A. B. COOLING.

GEARING FOR WASHING MACHINES.

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1,040,627.

Patented Oct. 8, 1912.

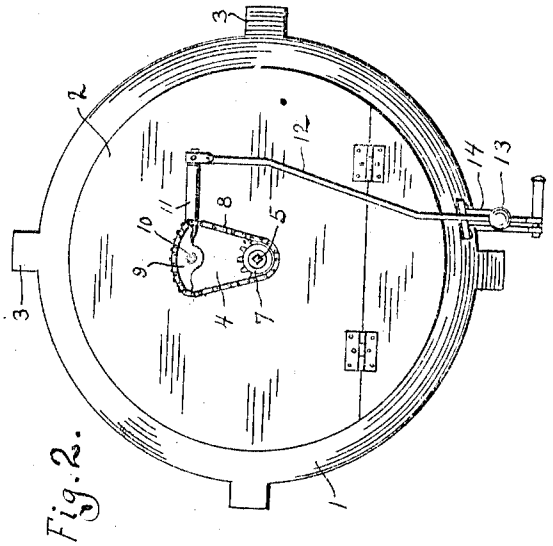

Fig. 2.

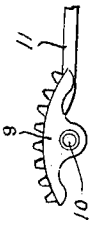

Fig. 5.

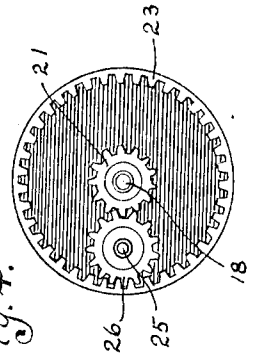

Fig. 4.

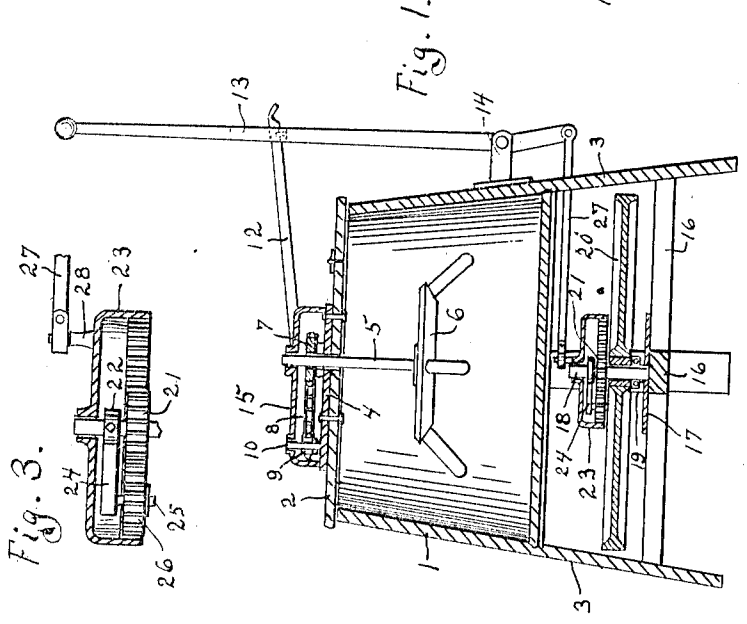

Fig. 1.

Fig. 3.

Witnesses

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UNITED STATES PATENT OFFICE.

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GEARING FOR WASHING-MACHINES.

1,040,627. Specification of Letters Patent. Patented Oct. 8, 1912.

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To all whom it may concern:

Be it known that I, ARTHUR B. COOLING, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Gearing for Washing-Machines, of which the following is a specification.

My invention has reference to gearing for washing machines, and pertains more specially to that class of such machines which are provided with a stationary tub, in which is an agitator actuated by a hand-lever fulcrumed at the side of the tub, such hand-lever having operating connections above the tub with said agitator and below the tub with a balance-wheel which operates to steady the movement of the agitator mechanism, and render the same continuous.

My device comprises novel and simple means for imparting the movement of the hand-lever to the agitator, and novel mechanism for causing the rotation of the balance wheel, and with a greatly increased rate of speed.

One of the chief purposes of the invention is to secure a greater degree of efficiency in the operation of the mechanism both above and below the tub, and by the use of operating devices which are practically noiseless.

In the drawings: Figure 1 is a medial vertical section of a machine embodying my invention. Fig. 2 is a plan view of the tub thereof with the casing 15 removed. Fig. 3 is an enlarged detail of the balance-wheel gearing, partly in vertical section. Fig. 4 is a plan view of said gearing, in inverted position. Fig. 5 shows the rack 9, in detail.

1 represents the usual tub provided with a hinged cover 2, and supported on legs 3. Centrally of the cover 2 is a plate 4 in which is mounted a square shaft 5, on the lower end of which is fixed an agitator 6, by which the clothes are moved about in the tub.

Secured on the shaft 5 above the cover is a sprocket-wheel 7, engaged by a sprocket-chain 8, which passes around a rack 9, pivoted on a pin 10 projected upwardly from the plate 4. To one of the ends of the rack 9 is fixed an arm 11, the outer end of which is connected with a bar 12, the outer end of which is detachably connected with a hand-lever 13, fulcrumed in a support 14 fixed to the side of the tub.

The oscillation of the hand-lever 13 imparts a rocking movement to the rack 9, which is communicated through the chain 8 and wheel 7 to the shaft 5, to give to such shaft and the agitator supported thereby a reciprocating rotary movement. If the distances between the pivotal point of the rack 9 and the ends thereof, and the distance between said pivotal point and the outer end of the arm 11 are properly established, a complete movement of such arm will cause a half rotation of the shaft 5, and a return movement of said arm will give to said shaft a half-rotation in the contrary direction.

If desired the chain and sprocket mechanism can be inclosed in a casing 15, for the purposes of greater safety and neater appearance, such casing also furnishing additional bearing for the upper end of the shaft 5.

The legs 3 are united beneath the tub by cross-pieces 16, on which is mounted a plate 17, in which is rigidly held a vertical shaft 18. Integral with the plate 17 is a bearing 19, on which is rotatably supported a balance-wheel 20. Attached to the hub of the wheel 20 and preferably formed so as to be integral therewith is a pinion 21, and fixed to the shaft 18 is a collar 22 upon which is supported an internal-gear-wheel 23, the teeth of which are similar to those of the pinion 21, and spaced apart therefrom.

Projecting outwardly from the collar 22 is an arm 24 supporting a shaft 25 on which is rotatably held a gear-wheel 26, the teeth of which mesh with those of the gear-wheel 23 at the outer edge and with the teeth of the pinion 21 on the inner side. The movement of the wheel 23 is thus imparted to the pinion 21, and through it to the wheel 20, and with an increased rate of speed.

A pitman 27 is connected at one end with the lower end of the lever 13, and at the other end to a post 28 on the wheel 23, by which means the reciprocating movement of the lever is imparted to said pinion and balance-wheel. The proportion of gear-teeth in the wheel 23 and pinion 21 is preferably about four or five of the former to one of the latter, giving to the pinion 21 and wheel 20 a movement four or five times more rapid than that of the wheel 23. The gear-wheel 26 acts simply as an idler pinion, one rotation thereof giving a corresponding movement to the pinion 21.

The chain and sprocket mechanism on the top of the tub and the gearing beneath the same are both capable of operation with a minimum amount of friction and noise.

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

1. Gearing for washing machines, comprising in combination with the machine frame a hand-lever fulcrumed to said frame so as to be vertically reciprocable; a balance-wheel horizontally supported in said frame; a pinion rotatable with said balance wheel; an internal gear-wheel concentric with said balance-wheel; an idler pinion interposed between said internal gear-wheel and said balance-wheel pinion; and means for imparting the movement of the lower end of said hand-lever to said internal gear-wheel to cause the rotation thereof.

2. In gearing for washing machines the combination with the frame of the machine, of a hand-lever fulcrumed on said frame so as to be vertically reciprocable; a cross-frame supported in the machine frame; a stationary shaft mounted on said cross-frame centrally thereof; a balance-wheel rotatable on said shaft; a pinion connected with said balance wheel; an internal gear-wheel rotatable on said shaft; an arm fixed on said shaft within said internal gear-wheel; an idler pinion supported by said arm and adapted to impart the movement of said internal gear-wheel to said balance-wheel pinion; and a pitman connecting the short end of the hand-lever with said gear-wheel to cause the rotation thereof upon the operation of said lever.

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

ARTHUR B. COOLING.

Witnesses:

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ROY R. BAER.