorded, Fig. 9 shows a line representing the mark placed upon the disk by the marking device, said mark being in the form of a continuous line portions of which are concentric, and which are connected in a series by substantially radial lines. Each segmental portion of the continuous line represents the period during which the disk is rotated while the marking device remains stationary, and each radial line represents the motion of the marking device while being transferred from one position to another. Moving of the marking device is accomplished manually, and the times of such changes are apparent by referring to the radial dividing lines, which represent units of time. It will thus be seen that the operations recorded by the dial shown in Fig. 9 include a ten-minute period

for the first operation, a twenty-minute period for the second operation, a fifteen-minute period for the third operation, and a ten-minute period for the fourth operation, said operations being repeated in the above order. Inasmuch as the radial divisions represent units of time and the concentric divisions represent operations of different characters, it is desirable to print the disk so as to indicate the values of the radial divisions and the significance of the concentric divisions. The dial is therefore illustrated with numerals indicating the hours of a working day and with words designating each concentric zone for an operation of one character exclusively. The words designating the operations will of course be printed in accordance with the requirements of the machine for which the device is designed, and for a variety of combinations of which a machine is capable. The disk is rotated in the direction indicated by the arrow in Fig. 9, and the means for mounting it is hereinafter described.

Referring now to Figs. 4 and 5, which illustrate an appropriate form of clock mechanism, 85 and 86 represent the pillar plates of a frame in which the clock mechanism is mounted. 87 represents the main gear of a clock train, and 88 represents the spring for driving the same. One end of the spring is attached to the staff 89 and the other end is attached to a drum 90. The gear 87 is affixed to the drum but is loosely mounted on the staff 89, and is therefore rotated by the drum, and not by the staff. The staff may be formed with a square end, as indicated by Fig. 4, for the purpose of receiving a key for winding the spring. The main gear 87 drives a pinion 91 affixed upon the central arbor 79, which is driven at the rate of one revolution per hour. The arbor 79 carries two fixed gears 92 and 93, said gears being of equal size, one for the purpose of driving the escapement 94, and the other for the purpose of driving the handle 78. The train of gears for transmitting motion from the gear 92 to the escapement 94 is illustrated by Fig. 5, and requires no detailed description. The gear 93 drives a pinion 95 affixed upon an arbor 96, which is provided with another pinion 97 of equal size. The pinion 97 is arranged upon the front side of the plate 85 and is adapted to drive a gear 98 of the same size as the gears 92 and 93. The gear 98 is mounted upon a boss 99 formed upon a lever 100 which is pivoted upon a pin 101 in the plate 85. The pin 101 is slightly eccentric to the central arbor 79 and the boss 99 is formed with a slot 102 through which the central arbor extends. The lever 100 is adapted to be moved about the pivot 101 and to thereby carry the gear 98 to and from engagement with the pinion 97. The gear 98 is there-

fore in effect a clutch which is adapted to be connected with and disconnected from the timing mechanism.

103 represents a toothed disk loosely mounted upon the central arbor 79 and adapted to transmit motion from the gear 98 to the handle 78. The connection between the toothed disk and the handle 78 is shown in detail by Figs. 4, 6 and 7. Said connection includes an arm 104 loosely mounted upon the central arbor between the disk 103 and the handle 78. The hubs of the handle and the arm 104 extend through the front of the casing 75, as shown by Fig. 4, and are connected in any suitable manner so as to be interlocked with each other. The form of connection illustrated includes cooperative interlocking portions on the two hubs and a collar 105 affixed upon the central arbor for preventing separation of the interlocked hubs. The free end of the arm 104 carries a rocking stud 106 at one end of which is an arm 107, and at the other end of which is a pawl 108. The arm 107 is affixed to the stud 106 but the pawl is loosely mounted on the stud. The pawl is provided with pins 109 which embrace the free end of a spring 110 of which the other end is affixed to stud 106. The pawl 108 is adapted to engage the teeth of the disk 103, but is normally held out of engagement by the action of the spring 111 on the arm 107 through the medium of the stud 106 and the spring 110. The arm 107 is further provided with a pin 112 which is adapted to engage a nearly circular boss 113 formed upon the inner side of the front wall of the casing 75. The boss is formed with a depression 114 in which the pin 112 may lie when the handle 78 is in the position shown by Figs. 1 and 4. The depression 114 is formed to prevent clockwise rotation of the handle 78, but to permit counter-clockwise rotation. When the handle is moved away from this position, the pin 112 in approaching the concentric rim of the boss 113 turns the arm 107 against the tension of the spring 111 and thereby moves the pawl 108 into engagement with the teeth of the disk 103. The teeth of the disk are preferably formed so as to permit motion of the pawl in either direction, but inasmuch as there is no appreciable resistance in the arm 78, the disk is adapted to rotate the arm through the cooperation of the teeth and the pawl.

The means for transmitting motion from the gear 98 to the toothed disk 103 includes a friction disk or washer 115 (see Fig. 4) and a helical spring 116. One end of the spring is inserted in an aperture in the gear 98 and the other end is inserted in an aperture in the friction disk 115, and the friction disk is held by the longitudinal expansion of the spring against a face of the disk 103. The diameter of the spring 116 is such

as to readily permit transverse movement of the clutch gear 98 and to maintain yielding driving relation with the disk 115.

Lever 100 is engaged by a spring 117 (Fig. 8) which tends to move the gear 98 into engagement with the pinion 97. For the purpose of placing the automatic switch under the control of the washing machine herein illustrated, the lever 100 is connected with the float 55 so as to be depressed when the float is depressed, and to be released when the float is raised. The form of connection shown by Figs. 1 and 8 includes a rod 118 forming an extension of the float rod and passing through the free end of the lever 100. The upper end of the rod 118 is provided with a head 119 by which the lever 100 is depressed when the float is in its lower position. The timing mechanism is driven without interruption and the handle 78 may remain stationary or be connected with the timing mechanism so as to be driven thereby according to the position of the lever 100.

As hereinbefore stated, the central arbor 79 is driven at the rate of one revolution per hour. The handle 78 therefore, when coupled to the timing mechanism, is adapted to revolve at the same rate of speed. The front of the casing 76 is provided with a dial 120 with which the handle 78 is adapted to cooperate in the same manner as the minute hand of a clock. The handle 78 when coupled with the timing mechanism is driven in a counter-clockwise direction, but the numerals on the dial 120 are arranged in clockwise order, according to their value. If it is desired to operate the machine for a period of ten minutes, the automatic switch may be manually adjusted to close the switch at the expiration of such period of time. The method of adjusting the switch is to move the handle 78 in a counter-clockwise direction to a position registering with the number on the dial corresponding to the value of time required. When the handle is thus moved, the pin 112 engages the concentric rim of the boss 113, thus moving the pawl 108 into engagement with the teeth of the disk 103. The handle is thus operatively connected with the timing mechanism and is rotated thereby after being placed at the desired position. When the handle arrives at its former position after having completed one revolution, it engages the contact 77 and thereby closes the circuit between the conductors 74 and 75. Assuming that the switch 72 is meanwhile in closed position, a current is sent through the solenoid 41 and the solenoid operates as hereinbefore described to disconnect the power-transmitting mechanism and to open the discharge valve 20. The machine is thus brought to a state of rest and the fluid in the casing 15 is discharged and the signal 70 is operated,

thereby giving notice that the operation is completed. The pin 112 after having completed a revolution, is drawn into the depression 114 by the tension of the spring 111, and the pawl 108 is removed from the teeth of the disk 103, thereby disconnecting the handle from the timing mechanism. The disk 103, however, continues to revolve by reason of its frictional contact with the spring-driven disk 115. As the level of the fluid in the casing 15 falls, the float 55 likewise falls, thereby depressing the lever 100 against the tension of the spring 117. The eccentrically mounted gear 98 is thereby disconnected from the pinion 97, and rotation of the disk 103 ceases.

It will be observed from the foregoing description that driving connection for the handle 78 depends first upon the position of the lever 100, and second upon the position of the pawl 108. If the handle 78 is placed at the desired position before the float rises, it is not driven by the clock mechanism, because connection between the gear 98 and pinion 97 is not effected until the rising of the float. Two things occur, therefore, simultaneously with the closing of the supply valves 45' and 46'. The first is the opening of the secondary valve 65, and the other is the clutching of the gear 98.

Recording mechanism.—It is hereinbefore explained how the handle 78 of the time switch is driven at the rate of one revolution per hour. The disk 84 in order to be driven at the rate of one revolution in twelve hours must be provided with appropriate gearing equivalent to the hour hand gearing of a clock movement. Gearing of this character is illustrated by Figs. 4 and 12. 121 represents a pinion affixed upon the central arbor 79. The pinion drives a gear 122 mounted upon a stud 123. Affixed to the gear 122 is a pinion 124 which drives a gear 125 loosely mounted on the central arbor. The ratio of the pinions and gears is such as to reduce the speed from twelve to one. The gear 125 is provided with a relatively long hub or sleeve on which the disk 84 may be mounted. The means here shown for attaching the disk comprises a plate 126 affixed to the sleeve of the gear 125 and a plate 127 adapted to clamp the disk 84 against the plate 126. The plate 126 may be provided with pins 128 and the disk 84 and plate 127 may be provided with apertures adapted to receive the pins 128, whereby the disk may be positively locked in operative position. The outer end of the sleeve of the gear 125 may be provided with projections 129 adapted to confine a button 130 upon the sleeve. The button, as shown by Fig. 10, is formed with an aperture 131 having notches adapted to pass over the projections 129. The plate 127 (see Fig. 11) is provided with a similar aperture 132 by which the plate may be

passed over the projections 129. After placing a disk 84 upon the pins of plate 126, the plate 127 is placed in clamping position, a helical spring 133 is slipped over the sleeve, and the button 130 is passed over the projections 129 and given a slight rotary motion sufficient to move the notches of the aperture 131 out of register with the projections 129. The disk 84 may thus be detachably fastened in operative position.

The marking device 83 is here shown as mounted at the upper end of a holder 134 arranged to slide in guides 135. The holder is movable radially with relation to the central arbor 79, and in this embodiment of the invention is adapted to be moved manually so as to place it in the desired position where it may register with any one of the concentric zones of the recording disk. For this purpose the holder may be attached to a rack 136 arranged in operative relation to a pinion 137. The rack and pinion are inclosed in a casing 138 which furnishes bearings for the shaft 139 upon which the pinion 137 is affixed. At one outer end of the shaft 139 is a hand wheel 140 by which the shaft may be rotated. Figs. 1 and 3 show a pointer 141 affixed to the hub of the hand wheel 140 and adapted to cooperate as an index with a scale 142 on the exterior of the casing 138. The shaft 139 may be provided with a cylinder 143 arranged within the casing 138 and provided with words or characters corresponding to the words or characters designating the concentric zones of the recording disk. The casing 138 is provided with a sight opening 144 for revealing one of the words or characters upon the inclosed cylinder. By means of this indicator the attendant may know in which zone the marking device 83 is placed.

145 represents a holder attached to the exterior of the casing 138, for the purpose of receiving one or more cards 146 upon which printed directions may be supplied. In practice it is customary to provide the attendant with a formula of each operation by means of which the attendant is guided in determining the relative quantities of fluids and the periods of time calculated to give the best results. If the printed instructions upon a card 146 are numbered in accordance with the scale 142 and in accordance with the indicator 143, and the arrangement of the designations of the several zones of the recording disk, the possibilities of errors on the part of the attendant are greatly reduced.

In operating the machine equipped with the hereinbefore described recording devices, it is the duty of the attendant to prepare the machine for the succeeding operation immediately upon notification by the signal 70. If for any reason the attendant fails to respond when so notified, the recording devices continue to record the lapse of

time as a continuation of the preceding operation, and if it is found that the total lapse of time for any one operation is materially in excess of the allotted time, the failure of the attendant is shown upon the record.

I claim:—

1. The combination with a valve, of timing mechanism, means controlled by said timing mechanism for operating said valve, a platen driven by said timing mechanism, and a marking device mounted so as to normally remain stationary in cooperative relation with said platen, said marking device being manually movable in a plane parallel to the cooperative surface of the platen.

2. The combination with a valve, of timing mechanism, means controlled by said timing mechanism for operating said valve, signaling means controlled by said timing mechanism, a platen driven by said timing mechanism, and a manually movable marking device mounted so as to cooperate with said platen.

3. The combination with a power-driven machine having a disconnectible clutch, of timing mechanism, means controlled by said timing mechanism for operating said clutch, a platen driven by said timing mechanism, and a manually movable marking device mounted so as to cooperate with said platen.

4. The combination with a power-driven machine having a disconnectible clutch, of timing mechanism, means controlled by said timing mechanism for operating said clutch, signaling means controlled by said timing mechanism to indicate the operation of said clutch, a platen driven by said timing mechanism, and a manually movable marking device mounted so as to cooperate with said platen.

5. The combination with a machine having a conduit communicating therewith, and driving means including a disconnectible clutch; of timing mechanism, a valve in said conduit, means controlled by said timing mechanism for operating said valve, means controlled by said timing mechanism for operating said clutch, a platen driven by said timing mechanism, and a manually movable marking device mounted so as to cooperate with said platen.

6. The combination with a receptacle for liquid, a conduit connected to the receptacle, a valve in said conduit, timing mechanism, means controlled by the timing mechanism for operating said valve, a platen driven by said timing mechanism, a marking device supported in cooperative relation with said platen and adapted to be moved to various cooperative positions, a casing inclosing said platen and marking device, manually operative means projecting through said casing for changing the position of said

marking device, and means operable by said manually operative means for indicating the position of said marking device.

5 7. The combination with laundry apparatus of means for recording successive operations thereof, timing mechanism for operating said recording means, and means controlled by said timing mechanism for stopping each operation upon expiration of
10 the time allotted therefor.

8. The combination with a washing machine, of means for recording successive operations thereof. timing mechanism for op-

erating said recording means, a discharge valve, means controlled by the timing mechanism for operating the discharge valve. 15
and means controlled by the fluid supplied for placing the operating means under the control of the timing mechanism.

In testimony whereof I have affixed my 20
signature, in presence of two witnesses.

GEORGE WILSON.

Witnesses:

W. P. ABELL,
P. W. PEZZETTI.