

March 31, 1925.

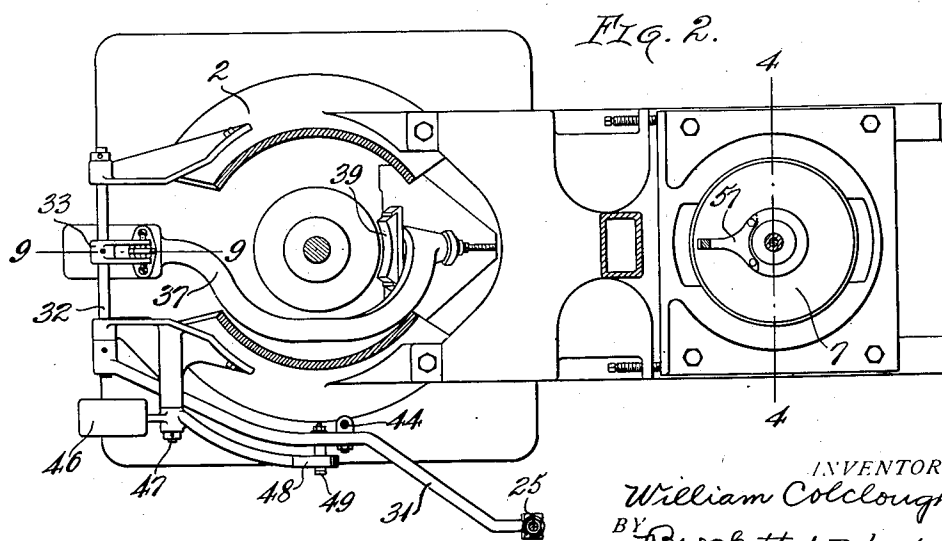
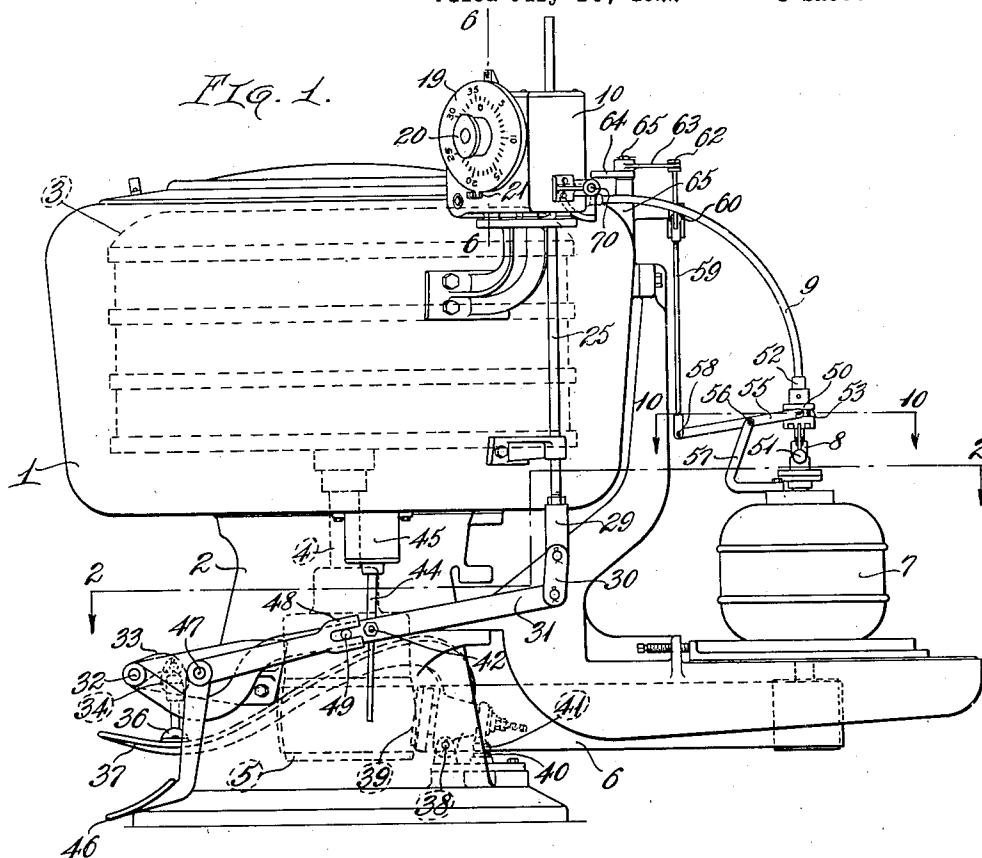
1,531,844

W. COLCLOUGH

SAFETY COVER FOR UNDERDRIVEN CENTRIFUGAL MACHINES

Filed July 14, 1922

3 Sheets-Sheet 1



INVENTOR
William Colclough
BY Brockett + Hyde
ATTORNEYS

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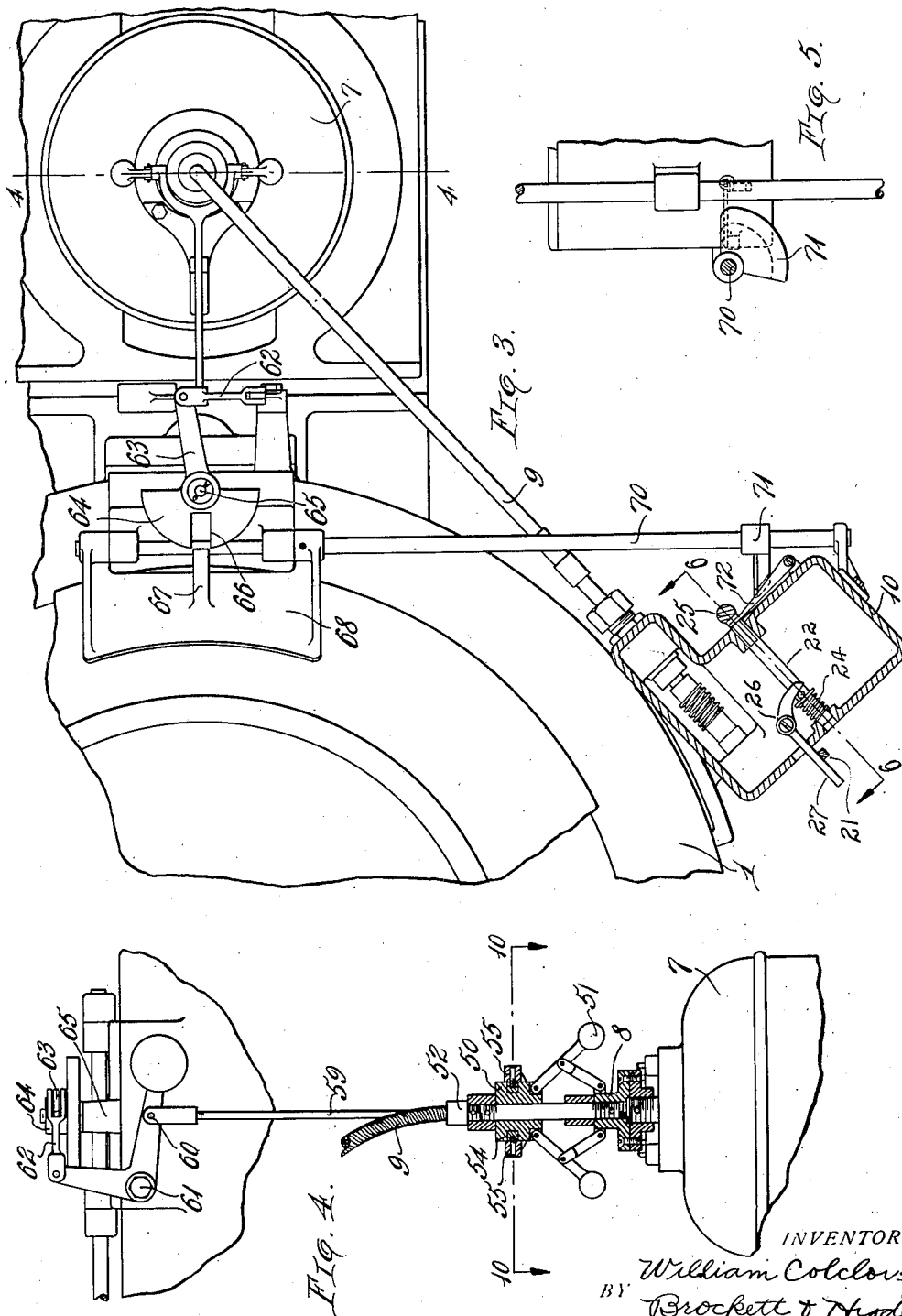
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BY Brockett & Hyde
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3 Sheets-Sheet 3

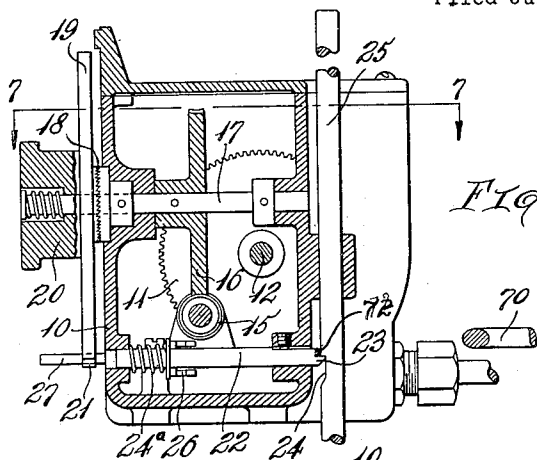


Fig. 6.

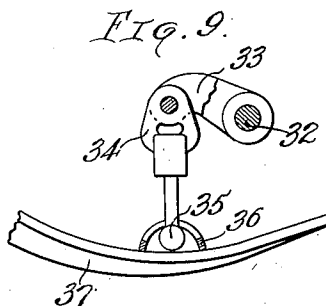


Fig. 9.

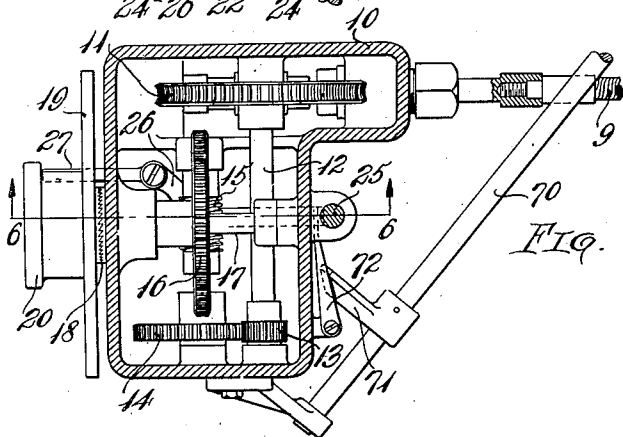


Fig. 7.

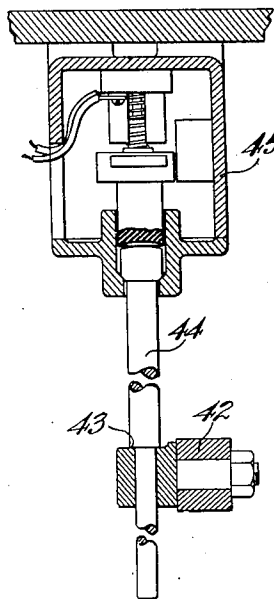


Fig. 8.

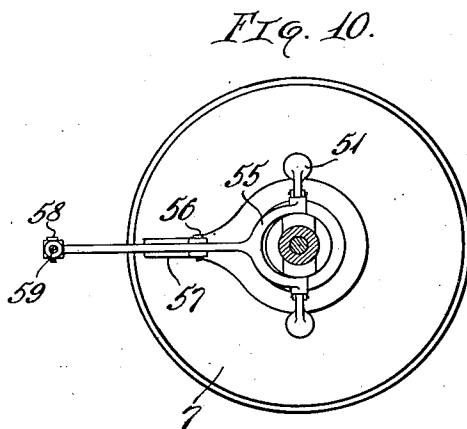


Fig. 10.

INVENTOR
William Colclough
BY Brockett & Hyde
ATTORNEYS

UNITED STATES PATENT OFFICE.

WILLIAM COLCLOUGH, OF NORWOOD, OHIO, ASSIGNOR TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF CINCINNATI, OHIO, A CORPORATION OF OHIO.

SAFETY COVER FOR UNDERDRIVEN CENTRIFUGAL MACHINES.

Application filed July 14, 1922. Serial No. 574,931.

To all whom it may concern:

Be it known that I, WILLIAM COLCLOUGH, a citizen of the United States, residing at Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Safety Covers for Underdriven Centrifugal Machines, of which the following is a specification.

This invention relates to improvements in centrifugal extractors.

The objects of this invention are to provide a centrifugal extractor with a motor driven basket together with means for preventing opening of the extractor cover while the motor is running; more particularly to provide centrifugal means controlled by the motor for permitting opening of the basket cover only when the motor is idle; to provide a timing mechanism for automatically stopping the rotation of the basket after a predetermined period of time together with means for preventing setting of the timing mechanism when the cover is in open position; to provide an electrically driven extractor with means for preventing setting of the closing switch for operation of the basket while the cover is open.

Other objects of the invention will appear from the following description and claims when considered together with the accompanying drawings.

Fig. 1 shows my improved device in elevation; Fig. 2 is a transverse horizontal section through line 2—2 of Fig. 1; Fig. 3 is a plan view of part of the machine with part appearing in section; Fig. 4 is a rear elevation of part of the machine with part in section through line 4—4 of Figs. 2 and 3; Fig. 5 is a detail view taken on line 5—5 of Fig. 3; Fig. 6 is a section taken on line 6—6 of Figs. 1, 3 and 7; Fig. 7 is a section on line 7—7 of Fig. 6; Fig. 8 is a detail view of the starting switch; Fig. 9 is a detail view on line 9—9 of Fig. 2; and Fig. 10 is taken on line 10—10 of Figs. 1 and 4.

The casing or curb 1 is supported upon the base or pedestal 2 and encloses the basket 3 mounted upon the spindle 4 and driven by the pulley 5 about which extends the belt 6 from the electric motor 7. The rotor of the motor is provided with the coupling 8 and the flexible shaft 9 which operates and controls the timing mechanism

which is adapted to automatically stop the motor after a predetermined period of time. The timing mechanism here shown comprises a flexible shaft 9 extending into the casing 10 and driving the worm wheel 11 which is mounted upon the shaft 12 carrying the pinion 13. Pinion 13 drives the gear 14 upon the shaft of which there is mounted the worm 15 meshing with the worm wheel 16 which in turn is mounted upon the spindle 17. Spindle 17 has clutch connection 18 with the dial 19 which is adapted to be driven thereby, this clutch connection being controlled by means of the spring button 20. The finger 22 extends through the casing 10 and is provided at its rear end portion with the tooth or projection 23 adapted for engagement with the notch 24 in vertically disposed rod 25. The finger 22 is normally forced rearwardly by means of the spring 24 so as to project into the path of the rod 25 but may be withdrawn from such position by means of the pivoted fork releasing lever 26, the forwardly projecting end 27 of which is adapted to be engaged by the lug 21.

The rod 25 is connected at its lower end with the clevis 29 which is pivoted to link 30 the other end of which is pivoted to the arm 31. The other end of the arm 31 is fixed upon the rock shaft 32 which is suitably mounted in brackets upon the base of the machine, as clearly shown in Fig. 2 of the drawing. Fixedly mounted also upon the shaft 32 is the arm 33 which is provided with the clevis portion 34 from which depends the ball member 35 having engagement in the socket member 36 provided upon the brake treadle 37. The brake treadle is pivotally mounted at 38 upon the base of the machine and carries the brake shoe 39 for engagement with the pulley 5. The stop 40 is provided upon the base of the machine for engagement by the stop member 41 of the brake so as to limit the opening or release movement of the brake. The arm 31 has swivel connection as indicated by reference numeral 42, (see Fig. 8), which swivel member is adapted to engage the shoulder 43 of the switch closing member 44. The switch closing member extends upwardly into the housing 45 which encloses the switch for closing the circuit through the motor 7. The treadle 46 which is pivotally mounted at 47 upon the base

of the machine is provided with the forked end 48 which extends about the pin 49 in the arm 31 so as to raise the arm 31 upon the depression of the treadle 46.

Thus it will be seen that upon depression of the treadle 46 the switch rod 44 will be raised so as to close the switch in the motor circuit and to also raise the rod 25 so as to bring the notch 24 into proper position for engagement by the latch tooth 23 for maintaining the rod 25 in raised position. Then with the timing mechanism properly set for the desired length of time, the machine will begin operation and will continue to run until the tooth 23 is automatically withdrawn from the notch 24 by the tripping of projection 27 by lug 21, at which moment the rod 25 will automatically drop so as to open the switch in the motor circuit and apply the brake 39.

Suitably mounted upon the shaft of the electric motor I have provided the sliding block 50 which is controlled in its movement by means of the centrifugal governor 51 having pivotal connection with the block 50 and also with the coupling 8. These parts are so arranged that upon starting the motor the centrifugal governor will cause the block 50 to be lowered. The upward movement of block 50 due to the weight of the governor balls upon stopping of the motor, is limited by means of the stop 52 on the motor shaft. The block 50 is provided with an annular groove 53 which receives the studs 54 having pivotal connection with the yoke member 55, clearly shown in Fig. 10. This yoke member is pivotally mounted at 56 upon the bracket arm 57 on the motor casing. The lever arm of the yoke member is pivotally connected at 58 with the upwardly extending rod 59 which in turn has pivotal connection at 60 with one arm of the weighted bell crank lever which is pivotally mounted at 61 upon the casing of the extractor. The upper end of this bell crank lever is pivotally connected to the link 62 which in turn is pivotally connected with the arm 63 which extends rearwardly from the latch member 64 pivoted upon the casing at 65. This latch member has a cut-out portion 66 which when in the position as shown in Fig. 3 is adapted to receive the lug 67 provided upon the hinge member 68 of the cover. The position shown in Fig. 3 represents the machine in idle position at which time the cover can be raised. When, however, the motor is running, the centrifugal governor will through the means just now described cause the latch member 64 to rotate upon its pivot so as to bring the full portion thereof into the path of the lug 67 so as to prevent the cover from being raised during operation of the motor.

As a further means of preventing the

machine from being set for operation while the cover is open I have provided the rod 70 which is rigidly connected with the hinge 68 of the cover and upon which there is fixedly mounted the cam member 71 as shown in detail in Fig. 5. The cam 71 is so constructed and arranged that when the cover is moved to open position it will engage the pivoted finger 72 which is pivotally mounted upon the casing of the timing mechanism and whose forward end is adapted to engage the rod 22 at the latch end thereof so as to move the same out of the path of the rod 25. Thus when the cover is in open position the latch 23 is prevented from engaging the notch 24; so that the timing mechanism cannot be set and neither can the switch of the motor circuit be latched closed while the cover is open. When, however, the cover has been closed the cam member 71 is moved out of engagement with the finger 72 so as to permit the latch 23 to be forced by the spring 24^a into the path of the rod 25.

It is to be noted that although the brake is automatically engaged with the pulley 5 upon the termination of the period of operation, yet the parts are so constructed and arranged that the basket will not be brought to a dead stop instantaneously, but the basket will gradually slow down until it comes to a full stop. With my device the cover is prevented from being opened until the motor which drives the basket has come to a full stop, this being true because of the centrifugal control which is provided between the motor and latch member 64.

What I claim is:—

1. In a centrifugal extractor, the combination of a rotatable basket, driving means for rotating the same, a controller for said driving means having "on" and "off" positions and arranged to normally tend to return "off" position when moved therefrom, releasable means for holding the controller in "on" position when moved thereto, a protecting cover for said basket, and means controlled by said cover for rendering said holding means ineffective upon said controller when the cover is open.

2. In a centrifugal extractor, the combination of a rotatable basket, driving means for rotating the same, a controller for said driving means having "on" and "off" positions and arranged to normally tend to return to "off" position when moved therefrom, releasable means for holding the controller in "on" position when moved thereto, a protecting cover for said basket, and adjustable means adapted to be set for operation after a predetermined period for automatically releasing said holding means.

In testimony whereof I hereby affix my signature.

WILLIAM COLCLOUGH.