# United States Patent [19]

**Landwier**

[11] **3,762,552**

[45] **Oct. 2, 1973**


[54] **MOTION SENSING LATCH SYSTEM**


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[73] Assignee: **The Maytag Company,** Newton, Iowa



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[21] Appl. No.: **190,774**

[52] **U.S. Cl.** ..... **210/146,** 192/136

[51] **Int. Cl.** ..... **H01h 35/02**

[58] **Field of Search** ..... 210/146; 192/136; 292/200, 201, 226, 100, 126, 122



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*Assistant Examiner*—F. F. Calvetti
*Attorney*—William G. Landwier et al.



[57] **ABSTRACT**

A system for latching the access door of a rotatable apparatus includes a normally disengaged rotation sensor operatively connected to a door latch mechanism. The rotation sensor is actuated to a sensing condition through the latch mechanism and feeds back to the latch mechanism an indication of rotation or non-rotation for selective actuation thereof to a door latching condition or a non-latching condition.


**14 Claims, 11 Drawing Figures**

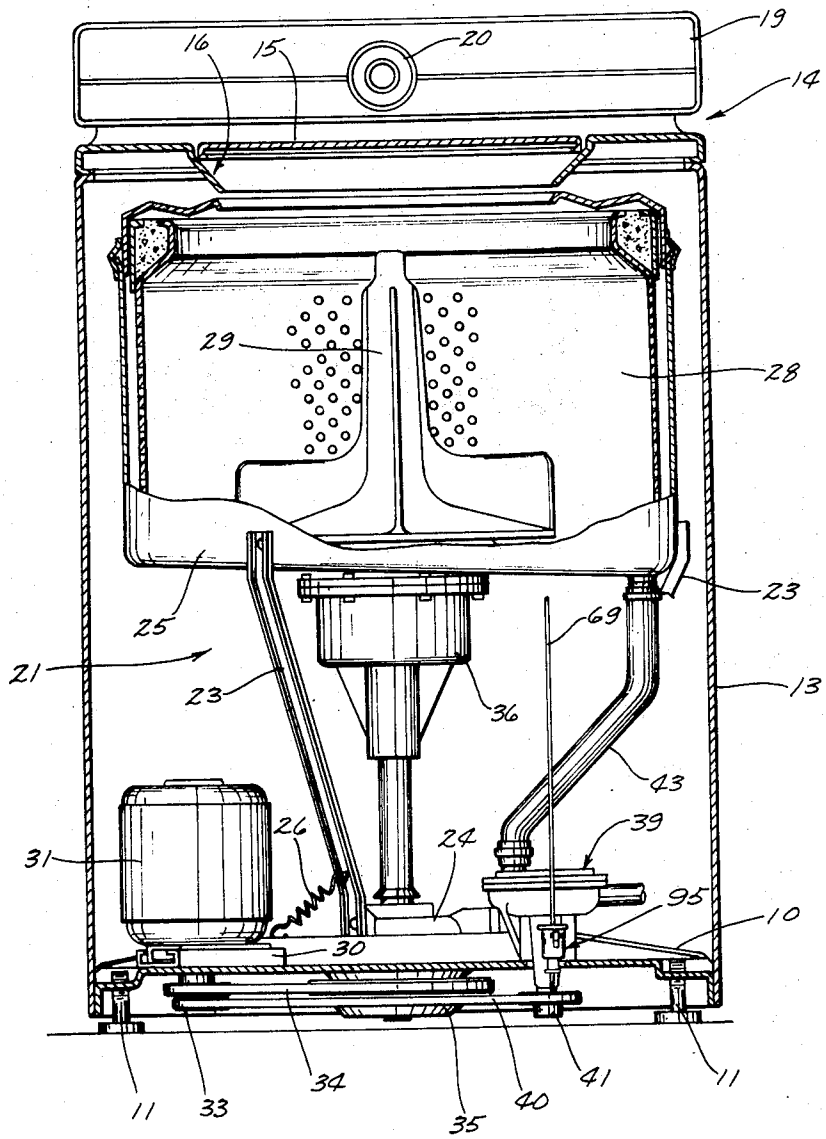


Fig. 1

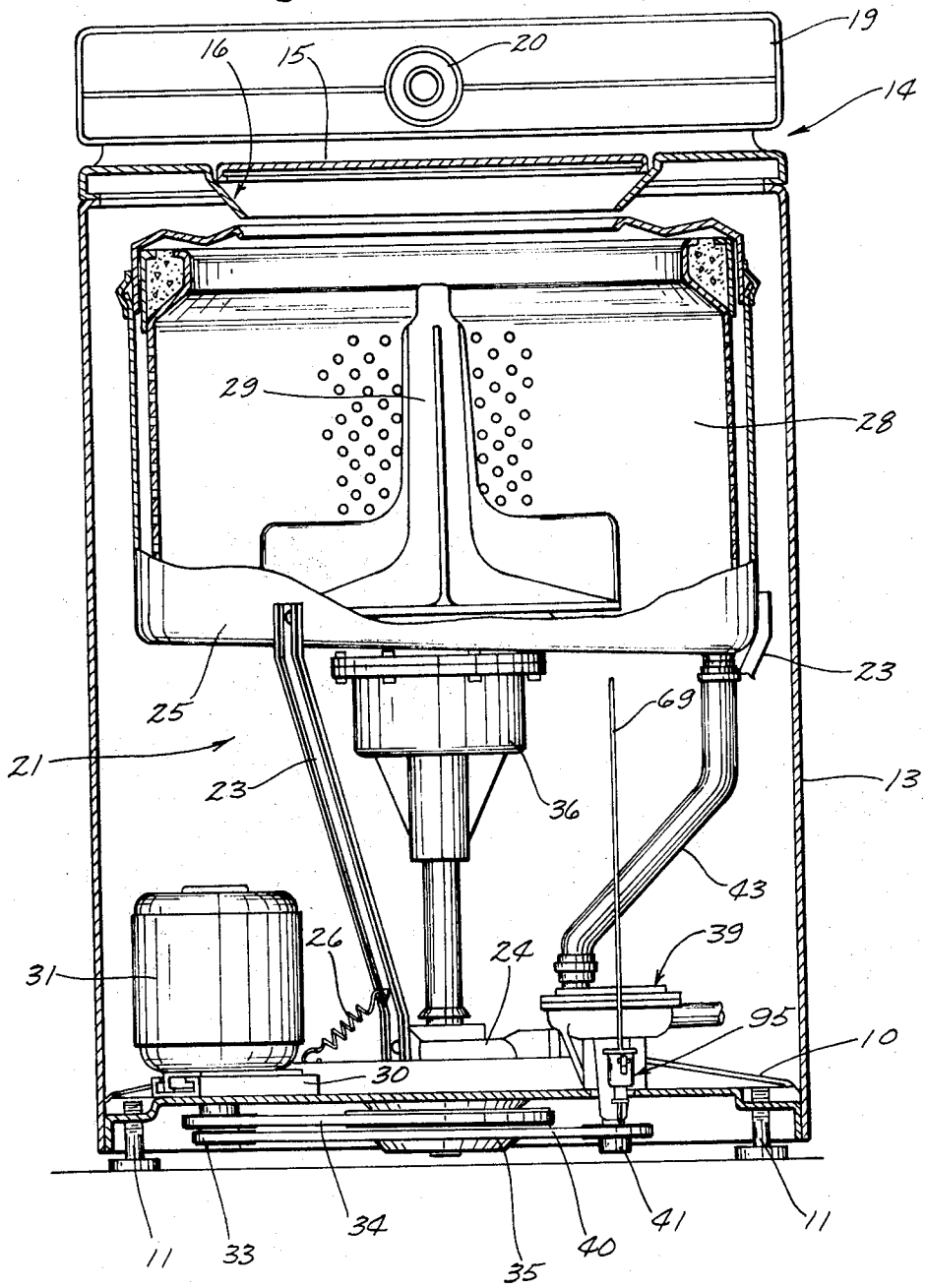
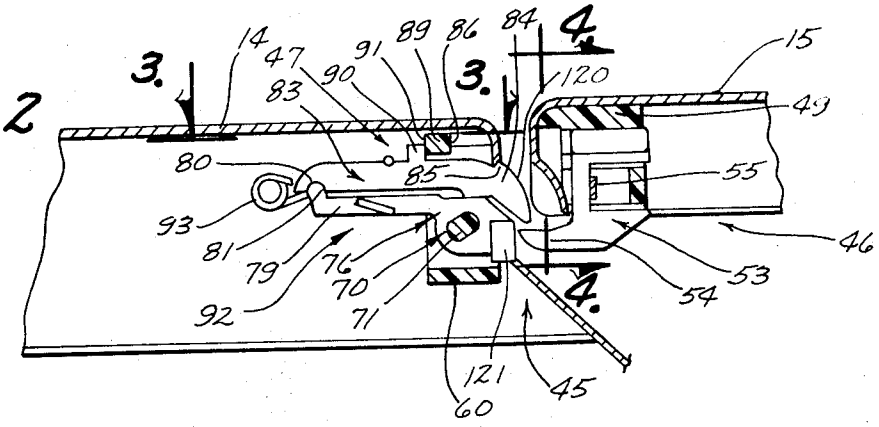

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Fig. 2



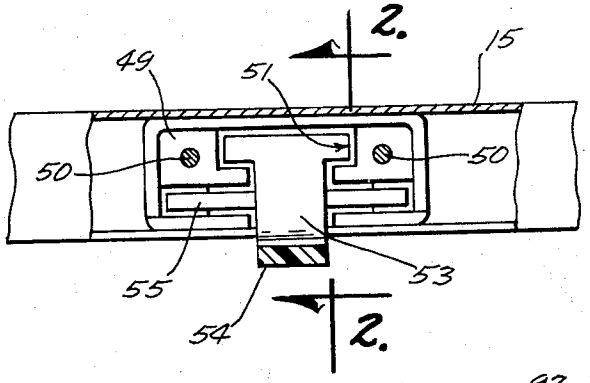




Fig. 4

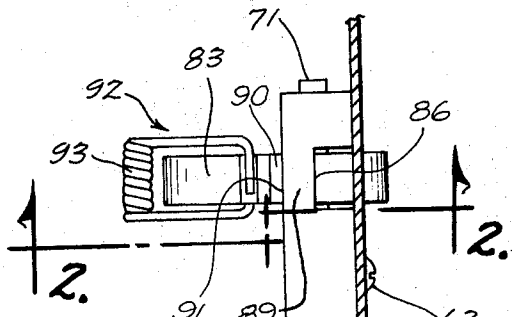
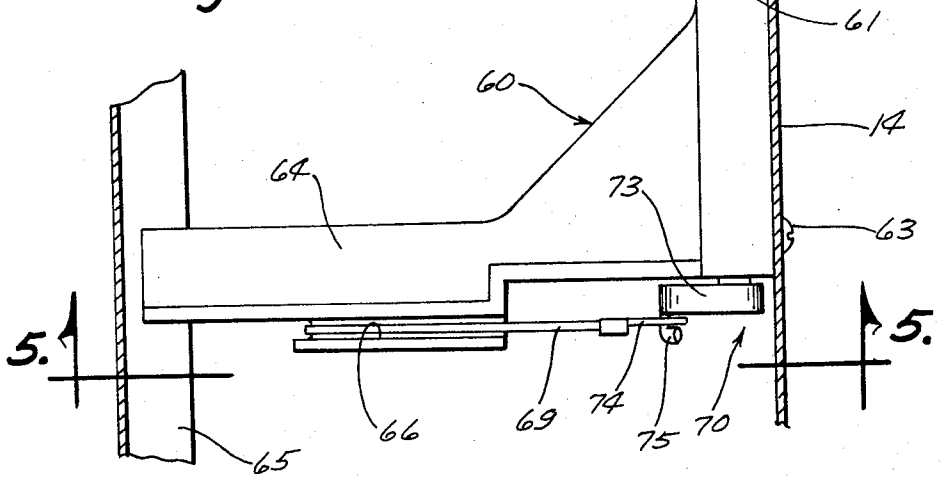



Fig. 3



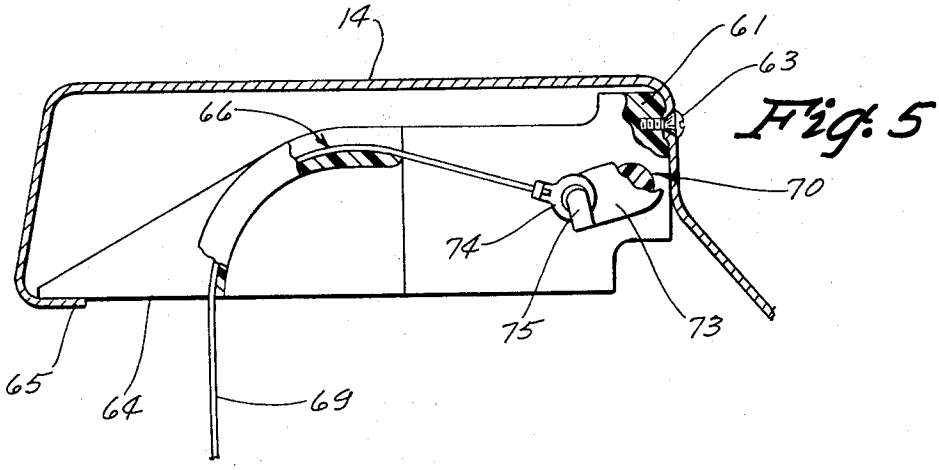

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Fig. 5

Fig. 6

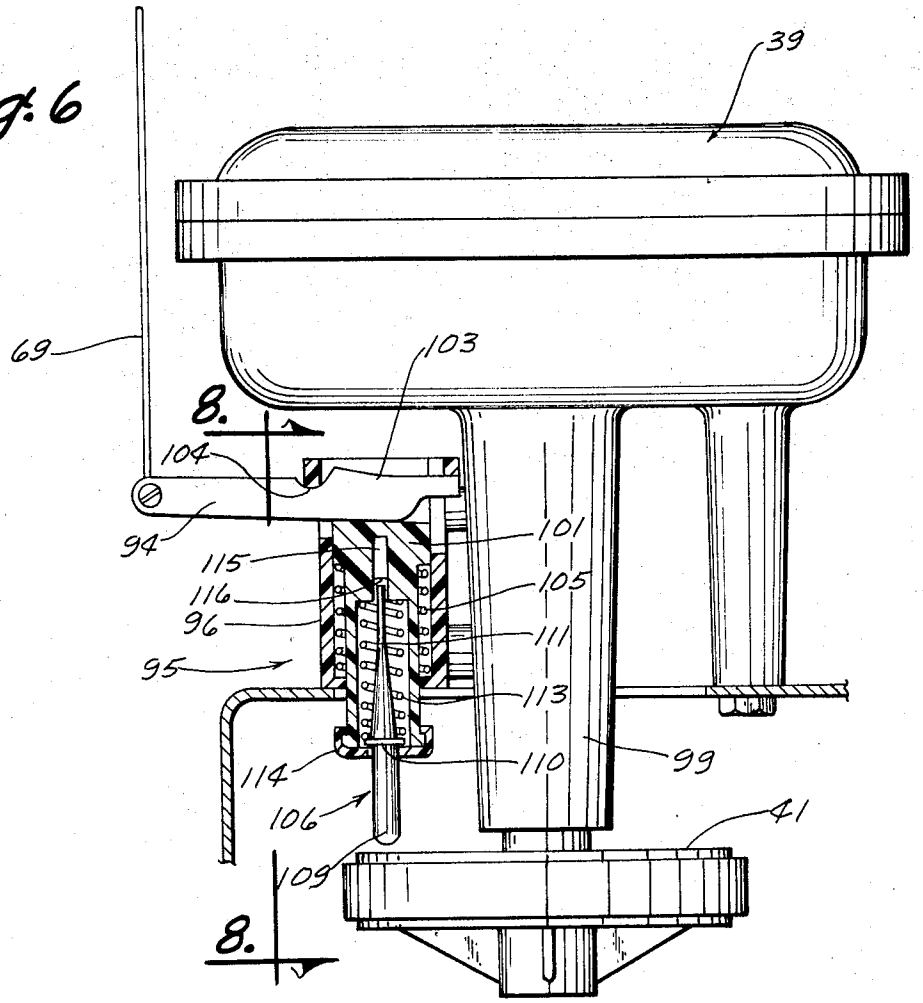

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Fig. 7

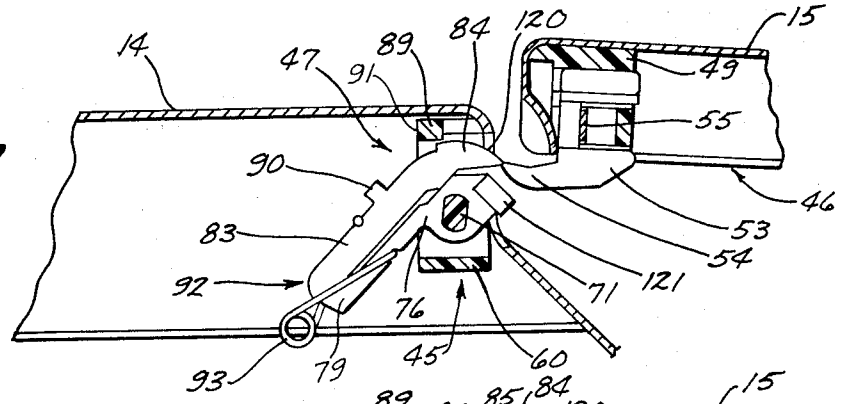



Fig. 9

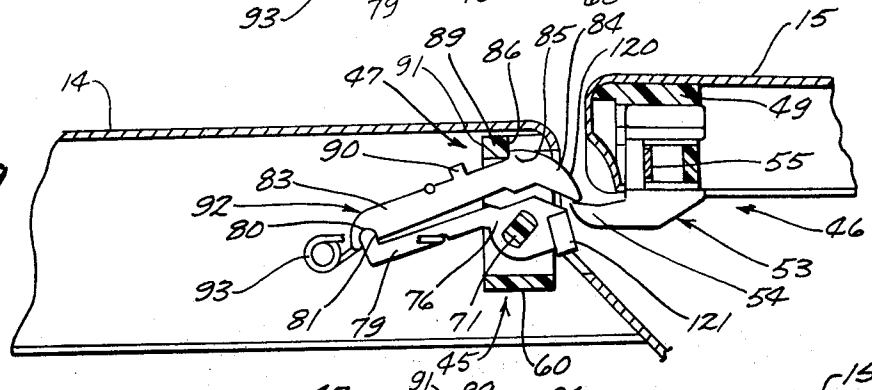



Fig. 11

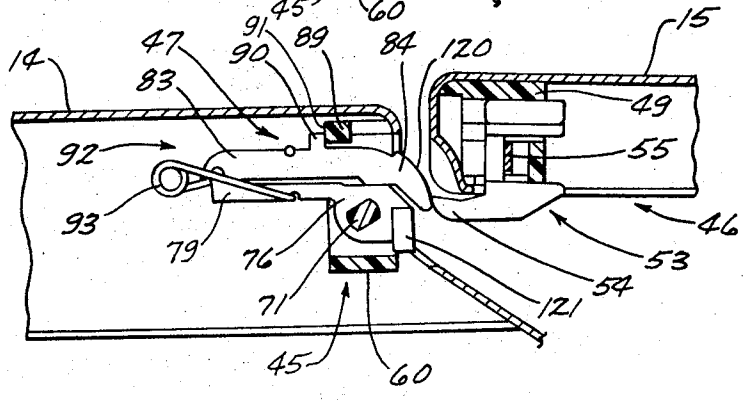



Fig. 8

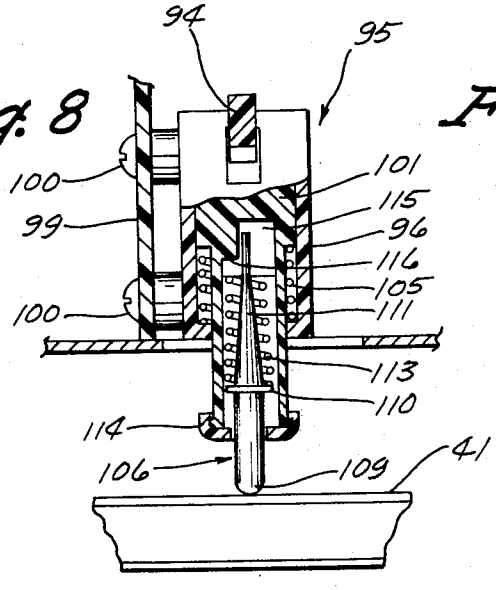
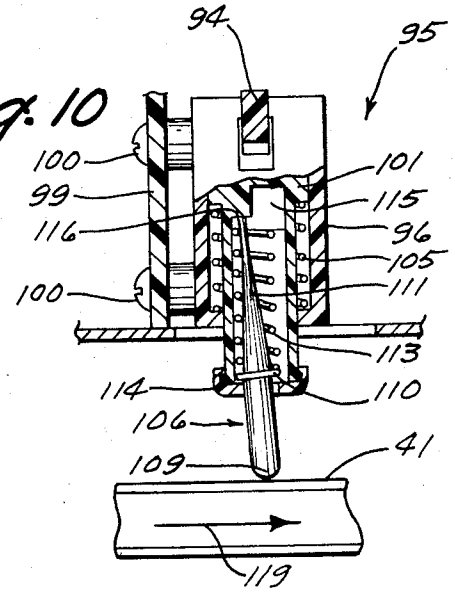



Fig. 10



# MOTION SENSING LATCH SYSTEM

## BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to door latches and more particularly to a door latch for a rotatable apparatus operable to a door-latching condition while the apparatus is rotating.

2. Description of the Prior Art

The prior art shows a continuing search for a control system for a rotating apparatus, such as a laundry appliance, to insure safe operation of the apparatus. Previous work in the appliance field also shows it to be desirable to prevent access to the fabric container of a centrifugal washing machine during the extraction operation. Early systems for achieving this desired objective disclose switching means responsive to the opening of the access door for deenergizing the drive system so that the container is not driven while the access door is in the open position. Also shown in prior art are control systems including solenoid or relay operated lid latches controlled by program control means so that the solenoid or relay is energized for locking the access door upon energization of the drive system for the extraction operation to prevent access to the spinning container.

It has, more recently, been recognized that in some constructions the container continues to spin for a significant period of time after deenergization of the drive system and therefore time delay mechanisms have been added to the system in an attempt to insure that the rotatable container had been given an opportunity to stop or at least greatly decrease in speed prior to unlocking the access door. Each of these prior arts systems nevertheless failed to achieve the prime objective of positively insuring non-access to the container while it was rotating. Though most recent arrangements have disclosed means for sensing the actual rotation of the container, as in U.S. Pat. No. 2,902,850, a system which combines the advantages of a positive rotation sensing means and a door latch mechanism is not shown in the prior art.

## SUMMARY OF THE INVENTION

It is therefore an object of the instant invention to provide an improved latch system responsive to motion sensing means for insuring positive latching of the door during actual rotation of a rotatable apparatus.

It is a further object of the instant invention to provide for a rotatable apparatus an improved door latching system including rotation sensing means operable for physically sensing rotation and locking the door latch to prevent access to the rotatable apparatus during rotation thereof.

It is a further object of the instant invention to provide an improved door latching system including normally disengaged rotation sensing means for preventing access to the fabric container when the fabric container is rotating.

It is still a further object of the instant invention to provide an improved motion sensing latch system for a rotatable apparatus wherein operation of a door latch is generally unimpeded when no rotation is present and wherein rotation of the apparatus is generally unimpeded by the rotation sensor.

The instant invention achieves these objects in a door latch system for a rotatable apparatus including normally disengaged rotation sensing means operatively connected to the latching means wherein the latching means and rotation sensing means are cooperable for locking the access door while the rotation sensing means indicates actual rotation of a rotatable member and cooperable for permitting unrestricted access to the rotating container when there is no rotation.

Operation of the device and further objects and advantages thereof will become evident as the description proceeds and from an examination of the accompanying four pages of drawings.



## BRIEF DESCRIPTION OF THE DRAWINGS

The drawings illustrate a preferred embodiment of the invention with similar numerals referring to similar parts throughout the several views wherein:

FIG. 1 is an overall view of an automatic washing machine with various components broken away to show portions of the door latching system of the instant invention;

FIG. 2 is a fragmentary sectional view of the latching portion of the instant invention as taken generally along section line 2—2 of FIG. 3 and section line 2—2 of FIG. 4;

FIG. 3 is a fragmentary sectional view showing a generally plan view of a portion of the latch mechanism as taken along section line 3—3 of FIG. 2;

FIG. 4 is a sectional view of the door mounted latch mechanism as taken along section line 4—4 of FIG. 2;

FIG. 5 is a generally end view of a portion of the latch mechanism as taken along section line 5—5 of FIG. 3;

FIG. 6 is a view including in sectional form the rotation sensing device of the door latching system of the instant invention;

FIG. 7 is a view of the latch mechanism of the instant invention similar to FIG. 2 and showing the non-latching operation of the latch mechanism;

FIG. 8 is a view of the rotation sensing device as taken along line 8—8 of FIG. 6 and is similar to the section view of FIG. 6 showing operation of the sensor in the absence of rotation of the fabric container;

FIG. 9 is similar to FIGS. 2 and 7 and shows a further view of the door latching mechanism in the door-latching position;

FIG. 10 is a view of the rotation sensing device similar to FIG. 8 and shows operation of the rotation sensing device in the presence of rotation of the fabric container; and

FIG. 11 is a view of the door latching system as shown in FIGS. 2, 7 and 9 and shows operation of the latching mechanism during the closing operation of the access door.

## DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to FIG. 1 there is shown an automatic washing machine including a base frame 10 supported on a plurality of adjustable legs 11 and mounting a cabinet comprising a sidewall 13 and a top cover 14. The top cover 14 includes a hinged panel comprising an access door 15 normally covering a recessed loading opening 16 and movable to an open position to permit access through the opening 16. The top cover 14 further includes an upwardly extending housing 19 for accommodating various control members such as programming means actuatable by a dial 20.

Mounted within the cabinet is a tub assembly **21** nutationally supported on the base frame **10** by an inverted tripod arrangement including tub braces **23** which are connected at the lower end to a support member **24** positioned on the base frame **10.** The tub braces **23** are connected at their upper ends to a generally imperforate outer liquid container or tub **25.** The tub braces **23** are also resiliently connected to the base frame **10** by means of centering springs **26** which resist rotation of the support member **24** relative to the base frame **10** but permit nutational movement relative to the base frame **10.**

Revolubly mounted in the imperforate outer tub **25** is a perforate clothes basket or fabric container **28** in which is positioned an oscillatable agitator **29** for effecting movement of the fabrics and washing fluid within the tub assembly **21.** The imperforate outer tub **25** and the perforate inner fabric container **28** are substantially aligned with the loading opening **16** in the top cover **14** for permitting the operator to place articles within the fabric container **28** and remove them upon completion of the cycle.

The base frame **10** also supports through motor mount **30** a reversible drive motor **31** operable in a bidirectional drive system for selectively effecting oscillation of the agitator **29** or centrifugal rotation of the inner fabric container **28.** The drive system for effecting operation of the agitator and rotation of the fabric container includes a double groove pulley **33** fixed to the shaft of the motor **31** and drivingly engaged with a main drive belt **34** which in turn is drivingly engaged with the main drive pulley **35.** The main drive pulley **35** is drivingly connected to either the agitator **29** through a drive shaft (not shown) and the gearing of a transmission **36** or to the fabric container **28** through the housing of the transmission **36** and a clutch (not shown). Operation of the motor **31** in a first direction effects rotation of the main drive pulley **35** for effecting oscillation of the agitator **29** through the drive shaft (not shown) and transmission gearing while operation of the motor **31** in the opposite direction effects rotation of the drive pulley **35** and the transmission **36** through the clutch (not shown) for rotating the inner tub **28** to effect centrifugal extraction of liquid.

The base frame **10** also supports pumping means **39** driven by the bidirectional motor **31** through the motor mounted pulley **33,** the pump drive belt **40** and the pump mounted pulley **41.** The pump **39** communicates with the outer tub **25** through the conduit **43** and is operable for pumping liquids from the outer tub **25** toward an external drain when the motor **31** is operated in the direction for effecting centrifugal rotation of the inner tub **28.** Since the pump **39** is drivingly connected to the bidirectional motor **31** and is operable in the first and second directions with the motor, the pump **39** will tend to pump liquid toward the outer tub **25** through the conduit **43** when the motor **31** is operating in the direction for effecting agitation of the fabrics during the washing portion of the cycle.

The washing machine is provided with controls for programming the machine through a sequence of operations including energization of the motor **31** for operation in a first direction to effect a washing and/or rinsing function followed by energization of the motor **31** in a second direction to effect a liquid extraction function.

Though not shown, the appliance is provided with means for braking the rotation of the container **28** upon deenergization of the motor **31.** During this braking or deceleration period the rotating container **28** is effectively operable as a driving member because of the rotating mass and tends to continue rotation for a few seconds and to effect rotation of the motor **31** and the pump **39** as long as rotation of the container **28** continues.

The construction and mounting of the tub assembly and the operation of the fabric container **28** and agitator **29** are more clearly and specifically shown in the following patents, each of which is assigned to the assignee of the instant invention: Scott et al., U.S. Pat. No. 2,854,297; Smith et al., U.S. Pat. No. 2,926,136; Burkland, U.S. Reissue Pat. No. 25,157; and Goodlaxson, U.S. Pat. No. 3,013,645.

The latch mechanism for latching the access door **15** in the closed position relative to the cabinet top cover **14** is referred to generally as numeral **45** in FIG. **2** and includes an access door mounted portion **46** and a top cover mounted portion **47.** The door mounted portion **46** comprises a housing member **49** which, as in FIG. **4,** is secured by a pair of screws **50** and provides a keyed slot **51** for slidably supporting a latch member **53.** In FIG. **4** the spacing between the housing member **49** and latch member **53** is exaggerated for clarity. The latch member **53** includes a lower finger portion **54** extending beyond the edge of the door **15** as in FIG. **2.** A leaf spring **55** biases the latch member **53** toward the left as in FIG. **2** for engagement with the top cover mounted latch mechanism portion **47.**

A latch support member **60** secured to the top cover **14** includes, as in FIG. **3,** a first portion **61** secured to the top cover **14** by a pair of screws **63** and a second portion **64** extending at a right angle to the first portion **61** and engageable with a flange **65** of the top cover **14** for support of the left end of the right angle portion **64.** The right angle portion **64** of the latch support member **60** includes a cable groove **66** as best shown in FIGS. **3** and **5** for receiving a cable **69.**

The first portion **61** of the cabinet mounted support member **60** pivotally supports a shaft **70** having a pivot portion extending longitudinally through the first portion **61** of the support member **60** and further includes a double D shaped portion **71** at one end, as viewed in FIG. **3,** and an offset flange **73** at the other end serving as a crank arm for the shaft **70.** The cable **69** is operatively connected to the crank arm through the cable eyelet **74** and the hook **75** on the flange **73.**

The top cover mounted latch mechanism **47** further includes a pivot member **76** mounted on the shaft **70** at the double D portion **71** and is operatively fixed to the shaft **70** for pivot action therewith. The pivot member **76** further includes an arm portion **79,** as in FIG. **2,** extending toward the left and terminating in a pivot element **80.** The pivot element **80** is engageable with a corresponding groove **81** in a latch pawl **83** for pivotally supporting the latch pawl **83** on the pivot member **76.** The latch pawl **83** includes a projecting portion **84,** extending to the right in FIG. **2,** for engagement with the extending finger **54** of the door mounted latch member **53.** The extending portion **84** of the latch pawl **83** assumes an overlapping relationship with the latch finger **54** for engagement thereby upon an attempted opening of the door **15.** The latch pawl **83** also includes an upwardly extending shoulder **85** engageable with

one side 86 of a fixed abutment 89 to limit counterclockwise movement of the latch pawl 83 and pivot member 76 about the axis of the shaft 70 under certain conditions. A step 90 on the latch pawl 83 engages the other side 91 of the abutment 89 to limit clockwise movement and locate the latch pawl 83 and pivot member 76 assembly.

A pinch spring 93 is engageable with the upper side of the latch pawl 83 and the lower side of the pivot element 76 to biasingly maintain the two members in contact with each other and provide an assembly, indicated generally as numeral 92 in the drawings, operable as a unit with the shaft 70, at least initially, when a rotating force is applied to the assembly 92 such as when an attempt is made to open the door 15.

The assembly 92 of pivot member 76 and latch pawl 83 are effectively biased to the position shown in FIG. 2 with the step 90 engaging the abutment 89 by connection through the cable 69. The cable 69 extends from the crank arm flange 73 of the shaft 70 over the cable groove 66 and downwardly for connection to a pivot arm 94 of a rotation sensing device 95 as shown generally in FIG. 1 and more specifically in FIGS. 6, 8, and 10.

As indicated in FIG. 6 and better shown in the section views of FIGS. 8 and 10 the rotation sensing device 95 includes a generally cylindrical housing 96 fixed to the pump housing 99 with a pair of screws 100. The housing 96 supports a cylinder 101 for downward axial movement relative thereto by uring of the inner end 103 of the pivot arm 94. The cable 69 is adjustably connected to the outermost end of the pivot arm 94 to facilitate the proper positioning of the door latch mechanism assembly 92 and the rotation sensing device 95. It is observed that as an upward force or pull is applied to the cable 69 the pivot arm 94 is operable about a pivot 104 to move the inner portion 103 of the arm 94 in a downwardly direction to move the cylinder 101 toward the pump pulley 41. A coil spring 105 is disposed between the housing 96 and the cylinder 101 to resist downward movement of the cylinder 101 and to return the cylinder 101 when the cable 69 is released.

Disposed within the movable cylinder 101 is a probe or plunger 106 including a lower portion 109 extending downwardly to adjacent the pump pulley 41 and further including an annular shoulder 110 and an upper portion 111 disposed within the cylinder 101. A second spring 113 is disposed within the cylinder 101 encircling the upper portion 111 of the plunger 106 and engaging one side of the shoulder 110 to generally maintain the plunger 106 centered and biased downwardly with the other side of the shoulder 110 engaging the end cap 114 of the movable cylinder 101.

During the initial movement of the cylinder 101 responsive to an upward pull on the cable 69 the plunger 106 will move downwardly into engagement with the pulley 41 and, with the pulley 41 at rest, will then move relative to the cylinder 101 into the recess 115 within the cylinder 101 as in FIG. 8. If, however, the pump pulley 41 is rotating the plunger 106 will pivot relative to the cylinder 101 at the shoulder 110 so that the upper end 113 of the plunger 106 will engage an abutment 116 disposed within the cylinder 101 as in FIG. 10 and prevent further movement of the plunger 106 relative to the cylinder 101.

Further explanation hereinbelow of the operation of the rotation sensing device with the lid latch mechanism will clearly show the achieving by the instant invention of the desired parameters for a rotation sensitive door latch mechanism as previously indicated to include: (1) a sensor that does not produce a drag on the drive system or driven members with the lid in the closed position; (2) a door latch mechanism that does not interfere with door movement when no rotation is present; and (3) a door latch system that prevents movement of the door from the closed position while the fabric container is rotating. The accomplishing of these parameters will be shown by the further explanation of the operation of a rotation sensitive door latch system comprising the instant invention.

Under normal conditions, as previously shown in FIG. 6, the rotation sensing device is disengaged from the rotating system by virtue of the spacing between the pump pulley 41 and the plunger 106. It is only when an attempt to open the access door 15 when the machine is rotating that the plunger 106 will move into engagement with the pulley 41. Referring to FIGS. 7 and 8 the operation of the door latch and rotation sensing system is shown when the access door 15 is moved from the closed position while no rotation of the fabric container is present. Referring specifically to FIG. 7, the initial opening movement of the door 15 applies a force through the extending finger 54 to the extending portion 84 of the latch pawl 83 and in the absence of restraint applied to the shaft 70, as will be shown, the latch pawl 83 and pivot member 76 pivot as a unit with the shaft 70 about the axis of the shaft 70. The shoulder 85 misses abutment 89 so that the extending portion 84 is retracted into the top cover 15. In the continued absence of the restraint on the shaft 70, indicating the absence of rotation of the container 28, the pawl 83 and pivot member 76 will thus pivot to permit continued movement of the door 15 from the closed position toward the open position.

Referring more specifically to FIG. 8 and also reviewing the crank arrangement shown in FIG. 5 it is seen that the counterclockwise movement of the assembly 92 of latch pawl 83 and pivot member 76 about the axis of the shaft 70 produces a pull on the cable 69 which moves the pivot arm 94 relative to the sensor device housing 96 to effect a downward movement of the cylinder 101 so that the plunger 106 engages the pulley 41. In the absence of rotation of the pulley 41 the pull on the cable 69 is permitted to move the cylinder 101 downwardly relative to the plunger 106 and thus enables the assembly 92 of latch pawl 83 and pivot member 76 to move to the retracted position as explained relative to the showing of FIG. 7. Thus with no restraint produced on the shaft 70 the pivoting of the cabinet mounted latch assembly 92 permits the opening of the access door 15.

If, however, an attempt is made to move the access door 15 from the closed position while the container 28 is rotating, the operation of the latch and sensor mechanisms is quite different. Referring to FIGS. 9 and 10, the initial movement of the door 15 from the closed position again produces a force on the extended portion 84 of the latch pawl 83 and moves the assembly 92 of latch pawl 83 and the pivot member 76 a short distance about the axis of the shaft 70 to produce a pull on the cable 69 and a small downward movement of the sensor cylinder 101 and plunger 106 to effect engagement of the plunger tip 109 with the surface of pulley 41. Since the pulley 41 is moving as indicated by the arrow

119 in FIG. 10, the plunger 106 is immediately tilted relative to the cylinder 101 so that the uppermost portion 111 of the plunger 106 is engageable with the internal abutment 116 of the cylinder 101. The plunger 106 will thus not permit further movement of the cylinder 101 so that the pivot arm 94 is locked and the cable 69 effectively restrains the shaft 70 and assembly 92 from further pivotal movement.

Upon encountering a shaft 70 restrained from further pivotal movement, the attempted opening of the access door 15 will produce a force on the extended portion 84 of the latch pawl 83 to move the latch pawl 83 relative to the pivot member 76 against the biasing of the pinch spring 93. The latch pawl 83, however, includes a shoulder 85 engageable with the abutment 89 to prevent further movement of the latch pawl 83. Further movement of components in the latch mechanism and sensor device is prohibited and because of the overlapping relationship of the latch pawl 83 with the lid-mounted latch member 53, movement of the door 15 from the generally closed position is prohibited.

The attempt to open the door 15 is thus blocked and, upon release of the door 15 by the operator, the latch assembly 92 returns to the normal position as shown in FIG. 2. The cable 69 is relaxed so that the plunger 106 and cylinder 101 are returned to the normal position as in FIG. 6 with the plunger 106 disengaged from the pulley 41 so that rotation of the container is without drag or interference by the sensing system.

Once the rotation has ceased the door 15 may be easily and conveniently moved to the open position as shown in FIG. 7 to permit access to the fabric container 28. The door 15 is also conveniently moved from the open position to the closed position as shown in FIG. 11 wherein the lid-mounted latch element 53 is shown as being cammed or moved to the right as the extending finger 54 moves downwardly on the upper surface 120 of the extending portion 84 of the latch pawl 83. The pivot element 76 also includes a resilient cushion member 121 for absorbing the impact of the lid-mounted latch member 53 as it returns under a spring loaded force to its normal position as shown in FIG. 2.

The sensor device 95 shown in FIGS. 6, 8 and 10 includes an internal abutment 116 or shoulder on only one internal side of the cylinder 101. The device is thus unidirectionally responsive to the drive system. The system can, however, be made bidirectionally responsive by providing a shoulder on both sides of the internal bore and non-directionally responsive by providing an annular shoulder within the cylinder 101.

The sensing probe or plunger 106 is shown as engageable with a moving surface of the pump pulley 41 but may also be mounted for sensing movements of other portions of the drive system or with the driven container itself as a positive indication of rotation of the container.

The instant invention therefore offers clear and distinct advantages over access door latch systems shown in the prior art. The system of the instant invention provides for positive sensing of rotation of the fabric container and does so without interferring with the rotation of the fabric container or without imposing drag on the drive system when there is no attempt to open the access door. Furthermore the door latch mechanism achieves secure locking of the door without undue interference or resistance to door movement when there is no rotation. The normally disengaged condition of the door latch mechanism and rotation sensing device obviate undue operational wear on the components.

In the claims and specification there has been set forth a preferred embodiment of the invention and although specific terms are employed these are used in a generic and descriptive sense only and not for purposes of limitation. Changes in form and the proportion of parts as well as the substitution of equivalents are contemplated as circumstances may suggest or render expedient without departing from the spirit or scope of this invention as defined in the following claims.

I claim:

1. A safety door control for use in a laundry apparatus or the like including a rotatable member, the combination of a structure forming an enclosure for said rotatable member and access means including a door movable between a generally closed position and an open position to selectively provide access to within said enclosure; latch means operable between said structure and said door to control movement of said door from said closed position; and condition sensing means including a member disposed adjacent to said rotatable member and actuated responsive to initial movement of said door from said closed position, said sensing means being operable upon said actuation for permitting movement of said latching means to a non-latching posture in the absence of rotation of said rotatable member and for effecting operation of said latch means to a door-latching posture in the presence of rotation of said rotatable member to prevent access to within said enclosure.

2. A safety door control for an apparatus including a rotatable member, the combination comprising: a cabinet structure substantially enclosing said rotatable member and having access means including a door movable between a generally closed position and an open position to selectively provide access into said cabinet structure; self-engaging latch means movably operable between said cabinet structure and said door to control movement of said door from said closed position; and rotation sensing means including a movable probe effectively connected to said latch means and engageable with said rotatable member responsive to initial movement of said door from said closed position toward said open position against said latch means, said rotation sensing means being operable for permitting movement of said latching means to a non-latching posture in the absence of rotation of said rotatable member and for maintaining said latch means in a door-latching posture in the presence of rotation of said rotatable member to prevent access into said cabinet structure.

3. A safety door control for an apparatus including a rotatable member, the combination comprising: a cabinet structure substantially enclosing said rotatable member and having access means including a door movable between a generally closed position and an open position to selectively provide access into said cabinet structure; latch means movably mounted on said cabinet structure to control movement of said door from said closed position; and rotation sensing means including a probe engageable with said rotatable member responsive to initial movement of said door from said closed position for sensing the condition of rotation member and said rotatable means operable to permit movement of said latching means to a non-latching posture in the presence of a stationary condi-

tion of said rotatable member and operable to effect operation of said latching means to a door-latching posture in the presence of a condition of rotation of said rotatable member to prevent access into said cabinet structure.

4. A safety door control for an apparatus including a rotatable member, the combination comprising: a cabinet structure substantially enclosing said rotatable member and having access means including a door movable between a generally closed position and an open position to selectively provide access into said cabinet structure; latch means movably mounted on said cabinet structure and operable from a first posture to a door-latching second posture and to non-latching third posture to selectively control movement of said door toward said open position; and control means including a movable probe effectively connected to said latch means and engageable with said rotatable member responsive to initial movement of said door from said closed position toward said open position against said latch means, said control means being operable responsive to the absence of rotation of said rotatable member for permitting operation of said latching means to said third posture and responsive to rotation of said rotatable means for causing operation of said latch means to said second posture for interlocking said door to said cabinet structure whereby said door is movable to said open position when said rotatable member is not rotating and is maintained in the closed position when said rotatable member is rotating.

5. A safety door control is defined in claim 4 wherein said latch means is self latching and is juxtaposed said door for latching thereof, said control means being responsive to said initial movement of said door toward said open position for operating said probe into engagement with said rotating member to in turn control operation of said latch means.

6. A safety door control as defined in claim 5 wherein said control means is cooperable with said door for maintaining said self latching latch means in said door-latching posture responsive to an attempt to open said door in the presence of rotation of said rotatable member.

7. A safety door control as defined in claim 3 wherein said rotation sensing means is responsive to one direction of rotation of said rotatable member for effective operation of said latch means to said door latching posture for interlocking said door to said cabinet structure and responsive to rotation of said rotatable member in the opposite direction and to non-rotation of said rotatable member for permitting movement of said latch means to said non-latching posture.

8. A safety door control for a laundry and including a rotatable fabric container and associated means rotatable therewith, the combination comprising: a cabinet structure substantially enclosing said rotatable fabric container and having access means including a door movable between a generally closed position and an open position to selectively provide access to said fabric container; latch means movably mounted on said cabinet structure and operable from a first posture to a door-latching second posture and to a non-latching third posture to selectively control movement of said door from said closed position toward said open position; rotation sensing means including a probe operatively connected to said latch means an engageable with said associated means responsive to initial movement of said door toward said open position and operable for controlling actuation of the latch means to said second posture responsive to rotation of said container and for permitting actuation of said latch means to said third posture in the absence of rotation of said container whereby said door is maintained latched in said closed position while said fabric container is rotating and is free for movement to said open position when said container is not rotating.

9. A safety door control as defined in claim 8 wherein said latch means is juxtaposed said door and movable from said first posture responsive to initial movement of said door toward said open position and wherein said rotation sensing means and said door means are cooperable for positioning said latch means in said door-latching second posture and said non-latching third posture responsive to conditions of container rotation and non-rotation, respectively.

10. A safety door control as defined in claim 8 wherein said rotation sensing means is responsive to one direction of rotation of said container for controlling operation of said latch means to said second posture for interlocking said door to said cabinet structure and responsive to rotation of said container in the opposite direction and to non-rotation of said container for permitting movement of said latch means to said non-latching third posture.

11. A safety door control for a laundry apparatus including a rotatable fabric container and associated means rotatable therewith, the combination comprising: a cabinet structure substantially enclosing said rotatable fabric container and having access means including a door movable between a generally closed position and an open position to selectively provide access to said fabric container; latch means movably mounted on said cabinet structure and operable from a first posture to a door-latching second posture and to a non-latching third posture to selectively control movement of said door to said open position; and rotation sensing means including a probe connected to said latch means and engageable with said associated means responsive to initial movement of said door toward said open position, said probe being operable for limiting movement of said latch means to said door-latching second posture responsive to rotation of said container and for permitting movement of said latch means by said door means through said door-latching second posture to said non-latching third posture in the absence of rotation of said container whereby said door is maintained latched in said closed position while said fabric container is rotating and is free for relatively unrestricted movement to said open position when said container is not rotating.

12. A safety door control as defined in claim 11 wherein said rotation sensing means includes a housing in which said probe is axially movable in the absence of rotation of said rotatable associated means and wherein said probe includes a member pivotable in the presence of rotation of said rotatable associated means to effectively limit movement of the probe and to effectively position said latch means in said door-latching second posture.

13. A safety door control for an apparatus including a rotatable member, the combination comprising: a cabinet structure substantially enclosing said rotatable member and having access means including a door movable between a generally closed position and an

open position to selectively provide access into said cabinet structure; means associated with said door movably mounted on said cabinet structure and selectively operable from a first condition to a second condition to permit movement of said door toward said open position; and control means including sensing means disposed adjacent to said rotatable member for sensing rotation thereof and effectively connected to said door-associated means for actuation thereby, said sensing means being responsive to a force manually applied for initiating movement of said door from said closed position and transmitted through said door-associated means to effect in the presence of rotation of said rotatable member a locking of said sensing means for preventing operation of said door-associated means to said second condition, said sensing means being further responsive to said manually applied force transmitted through said door-associated means in the absence of rotation of said rotatable member for permitting operation of said door-associated means to said second condition to permit movement of said door means to said open position whereby said door is movable to said open position when said rotatable member is not rotating and is maintained in the closed position when said rotatable member is rotating.

**14.** A safety door control as defined in claim **13** wherein said sensing means includes a movable probe engageable with said rotatable member responsive to actuation of said sensing means by said manually applied force.

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