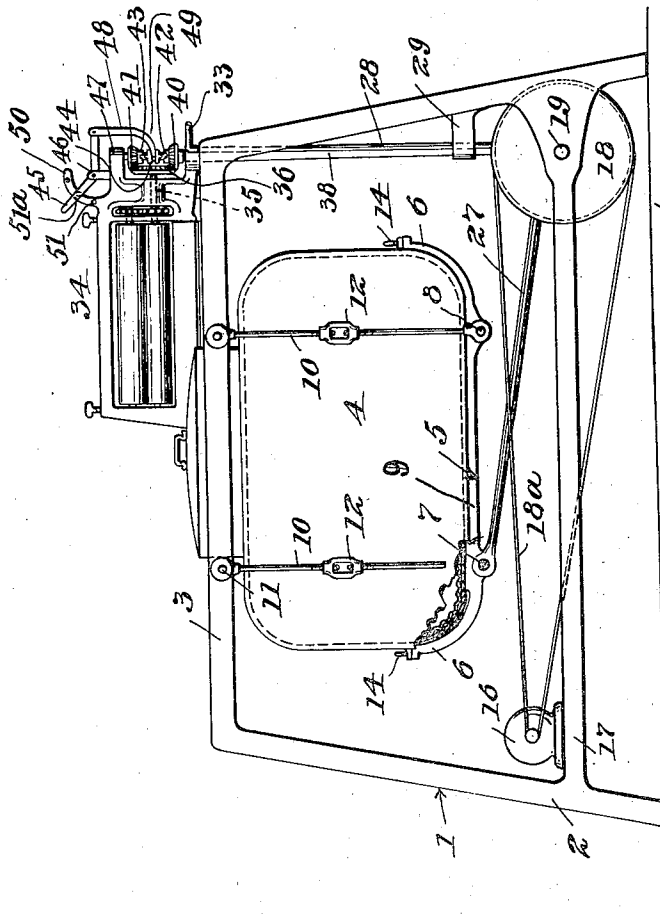
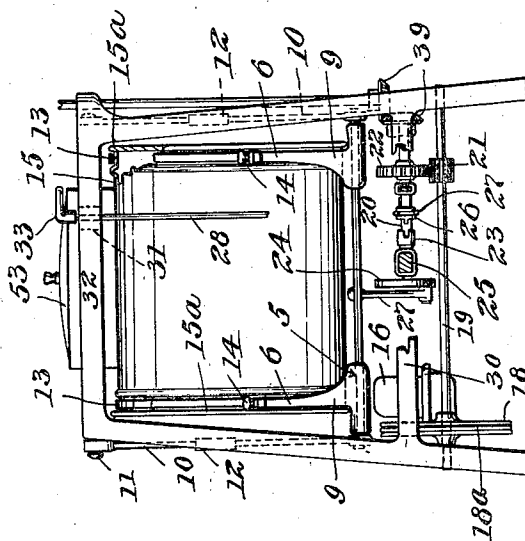
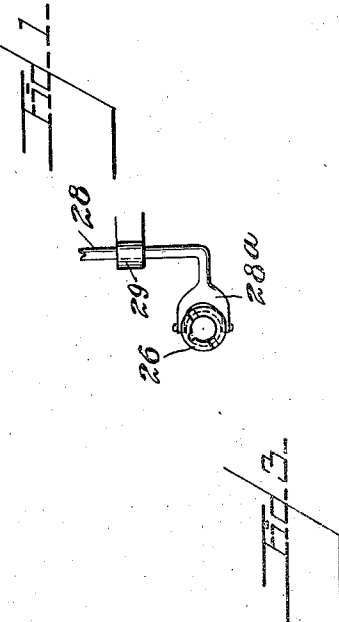


W. H. SARGENT.
WASHING MACHINE.
APPLICATION FILED APR. 14, 1919.

1,352,225.

Patented Sept. 7, 1920.



Inventor:
William H. Sargent
by
Carter & Linnell
his Atty.

UNITED STATES PATENT OFFICE.

WILLIAM H. SARGENT, OF ST. LOUIS, MISSOURI, ASSIGNOR TO WAYNE MANUFACTURING COMPANY, OF ST. LOUIS, MISSOURI, A CORPORATION OF MISSOURI.

WASHING-MACHINE.

1,352,225.

Specification of Letters Patent.

Patented Sept. 7, 1920.

Application filed April 14, 1919. Serial No. 289,988.

To all whom it may concern:

Be it known that I, WILLIAM H. SARGENT, a citizen of the United States, residing in the city of St. Louis and State of Missouri, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to washing machines such as used in households for washing clothes. The invention relates particularly to the type of washing machine in which the tub is suspended on hangers which swing to and fro during the washing movement.

The general object of the invention is to provide an improved construction for removably supporting the tub on the hangers or links, and also to provide means for insuring that the tub will not become dislodged from its cradle; also to provide for distributing the strains due to the swinging force, on the wall or bottom of the tub.

Further objects of the invention will appear hereinafter.

The invention consists in the general combination of parts and in the features hereinafter described, all of which contribute to produce an efficient washing machine.

A preferred embodiment of my invention will be particularly described in the following specification, while the broad scope of my invention will be pointed out in the appended claims.

In the drawing, which illustrates the preferred embodiment of my invention,

Figure 1 is a side elevation and partial section of a washing machine;

Fig. 2 is an end elevation partially broken away, further illustrating the washing machine;

Fig. 3 is a detail vertical section upon an enlarged scale illustrating means for controlling a clutch through which the swinging movement is imparted to the tub.

Referring to the parts, 1 represents a frame which may be of any suitable construction, including legs 2 upon which oppositely disposed elevated side bars 3 are supported. The tub 4 is preferably of longitudinal box form, and is supported by the side bars 3, so as to swing in a substantially vertical plane.

In order to support the tub from the side bars, and at the same time enable the swinging movement to be imparted to the tub, I

provide a cradle 5 which may be of skeleton form, provided at its ends with upwardly disposed extensions 6 which engage the end walls of the tub so as to prevent the tub from shifting longitudinally in the cradle as it swings. The cradle also includes a pair of transverse tie-bars 7 and 8 which rigidly connect the side members or bars 9 to form the cradle. The extensions 6 of the cradle are simply integral extensions of the side bars. The bars 7 and 8 are extended at the sides so as to form pintles to which are pivotally attached links or hangers 10, the upper ends of which are pivotally attached to pins 11 on the outer sides of the side bars 3. In order to adjust the length of these links 10, I provide them with turn-buckles 12.

In order to insure that the tub 4 cannot become accidentally displaced from the cradle, I provide the cradle with means for retaining the tub. This means is preferably in the form of two straps 13, the ends of which are attached by suitable thumb screws 14 to the ends of the extensions 6, and these bands simply extend up the end walls and lie on the upper face of the upper wall of the tub; I provide the tub with side flanges 15^a adjacent to which these bands lie. Any suitable means may be provided for oscillating, that is to say, swinging the tub. For this purpose, I provide an electric motor 16 supported on a longitudinal frame bar 17, and this motor drives a belt 18^a which passes around a belt pulley 18 on a shaft 19. Opposite and above the shaft 19 I provide a crank shaft 20 which is driven from the shaft 19 by means of a pinion 21 and gear wheel 22, the latter being rigid on the shaft 20. On the shaft 20 there is loosely mounted a clutch-member 23 which is connected to a crank or crank disk 24; these parts are suitably supported in a bearing 25. On the shaft 20 there is also provided a sliding clutch-member 26 which, in Fig. 2, is shown in its open position. This sliding clutch member is splined to the shaft so that when it engages the clutch-member 23, the rotation of the shaft will be imparted to the crank disk 24. The crank disk 24 is connected by a connecting rod 27 with the cross-bar 7 of the cradle 5. I prefer to attach this connecting rod to the more remote cross-bar of the cradle, as this decreases the amount of eccentricity of the rod when rocking the tub.

In order to enable the clutch-collar 26 to be moved to open or close the clutch, I provide it with a yoke 28^a see Fig. 3, said yoke being formed at the lower end of a vertical spindle 28, which is rotatably mounted at its lower end in a bearing 29 in the form of a lug projecting in from the inner side of the cross-bar 30 of the frame, the upper end of said spindle having a bearing at 31 in the end cross-bar 32 of the frame. The upper end of the spindle is provided with a suitable handle or lever 33 for operating it.

As the crank shaft 20 is located in a horizontal plane, it is evident that the crank disk 24 rotates in a vertical plane extending parallel with the longitudinal axis of the tub 4, that is to say, the crank rotates in the plane in which the tub swings. From this arrangement it is evident that the "dead centers" of the crank correspond to the highest position of the cradle at the ends of its swinging movement, at which time the tub is gradually coming to a stop through the action of gravity. For this reason the reversal of the swinging movement of the tub occurs without any shock to the mechanism and when the tub begins its downward swinging movement, its weight is assisting the force exerted by the connecting rod 27.

This mode of operation is most advantageous because the tub tends to swing with and rest quietly in the cradle, without shifting about with each reversal in the direction of movement.

I adapt the machine to employ a wringer as an accessory to the washing machine. The wringer is indicated by the numeral 34 and may be supported on the upper portion of the frame, that is to say, on one of the side bars 3. The shaft 35 of one of the wringer rollers is extended toward the right, see Fig. 1, and provided with a bevel gear 36, which bevel gear may be driven in either of two directions. In order to drive the bevel gear 36 in either direction I provide an upwardly extending wringer shaft 38, the lower end of which is driven from the shaft 20 by means of suitable bevel gears 39, see Fig. 2. The upper end of the shaft 38 is provided with a loose bevel pinion 40 which meshes with the lower edge of the bevel gear 36, and beyond this pinion 40, a loose bevel pinion 41 is also provided on the shaft, which meshes with the upper edge of the gear-wheel 36. The adjacent faces 42 and 43 of the bevel pinions are formed into clutch-members, and on the shaft between these clutch-members, a clutch-collar 44 is

splined. When the clutch-collar is in engagement with the clutch face of the upper pinion 41, it will evidently drive the wringer in the opposite direction from the drive that would occur if it were in engagement with the clutch face of the lower pinion 40.

In order to throw this clutch in or out, or hold it in a neutral position, I provide a controlling lever 45 which is pivotally supported at 46 on the frame 47, which frame also supports the wringer-shaft 35. The short arm of this lever 45 carries a downwardly extending link 48, the lower end of which is formed into a yoke 49 to engage a groove in the clutch-collar 44 in a well known manner. Coöperating with the lever 45, I provide a quadrant 50 the face of which is provided with three depressions 51 which are engaged by a projection 51^a on the side of the lever 45. When the projection on the lever 45 is in engagement with the intermediate depression or recess 51, the clutch-collar 44 will be held in neutral position. In either of the other positions of the lever, the wringer will be driven in one direction or the other.

The tub is provided with a suitable removable cover 53 giving access to its interior.

What I claim and desire to secure by Letters Patent is:—

1. In a washing machine, the combination of a frame having elevated side bars, a tub, a cradle on which said tub rests, links suspended from said elevated side bars and attached at their lower ends to said cradle enabling said cradle to swing to and fro in a substantially vertical plane, turnbuckles in said links for adjusting the length thereof, and means attached to said cradle for swinging the same.

2. In a washing machine, the combination of a frame having elevated side bars, a cradle, links supporting said cradle from said side bars so as to swing to and fro in a substantially vertical plane, a tub supported on said cradle, said cradle having upwardly projecting rigid extensions at the ends thereof, engaging the ends of the tub and preventing the same from shifting longitudinally in the cradle, and detachable bands secured to said projecting extensions, and passing over the upper wall of said tub to hold the same on said cradle.

In testimony whereof I have hereunto set my hand.

WILLIAM H. SARGENT.