June 7, 1938. C. E. WAREAM 2,120,167

CYLINDER DOOR CONSTRUCTION

Filed Oct. 23, 1935

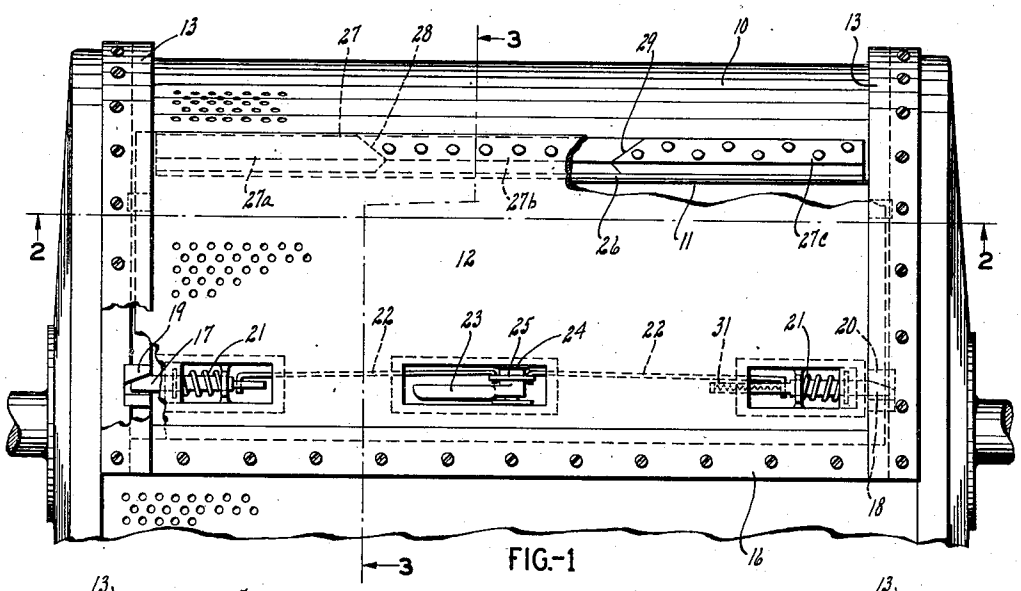


FIG.-1

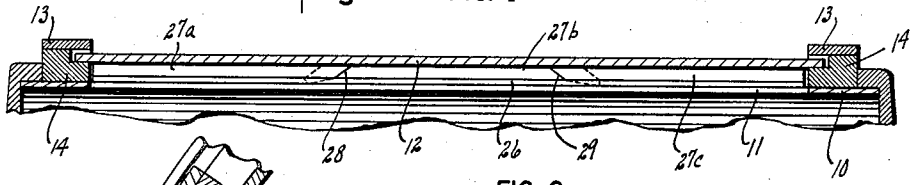


FIG.-2

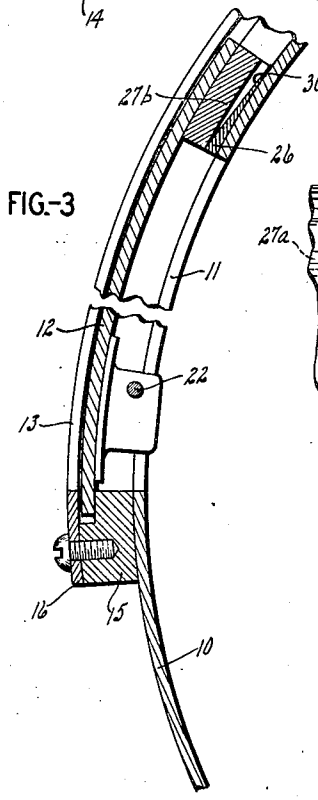
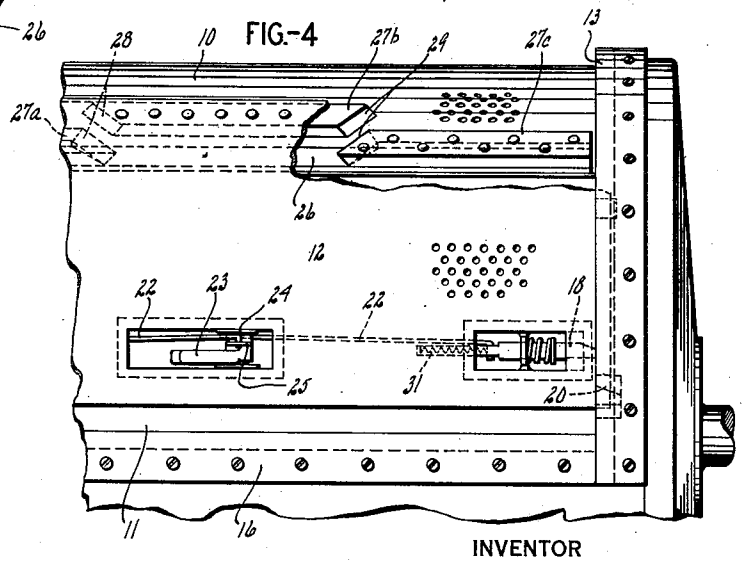


FIG.-3

FIG.-4



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CYLINDER DOOR CONSTRUCTION

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3 Claims. (Cl. 220—41)

This invention relates to a cylinder structure such as is found in washing and dry cleaning machines and more particularly to improvements in the construction of door closures for such cylinders.

Cylinders in machines of the type described are provided with one or more side openings and circumferentially sliding doors for said openings. Necessarily these doors are guided during their sliding movement and sufficient play is allowed between the door and the guides to permit the doors to slide easily. During rotation of the cylinder in a washing or dry cleaning operation the doors move about in the space in which they are confined resulting in wearing of the parts and unnecessary noise. It is the purpose of the present invention to provide means for holding the door in a predetermined position relative to the cylinder when it is closed.

My invention contemplates a novel arrangement of parts by which a door is securely held against movement relative to a cylinder, the construction being so arranged that the retaining parts are cammed into securing position by the final movement of the door into closed position.

My invention also provides means for camming the door into its final closed position by the latching means which retains the door closed and the utilization of this camming action to secure another portion of the door in fixed position relative to the cylinder.

Other novel features of my invention will appear from the accompanying description and the drawing and the essential features will be summarized in the claims.

In the drawing Fig. 1 is a fragmental view of a cylinder having a circumferentially slidable door in closed position and the parts being equipped with my invention; Figs. 2 and 3 are sectional views along similarly numbered lines of Fig. 1; while Fig. 4 is a fragmental view of the cylinder of Fig. 1 showing the door in partially opened position.

The drawing shows a cylinder **10** having a door opening **11** at one side thereof and a circumferentially slidable door **12** for closing said opening. Guide members **13** and **14** embrace the curved ends of the door and guide the same during its circumferential movement. The bottom edge of the door in its closed position enters a channel formed by a cross bar **15** and a plate **16** which are secured together and secured to the cylinder. It will be noted that the door in closed position as seen in Fig. 3 does not engage the bottom of the channel but is held in position by other means to be described.

Latching means is provided for holding the door closed and in the form shown this comprises latch bolts **17** and **18** located near the bottom edge of the door and slidable endwise into engagement with keepers **19** and **20** on the cylinder. The bolts are biased in their latching position by springs **21** and are connected by rods **22** with a retracting handle **23** pivotally mounted on the door at **24**. The rods **22** enter suitable openings in a collar **25** rigid with the shank of the handle so that a movement of the handle outwardly causes a partial rotation of the collar **25** and simultaneous retraction of the bolts **17** and **18**. It will be noted that the coacting surfaces of the latch bolts and their keepers are wedge shape so that as the bolts enter the keepers they cam the door into its closed position. The latch bolts and the actuating handle therefor may be set in suitable recesses in the door so as to present an unobstructed outer surface on the door. It will be noted that the door **12** is spaced from the cylinder **10** and this space is enclosed on the curved edges of the doors by the guides and on the bottom longitudinal edge of the door by the channel construction formed by the members **15** and **16**.

Along the upper longitudinal edge of the door is provided means for firmly securing the door in position when closed and this means is also arranged to seal the space between the door and the cylinder along the upper edge of the door when the same is closed. The arrangement shown comprises a substantially continuous strip **26** secured to the cylinder **10** and substantially coextensive with the upper edge of the door between the guides. Superimposed on this strip are a plurality of contiguous strips of which three are shown, **27***a*, **27***b* and **27***c*. The strips **26** and **27** substantially close the space between the upper edge of the door **12** and the cylinder **10** (as most clearly seen in Fig. 3) when the door is closed. The strip portions **27***a* and **27***c* are secured to the cylinder. The strip portion **27***b* is secured to the door. The contiguous faces between the inner ends of the strips **27***a* and **27***c* and the outer ends of the strip **27***b* are bevelled in two planes as shown at **28** and **29**. One cut forms a wedge shaped opening longitudinal of the cylinder between the faces **28** and **29** on the strips **27***a* and **27***c* and the complementary faces on strip **27***b* are also of wedge shape so as to enter and fill the wedge shape opening between the strips **27***a* and **27***c* as the door moves into closed

position. This holds the door securely in a predetermined position longitudinal of the cylinder so that it does not move lengthwise of the cylinder into contact with the guides. The other bevelling of the faces at **28** and **29** is in a direction which might more properly be termed radially of the cylinder so that the ends of the strip **27***b* slope downwardly and outwardly while the ends of the strips **27***a* and **27***c* also slope downwardly and outwardly and as these surfaces engage upon closing of the door they hold the same in a predetermined position radially of the cylinder.

Means is provided for guiding the strip **27***b* into suitable position between the end strips as the door approaches closed position and in the form shown the continuous strip **26** is milled away between the points **28** and **29** as best seen at **30** in Fig. 3 so that strip **26** will not interfere with the strip portion **27***b* as the door closes. The camming action of the latching means as the bolts engage their keepers serves to apply the wedge strip **27***b* firmly into place between the end strips **27***a* and **27***c*.

The construction is such that the door **12** rides upon the strips **27***a* and **27***c* as the door is opened (see Fig. 4) and this holds the strip **27***b* clear of the cylinder shell so that the door slides freely in case there are any protrusions on the cylinder sheets such as is caused by the embossed type of cylinder perforations.

It will be understood that the strip **27***b* might be secured to the cylinder while the two strips **27***a* and **27***c* might be secured to the door with the wedge surfaces at the contacting ends of the two outer strips with the intermediate strip sloped in the opposite direction from that shown in the drawing. This is an obvious interchange of parts.

The mechanism at **31** biases handle **23** to its nested position. The construction at this point is clearly shown in Patent No. 1,964,114, granted June 26, 1934, to F. A. Gerlach.

What I claim is:

1. In a machine of the class described and comprising a cylinder member having a side opening and a circumferentially slidable door member therefor spaced from said cylinder member and having guides on said cylinder member embracing the curved edges of said door member; means for preventing movement of said door member relative to said cylinder member when said door member is closed including three sealing strips aligned adjacent one of the longitudinally extending edges of said door member and coextensive therewith when said door member is closed, said strips being positioned in said space between said members, the end two of said strips being secured to said cylinder, the central strip being secured to said door, said strips having coacting inclined surfaces where said end strips engage said central strip, said surfaces diverging outwardly in a direction circumferentially of said cylinder away from said door opening, and said surfaces also diverging as they extend inwardly toward the axis of said cylinder, whereby said surfaces are adapted to sealingly engage and position said door longitudinally and radially of said cylinder as said door closes.

2. In a machine of the class described and comprising a cylinder having a side opening and an arcuately bent sheet forming a circumferentially slidable door therefor, means positioned along the trailing edge of the door for holding said door in a predetermined position on said cylinder and spaced therefrom, said means including interfitting wedge shape parts adapted to interengage when said door is closed, one of said parts being rigid with said door and the other of said parts being rigid with said cylinder, said parts lying between said cylinder and said door, said part rigid with said cylinder being of greater thickness than said part rigid with said door, and means for camming said door part radially outwardly into coacting position with said cylinder part as said door is closed.

3. Cylinder door construction comprising a cylinder having a side opening, a circumferentially slidable door for closing said opening, guide means for receiving the leading edge of said door when closed, said guide means permitting additional movement of said door in closing direction when said door is closed, coacting wedge shape parts on said door and cylinder, the same parts diverging outwardly in a direction circumferentially of said cylinder away from said door opening and also diverging as they extend inwardly toward the axis of said cylinder so that said parts are adapted to approach each other as said door is moved into closed position, and securing means for holding said door closed, whereby said door is held against movement longitudinally, radially and circumferentially of said cylinder.

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