Aug. 21, 1923. 1,465,348

F. COX

POWER TRANSMITTING AND CONTROL MECHANISM

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Fig. 1.

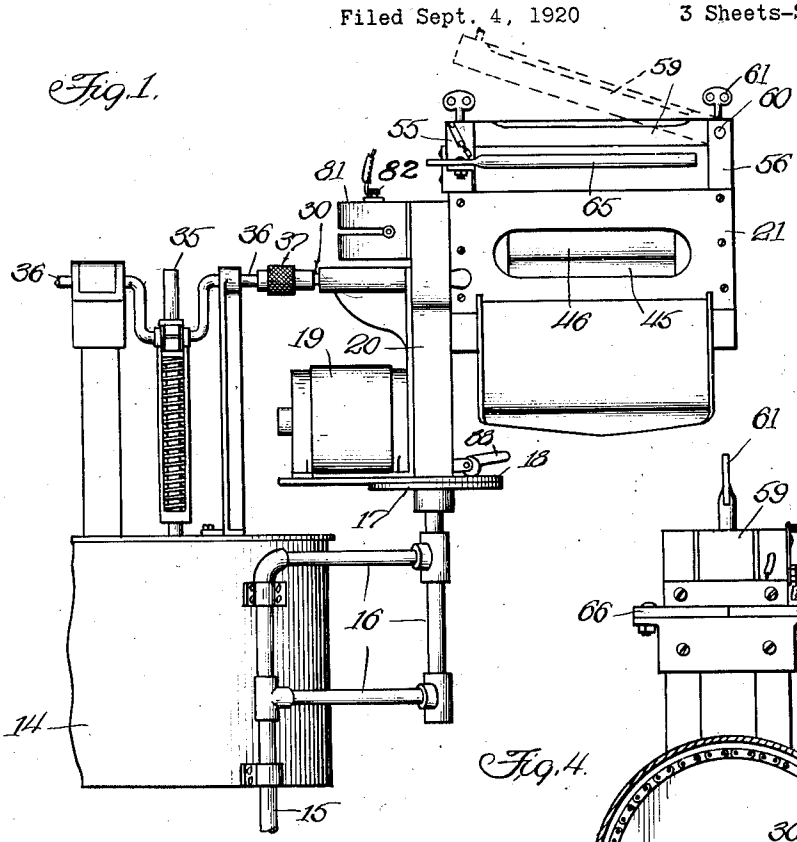


Fig. 4.

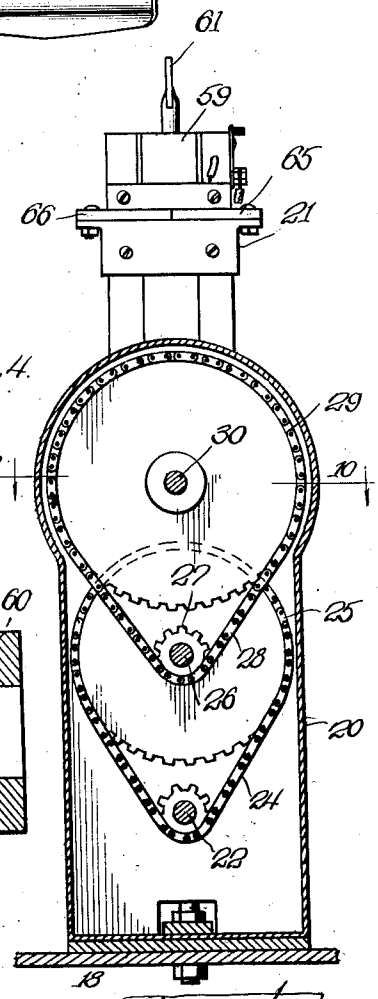
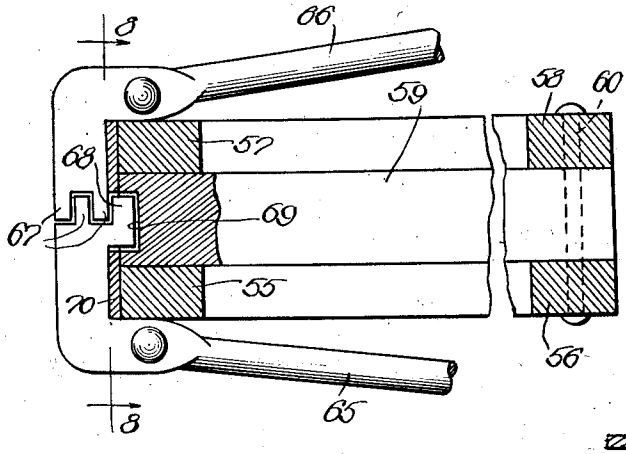


Fig. 5.



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Fig. 2.

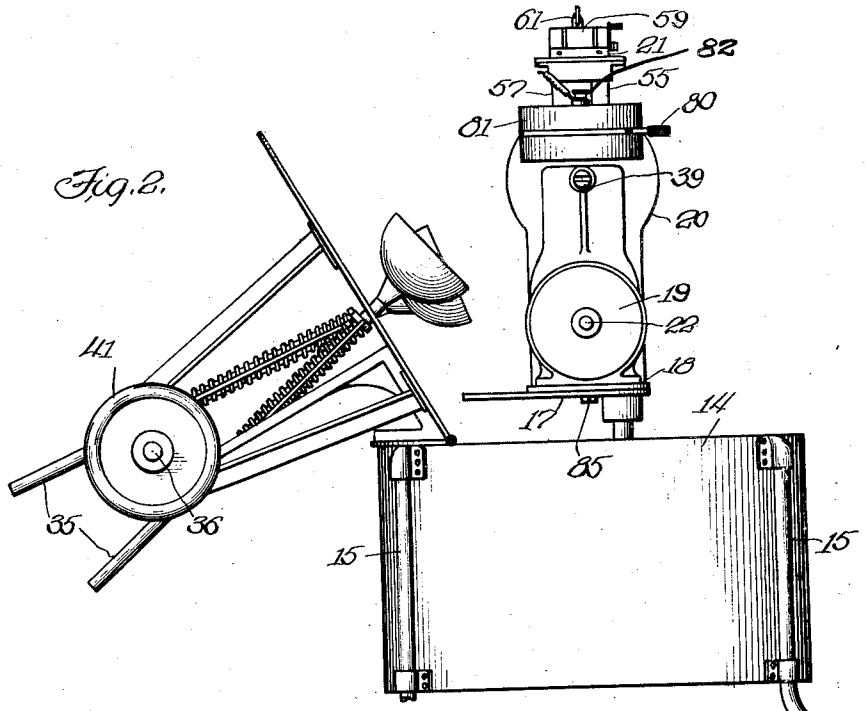


Fig. 8.

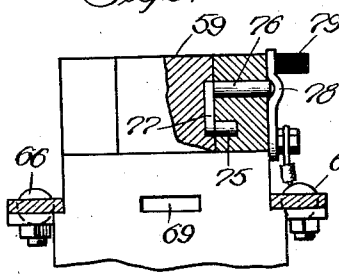


Fig. 9.

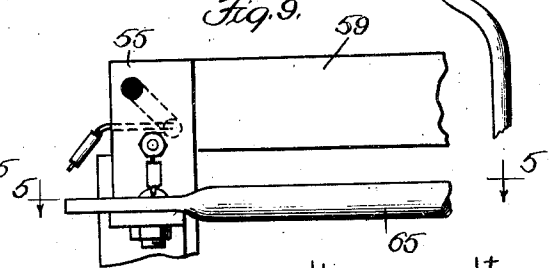


Fig. 10.

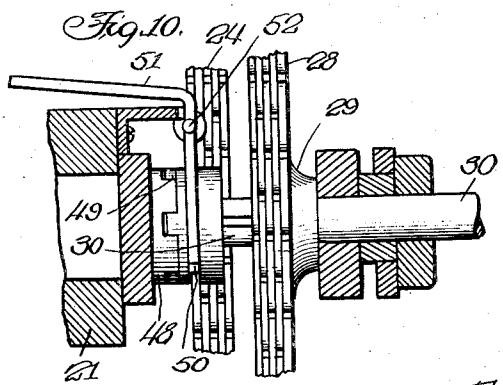
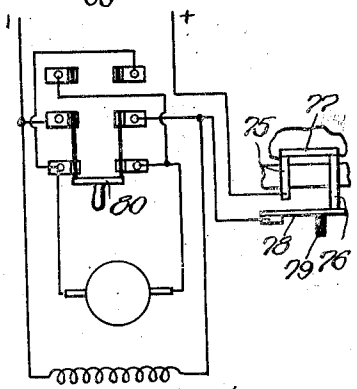


Fig. 11.



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POWER TRANSMITTING AND CONTROL MECHANISM

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Fig. 3.

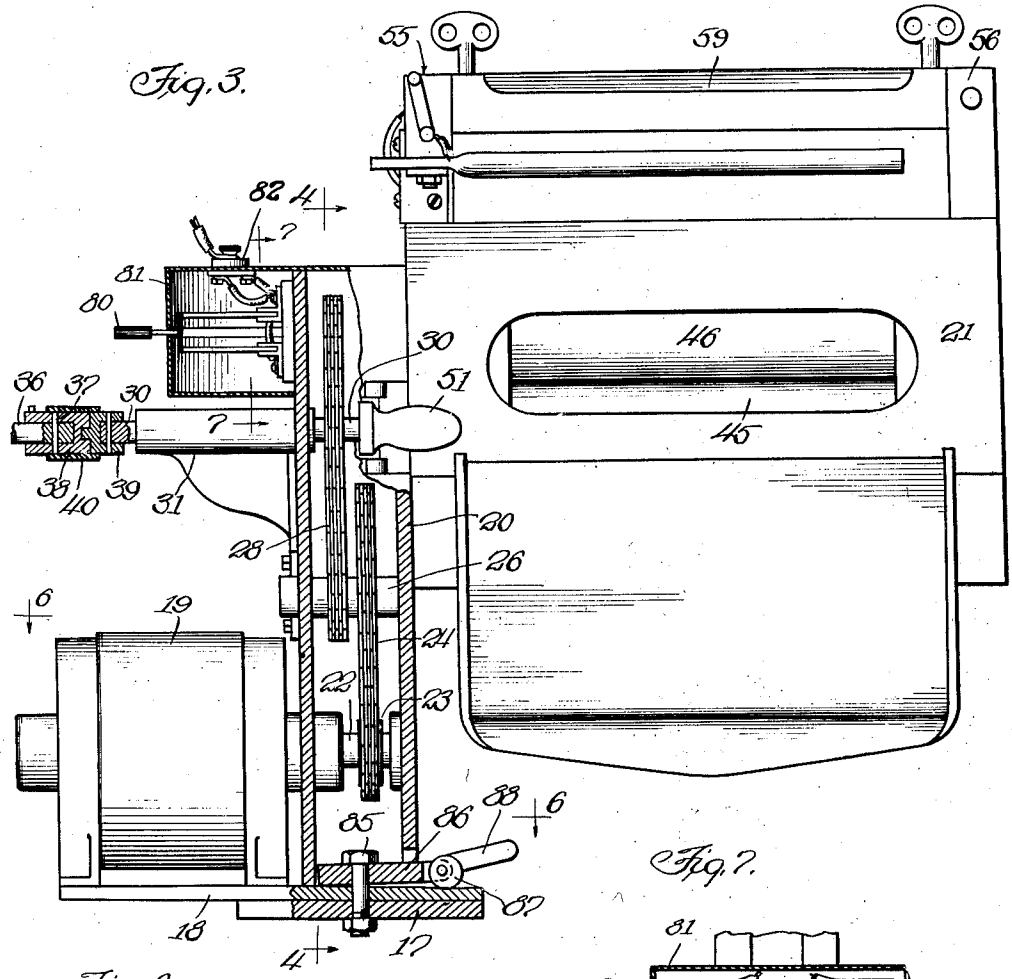


Fig. 7.

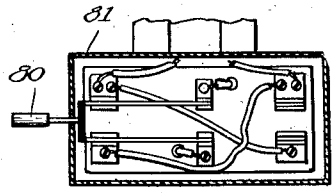
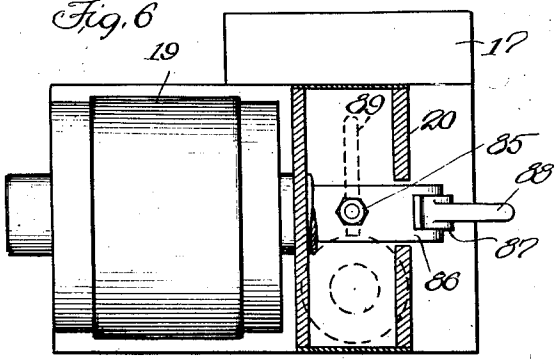


Fig. 6



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Patented Aug. 21, 1923. 1,465,348

UNITED STATES PATENT OFFICE.

FERDINAND COX, OF JACKSON, MICHIGAN.

POWER TRANSMITTING AND CONTROL MECHANISM

Application filed September 4, 1920. Serial No. 408,253.

To all whom it may concern:

Be it known that I, FERDINAND COX, a citizen of the United States, residing at Jackson, in the county of Jackson and State of Michigan, have invented certain new and useful Improvements in Power Transmitting and Control Mechanisms, of which the following is a specification.

This invention relates to power transmitting and control mechanism.

It is particularly applicable for use in combined clothes washers and wringers.

One of the objects of the invention is to provide an improved power transmitting and control mechanism for a washing and wringing machine.

Another object is to provide a safety device for the wringer.

Another object is to provide a safety device readily operable by the body of the operator.

Another object is to provide for the simultaneous release of pressure between the wringer rolls and the interruption of the drive thereof.

Other objects and advantages will appear from the description and claims.

An embodiment of the invention is illustrated in the accompanying drawings.

In the drawings

Fig. 1 is a partial side elevation of a washing machine and wringer with the cover of the washing machine in closed position.

Fig. 2 is a partial end elevation with the cover of the washing machine in open position.

Fig. 3 is an enlarged side elevation partly in section.

Fig. 4 is a section on the line 4—4 of Fig. 3.

Fig. 5 is a section on the line 5—5 of Fig. 9.

Fig. 6 is a section on the line 6—6 of Fig. 3.

Fig. 7 is a section on the line 7—7 of Fig. 3.

Fig. 8 is a section on the line 8—8 of Fig. 5.

Fig. 9 is a side elevation of a portion of the wringer showing part of an automatic circuit interrupter.

Fig. 10 is a section on the line 10—10 of Fig. 4, and

Fig. 11 is a circuit diagram.

The washing machine tub 14 is supported upon suitable legs 15 which may be of pipe. One leg is provided with a rigid bracket 16 which supports a platform 17. Platform 17 adjustably carries plate 18 upon which is rigidly mounted a driving motor 19, a transmission housing 20 and a clothes wringer 21.

Motor 19 has a shaft 22 upon which is secured a sprocket 23. A sprocket chain 24 interconnects sprocket 23 and a sprocket 25. Sprocket 25 is secured to a stud shaft 26 which is journaled in housing 20. Shaft 26 has a sprocket 27 secured thereto. A chain 28 interconnects sprocket 27 and a sprocket 29. Sprocket 29 is secured to a shaft 30 journaled in a bracket 31 carried by housing 20.

The transmission mechanism just described is completely enclosed by housing 20 and provides the necessary speed reduction between the motor shaft and shaft 30.

The washing machine agitator is driven from shaft 30. The agitator comprises a pair of plungers 35 carried by suitable supports on the hinged cover of the tub. Plungers 35 are reciprocated in the tub by the rotation of a crank shaft 36. The construction of the tub and agitator is more fully disclosed in copending application Serial No. 374,002, filed April 15, 1920.

Shafts 36 and 30 may be interconnected and disconnected by a coupling 37. Coupling 37 comprises a grooved member 38 movably pinned to shaft 36, a tongued member 39 movably pinned to shaft 30 and a slidable sleeve 40. Shafts 30 and 36 are connected together by effecting the proper register of the tongue and groove of members 38 and 39 and are retained together by sleeve 40 as shown in Fig. 3. By sliding sleeve 40 to the left as shown in Fig. 3, the tongue and groove may be separated, disconnecting shafts 30 and 36.

This readily connected and disconnected coupling allows the cover of the tub to be swung to closed position as shown in Fig. 1 and to open position as shown in Fig. 2.

Shaft 36 is also provided with a hand wheel 41.

Shaft 30 also effects the drive of the wringer rolls. The wringer has two rolls 45 and 46 suitably journaled in the frame

of the wringer. Roll 46 is provided with a clutch member 48 (see Fig. 10). Feathered on shaft 30 is a slidable clutch member 49. Clutch member 49 has a circumferential groove 50 into which fits the forked end of a lever 51. Lever 51 is pivoted to housing 20 on a pin 52 and is provided with a suitable handle to be readily manipulated by the operator.

The operation of lever 51 serves to connect and disconnect the wringer and the motor.

The wringer frame which, in general, is of the ordinary construction, has four upright posts 55, 56, 57 and 58. These posts carry suitable slidable bearings for the wringer rolls. A cross bar 59 is pivoted between posts 56 and 58 on a pivot pin 60 and extends across the top of the wringer frame where it is normally held between posts 55 and 57. Cross bar 59 is provided with a pair of tension screws 61 which vary the tension upon springs (not shown) and serve as an abutment to yieldingly hold the rolls 45 and 46 together. The turning of screw 61 varies the pressure of the springs upon the upper roll and thus varies the pressure between the rolls. This construction is well known in the art.

The force of the roll pressure-springs tends to rotate cross bar 59 about pivot pin 60, shown in dotted lines in Fig. 1, to release the pressure. The cross bar, however, is normally locked in horizontal position but may be readily released by the pressure of the body of the operator.

Cross bar 59 is locked in depressed position against the force of the springs by a manually released latch. This latch comprises a pair of levers 65 and 66 which are pivoted on opposite sides of the wringer frame near the free end of cross bar 59. Levers 65 and 66 are curved around the end of the wringer frame, as most clearly shown in Fig. 5, and are provided with co-operating teeth 67. Lever 65 also has a projection 68 forming a latch bolt. Bolt 68 is adapted to enter a latch socket 69 provided in a plate 70 which is secured to the front end of cross bar 59.

When cross bar 59 is depressed against the tension of the roll springs and the free ends of levers 65 and 66 are moved outwardly away from the wringer frame, latch bolt 68 enters socket 69 and the cross bar is securely locked down. However, if the operator should force inwardly the outer end of either of levers 65 or 66 bolt 68 will be withdrawn and the cross bar will be unlocked. When unlocked the springs elevate the free end of the cross bar as shown by the dotted lines of Fig. 1. Thus the pressure between the rolls may be readily released by the operator simply leaning against or otherwise moving one of a pair of conveniently accessible levers. This safety feature is of importance should the clothes or fingers of an operator become caught between the rolls.

Simultaneously with the release of pressure between the wringer rolls the operation of one of the safety levers causes the stopping of the motor.

The wringer frame carries two contacts 75 and 76. The inner ends of contacts 75 and 76 are exposed where they may be interconnected by a conducting plate or strip 77. Strip 77 is carried on the side of cross bar 59. When the cross bar is in depressed or wringer operating position strip 77 interconnects contacts 75 and 76. When the free end of the cross bar is elevated, upon the operation of the safety latch as previously described, plate 77 no longer interconnects contacts 75 and 76.

Contact 76 projects thru the wringer frame where its outer end may be engaged by a manually movable switch blade 78. Blade 78 has a handle 79.

One side of the transmission line is connected directly to the field of the motor. The other side of the line is connected to contact 75. The line and blade 78 are connected to the middle terminals of a double pole reversing switch 80 of the ordinary construction. The connections of this switch are such that when the switch is thrown to one position the motor armature is connected to the line in one direction while, when the switch is thrown to the other position, the motor terminals are reversed. Switch 80 thus controls the direction of rotation of the motor and consequently the direction of rotation of the wringer rolls.

When wringer cross bar 59 is depressed and blade 78 is in engagement with contact 76, the motor runs in one direction or the other depending upon the position of switch 80. Should the operator desire to stop the machine he may operate one of the safety levers 65 or 66, without the use of the hand, and thus release cross bar 59. The release of cross bar 59 simultaneously relieves the pressure on the wringer rolls and stops the motor. The motor also may be stopped without relieving the pressure between the rolls by moving blade 78 from contact 76.

Switch 80 is located in a suitable casing 81 carried by housing 20.

Any sort of a suitable switch, such as a snap switch 82 mounted on the top of casing 81, may be used as a main switch to control the current to the motor.

The wringer may be moved in a substantially horizontal plane to position the same relative to the washer and other tubs. The motor and the transmitting housing and wringer are pivoted upon a bolt 85 passing thru support 17 and plate 18. A clamping bar 86 lies between the inner head of bolt 85 and plate 18. One end of bar 86 has a cam

87 pivoted thereto. Cam 87 is provided with a handle 88. The motor, housing and wringer are securely clamped in any position by turning lever 88 so that cam 87 elevates bar 86 against the head of bolt 85. This movement forces the adjacent faces of support 17 and plate 18 firmly together, anchoring the motor, housing and wringer in any desired position.

Turning lever 88 in a reverse direction allows plate 18 and support 17 to be relatively rotated.

To position drive shaft 30 accurately with respect to the agitator shaft 36, plate 18 is provided with a slot 89 thru which bolt 85 passes. The motor, housing and wringer together with shaft 30 may thus be moved laterally to accurately bring the coupling members 38 and 39 into alignment.

Having described my invention, what I claim as new and desire to secure by Letters Patent is:—

In combination with a motor, a frame; a pair of parallel rolls mounted therein; a bar pivoted at one end to the frame; a latch to hold the free end of the bar in position parallel with the rolls, a pair of side bars, one on each side of the frame to release the pivoted bar and an electric switch, one element carried by said pivoted bar and the other by the frame to open the electric circuit containing the motor when said pivoted bar is released from latched position and moved to its outward position.

In testimony whereof I hereunto subscribed my name.

FERDINAND COX.