A washing machine lid assembly is provided with a metal porcelain-coated outer lid and a plastic inner lid. The inner lid is retained on the outer lid by retainer brackets which are held in place by the perimeter flange of the outer lid. No holes are required in the outer lid for mounting the inner lid. A detergent dispenser is removably mounted on the inner lid and has compartments for both liquid and powder detergent. Water channels formed in the detergent dispenser flush the detergent from the respective compartments. Water channels are also provided on the inner lid to direct water to bleach and fabric softeners compartments in the washing machine cabinet.
WASHING MACHINE INNER LID ATTACHMENT

BACKGROUND OF THE INVENTION

[0001] Vertical axis washing machines typically have a lid made from two components: a sheet metal outer lid and a plastic inner lid. The inner lid controls sound emission and condensation. The inner lid is typically attached to the outer lid by using fasteners which extend through the inner lid and into the outer lid. The outer lid normally is porcelain-coated. During the porcelain firing process, the porcelain may become thin near the edges of the punched holes which receive the fasteners. In some cases, the edges of the holes are not coated with porcelain, and thus are susceptible to oxidation that produces undesirable visible rust.

[0002] Therefore, a primary objective of the present invention is an improved attachment mechanism between the inner and outer lids of a washing machine lid assembly.

[0003] Another objective of the present invention is the provision of a washing machine lid assembly wherein the inner and outer lid components are secured together without the use of separate fasteners.

[0004] Still another objective of the present invention is the provision of a washing machine lid assembly wherein the outer porcelain-coated lid which has no fastener holes.

[0005] A further objective of the present invention is the provision of a washing machine lid assembly wherein the inner and outer lid components are secured together without any visible fasteners.

[0006] Still another objective of the present invention is the provision of a washing machine lid assembly having inner and outer lid components which are attached without the use of screws.

[0007] Yet another objective of the present invention is the provision of an improved washing machine lid assembly with a porcelain-coated outer lid which minimizes or eliminates potential rust problems.

[0008] Another objective of the present invention is the provision of a washing machine lid assembly which is economical to manufacture and durable in use.

[0009] These and other objectives will become apparent from the following description of the invention.

BRIEF SUMMARY OF THE INVENTION

[0010] The washing machine lid assembly of the present invention includes a porcelain-coated metal outer lid and a plastic inner lid attached to the outer lid without the use of screws. A pair of retainer brackets are mounted on the outer lid and retained by a perimeter flange extending around the outer lid. Each bracket has a key slot adapted to receive locking tabs on the inner lid. The inner lid also has a pair of snap tabs which snap fit into receptors in the brackets. A detergent dispenser is mounted on the inner lid and includes tabs which hook beneath a portion of the perimeter flange of the outer lid to provide further securement between the inner and outer lids. The front edge of the inner lid is retained by the perimeter flange adjacent the front edge of the outer lid. Each bracket also includes a pin extending through a hole in the rear corners of the outer lid so as to define a pivot axis for the lid assembly on the washing machine cabinet.

BRIEF DESCRIPTION OF THE DRAWINGS

[0011] FIG. 1 is a perspective view of the washing machine lid assembly of the present invention.

[0012] FIG. 2 is a front elevation view of the lid assembly.

[0013] FIG. 3 is a side elevation of the lid assembly.

[0014] FIG. 4 is an exploded view of the inner and outer lids, the retainer brackets, and the detergent dispenser of the lid assembly.

[0015] FIG. 5 is a rear perspective view of the inner lid.

[0016] FIG. 6 is a sectional view taken along lines 6-6 of FIG. 2.

[0017] FIG. 7 is a sectional view taken along lines 7-7 of FIG. 2.

[0018] FIG. 8 is a sectional view of the detergent dispenser showing the water flow path through the dispenser.

[0019] FIG. 9 is a view of the lid assembly of the present invention mounted on a washing machine cabinet.

[0020] FIG. 10 is an enlarged partial sectional view of the detergent dispenser.

[0021] FIG. 11 is a front elevation view of one of the retainer brackets.

DETAILED DESCRIPTION OF THE DRAWINGS

[0022] The lid assembly 10 of the present invention is intended for use on a vertical axis washing machine. As seen in FIG. 9, the washing machine includes a cabinet 12 with an opening 14 providing access to the inner drum (not shown).

[0023] The lid assembly 10 includes an outer lid 18 and an inner lid 20. The outer lid 18 is preferably made of sheet metal and is porcelain coated. The inner lid 20 is preferably made of plastic and is secured to the outer lid 18 without the use of screws or other fasteners which penetrate the outer lid 18, as described below.

[0024] As best seen in FIG. 4, the outer lid 18 includes a front edge 22, a rear edge 24, and opposite side edges 26. The edges 22, 24, 26 extend substantially perpendicular to the primary surface 28 of the outer lid 18. A perimeter flange or lip 30 extends inwardly from the edges 22, 24, 26.

[0025] A pair of mounting or retainer brackets 32 reside along the side edges 26 adjacent the rear corners 34 of the outer lid 18. The brackets 32 are held in position by the perimeter flange 30 of the outer lid 18. Each bracket 32 includes a key slot 36 and a snap receptor 38. Each bracket 32 also includes a pin or post 40 which extends through a hole 42 in the side edges 26 adjacent the rear corners 34 of the outer lid 18. The pins 40 are also received in corresponding holes (not shown) in the cabinet 12 adjacent the access opening 14, thereby defining a horizontal pivot axis which allows the lid assembly 10 to move between open and closed positions relative to the access opening 14.

[0026] The inner lid 20 includes a front or outer surface 44 and a rear or inner surface 46. The inner lid 20 also includes a front edge 48, a rear edge 50, and the opposite side edges 52. As seen in FIG. 5, a pair of key tabs or locking tabs 54 extend from the inner surface 46 adjacent the opposite side
edges 52 of the inner lid 20. The key tabs 54 are adapted to be received in the key slots 36 of the retainer brackets 32. The key tabs 54 generally have a T-shaped structure with a head and a leg. The key slots 36 include a lower end sufficiently large to receive the head of the key tabs 54, and a narrow upper portion which receives the leg of the key tabs 54 while retaining the head thereof.

[0027] The inner lid 20 also includes a pair of snap tabs 56 adjacent the rear edge 50. The snap tabs 56 are adapted to be received in the snap receivers 38 of the retainer brackets 32. The snap tabs 56 are inserted into the snap receivers 38 after the key tabs 54 are slid upwardly into the narrow portion of the key slots 36. As the key tabs 54 are slid into the key slots 36, the front edge 48 of the inner lid 20 is received under the perimeter flange 30 adjacent the front edge 22 of the outer lid 18. Spacer tabs 58 are formed in the front edge 48 of the inner lid 20 so as to provide a snug fit in the front edge 22 of the outer lid 18.

[0028] The front surface 44 of the inner lid 20 includes a recess 60 for receiving a detergent dispenser 62. More particularly, a pair of slots 64 are provided in the inner lid 20 adjacent the rear edge 50 thereof. The slots 64 are adapted to receive mounting tabs 66, which also extend under or capture the perimeter flange 30 of the outer lid adjacent the rearward edge 24 thereof. The upper end of the detergent dispenser 62 includes a snap tab 68 which is adapted to snap fit into a shoulder 70 in the inner lid 20. A recess 72 is provided above the shoulder 70 so that a person can use his/her finger to push the resilient snap tab 68 out of engagement with the shoulder 70 to remove the detergent dispenser 62 from the inner lid 20.

[0029] The detergent dispenser 62 includes a compartment 74 to receive liquid detergent and a compartment 76 to receive powder detergent. A water inlet 78 is formed in the detergent dispenser 62 and resides adjacent the rear edge 50 of the inner lid 20. The water inlet 78 directs water into each of the compartments 74, 76, as shown by the arrows in FIG. 8, to flush the respective detergent into the drum of the washing machine during the wash cycle of the machine operation. The compartment has a ceiling wall 77 and a wedge projection 79 which is sloped to facilitate flush-out of the detergent into the drum. Water is also directed to the upper end of the detergent dispenser for exit through holes 80 to provide a pre-wet shower for laundry in the drum. The liquid compartment 74 includes a conventional stand pipe 82 so that liquid detergent is not flushed from the compartment 74 until water is introduced through the water inlet 78. The stand pipe 82 is formed as part of the detergent dispenser 62. A siphon cover (not shown) is placed over the stand pipe to create a siphon system. The stand pipe and the siphon cover 82 extends through a hole on the back of the detergent dispenser and is secured by a twist lock.

[0030] The compartment 76 is also adapted to hold a detergent tablet. The compartment has a bottom wall 73 and ribs or projections 75 which space the tablet from the bottom wall 73 so as to enhance water contact with the tablet. The ribs 75 are also sloped to facilitate discharge of the tablet into the drum.

[0031] The inner lid 20 includes a pair of water inlets 84 adjacent the rear edge 50 thereof. The water inlets 84 are formed on the front surface 44 of the inner lid 20. A pair of water channels 86 are provided on the rear surface 46 of the inner lid 20 and cooperate with the water inlets 84 to define a water flow path to water outlets 88 adjacent the front edge 48 of the inner lid. The water outlets 88 are positioned over a bleach receptacle 90 and fabric softener receptacle 92 formed in the upper wall of the cabinet 12, as shown in FIG. 9. Thus, at the proper times during the wash cycle, water can be introduced through the water inlets 84 and into the water channels 86 for dispensement through the outlets 88 into the receptacles 90, 92 so as to flush bleach or fabric softener into the drum. The water channels 86 are preferably made of plastic and welded to the rear surface 46 of the inner lid 20.

[0032] It is common in the art to utilize rubber hoses with spring steel clamps as the water distribution means to distribute water to dispensers mounted on the cabinet. The hoses are relatively expensive, and substantial installation effort is required during assembly. The water channels 86 provide an economical water distribution means.

[0033] The water channels 86 also include an internal dividing wall 87 which defines a water trap 89 in each of the channels 86. When the lid assembly 10 is raised from the closed position, any water remaining in the channels 86 will drain into the traps 89. Thereby precluding accidental spillage onto a user or into the drum.

[0034] The inner lid 20 may also include sealing gaskets 94 which are overmolded onto the inner lid 20 adjacent the front edge 48 and rear edge 50. The gaskets 94 may extend partially or completely along the side edges of the inner lid 20. The sealing gaskets 94 engage portions of the cabinet adjacent the access opening 14 when the lid assembly 10 is closed to prevent escape of moisture during the wash operation.

[0035] Thus, from the foregoing it is seen that the inner lid 20 is mounted to the outer lid 18 without the use of separate fasteners and without penetrating any portion of the outer lid 18. Also, when the inner lid 20 is mounted on the outer lid 18, there are no visible fasteners or connector means.

[0036] The invention has been shown and described above with the preferred embodiments, and it is understood that many modifications, substitutions, and additions may be made which are within the intended spirit and scope of the invention. From the foregoing, it can be seen that the present invention accomplishes at least all of its stated objectives.

What is claimed is:

1. A washing machine lid assembly comprising:
   - an outer lid with a front edge, a rear edge, opposite side edges, and an inwardly turned perimeter flange extending along the edges;
   - a pair of retainer brackets retained on the outer lid by the perimeter flange; and
   - an inner lid retained on the outer lid by the brackets without the use of separate fasteners.

2. The lid assembly of claim 1 wherein the brackets are located on opposite sides of the outer lid.

3. The lid assembly of claim 1 wherein each bracket has a pin extending through a hole in the outer lid to define a pivot axis for the lid assembly.

4. The lid assembly of claim 1 wherein each bracket has a snap receiver and the inner lid has snap tabs for releasable receipt in the snap receivers.
5. The lid assembly of claim 1 wherein each bracket has a key slot and the inner lid has locking tabs to matingly fit into the key slots.

6. The lid assembly of claim 1 wherein the inner lid has a pair of snap tabs adapted to releasably fit into snap receivers in the brackets.

7. The lid assembly of claim 1 wherein the inner lid includes a detergent dispenser.

8. The lid assembly of claim 7 wherein the detergent dispenser is removably mounted on the inner lid.

9. The lid assembly of claim 7 wherein the detergent dispenser includes attachment tabs adapted to retentively engage the perimeter flange of the outer lid to secure a portion of the inner lid to the outer lid.

10. The lid assembly of claim 1 wherein the inner lid has a front edge adapted to be retained by the perimeter flange adjacent the front edge of the outer lid.

11. A washing machine lid assembly, comprising:

   a metal outer lid;

   a plastic inner lid;

   a pair of retention brackets sandwiched between the inner and outer lids; and

   the inner and outer lids being secured together by the retention brackets and without visible fasteners.

12. The lid assembly of claim 11 wherein the brackets and inner lid have cooperating members to secure the inner lid to the brackets, and the brackets being retained in the outer lid by flanges on the outer lid.

13. The lid assembly of claim 12 wherein the cooperating members include a key slot on the brackets and locking tabs on the inner lid.

14. The lid assembly of claim 12 wherein the cooperating members include snap tabs on the inner lid and snap receivers on the brackets.

15. The lid assembly of claim 11 wherein the brackets each has an outwardly extending pin adapted to extend through holes in the outer lid to define a pivot axis for the lid assembly.

16. The lid assembly of claim 11 wherein the outer lid has a front edge with an inwardly turned flange and the inner lid has a front edge adapted to be retained by the flange of the outer lid.

17. The lid assembly of claim 11 wherein the inner lid includes a detergent dispenser.

18. The lid assembly of claim 17 wherein the detergent dispenser is removably mounted on the inner lid.

19. The lid assembly of claim 18 wherein the detergent dispenser includes attachment tabs adapted to retentively engage a perimeter flange of the outer lid to secure a portion of the inner lid to the outer lid.

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