

[54] SEAL FOR CLOTHES DRYER

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[51] Int. Cl. F26b 25/00

[58] Field of Search 34/131, 133, 242; 277/229; 432/115

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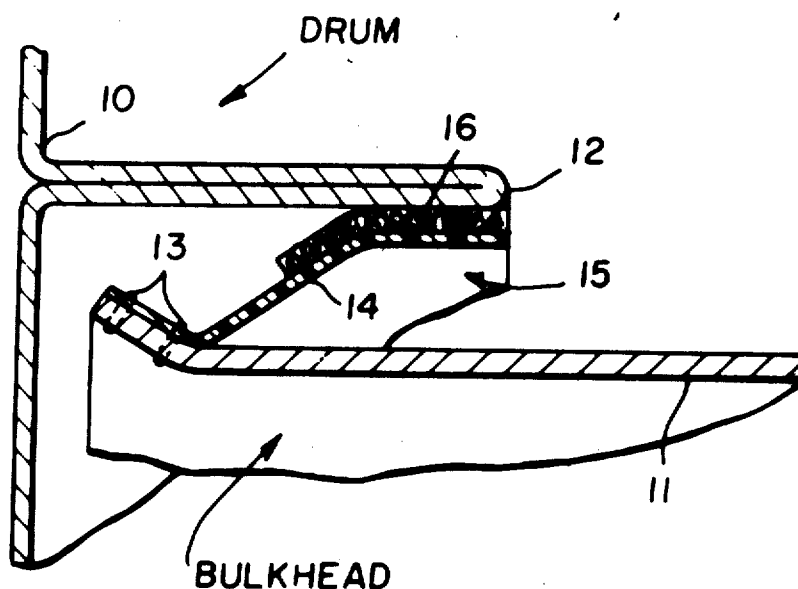
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[57] ABSTRACT

A seal for a clothes dryer includes a resin support strip, a fibrous wear strip secured to the resin strip, and a mounting to secure the resin strip in an annular orientation in the dryer so the wear strip engages a sealing edge in the dryer. The resin strip extends from the mounting across a space between the housing and the rotating drum of the dryer and overlies a portion of the wear strip in the region of the sealing edge to provide an air barrier between the housing and the rotating drum. The resin strip is also made for pressing the wear strip against the sealing edge with a predetermined force.

10 Claims, 4 Drawing Figures



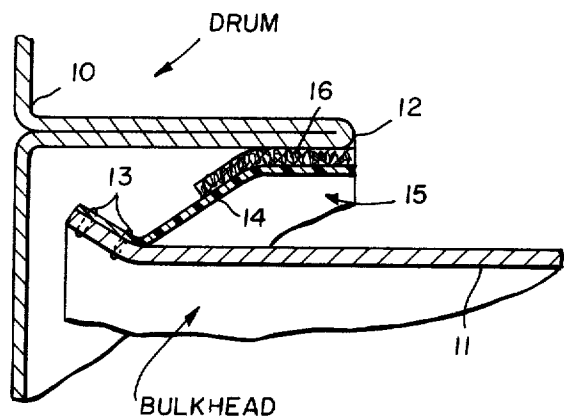


FIG. 1

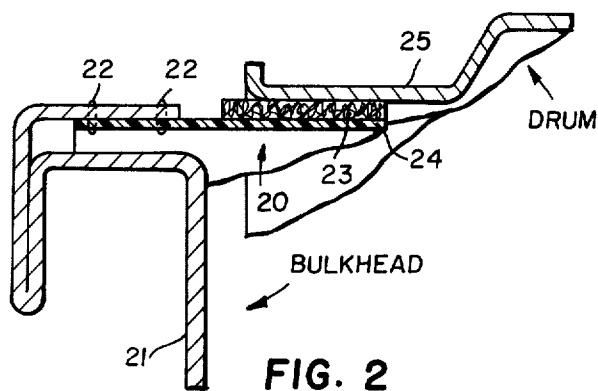


FIG. 2

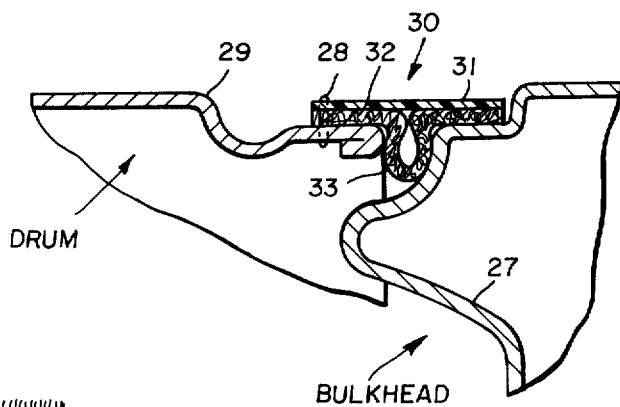


FIG. 3

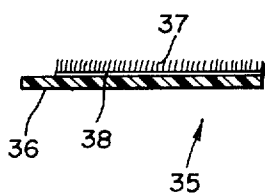


FIG. 4

SEAL FOR CLOTHES DRYER

THE INVENTIVE IMPROVEMENT

Present clothes dryer seals are formed of a relatively thick ring of felt stuffed and lodged into place between the housing and the drum to bear against the drum as it rotates. Such seals are necessary around the door of the dryer to prevent energy losses in undesired air flow between the dryer housing and the drum around the dryer door.

The dryer rides in wear rings as it rotates, and as the rings wear, the dryer settles down lower relative to the housing. Also, manufacturing tolerances between clothes dryer drums and housings are fairly liberal so that felt stuffing seals have been generally unreliable even in new dryers, and their sealing efficiency has decreased rapidly as the dryer is used.

The invention involves an understanding of the disadvantages of present clothes dryer seals and a recognition of the possibility of a much improved seal resiliently disposed between the dryer drum and housing. The invention aims at effective dryer sealing, accommodation to dryer construction, ease of installation, longer sealing life, and general economy and effectiveness.

SUMMARY OF THE INVENTION

The inventive seal engages a sealing edge in the region of the space between the housing and the rotating drum of a clothes dryer. The seal includes a resin support strip, a fibrous wear strip secured to the resin strip, and means for mounting the resin strip in an annular orientation in the dryer so the wear strip engages the sealing edge. The resin strip extends from the mounting across the space between the housing and the rotating drum and overlies the portion of the wear strip in the region of the sealing edge to provide an air barrier between the housing and the rotating drum. The resin strip is configured for pressing the wear strip against the sealing edge with a predetermined force.

DRAWINGS

FIGS. 1-3 are partially schematic and fragmentary cross sectional views of a rotating dryer drum and fixed housing bulkhead sealed with preferred embodiments of the invention; and

FIG. 4 is a cross sectional view of a pile material for use in the inventive seal.

DETAILED DESCRIPTION

In the seal arrangement of FIG. 1, dryer drum 10 rotates relative to fixed bulkhead 11 forming part of the dryer housing, and drum 10 has a sealing edge 12 turning around bulkhead 11 across a gap between bulkhead 11 and sealing edge 12. The inventive seal 15 can be mounted on drum 10 or bulkhead 11 in various ways, but is shown in FIG. 1 as secured to bulkhead 11 by staples 13. Seal 15 is formed of a resin support strip 14 which can be either a flat annulus or formed into any desired cross sectional shape, including the approximately conical shape shown in FIG. 1. A strip of fibrous wear material 16 is secured to support strip 14 to engage sealing edge 12 of drum 10. Support strip 14 is configured and formed of an appropriate resin material to press wear strip 16 against sealing edge 12 with a predetermined force for effectively sealing the gap between drum 10 and bulkhead 11. Support strip 14 pro-

vides an air barrier across the gap between dryer drum 10 and bulkhead 11, and wear strip 16 provides a sealing engagement with surface 12 and provides a low-friction wear surface. A wire reinforced support element can be substituted for resin strip 14, especially in any region where temperatures are relatively high.

The inventive seal can be mounted in many ways between a bulkhead of a dryer housing and the rotating drum of the dryer, and FIG. 2 shows another preferred alternative. Seal 20 is secured to bulkhead 21 by staples 22 and is formed of a resin support strip 23 and a fibrous wear strip 24 engaging a rotating dryer drum 25. As in FIG. 1, support strip 23 is formed of the proper materials and given the correct shape to press wear strip 24 against drum 25 with a predetermined force, and resin strip 23 provides an air barrier between bulkhead 21 and drum 25. Wear strip 24 provides a wear surface and a seal riding against drum 25.

In the embodiment of FIG. 3, seal 30 is secured to rotating drum 29 by staples 28 and spans the gap between drum 29 and bulkhead 27 of the housing of a dryer. Seal 30 includes a resin support strip 31 forming an air barrier across the gap between drum 29 and bulkhead 27, and the fibrous wear material 32 secured to resin strip 31 has a longitudinal loop 33 in a longitudinal mid-region to give wear material 32 a general T-shape in cross section and to dispose loop 32 in the space between bulkhead 27 and drum 29.

FIG. 4 shows another seal 35 having a resin support strip 36 and a pile material 37 formed on a base 38 secured to support strip 36. Seal 35 can be substituted for seals 15 or 20 and also can be mounted in various ways between a dryer drum and a housing.

Resin strips for the inventive seal can be cut from flat sheets, or extruded in any desired cross sectional shape, and can be made in various thicknesses of various materials and have different configurations to provide the resilience desired for any particular seal. At the same time, they provide an air barrier across the gap between the dryer drum and the housing. Fibrous wear material can be felt or preferably needle-punched felt which provides a good wear surface and an adequate seal against the sealing edge engaged by the wear material. The wear material can be secured to the resin support strip in many ways, including adhesives and fusion or solvent welds. Pile material 37 can also be used, and the selection of an optimum wear material is a combination of material characteristics and costs. Seals can be mounted either on the drum or the housing bulkhead of a dryer depending upon the configurations involved, and those skilled in the art will understand how to adapt the inventive seal to any particular dryer housing and drum configuration. The inventive seal thus combines an air barrier, a wear surface having a good sealing engagement with a sealing edge, and resilience to give the seal a long life as the dryer wears and to accommodate manufacturing tolerances. The inventive seal is simpler, cheaper, and far more effective than previous seals formed of a volume of felt stuffed into position in the gap between the dryer housing and drum.

Persons wishing to practice the invention should remember that other embodiments and variations can be adapted to particular circumstances. Even though one point of view is necessarily chosen in describing and defining the invention, this should not inhibit broader or related embodiments going beyond the semantic orien-

tation of this application but falling within the spirit of the invention. For example, those skilled in the art will appreciate the different materials and mountings possible in fitting the inventive seal to various dryers.

I claim:

1. A seal for engaging a sealing edge in the region of the space between the housing and the rotating drum of a clothes dryer, said seal comprising:

- a. a continuous resin support strip;
- b. a fibrous, wear strip secured to said resin strip;
- c. means for mounting said resin strip in an annular orientation in said dryer so said wear strip engages said sealing edge;
- d. said resin strip extending from said mounting means all the way across said space between said housing and said rotating drum and overlying the region where said wear strip engages said sealing edge to provide an air barrier over the entirety of said space between said housing and said rotating drum; and
- e. said resin strip being configured for pressing said wear strip against said sealing edge with a predetermined force.

2. The seal of claim 1 wherein said resin strip is oriented in mounted position in a generally conical shape.

3. The seal of claim 1 wherein said wear strip is formed with a longitudinal loop extending away from

a longitudinal mid-region of said resin strip and formed between two longitudinal portions of said wear strip secured to said resin strip so said wear strip is generally T-shaped in cross section, said loop being disposed in said space between said housing and said rotating drum.

4. The seal of claim 3 wherein said wear strip is felt.

5. The seal of claim 1 wherein said wear strip is felt.

6. The seal of claim 5 wherein said felt is needle-punched felt.

7. The seal of claim 1 wherein said wear strip is formed of a pile material.

8. The seal of claim 1 wherein said resin strip is wider than said wear strip and extends laterally outward from said wear strip along an edge secured by said mounting means.

9. The seal of claim 8 wherein said resin strip is oriented in mounted position in a generally conical shape.

10. The seal of claim 8 wherein said wear strip is formed with a longitudinal loop extending away from a longitudinal mid-region of said resin strip and formed between two longitudinal portions of said wear strip secured to said resin strip so said wear strip is generally T-shaped in cross section, said loop being disposed in said space between said housing and said rotating drum.

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