May 29, 1934. J. JESSEN ET AL 1,960,815

LAUNDRY MACHINERY

Original Filed Nov. 29, 1927 5 Sheets-Sheet 1

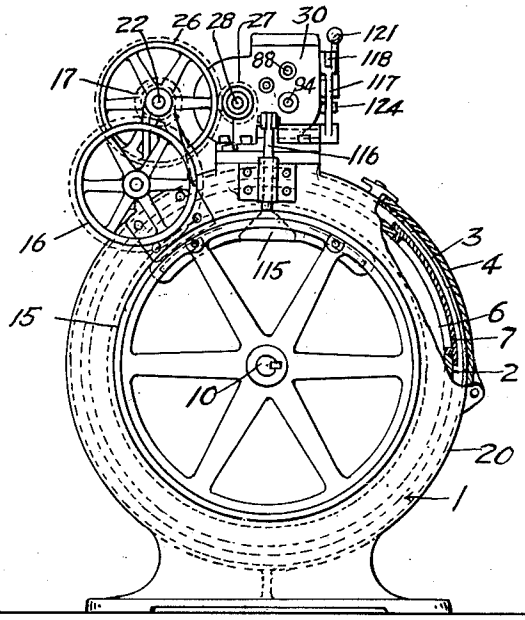


FIG. 1

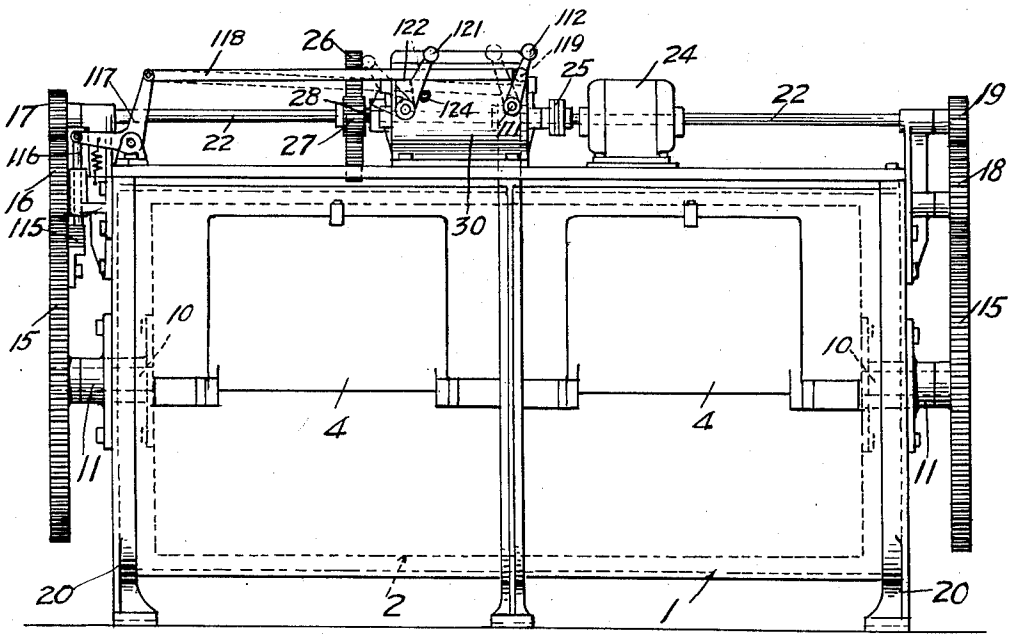


FIG. 2

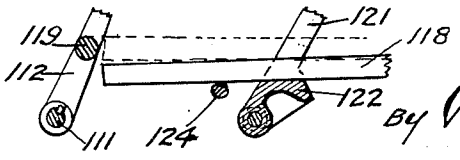


FIG. 14

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May 29, 1934. J. JESSEN ET AL 1,960,815

LAUNDRY MACHINERY

Original Filed Nov. 29, 1927 5 Sheets-Sheet 2

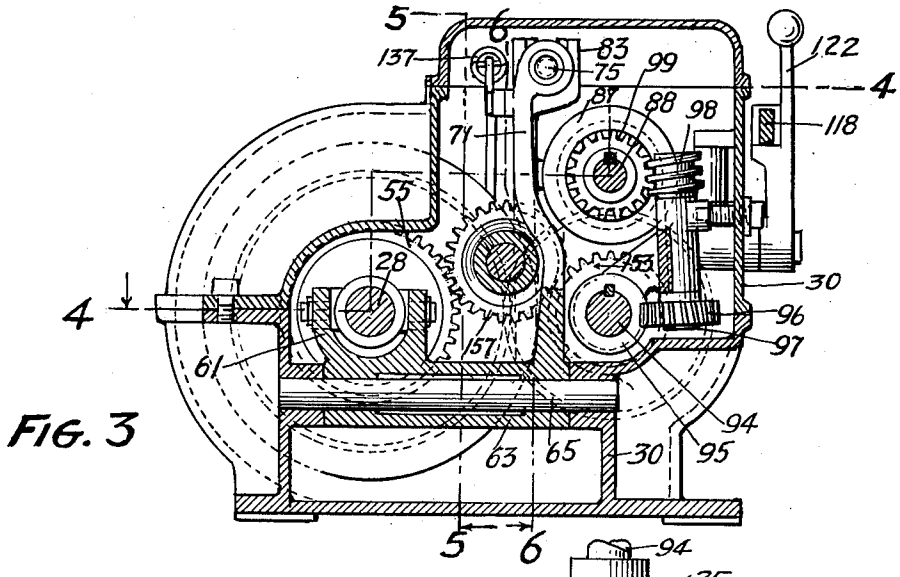


FIG. 3

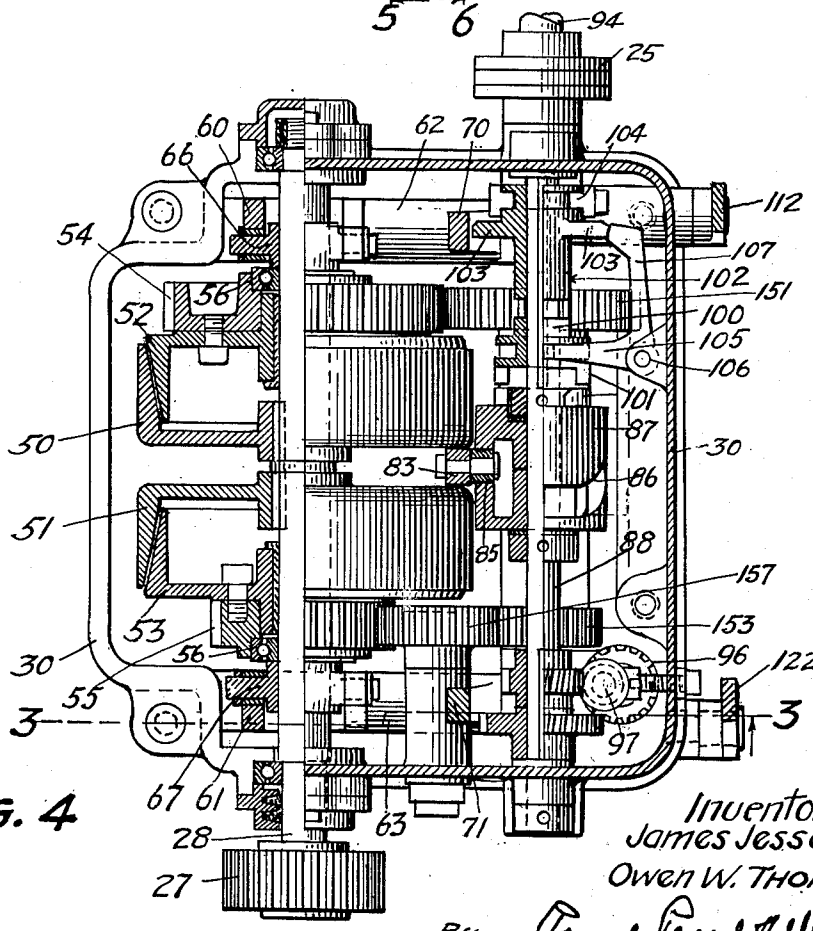


FIG. 4

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LAUNDRY MACHINERY

Original Filed Nov. 29, 1927 5 Sheets-Sheet 3

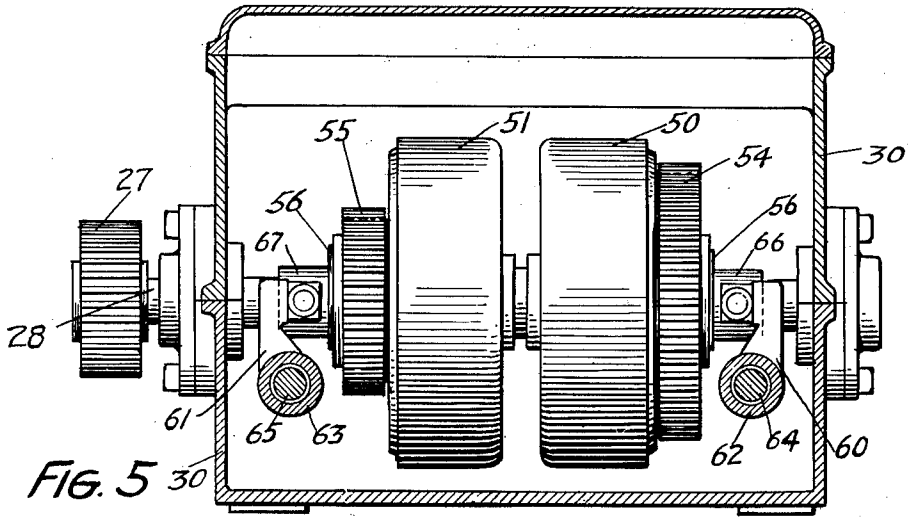


FIG. 5

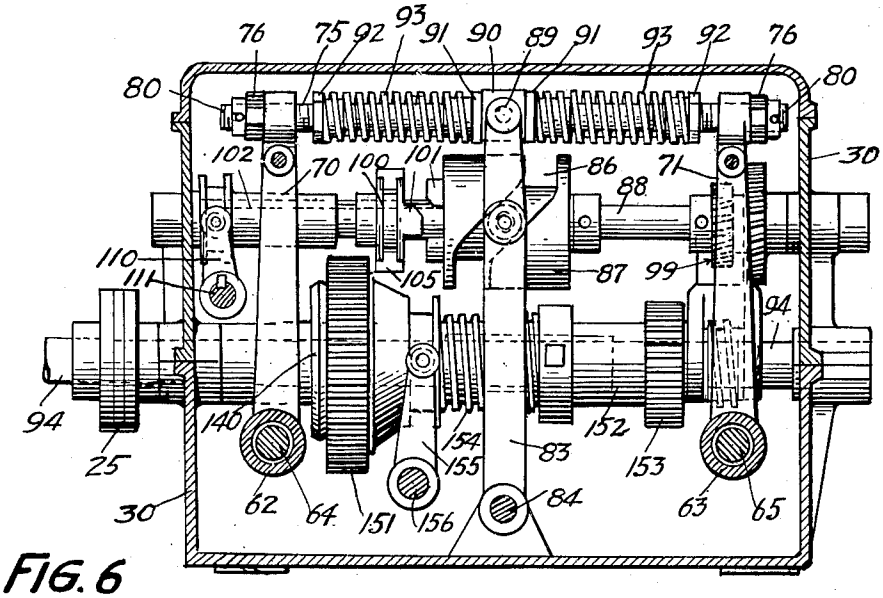


FIG. 6

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LAUNDRY MACHINERY

Original Filed Nov. 29, 1927 5 Sheets-Sheet 4

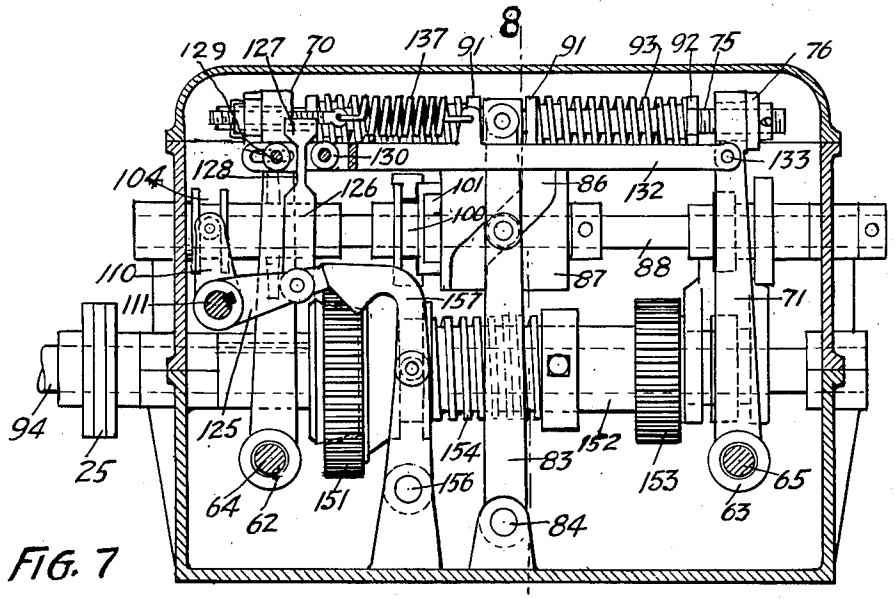


FIG. 7

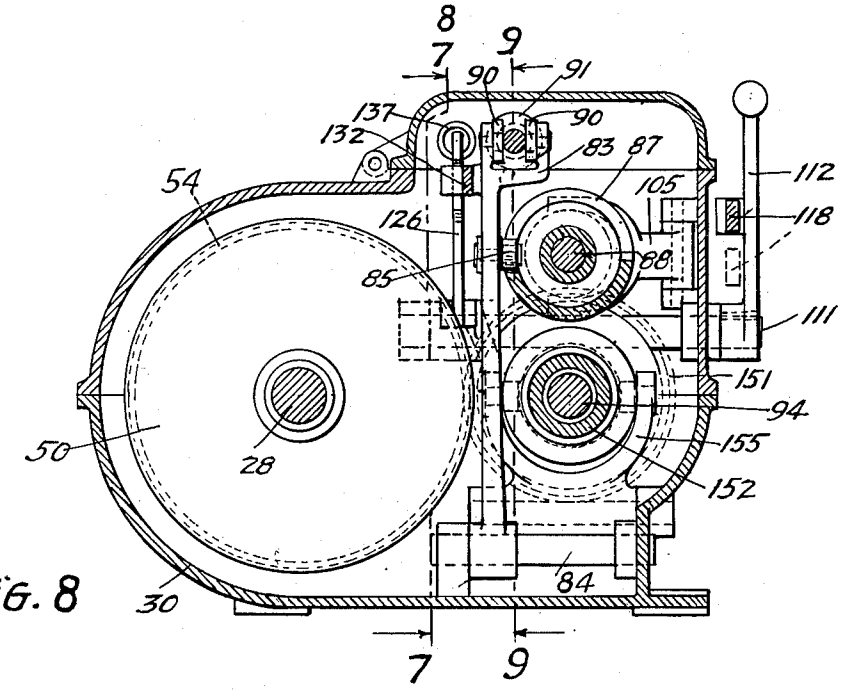


FIG. 8

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May 29, 1934. J. JESSEN ET AL 1,960,815

LAUNDRY MACHINERY

Original Filed Nov. 29, 1927 5 Sheets-Sheet 5

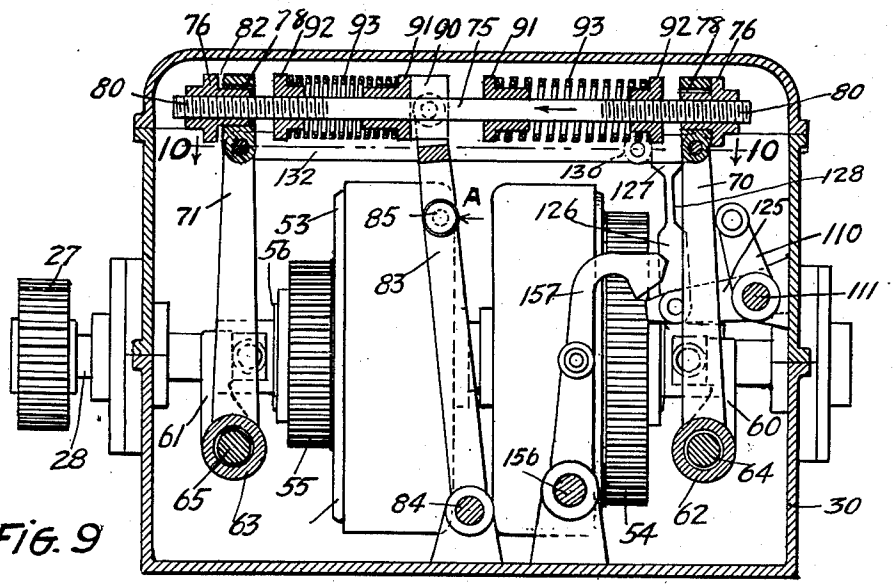


FIG. 9

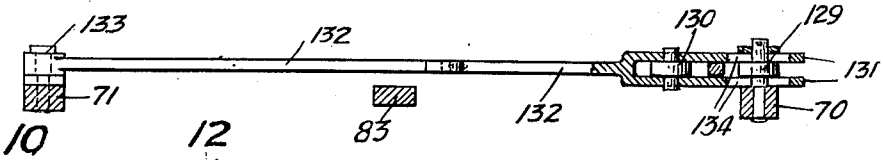


FIG. 10

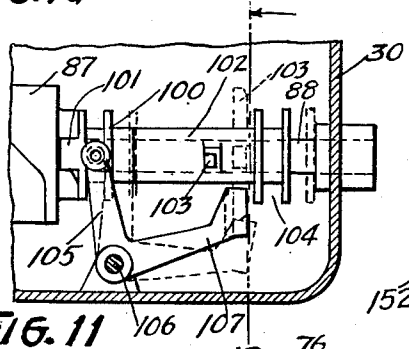


FIG. 11

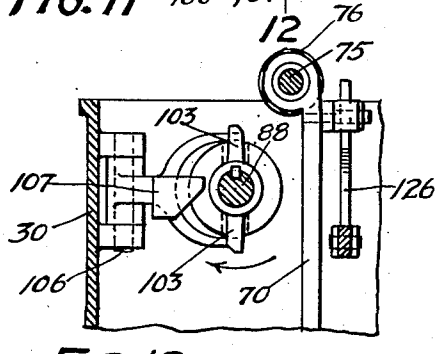


FIG. 12

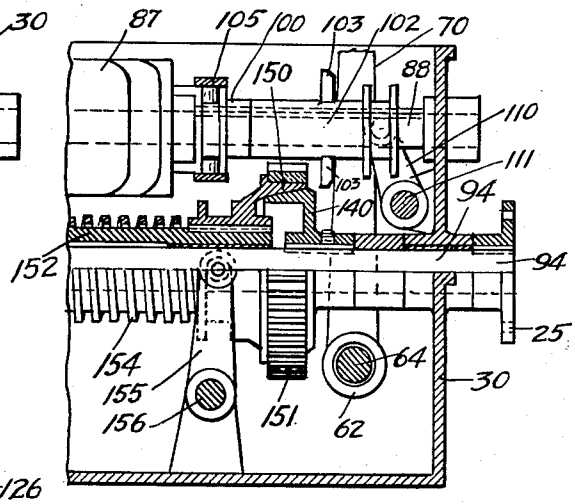


FIG. 13

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1,960,815

UNITED STATES PATENT OFFICE

1,960,815

LAUNDRY MACHINERY

James Jessen and Owen W. Thomas, Minneapolis, Minn.; said Jessen assignor to said Thomas

Refiled for application Serial No. 236,417, November 29, 1927. This application June 16, 1933, Serial No. 676,178

15 Claims. (Cl. 192—4)

This invention relates to improvements in laundry machines wherein drums are employed one of which is rotatable. In this type of machine drums are each provided with a filling opening closed by a door. In order to fill the apparatus these doors must be in opposition. It is one object of this invention to provide means whereby one of the drums may be rotated alternately in opposite directions for predetermined periods, and to further provide means whereby the movable drum can be automatically caused to stop with its door in opposition to the door of the other drum.

Other objects are to provide means operable at the will of the attendant to cause the doors to stop in opposition; to provide a reversing mechanism for operating the inner drum; to provide means whereby certain elements of the reversing mechanism may be operated both for causing reversing movements of the mechanism, and for causing the reversing elements to act as brakes to stop the rotatable drum in a predetermined position; to provide a reversing mechanism and means for operating it to cause one element of the reversing mechanism to take hold as the other releases, and to use the same elements and move them in a different manner to operate the clutch elements as brakes, the arrangement being such that one mode of operation can be substituted for the other, so that each mode of operation is entirely independent of the other; to provide cam means for operating the clutch control mechanism and to provide means whereby the cam can be caused to stop to position the clutch control elements for simultaneous release of both clutches; to provide means for releasing the cam in a predetermined manner; and to provide connections operable as the result of drum rotation for withdrawing the clutch when the filler openings of the drums are in opposition.

Features of the invention also include the details of construction, as one means of carrying out the broader inventive conceptions.

Advantages, objects and features of the invention will be set forth in the description of the drawings forming a part of this application, and in said drawings:

Figure 1 is an end view of a laundry machine showing the opposed relation of the filler openings of the drums, and illustrating a portion of the tripping mechanism;

Figure 2 is a side elevation of the construction of Figure 1 further illustrating the tripping mechanism as well as that portion of the driving mechanism other than the reversing and braking mechanism;

Figure 3 is a vertical section through a portion of the reversing and braking mechanism taken substantially on line 3—3 of Figure 4 in the direction of the arrows;

Figure 4 is a plan section substantially on line 4—4 of Figure 3;

Figure 5 is a vertical longitudinal section substantially on line 5—5 of Figure 3;

Figure 6 is a vertical section substantially on line 6—6 looking in the opposite direction from Figure 5;

Figure 7 is a vertical longitudinal section on line 7—7 of Figure 8;

Figure 8 is a vertical transverse section substantially on line 8—8 of Figure 7;

Figure 9 is a vertical longitudinal section approximately on line 9—9 of Figure 8;

Figure 10 is a plan section on line 10—10 of Figure 9;

Figure 11 is a fragmentary detail plan section showing the cam clutch controlling mechanism;

Figure 12 is a fragmentary vertical section on line 12—12 of Figure 11;

Figure 13 is a fragmentary vertical section showing the clutch for disconnecting power from the transmission gearing for the reversing clutches; and

Figure 14 is a detail view illustrating one means for controlling the operating of the braking mechanism as the result of rotation of the inner drum.

The invention thus far finds its most practical application in the laundry machine art, and, therefore is shown applied to a laundry machine of the type wherein there is an outer stationary cylinder or casing 1, and in which there is an inner perforated casing 2 which after having received the articles to be cleansed, is alternately rotated in reverse direction. The outer cylinder is provided with a charging opening 3, closed by a door 4. The inner drum is also provided with a charging opening 6 closed by a suitable door 7. As shown in Figure 1 of the drawings, the doors are in opposition, and it is one of the objects of this invention to cause the doors to automatically assume and remain at this position, at the will of the operator.

The inner drum, in this instance, is provided with stub shafts 10 which are journaled in suitable bearings 11 of the end frame 20, which support the outer casing 1. The inner drum may have any preferred form, but it will be understood that the drum is perforated so that the

cleansing liquid may freely pass thereinto. These perforations have not been shown. In this instance, there is connected to each stub shaft a driving gear 15 and with this gear are associated a train of gears, including elements 16 and 17 at one end of the outer casing, and including elements 18 and 19 at the opposite end of the outer casing. The intermediate gears 16 and 18 are suitably journaled on stub shafts carried by the end supporting frames 20 of the outer casing. The gears 17 and 19 are carried by shaft 22. Upon the shaft 22 is a gear 26 meshing with a gear 27 carried by what will be hereinafter referred to as the driven shaft 28 of a reversing tranmission mechanism mounted in casing 30 at the top of the cylinder 1.

Certain functions of this transmission mechanism constitute important features of the invention, inasmuch as there are provided a reversing transmission mechanism including clutches, means for operating the clutches for alternate driving engagement, along with means associated with the clutch-operating means for causing the clutches to act as brakes, and for timing the braking action so that the filling openings of the two casings or cylinders may be automatically brought into opposition and made to stop in that position at will. Therefore, the invention herein provides gearing for driving cylinders, provides a reversing clutch mechanism connected to drive the gearing, and provides a trip mechanism operable as the result of drum rotation to operate the clutch mechanism as a brake to stop the drums in a predetermined relation to one another.

This mechanism as a unit is contained in a casing 30 which provides suitable bearings, that need not be described in detail. The driven shaft 28 extends as best shown in Figure 4, entirely across the casing and has its opposite ends journaled in suitable bearings carried by the casing 30. Upon this shaft are keyed clutch elements 50—51. Slidably rotatably arranged upon shaft 28 are clutch elements 52—53 respectively cooperative within the drums 50—51. Each element 52—53 carries a gear, and these gears are respectively designated 54—55. The gears are secured to respective clutch elements in any suitable manner, and have bearings 56 which are slidable upon the shaft 28. Although a specific type of clutch is shown, and at the present time this is believed to be the best type, it is not meant that the claims be limited to this specific type.

As best shown in Figure 5, the movable elements of the clutch are operated by means of arms 60—61 carried by sleeves 62—63, mounted on shafts 64—65 journaled in the casing 30. The terminals of each pair of arms 60—61 respectively engage diametrically arranged projections carried by collars 66—67 loose and slidable upon the driven shaft 28. This clutch-operating connection is impositive in that the arms simply abut the projections of the sleeves and movement of the arms inwardly towards respective movable clutch elements engages the clutches while an outward movement of the arms permits a self-release of the elements. When either arm travels outwardly the pressure on the corresponding clutch element is simply removed, and upon reverse rotation of the shaft, its clutch engagement is broken.

At opposite ends of each sleeve 62—63 is arranged an upstanding lever or arm. These arms are respectively designated 70—71.

One of the features of the invention is the manner of connecting the arms 70—71 for operation by a power driven cam so that when one clutch is brought to clutching position the other is released.

To this end the arms are connected as best shown in Figures 6 and 9, by a rod 75 which is slidable with respect to the arms. Although this broadly expresses the condition, yet certain refinements have been added, see Figure 9, in the way of adjusting nuts respectively designated 76—76, each of which has an extension slidable in a corresponding bore 78 of each arm 70—71. These nuts or collars 76 are engaged with threads 80 of the connector 75. Therefore, by adjustment of these nuts or stops, a predetermined clearance such as shown at 82 in Figure 9 can be had to vary the releasing movement of the arms 70, 71. This clearance 82 is to permit one clutch lever, in this instance 71, to be moved sufficiently to allow the corresponding clutch element 53 to release. It will be noted that in this instance levers 70—71 move in the same direction, one to release a clutch and one to engage a clutch.

In order to swing the connector alternately in opposite directions, to obtain the alternate release and clutch engagement of the clutches, a lever or arm 83 is used and this lever is pivoted at its lower ends as at 84, and has an intermediate roller or similar device 85 engaging the groove 86 of a cam 87. This cam is of symmetric type, and is so arranged that the lever 83 is caused to assume the position shown in Figures 4 and 7 at each half revolution of the cam or shaft upon which the cam is mounted. This cam is rotatable upon the shaft and is held against translation by suitable collars. A clutch is used for causing it to rotate with the shaft when desired. This clutch will be later described.

This shaft 88 is constantly driven by gearing presently to be described. The upper end of the lever 83 is pivoted as at 89 to a block 90 which is slidable upon the connector 75, between stops 91—91, in turn slidable upon the connector. In threaded engagement with the connector are spring-adjusting stops 92—92. Between each pair of stops 91—92 is a spring 93. The tension of these springs may, therefore, be adjusted so that the proper yieldability can be had for the purpose in hand. It is to be understood that these springs operate to gradually urge the clutches to clutched position and to gradually release them. As shown in Figures 4, 6 and 7 the lever is in neutral position in which both clutches are released. The shaft 88 is normally constantly rotated by the driving shaft 94, through gearing in this instance comprising (see Figure 3) a worm gear 95 meshing with a companion worm 96 on shaft 97. This shaft 97 has another gear 98 meshing with a gear 99 of the shaft 88. The shaft 94 is operated (see Figure 1) by a motor 24 coupled as at 25.

Figure 9 shows the action of the clutch operating and clutch mechanism, with one of the clutches in and the other out. It will be seen that the lever 83 is caused by the cam to exert a pressure in direction of the arrow A. Therefore, one of the springs 93 is under compression to urge the connector 75 also in the direction of the arrow A to force the clutch at the right of this figure into clutching position. It will be noted that at this time, the other spring 93 is in expanded position. However, the tension of these springs may be adjusted so that neither

spring will be under tension when the lever 83 is in neutral position shown in Figures 4, 6 and 7.

The following means is provided by which the cam can be either caused to rotate with the shaft 88, or can be uncoupled so that it will not rotate therewith. This means also includes means for unclutching cam 87 only when the lever 83 is in neutral position or, in other words, when both clutches are free.

This uncoupling and positioning means comprises, (see Figures 4, 11, 12 and 13) a clutch member 100 splined to the shaft 88 and having teeth cooperative with corresponding teeth of cam 87, and also having a shift lever groove. These teeth are indicated at 101. Any preferred form of clutch may be used. Splined also to the shaft 88 is a sleeve 102 which has diametrically arranged trip arms 103, and a shift lever groove 104. With the shift lever groove of the clutch member 100 is engaged a shift lever arm 105 of a bellcrank lever which is pivoted to the casing as at 106. The other arm 107 of this bellcrank is arranged to be engaged by either of the trip elements 103, and the diametric relation of these arms to the diametrically related neutral points of the cam 87 is such that if the sleeve 102 is translated to the proper position, an arm 103 will engage the lever for each half revolution of the shaft 88, the engagement taking place only substantially when the lever 83 is at neutral position. When this engagement takes place, as shown in Figure 4, the clutch 100 is withdrawn and the cam is stopped substantially at the position shown. Therefore, the relation of the clutch-operating mechanism to the cam is such, that the clutch will only be withdrawn when the lever 83 and cam 87 stand at neutral position, as shown in Figures 4, 6 and 7. This mechanism may, therefore, be considered as means for controlling the cam to cause it to stop at such position as to release both clutch elements. The sleeve 102 is translated by means of a shift arm 110 engaging the groove 104 of the sleeve 102, and this arm is carried by a suitable shaft 111, see Figures 6 and 7 which is journaled in the casing 30, and has a lever 112 accessible from outside the casing, see Figures 2, 3, 4 and 14.

Whenever it is desired to bring both clutches to unclutched position, the lever 112 is moved from the dotted position to the right as viewed in Figure 2, to assume the full line position of that figure. This results in a corresponding movement of the sleeve 102 to bring its arms 103 into the path of the bellcrank arm 107 so that the clutch will be withdrawn as shown in Figure 4.

In the present device automatic means for throwing this lever 112 in the manner above described is provided and is operable or is adapted to be tripped by a mechanism now to be described, and which may be viewed as included in the means for operating the reversing clutch mechanism, to cause it to stop in neutral position, in which both clutches are unclutched.

This means comprises a cam 115 mounted for arcuate adjustment, see Figures 1 and 2, placed on the gear 15, and engageable with a trip rod 116 suitably slidably mounted upon the end frame 20 and having its opposite end connected with one arm of a bellcrank lever 117, the other arm of which is connected to a trip rod 118, the free end of which is adapted under certain conditions presently to be described to engage a projection 119 of the lever 112, when it is desired to disconnect the cam clutch. However, the element 118 is only positioned to throw the lever 112 toward the right as shown in Figure 2, when it is desired to stop the machine at the position shown in Figure 1, with the filling openings opposingly related. At other times, means is provided for, in this instance, lowering the lever stop engaging end of the element 118 to the position shown in dotted lines in Figure 2, so that when the bellcrank lever is rocked as the result of engagement of the pin 116 by the cam 115, no operation of the lever 112 will take place to cause unclutching operation of the driving cam. To this end, see Figures 14 and 2, a manually operable lever 121 is provided having a rod-engaging and supporting portion 122, upon which the rod 118 in this instance is slidable. When this lever 121 is thrown to the left (Figure 2) to lie in position shown in dotted lines, the rod 118 is lowered as shown in dotted lines so that its free end will not engage the stop or lug 119 of lever 112. However, when the lever 121 is swung to the position shown in full lines, then the rod 118 is raised so that its end engages the stop 119 as before mentioned. A suitable stop 124 is provided to limit the swing of the lever 121. Although the details of construction are claimed, it is not the intention to be limited to these details for the particular purpose in hand.

The mechanism or means for operating the clutches as brakes, which is another important feature, is caused to function as the result of movement of the sleeve 102 to the position shown in Figures 4, 6 and 7, particularly in Figure 7. The details of one means for accomplishing this function is as follows: Upon the shaft 111, which is operated by the lever 112, is an arm 125, to the outer end of which is pivoted what may be termed a latch-bar 126 having a head portion 127 and a constricted portion 128. The head portion of this bar normally lies between and abuts a pair of rollers respectively designated 129—130. This abutting relation is best shown in Figure 9 and when the head is in this position, the arms 70—71 are held in proper relation to operate only as clutch control members, and not as brakes. That is to obtain a reversing operation of the reversing clutch mechanism.

The rollers 129 and 130 are arranged, see Figures 10 and 7, between the arms 131 of a terminal fork of a link 132. The opposite end of this link is pivoted as at 133 to the lever 71. The pivot for the opposite end of this link, which connects it with the lever 70, forms a journal for the roller 129. This journal passes loosely through elongated slots 134 of the arms 131 of the fork. This connection permits a sliding movement of the link with reference to the arm 70. The link 132 is connected by a spring 137 with the lever 70 so that the tension of this spring can be adjusted. Spring 137 tends to pull the levers 70—71 toward one another to reduce the distance between them and cause both clutches to simultaneously act as brakes. Normally, however, the head 127 lies between the rollers to prevent this, and thus holds the levers in a certain predetermined relation, and in such relation as will cause them to alternately act when properly operated, to release one clutch as the other is engaged. When the head 127 is in the position just mentioned, the arm 125 assumes the position shown in Figure 9 which position corresponds to that of the sleeve 102 shown in Figures 11 and 13, wherein the trip arms 103 are out of the path of the end of the arm 107 of the bellcrank lever. When the latch 126 assumes the position shown in Figure 7 with its

reduced portion 128 lying in opposing relation to the rollers 129—130, the spring 137 acts to move the levers 70—71 to bring both cone members 52—53 simultaneously to clutch or braking position.

Whenever the clutches are to be used as brakes, it is necessary to disconnect the power to the reversing clutches. For this purpose the following arrangement is made: Referring first to Figure 13, and then to Figure 6 or 7. Keyed to the shaft 94 is a cone element 140. Cooperative with this cone element is a companion element 150 which carries a gear 151. This element 150 is splined to a sleeve 152 which is rotatable upon the drive shaft 94. The opposite end of this sleeve carries a gear 153. A spring 154 urges the elements 150 to clutching position, and a clutch-operating arm 155 is pivoted as at 156, and has an upward extension 157, see Figures 7 and 9, which is arranged to be engaged by the arm 125 when the sleeve 102 assumes the position shown in Figure 4 or as shown in Figure 7. When this engagement takes place, the element 150 is withdrawn and the power to the gears 151 and 153 is interrupted, but not the power to the shaft 88. The gear 151 (see Figure 4) meshes with the gear 54 of one of the movable clutch elements, and the gear 153 is transmittably connected with the gear 55 of the other clutch member through an intermediate or reversing gear 157, and thus the movable clutch elements are transmittably connected to be driven.

General operation

Let it be assumed that the attendant wishes to bring the filler opening of the inner drum into opposed relation with the corresponding opening of the outer drum, this while the machine is running. Lever 121 is thrown from its dotted position in Figure 2 to the full line position against the stop 124. This results in the raising of the rod 118 to the full line position, so that the reciprocative path of its free end lies in the rotative path of the stop 119 of the lever 112. The gear wheel 15 rotates until the trip 115 engages the latch bar 116 and raises it to rock bellcrank lever 117, and translate bar 118 to its position shown in Figure 2. This causes the lever to assume that position also shown in full lines in Figure 2, and also results in the sleeve 102 assuming the position shown in Figures 4 and 7. With the movement of the sleeve 102 to the position shown in these figures, arms 103 are brought to a position which, after a half or less than a half revolution of the shaft 88, will operate arm 107 to withdraw the clutch 100, and leave it at neutral position. Also arm 125 rises, see Figure 7, and engages arm 157 to release the clutch element 150, and thus stop rotation of gears 151—153. With the movement of arm 125 upwardly the latch bar 126, in this instance, is also moved upwardly to the position shown in Figure 7 moving the head 127 from between the rollers and thus releasing the bar 132 so that spring 137 may pull arms 70 and 71 toward one another and force the elements 51 and 53 to braking position. The arrangement is such, however, that shaft 88 continues to rotate and at the end of not more than half a revolution one of the arms 103 will engage the latch or bellcrank lever and release the clutch 100 always and only when the lever 83 and cam are in neutral position, that is with both clutches released. The result is that both clutches are released immediately before they are to be used as brakes, and the braking action follows substantially immediately as the lever 83 reaches its neutral position.

It is not intended herein that the invention be limited to the details of the construction, although all of the details of construction are claimed as representing one way in which certain of the novel functions of the invention may be carried out. The means is broadly claimed by which a plural clutch device can be operated alternately from a single connector, which in turn is operated by a single cam or equivalent device to cause one clutch to be brought to operative position as the other leaves operative position. The means is broadly claimed which enables this clutch mechanism to be also used as a brake. The means is broadly claimed by which the clutching means is released by moving part of the laundry machine and by which simultaneously the clutches are conditioned for use and are used as a brake. The means is broadly claimed which results in the positioning of the filler openings of a laundry machine of the type described, and for the purposes set forth.

We claim as our invention:

1. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch, a connector associated with said arms to move them to cause one clutch to take hold as the other is released, a cam, an arm movable by the cam, said arm arranged to yieldably abut and move the connector, the arrangement being such that when the arm is in a predetermined position both reversing clutches are disengaged.

2. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch, a connector associated with said arms to move them to cause one clutch to take hold as the other is released, a cam, an arm movable by the cam, said arm arranged to yieldably abut and move the connector alternately in opposite directions, the arrangement being such that when the arm is in a predetermined position both reversing clutches are disengaged.

3. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch, a connector associated with said arms to move them to cause one clutch to take hold as the other is released, a cam, an arm movable by the cam, said arm arranged to yieldably abut and move the connector, the arrangement being such that when the arm is in a predetermined position reversing clutches are disengaged, a clutch for controlling cam movement, and means for releasing the clutch, only when the arms are positioned to obtain release of both reversing clutches.

4. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch, a connector associated with said arms to move them to cause one clutch to take hold as the other is released, a cam, an arm movable by the cam, said arm arranged to yieldably abut and move the connector in opposite directions, the arrangement being such that when the arm is in a predetermined position both reversing clutches are disengaged, a clutch for controlling cam movement, and means for releasing the clutch, only when the arms are positioned to obtain release of the reversing clutches.

5. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch connected to move the clutch to clutching position, a connector slidably associated with the arms and having abutments arranged to limit the movement of the arms away from one another, a cam, a lever operable by the cam and

having a sliding connection with the connector, springs upon the connector abuttingly engaging the connector, and abutting the cam arm at opposite sides, the arrangement being such that when the cam is in a predetermined position both arms are actuated to release their clutches.

6. A reversing mechanism comprising a pair of clutches, an operating arm for each clutch connected to move the clutch to clutching position, a connector slidably associated with the arms and having abutments arranged to limit the movement of the arms away from one another, a cam, a lever operable by the cam and having a sliding connection with the connector, springs upon the connector abuttingly engaging the connector, and abutting the cam arm at opposite sides, the arrangement being such that when the arm is in a certain position both arms are actuated to release their clutches, a clutch for controlling cam movement, means for releasing the clutch, the arrangement being such that the clutch is only released when the clutch operating arms are positioned to release both clutches.

7. A laundry machine having drums, a reversing clutch mechanism connected to drive one of the drums, means for driving the reversing mechanism, means for operating the reversing mechanism including arms, a connector associated with the arms to move them to cause one portion of the reversing mechanism to operate as the other becomes inoperative, and at one position to cause the mechanism to become inoperative, a cam, a third arm operable by the cam, connections between the third arm and the connector for yieldably urging the connector alternately in opposite directions, a clutch for controlling cam movement, means for automatically releasing the clutch, to stop cam rotation when the arms are positioned to make the reversing mechanism inoperative.

8. A laundry machine having a pair of drums having filler openings adapted to be brought into register, a reversing clutch mechanism connected to drive one of the drums, means for driving the reversing mechanism, means for operating the reversing mechanism, including arms, a connector associated with the arms to move them to cause one portion of the reversing mechanism to operate as the other becomes inoperative, a cam, a third arm operable by the cam, connections between the third arm and the connector for yieldably urging the connector, a clutch for controlling cam movement, means for releasing the clutch, means operable as the result of releasing means operation for disconnecting the reversing mechanism driving means, means yieldably connecting said pair of arms and tending to move them to obtain a braking action by the reversing mechanism, means operable by the cam clutch releasing means for preventing actuation of the last mentioned connecting means except upon cam clutch release, and connections operable as the result of drum rotation for withdrawing the cam clutch when the filler openings are in opposition.

9. A laundry machine having a pair of drums having filler openings adapted to be brought into register, a reversing clutch mechanism connected to drive one of the drums, means for driving the reversing mechanism, means for operating the reversing mechanism, including arms, a connector associated with the arms to move them to cause one portion of the reversing mechanism to operate as the other becomes inoperative, a cam, a third arm operable by the cam, connections between the third arm and the connector for yieldably urging the connector alternately in opposite directions, a clutch for controlling cam movement, means for releasing the clutch, means operable as the result of releasing means operation for disconnecting the reversing mechanism driving means, means yieldably connecting said pair of arms and tending to move them to obtain a braking action by the reversing mechanism, means operable by the cam clutch releasing means for preventing actuation of the last mentioned connecting means except upon cam clutch release, and connections operable as the result of drum rotation for withdrawing the cam clutch when the filler openings are in opposition.

10. A laundry machine having a pair of drums having openings adapted to be brought into register, a reversing clutch mechanism connected to drive one of the drums, means for driving the reversing mechanism, means for operating the clutch mechanism, including arms, movable to control the elements of the clutch, a connector associated with the arms to alternately bring one to clutch position and to release the other, a cam, a third arm operable by the cam, connections between the third arm and the connector for yieldably urging the connector alternately in opposite directions as the cam is moved, a clutch for controlling cam movement, means for releasing the clutch when the third arm is in a predetermined position, means operable as a result of releasing means operation, for disconnecting the drive to the reversing mechanism, means yieldably connecting said pair of arms and tending to move them simultaneously to cause a braking action of the clutch mechanism, means operable by the cam clutch releasing means for preventing actuation of the last mentioned yieldable arm-connecting means while the cam clutch is in, said means releasable as the result of withdrawal of the cam clutch to obtain braking action of the reversing mechanism, and connections operable as the result of drum rotation for withdrawing the cam clutch when the filler openings are in opposition.

11. A laundry machine having a pair of drums having filler openings adapted to be brought into register, a reversing clutch mechanism connected to drive one of the drums, means connected to operate the clutch mechanism including a connector associated with clutch operating means to alternately obtain reversing action of the clutch, a cam, means operable by the cam for yieldably urging the connector in opposite directions as the cam is moved, a clutch for controlling cam movement, means for releasing the clutch at a predetermined position of the cam, means operable as the result of the releasing means operation, for disconnecting power to the reversing clutch mechanism, means yieldably connecting with the connector to cause the clutch mechanism operating means to move the clutches to braking position, means operable by said cam clutch operating means for preventing actuation of the last mentioned means, said means releasable as the result of the cam clutch to obtain said braking action, and connections operable as the result of drum rotation for withdrawing the cam clutch when the filler openings are in opposition.

12. A shaft, a pair of clutches thereon each having a member keyed to the shaft and each having a member slidable upon the shaft, levers for separately bringing the movable member into clutch engagement with the keyed member, a rod slidably connecting the levers, a cam, a lever operable by the cam and slidably traversed by the

bar, compression springs engaging the cam lever at opposite sides slidable upon the bar and abutting the rod, the arrangement being such that upon movement of the cam operated lever one of the clutches is caused to gradually take hold while the other is gradually released, the arrangement further being such that in one position of the cam lever, both clutches are disconnected.

13. A laundry machine maving cylinders one of which is rotatable, a reversing clutch mechanism connected to operate the rotatable cylinder, said reversing clutch mechanism including means to operate it for reversing and for operating it as a brake, means for actuating said operating means, and a trip mechanism operable as the result of drum rotation to operate the actuating means to discontinue the reversing action of the clutch mechanism and to cause it to act in its braking capacity.

14. A laundry machine having cylinders one of which is rotatable, a reversing mechanism connected to drive the cylinder, driving means for the reversing mechanism, means for operating the clutches of the reversing mechanism for reversing, means connected with the reversing operating means for causing them to operate the mechanism as a brake, and means for causing the reversing operating mechanism to become inactive when the braking mechanism becomes active, and means for automatically controlling both mechanisms as the result of the drum rotation.

15. In a laundry machine having an outer drum with a door therein and an inner revoluble drum also with a door therein adapted in one position of the inner drum to register with the door in the outer drum, clutch mechanism connected through gearing with the inner drum, said mechanism including a pair of clutch units operable alternately for reversely rotating the inner drum and operable simultaneously for arresting the rotation of said inner drum, means for operating said clutch mechanism, and trip mechanism operated through said gearing and acting upon said operating means to discontinue the reversing action of the clutch mechanism and to cause it to act as a brake against the rotation of the inner drum and stop the same with its door in registration with the door in the outer drum.

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