Jan. 2, 1923. 1,440,911.

M. E. DALY ET AL.

DEVICE FOR MANIPULATING DRUMS OR CYLINDERS.

FILED JULY 10, 1918. 2 SHEETS—SHEET 1.

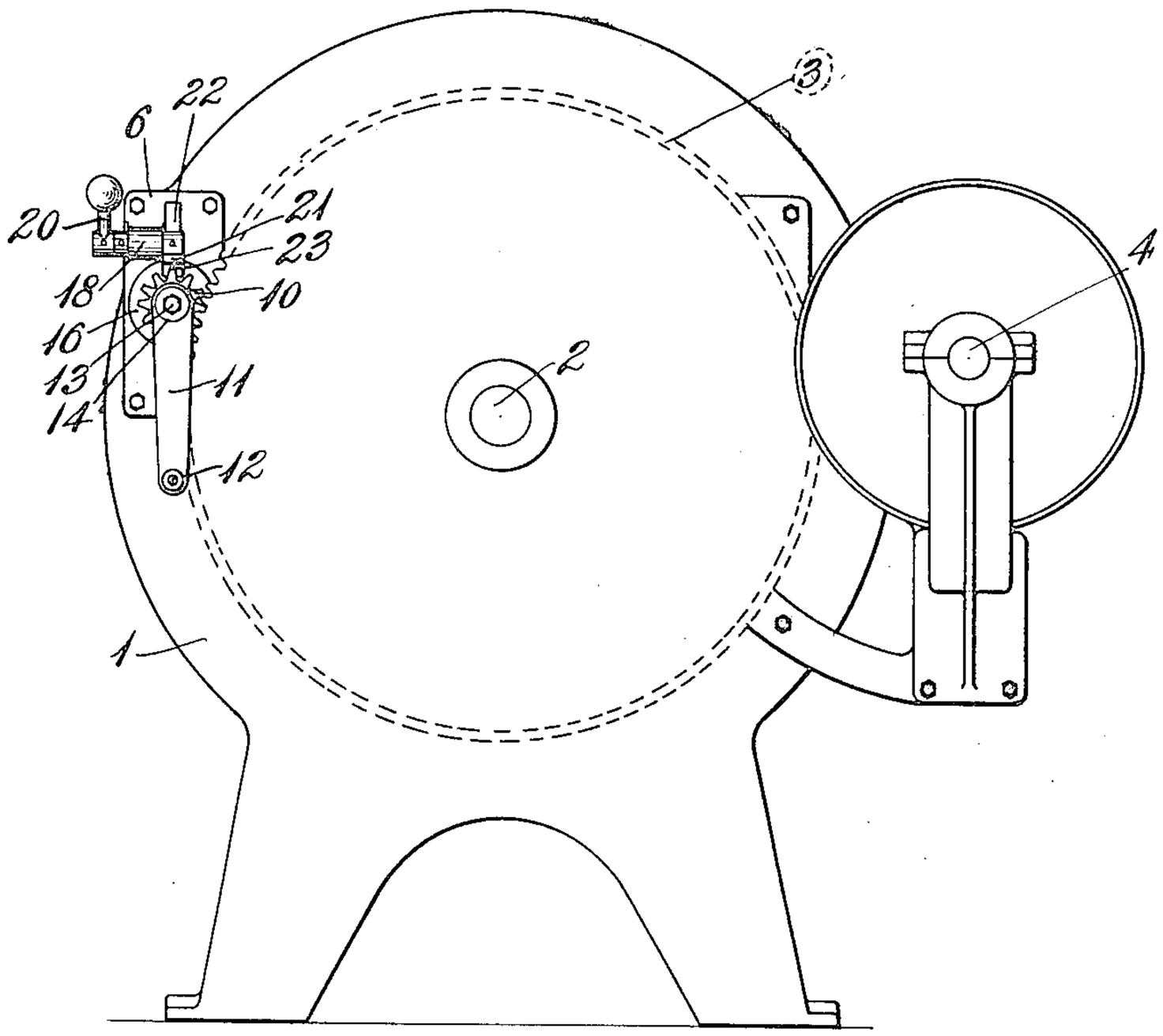

FIG. 1

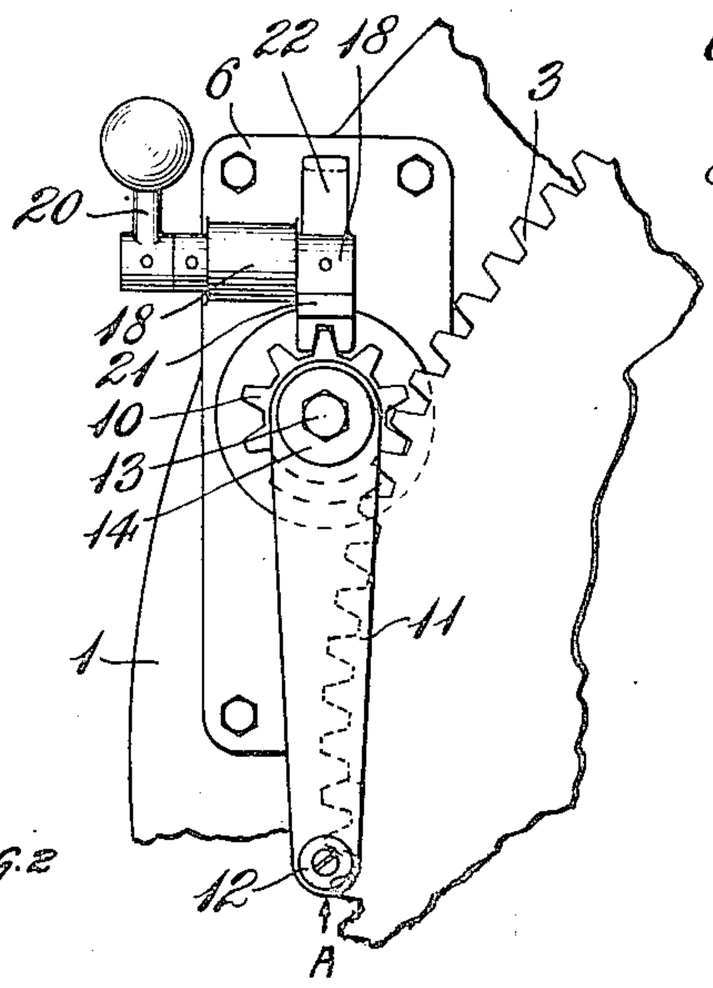

FIG. 2

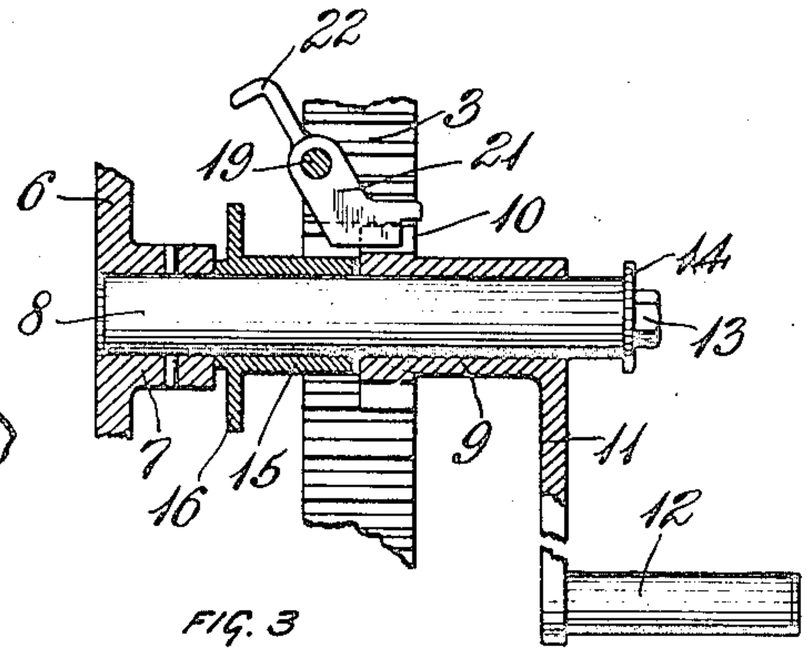

FIG. 3
SECTION AT A (FIG 2)

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DEVICE FOR MANIPULATING DRUMS OR CYLINDERS.

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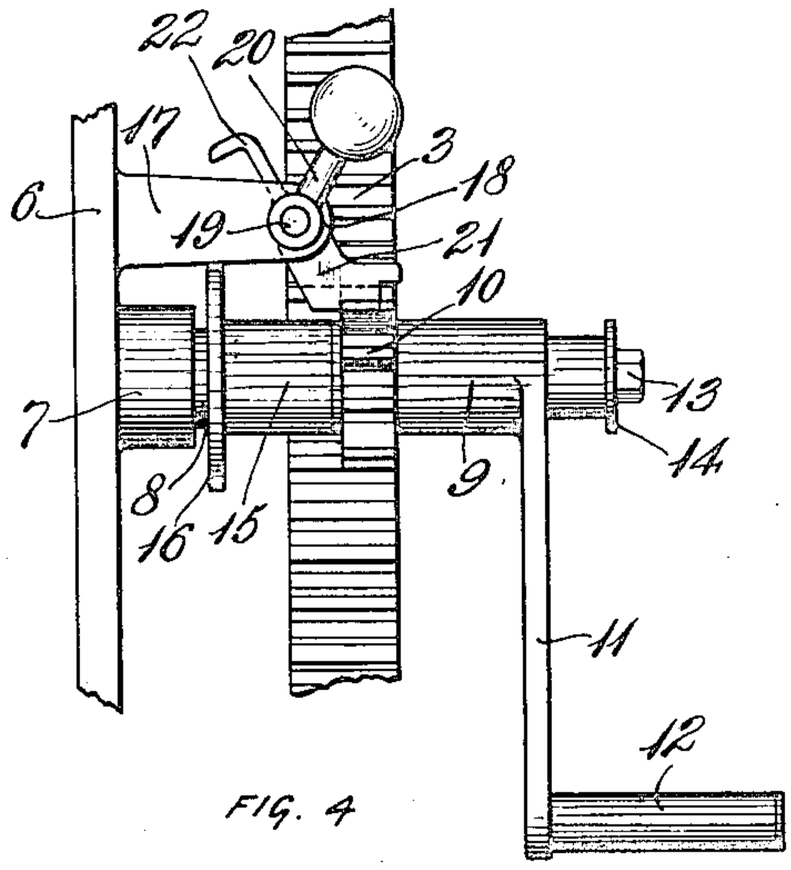

FIG. 4

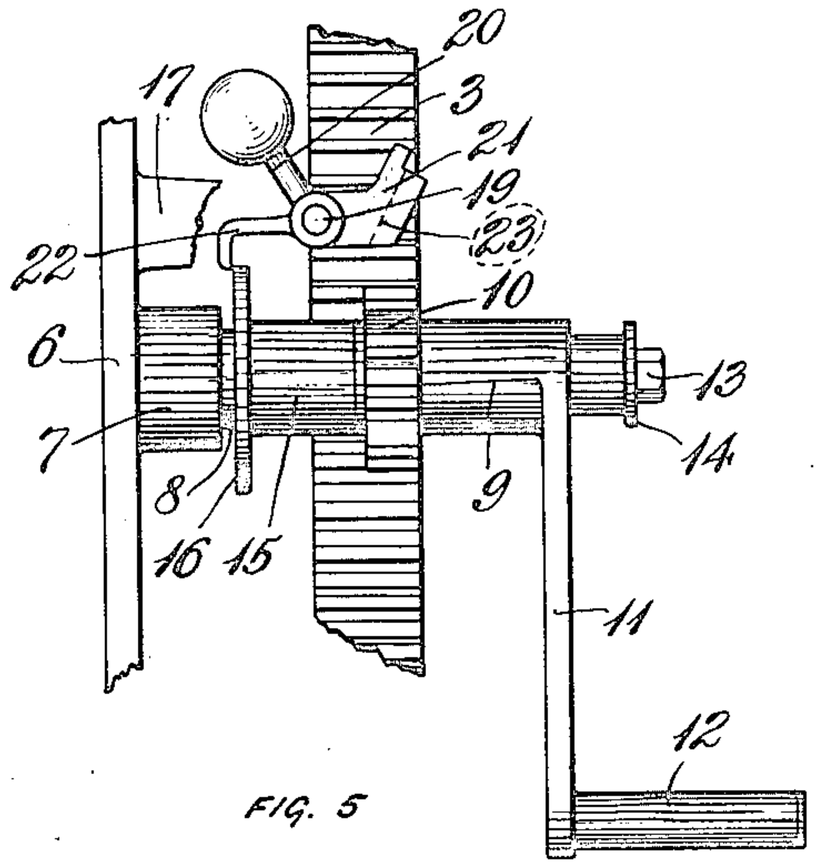

FIG. 5

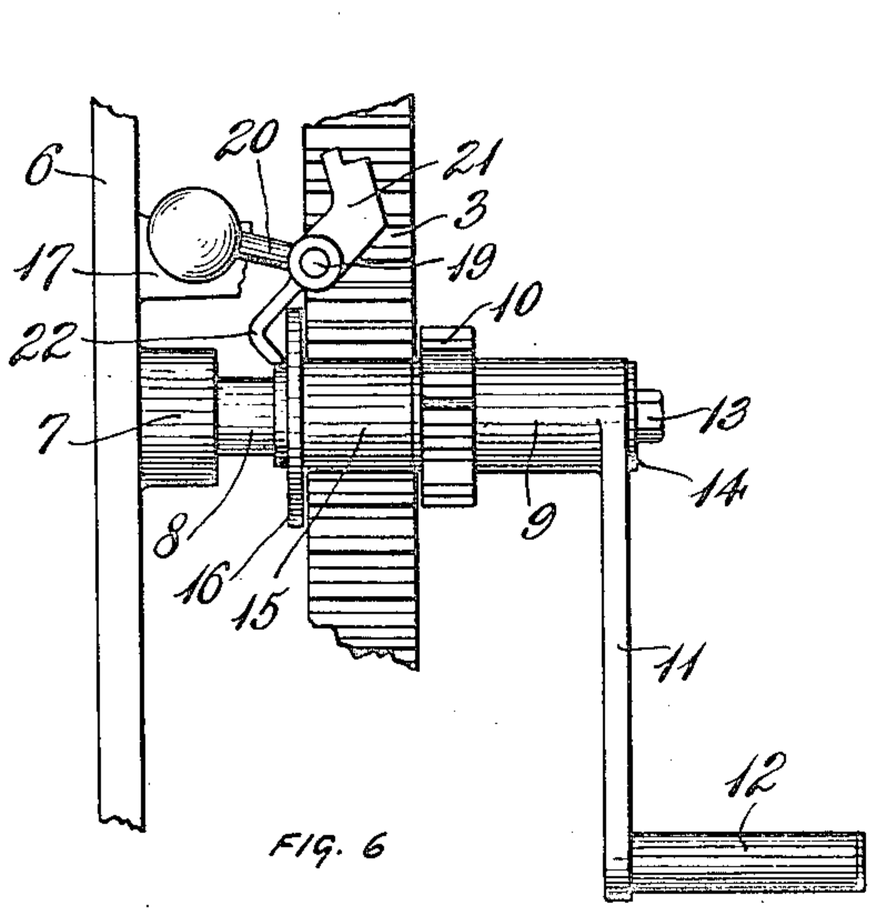

FIG. 6

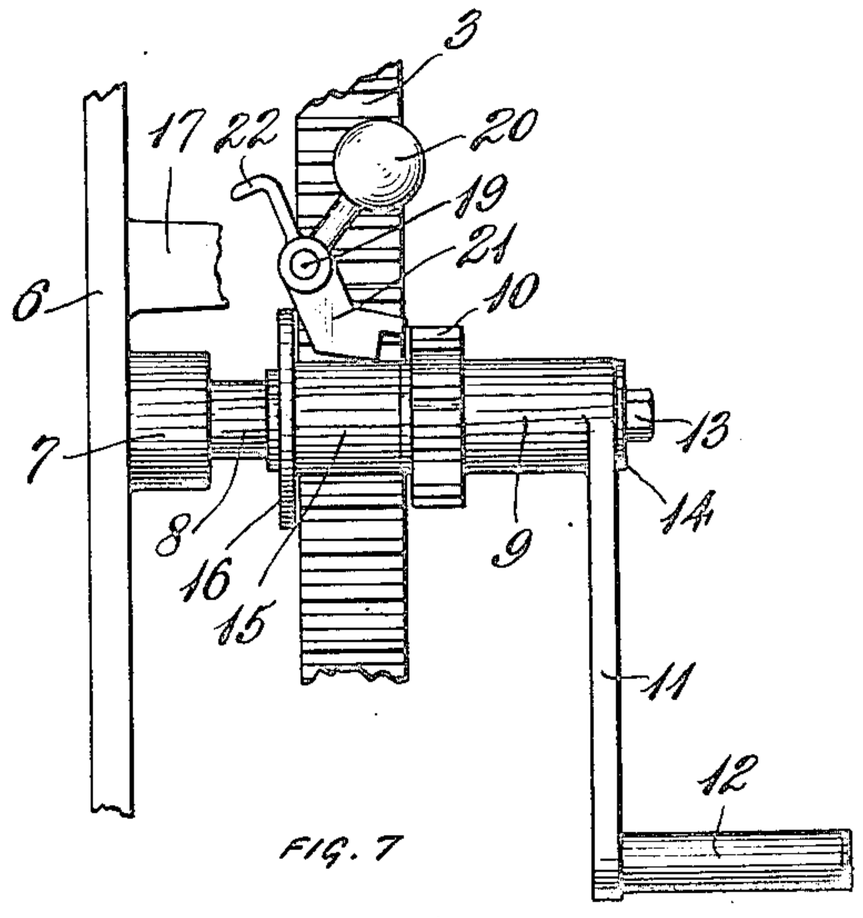

FIG. 7

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Patented Jan. 2, 1923. 1,440,911

UNITED STATES PATENT OFFICE.

MICHAEL E. DALY, OF CINCINNATI, AND EDMUND I. CUTTER, OF NORWOOD, OHIO, ASSIGNORS TO THE AMERICAN LAUNDRY MACHINERY COMPANY, OF NORWOOD, OHIO, A CORPORATION OF OHIO.

DEVICE FOR MANIPULATING DRUMS OR CYLINDERS.

Application filed July 10, 1918. Serial No. 244,256.

To all whom it may concern:

Be it known that we, MICHAEL E. DALY and EDMUND I. CUTTER, citizens of the United States, residing at Cincinnati and Norwood, respectively, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Devices for Manipulating Drums or Cylinders, of which the following is a specification.

This invention relates to attachments for washing machines and tumblers and contemplates mechanism for rotating the drum or cylinder to open position and holding it in such position.

In tumblers used for treating fabrics and in washing machines and other similar devices for treating fabrics drums are utilized for containing fabrics during their treatment and these drums are usually provided with a suitable door by means of which access may be had to the interior of the drum or cylinder. These drums or cylinders usually rotate intermittently in both directions within a suitable casing which is provided with a door and when it is desirable to obtain access to the materials it often happens that the door of the drum or cylinder is not opposite to the door of the casing, requiring the rotation of the drum or cylinder until its door is in registry with the door of the casing. It is also essential in these devices to hold the drum or cylinder against rotation while the doors are open to prevent injury to the operator and to prevent injury to the apparatus itself.

The present invention is devised to provide simple and efficient means for rotating the drum by hand, for locking it in the proper position and for locking the manually operable means for rotating the drum out of position so that it may not engage any of the parts during the operation of the machine.

The invention will be set forth more fully in the following specification, drawings and claims.

Referring to the drawings, Fig. 1 is an end elevation of a washing machine provided with the device; Fig. 2 is an enlarged detail view of the device in elevation; Fig. 3 is a section at A of Fig. 2; Fig. 4 is a front detail elevation of the device with the parts in the positions which they assume when in operation; Fig. 5 is a similar view with the parts in the same position but with the lock withdrawn; Fig. 6 is a view similar to Fig. 5 but with the drum driving gear out of mesh with the drum gear; and Fig. 7 is a view similar to Fig. 6 with the lock in position to hold the driving gear out of mesh.

In the arrangement shown in the drawings 1 represents the main casing of a washing machine supporting a main drum shaft 2 which receives the drum and the drum driving gear 3, the drum being within the casing and not requiring any particular description. The gear 3 is driven from a suitable shaft 4 in any suitable manner (not shown). The mechanism already described is of any preferred construction and is only set forth in a general way to furnish a clear understanding of the device and to form a basis for combination claims.

The hand attachment for the manipulation of the drum forming the subject matter of this invention comprises a base secured to the casing 1 and including a support or base plate 6 provided with a boss 7 rigidly supporting a shaft 8. Rotatably mounted upon this shaft is a tubular gear member 9 provided with a pinion 10 adapted, when in proper position, to mesh with the gear 3. The tubular member 9 is further provided with a suitable lever 11 having a handle 12 at the end thereof. The outer end of the shaft 8 receives a cap screw 13 engaging a washer 14 which holds the tubular member 9 upon the shaft. The tubular member 9 is free for end-wise movement upon the shaft into and out of wesh with the gear 3 and is limited in its meshing position by a sleeve 15 loose upon the shaft and provided with a flange 16 for a purpose to be described. The sleeve 15 and the tubular member 9 do not take up the entire length of the shaft so that they are free for end-wise movement as before intimated.

Above the shaft 8 the base 6 is provided with an outwardly extending arm 17 having a bearing 18 adapted to receive a shaft 19 upon which is mounted a weighted lever 20, a gear dog 21 and an oppositely extending trip 22. The gear dog 21 is provided with a suitable notch indicated at 23 in Fig. 1 and adapted to receive a tooth of the pinion 10 when in proper position. The gear dog 21, trip 22 and weighted lever 20

are all arranged upon the shaft in a manner to produce the following results, to wit, that when the weighted lever is thrown to the right of the shaft, the gear dog has a tendency to move down toward the pinion 10, but when the weighted lever 20 is thrown in the opposite direction the trip has a tendency to engage behind the flange 16 and move the sleeve 15 which, by its engagement with the tubular member 9, moves the pinion 10 out of mesh. The beginning of this operation is clearly shown in Fig. 5 and the result of it is clearly shown in Fig. 6.

The normal position of the device when the machine is operating is that shown in Fig. 7 which is one wherein the pinion 10 is out of mesh with the drum gear 3 and the gear dog 21 is in engagement with the sleeve 15 and behind the pinion, thus preventing it from being moved into mesh with the drum gear. When the operator wishes to use the manual attachment, however, he grasps the weighted lever 20 and shifts it in a counter-clockwise direction until the gear dog is free of the teeth of the pinion 10. The pinion 10 may then be moved into mesh with the drum gear, allowing the latter to be freely rotated by hand until the door is brought into the desired position. When this operation has been completed the weighted lever 20 is then moved toward the position shown in Fig. 4 when the notch in the gear dog may be made to engage one of the teeth of the pinion 10, thus locking the pinion and the drum gear against operation until the gear dog is removed. The operator may then disengage the pinion by moving the weighted lever 20 from the position shown in Fig. 4 to that shown in Figs. 5 and 6, when in sequence the pinion will be released and the trip 22 will engage the flange and move the pinion 10 out of mesh, the parts being then in the position in which they are indicated in Fig. 6. The operator then, as a safety measure, shifts the weighted lever back into the position shown in Fig. 7, when the gear dog will rest upon the sleeve back of the pinion 10 and thereby prevent its engagement with the drum gear until raised.

What we claim is:

1. The combination with a drum or cylinder having a driven member, of manually operable mechanism for operating and controlling said driven member and comprising a driving member movable into and out of engagement with said driven member, and a unitary device adapted in one position to lock said driving member when in operative position and adapted in another position to prevent re-engagement of said driving member when it is out of operative position and means for holding said device out of both of said positions.

2. The combination with a drum or cylinder having a driven member, of manually operable mechanism for operating and controlling said driven member and comprising a driving member movable into and out of engagement with said driven member, and a unitary device adapted in one position to lock said driving member when in operative position and adapted in another position to prevent re-engagement of said driving member when it is out of operative position and also adapted when in a third position to effectively tend to move said driving member out of operative position.

3. The combination with a drum or cylinder having a driven member, of manually operable mechanism for operating and controlling said driven member and comprising a driving member movable into and out of engagement with said driven member, a unitary device adapted in one position to lock said driving member when in operative position and adapted in another position to prevent re-engagement of said driving member when it is out of operative position and also adapted when in a third position to effectively tend to move said driving member out of operative position, and means normally tending to move said device into one of said three positions.

4. The combination with a drum of cylinder having a driven member, of manually operable mechanism for operating and controlling said driven member and comprising a driving member movable into and out of engagement with said driven member, a unitary device adapted in one position to lock said driving member when in operative position and adapted in another position to prevent re-engagement of said driving member when it is out of operative position and also adapted when in a third position to effectively tend to move said driving member out of operative position, and means effective upon said device and having a tendency to assume one of two positions in one of which it holds said device in either of its first two mentioned positions and in the other of which it holds said device in its third position.

5. The combination with a drum or cylinder having a driven member, of manually operable mechanism for operating and controlling said driven member and comprising a driving member movable into and out of engagement with said driven member, a unitary device adapted in one position to lock said driving member when in operative position and adapted in another position to prevent re-engagement of said driving member when it is out of operative position and also adapted when in a third position to effectively tend to move said driving member out of operative position, and means effective upon said device and having a tendency to assume one of two positions in one of which it holds said device in either of its first two mentioned positions and in the other of which it holds said device in its third position.

6. The combination with a drum or cylinder having a driven gear, of a manually operable device for manipulating and controlling said drum or cylinder and comprising

a supporting shaft mounted parallel with the axis of said driven gear, a driving pinion slidably mounted upon said shaft and movable into and out of mesh with the driven gear, a dog suitably mounted and adapted in one position to lock the pinion out of engagement with the driven gear and in another position to lock the pinion against rotation when in mesh with the driven gear, and means for operating said dog.

7. The combination with a drum or cylinder having a driven gear, of a manually operable device for manipulating and controlling said drum or cylinder and comprising a supporting shaft mounted parallel with the axis of said driven gear, a driving pinion slidably mounted upon said shaft and movable into and out of mesh with the driven gear, a dog suitably mounted and adapted in one position to lock the pinion out of engagement with the driven gear and in another position to lock the pinion against rotation when in mesh with the driven gear, and a weighted lever for manipulating said dog.

8. The combination with a drum or cylinder having a driven gear, of a manually operable device for manipulating and controlling said drum or cylinder and comprising a shaft suitably mounted parallel with the axis of the driven gear, a pinion slidable end-wise on said shaft into and out of mesh with the driven gear, a sleeve mounted upon said shaft and provided with a flange spaced at a distance from the pinion, a dog pivotally mounted and adapted when in one position to engage the sleeve and hold the pinion out of mesh and also adapted when in another position to engage the teeth of said pinion and lock it against rotation, a weighted lever connected to said dog and arranged to hold it in either of said two positions or in a third position out of either of said two positions, and a trip operatively connected to said dog and adapted to engage the flange carried by the sleeve and move the pinion out of mesh with the driven gear.

In testimony whereof we affix our signatures.

MICHAEL E. DALY.
EDMUND I. CUTTER.