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{56}

References Cited

UNITED STATES PATENTS

3,249,150	5/1966	Knight.....	160/184
3,254,698	6/1966	Fox et al.	160/184
3,306,955	2/1967	Lowes, Jr.	128/334 (R UX)

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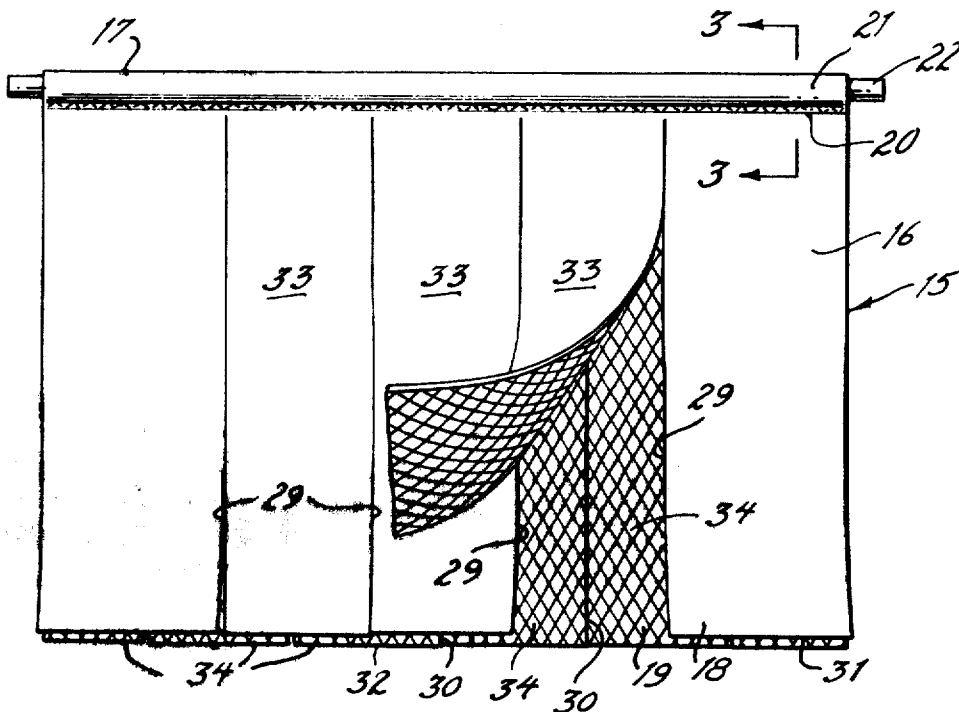
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[54] CURTAIN CONSTRUCTION
8 Claims, 4 Drawing Figs.

[52]	U.S. Cl.	160/184, 160/332
[51]	Int. Cl.	A47h 23/05
[50]	Field of Search	160/184, 330, 332, 124; 128/334 R; 3/1; 134/72, 131; 2/87

ABSTRACT: A curtain of a single integral flexible sheet folded upon itself with the overlying sheet layers secured together by a weld extending in parallel spaced relation with the fold, the sheet portions between the fold and weld defining a receiver for a suspending rod, and the facing surfaces of the layers being nonsmooth to resist adherence therebetween.



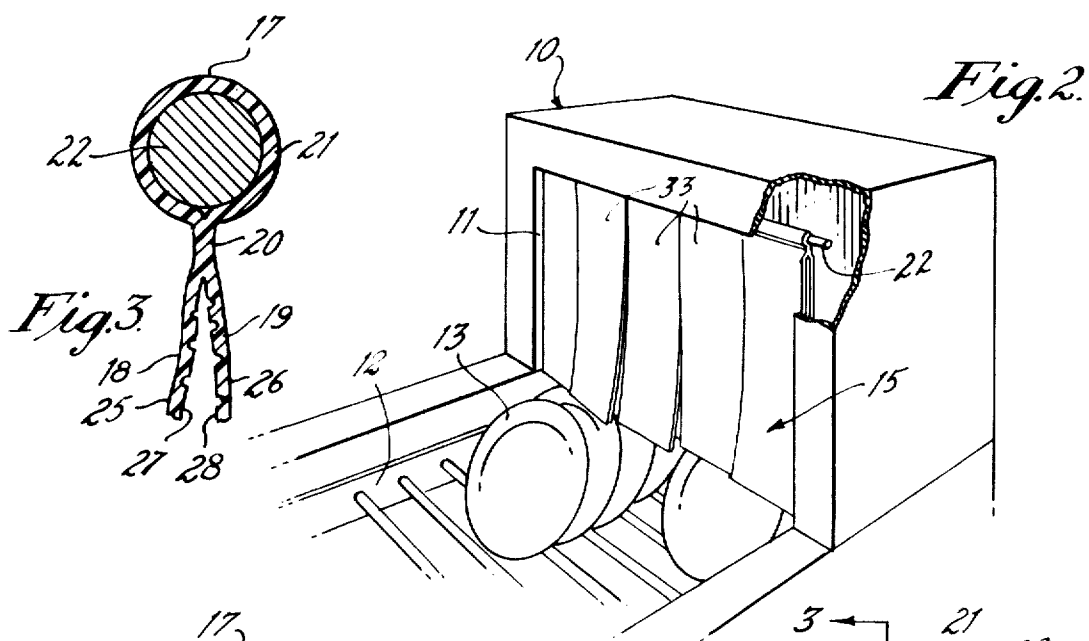


Fig. 3.

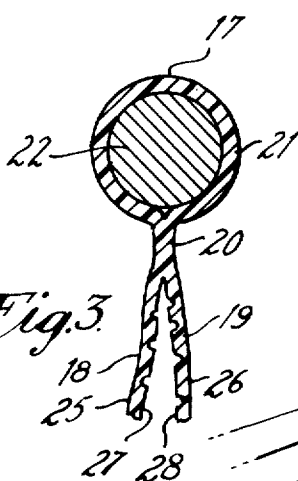
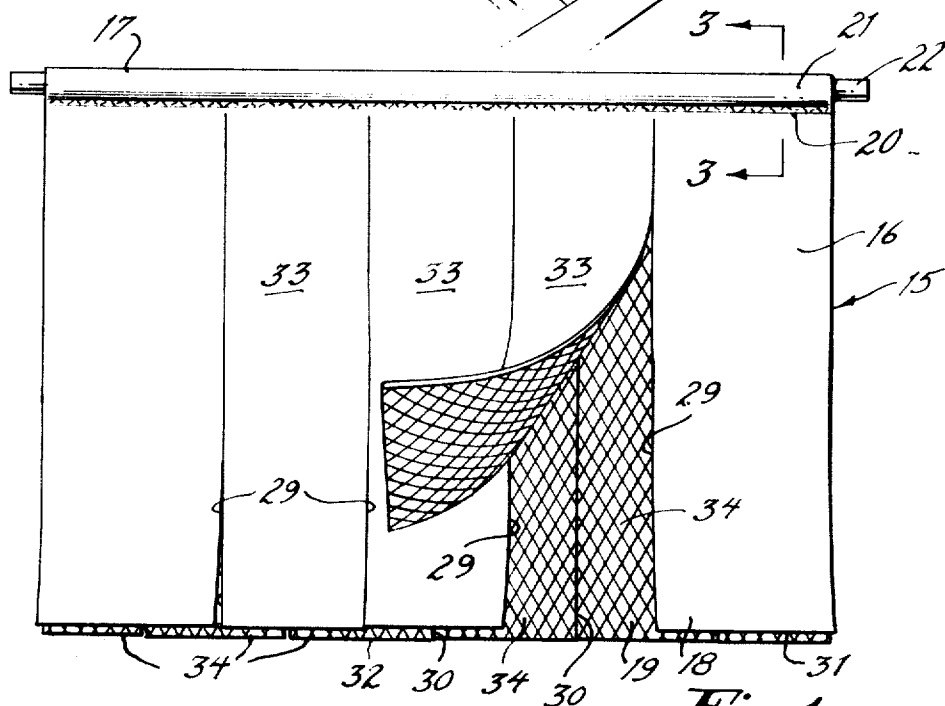
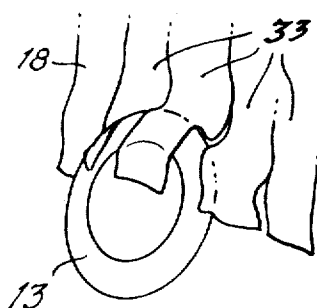


Fig. 4.

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CURTAIN CONSTRUCTION

BACKGROUND OF THE INVENTION

While the curtain construction of the instant invention is admirably well suited for use in commercial dishwashers, as in the pass-through openings thereof, say in the environment of my previous U.S. Pat. No. 3,249,150, the instant curtain is capable of many varied applications. For example, the instant curtain construction may be adapted for use in carwash applications, icemaking or dispensing machines, and a variety of other applications, all of which are intended to be comprehended herein.

In prior dishwasher curtain constructions, there was rapid wear and deterioration requiring relatively frequent replacement. Attempts to provide more durable curtain constructions resulted in more complex and expensive structures.

SUMMARY OF THE INVENTION

Accordingly, it is an important object of the present invention to provide a curtain construction for use in a pass-through opening, say a dishwasher opening, which is simpler in structure than heretofore possible, affords greatly increased durability and useful life, and can be manufactured and installed at a reasonable cost.

It is still a further object of the present invention to provide a pass-through curtain of the type described, which is particularly advantageous for use under strict sanitary requirements, being of highly increased resistance to accumulation of dirt, spores, and the like, while being adapted to inhibit the growth of many micro-organisms such as bacteria, molds and fungi.

It is a more particular object of the present invention to provide a dishwasher curtain of the same general type as disclosed in my previous U.S. Pat. No. 3,249,150, but being substantially improved by simplicity and economy in manufacture, enhanced durability in use, and particularly by the provision of a unique criteria of material having sufficient thickness or bulk for extreme long lasting durability, while being highly flexible under actual operating conditions to more effectively close the associated opening for superior service as a barrier to the passage of fluid, heat, and the like.

Other objects of the present invention will become apparent upon reading the following specification and referring to the accompanying drawings, which form a material part of this disclosure.

The invention accordingly consists in the features of construction, combinations of elements, and arrangements of parts, which will be exemplified in the construction hereinafter described, and of which the scope will be indicated by the appended claims.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an elevational view showing a curtain construction of the present invention, including a suspension rod, and apart from a surrounding structure.

FIG. 2 is a perspective view showing the curtain of FIG. 1 in operative association with a dishwasher, or the like, being in position extending across a pass-through opening of the dishwasher, being partially broken away for increased clarity of understanding.

FIG. 3 is a partial sectional view taken generally along the line 3-3 of FIG. 1, enlarged for clarity.

FIG. 4 is a partial perspective view illustrating an operative condition of the instant curtain in association with a pass-through dishwasher opening.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now more particularly to the drawings, and specifically to FIG. 2 thereof, a dishwasher cabinet is there generally designated 10, being provided at one side with a pass-through opening 11, say for the movement therethrough of trays 12 carrying dishes 13.

Extending in closing relation across the opening 11 of the dishwasher cabinet 10 is a curtain, generally designated 15, constructed in accordance with the teachings of the present invention.

The curtain 15 is seen in its entirety in FIG. 1, and is formed of a single integral sheet 16 of flexible, imperforate plastic material. In particular, the sheet 16 has been found advantageously fabricated of polyvinyl chloride of approximately one-sixteenth inch thick. The polyvinyl chloride of sheet 16 is a thermoplastic, being of increased flexibility in the elevated temperature range of dishwasher liquid, generally between 150° and 175° F Fahrenheit, for purposes appearing presently.

The single integral thermoplastic sheet 16 is of a generally rectangular overall configuration and folded or bent along a centerline, as at 17, to subdivide the sheet into a pair of generally congruent, facing layers 18 and 19. At a location extending in adjacent, spaced parallelism with the bend or fold 17, the facing sheets 18 and 19 are secured by a weld 20. The weld 20 may be effected by suitable adhesive, or heat or dielectric welding, and is coextensive with the layers 18 and 19, combining with the fold or bend 17 to define of the sheet regions intermediate the bend and weld a generally open ended tubular formation 21. This open ended tubular formation 21 is adapted to removably receive an elongate relatively stiff suspending member or rod 22 which may have its opposite ends projecting beyond the curtain 15 for removable support in the cabinet 10.

The outer or nonfacing surfaces 25 and 26 of the respective layers 18 and 19 are preferably calendered or otherwise rendered smooth and glossy so as to effectively resist the accumulation of dirt, spores and the like, and permit of easy cleaning.

However, the inner or facing surfaces 27 and 28 of the layers 18 and 19 are advantageously nonsmooth. This is to prevent the adherence or sticking which would otherwise occur between smooth or glossy adjacent facing surfaces of flexible sheets. As the nonsmooth surfaces 27 and 28 are not exposed to the degree that the outer surfaces 25 and 26 are exposed, the maintenance of sanitary conditions on the inner facing surfaces does not present a problem.

In addition, the facing layers 18 and 19 of sheets 20 are respectively cut or slit, as by parallel groups of cuts 29 and 30. That is, a group of parallel-spaced cuts 29 extends inwardly through the layer edge 31 remote from the weld 20 and extends toward and terminates short of the weld. Similarly, the parallel cuts or slits 30 extend inwardly through the edge 32 of layer 19, remote from the weld 20, and terminate adjacent to but short of the weld. Hence, the layers 18 and 19 are each subdivided into a plurality of depending freely flexible strips, the strips of each layer being astride a slit or cut of the other layer, generally in a manner similar to my prior patent.

While the cuts 29 and 30 are shown as being substantially dimensionless, say as formed with a thin knife, it is appreciated that there may be provided slots of definite width in place of the cuts, if desired. In any event, the extremely simple structure described above, employing the integral imperforate sheet of thermoplastic material, say of the type formed by extrusion, casting or the like, has been found to provide a curtain of extremely long useful life.

In addition, for usage in dishwashers and other highly sanitary environments, it is preferable that the polyvinyl chloride of sheet 16 have admixed therewith an antimicrobial compound, say of the type sold under the trademark Biomet by M and T Chemical Inc. Such a compound affords to the curtain 15 the ability to inhibit the growth of many micro-organisms including various bacteria, common molds, and various fungi.

The advantageous criteria of polyvinyl chloride sheet material on the order of one-sixteenth inch thick is further found to be highly flexible under the elevated temperatures of dishwashing water. For this reason, the layers 18 and 19, and their respective strips 33 and 34 are highly flexible and serve to closely conformably engage about dishes 13, and the like, passing through the curtain. Such a condition of high flexibility

ty is shown in FIG. 4, the strips 33 of layer 18 there draping in conforming engagement with a passing dish. This criteria of structure assures more effective closure of the opening 11 during passage therethrough of dishes, and the like, for more effective barrier action of the curtain, say to prevent the passage therethrough of fluid, heat, et cetera.

While the curtain construction of the present invention, as described hereinbefore, has been particularly adapted for use with a rod to suspend the curtain, it is appreciated that other suitable means may be employed for such suspension, including snaps, velcro, adhesive, bolts, and other fastening means.

Although the present invention has been described in some detail by way of illustration and example for purposes of clarity of understanding, it is understood that certain changes and modifications may be made within the spirit of the invention.

What I claim is:

1. A pass-through curtain for suspension by a rod in an opening, said curtain comprising a single integral imperforate sheet of flexible plastic material; said sheet being folded upon itself to define a pair of facing layers joined together by a fold; a weld formed in said layers extending along in parallel-spaced relation with respect to said fold, said fold and weld and the sheet portions intermediate said fold and weld combining to define an open ended tubular formation for removably receiving a suspension rod; said layers having nonsmooth facing surfaces to prevent adherence of said layers.

2. A curtain according to claim 1, said layers each being formed with a plurality of generally parallel cuts extending in-

wardly through the edge remote from said tubular formation toward and terminating short of said weld, said cuts of respective layers being offset with respect to each other.

3. A curtain according to claim 2, said layers having smooth nonfacing surfaces for sanitation.

4. A curtain according to claim 3, said plastic material being thermoplastic and of greater flexibility at elevated temperature, for enhanced closure about articles in said opening.

5. A curtain according to claim 3, said plastic material being polyvinyl chloride having a thickness of approximately one-sixteenth inch.

6. A curtain according to claim 5, said plastic material including antimicrobial material.

7. A curtain according to claim 3, said facing layer surfaces being formed with grooves to define said nonsmooth surface.

8. A pass-through curtain for suspension in an opening, said curtain comprising a single integral imperforate sheet of flexible plastic material; said sheet being folded upon itself to define a pair of facing layers joined together by a fold; a weld formed in said layers extending along and in parallel spaced relation with respect to said fold, said layers having nonsmooth facing surfaces to prevent adherence of said layers and smooth nonfacing surfaces for sanitation; said plastic material being polyvinyl chloride thermoplastic having a thickness of approximately one-sixteenth inch, for increased flexibility at elevated temperature and enhanced closure about articles in said opening.

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