July 19, 1966 R. J. RIHR 3,261,185

DRY CLEANING UNIT

Filed May 18, 1964

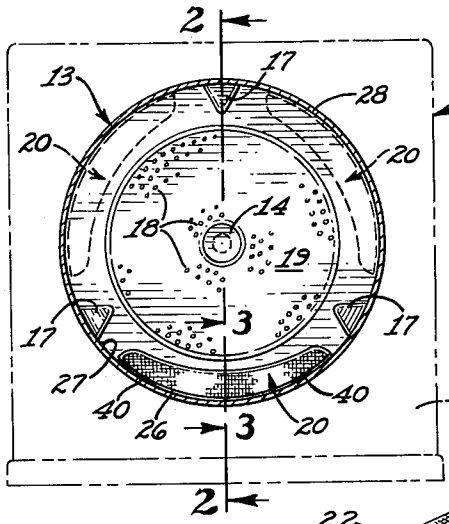


FIG. 1

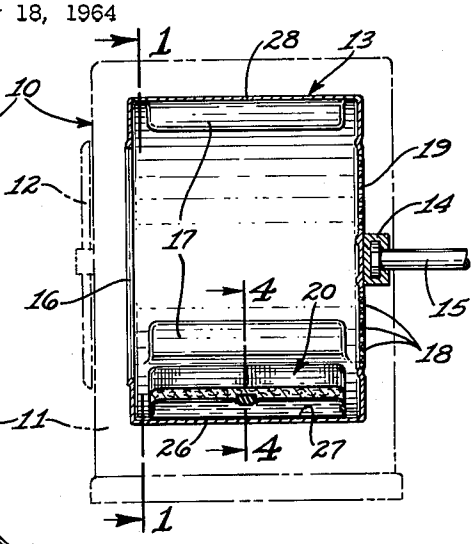


FIG. 2

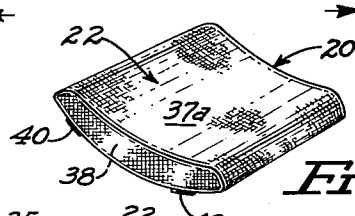


FIG. 3

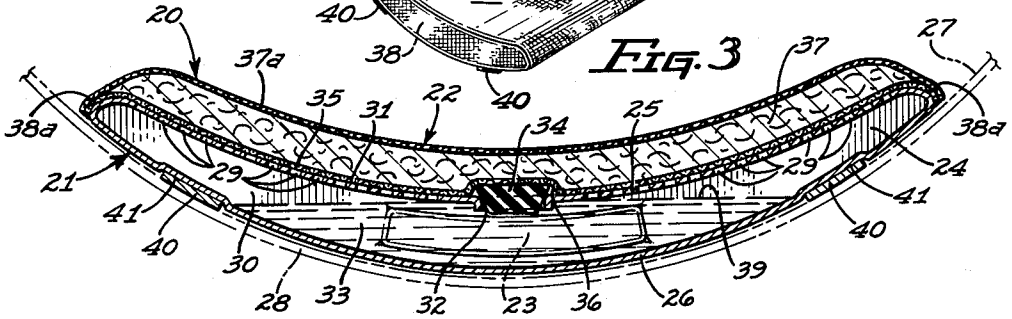


FIG. 4

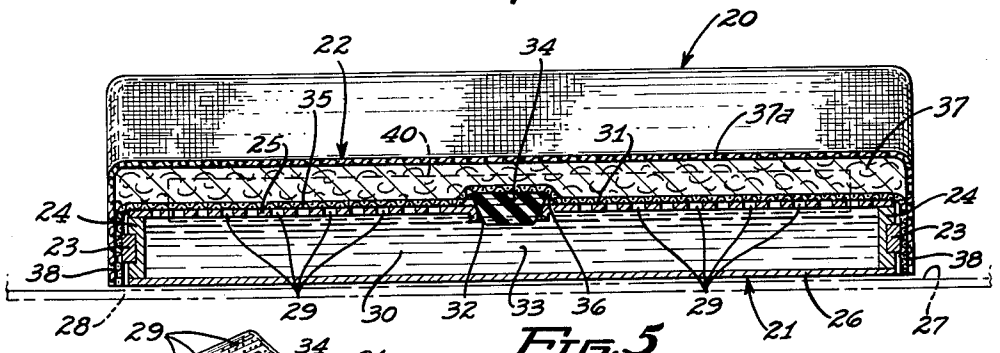


FIG. 5

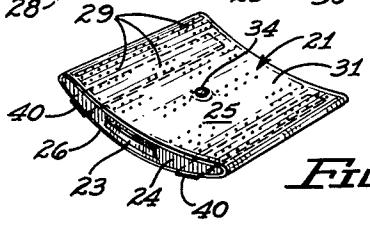


FIG. 6

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DRY CLEANING UNIT

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This invention relates to dry cleaning apparatus and more particularly to an accessory dry cleaning unit which may be used in association with a domestic type clothes dryer to perform the function of dry cleaning clothes.

The design features and performance characteristics of a conventional domestic clothes dryer of the rotating tumbler type are well known in the art, and it in itself constitutes no part of applicant's invention other than to provide a new and novel combination when used in direct association with the improved accessory dry cleaning unit of this invention, for the purpose of dry cleaning clothes or the like.

The primary object of this invention is to provide a light weight, compact and portable dry cleaning unit which, when previously filled with a suitable non-inflammable dry cleaning solvent and placed within a rotatable tumbler drum of a domestic clothes dryer, will, upon operation of the dryer in the normal manner, allow the dryer in combination with said cleaning unit, to perform the function of dry cleaning.

Another object of the invention is to provide an accessory dry cleaning unit as above described which may be used individually or with a plurality of similar units in association with a domestic clothes dryer to provide the desired cleaning action required, relative to the quantity of material to be cleaned.

A further object of the invention is to provide an accessory dry cleaning unit which is preferably arcuate in shape or form to substantially contact the inner cylindrical wall of a clothes dryer drum midway between the usual tumbler baffles attached to the inner cylindrical wall of said drum, having suitable holding devices adapted to prevent circumferential or radial displacement of the cleaning unit from its respective position within the rotating drum.

A still further object of this invention is to provide a comparatively simple, rugged, inexpensive accessory dry cleaning unit, or units, which may be easily placed in or removed from the rotary drum of a conventional domestic clothes dryer when desired by the operator to utilize the normal facilities of the clothes dryer for dry cleaning purposes.

Additional features and advantages of applicant's invention will be evident when considered in association with the several views of the drawings which are intended to form an important part of this specification, and in which:

FIG. 1 is a front elevational view of a conventional domestic clothes dryer with the cabinet indicated in phantom line and the inner rotatable drum portion shown in section substantially on the line 1—1 of FIG. 2 illustrating the respective placement of one or more dry cleaning units in the drum.

FIG. 2 is a side elevational view of the clothes dryer of FIG. 1 with the cabinet again indicated in phantom line and the rotatable drum and one dry cleaning unit of the invention shown in section taken on the line 2—2 of FIG. 1.

FIG. 3 is a perspective view of a complete individual dry cleaning unit assembly of the invention, shown removed from the clothes dryer of FIGS. 1 and 2.

FIG. 4 is a greatly enlarged sectional view of a dry cleaning unit taken on line 4—4 of FIG. 2 illustrating its circumferential relation to the rotatable drum of the clothes dryer.

FIG. 5 is a greatly enlarged sectional view of the dry cleaning unit taken on line 3—3 of FIG. 1 illustrating its transverse relation to the rotatable drum of the clothes dryer.

FIG. 6 is a perspective view of the solvent containing tank element of the dry cleaning unit shown removed from the complete unit assembly.

Referring to the several views of the drawings for more specific details of the invention; 10 indicates in general a conventional domestic clothes dryer having a cabinet enclosure 11 and a front access door 12, the usual tumbler drum 13 mounted within the cabinet enclosure 11, on a suitable bearing 14, and adapted to be slowly rotated by a drive shaft 15 located at the rear of the cabinet and driven by a suitable belt and power source (not shown).

The tumbler drum 13 is provided with the usual access opening 16 adjacent to the cabinet door 12 and the usual tumbler baffles 17, the purpose and function of which are well known. The drum is also provided with a plurality of small holes 18 in its rear vertical wall 19 to allow for the circulation of heated air within the drum and cabinet in the usual manner.

Applicant's invention herewith described in detail and best shown in FIGS. 3, 4, 5 and 6 of the drawings, consists primarily of an accessory unit assembly, indicated in general by the reference character 20, which unit may be used in conjunction with a domestic clothes dryer 10 above described, to provide a suitable combination of elements capable of performing a safe and satisfactory dry cleaning operation on clothes or the like in the home laundry.

The dry cleaning unit 20 comprises a tank member 21 and a cover pad member 22 which may easily be assembled and held firmly in their respective relation as shown in FIGS. 4 and 5 as by means of suitable bar magnets 23 mounted in the vertical ends 24 of the tank member 21, as will be further described.

Tank member 21 is formed and shaped to provide an enclosure having a top portion 25, the vertical ends 24, and a base or bottom portion 26, which is arcuate in shape to precisely fit the inner circumferential surface 27 of the cylindrical wall 28 of the tumbler drum 13. The top portion 25 of the tank is also preferably arcuate in shape and has a plurality of small holes 29 which provide communication between the inner chamber 30 of the tank member 21 and the outer surface 31 of said top portion 25. A large bore 32, preferably centrally located in the top portion 25 of the tank is provided to function as a filler opening through which a suitable non-inflammable dry cleaning solvent 33 may be poured into the chamber 30 and capped with a suitable plug 34 to retain a substantial portion of the solvent therein during normal handling of the tank after filling same.

The cover pad member 22 comprises a substantially rigid base member 35 which is preferably formed of a suitable material such as stainless steel wire mesh to fit over the exact contoured surfaces of the outer top portion 25 and end portions 24 of the tank member 21, and is provided with a central indentation 36 into which the filler plug 34 projects and is held from dislodgment during use of the device. Base member 35 is preferably covered with a suitable absorbent cotton pad 37 or the like over its entire upper outer surface which is in turn covered with a suitable porous cloth material 37*a* which extends over the cotton pad 37 and the exposed ends 38 and sides 38*a* of the base member 35 where it is suitably held in taut relation by sewing or otherwise over the pad 37 and the ends and sides of the base member 35 to form the complete cover pad assembly 22 which is adapted to be placed in position over and completely surrounding the tank member 21 where it is secured in this relation by magnets 23 to provide the complete dry cleaning unit 20,

subject of the invention which may be readily available when and as required, for dry cleaning purposes.

When it is desired to use applicant's device for dry cleaning purposes as above stated, it is merely necessary for the housewife or domestic operator to remove one or more dry cleaning units **20** from any convenient storage place, place them on any suitable table surface such as the top of the domestic clothes dryer **10** to be used, where the cover pad members **22** and the plugs **34** may be conveniently removed from the tank members **21** to allow a suitable cleaning solvent **33** to be poured into each tank to the preferred level **39**, indicated in FIG. 4. Plugs **34** may then be replaced in the filling bores **32** and the cover pad members **22** replaced over the tank members **21**, thereby providing dry cleaning units **20** ready for use.

One or more dry cleaning units **20** may be placed in the tumbler drum **13** of the clothes dryer **10** with the bottom arcuate portion **26** of each unit contacting the inner circumferential surface **27** of the cylindrical wall **28** of the drum **13**, in their respective positions between the tumbler baffles **17**, as clearly illustrated in FIG. 1, where they are securely held against displacement in their respective positions by such suitable means as the bar magnets **40** which are attached to and extend in suitable depressions **41** the entire width of the tank bottom portions **26**.

The clothes dryer **10** now having one or more of the dry cleaning units **20** of the invention firmly secured to the inner cylindrical wall of its tumbler drum **13**, is now prepared to perform the desired dry cleaning function on clothes or the like by simply energizing the heating units of the dryer and simultaneously and slowly rotating the tumbler drum **13** by the usual means to cause the clothes to rise to the top of the drum, to fall and roll within the drum against the solvent saturated cloth surfaces **37***a* of the cleaning unit pads **22** in such a manner as to the cause the clothes to be subjected to a rubbing abrasive action over the outer surfaces of the dry cleaning units **20**, and to cause a sufficient circulation of a suitably heated solvent saturated mist of air throughout the clothes or material placed within the tumbler drum **13**, thereby causing a sanitary, substantially dry cleaning operation to be performed on said clothes or materials.

It is apparent from the forgoing description and drawings that applicant's invention provides a new and novel accessory dry cleaning unit which may be used when and as desired to convert a conventional domestic clothes dryer to perform the additional function of dry cleaning clothes or the like with satisfactory results; but it should be clearly understood that various design and construction changes could be made in the device by those skilled in the art without departing from the spirit of the invention or the scope of the appended claims.

Having thus fully set forth the features of this invention in the preceding specification, what is claimed by United States Letters Patent is:

1. A dry cleaning unit for use in a clothes dryer comprising a container for a cleaning fluid, a cover pad having a bottom portion, said bottom portion having a plurality of apertures, an absorbent material, a porous material for holding said absorbent material in contact with said bottom portion, means for securing said cover pad to said container, said unit having an arcuate surface for contact with a surface of said clothes dryer and means for securing said unit to said dryer.

2. A dry cleaning unit in accordance with claim **1** wherein said unit has an arcuate surface for contact with a surface of a clothes dryer and magnetic means for securing said unit to said dryer.

3. A dry cleaning unit for use in a clothes dryer comprising a cover pad, said pad having a perforated top portion and a perforated base portion, a filling of absorbent material between said top and base portions, a tank having a perforated top wall for contact with said perforated base portion of said pad, means for securing said tank to said pad and means for securing said unit to said dryer.

4. A dry cleaning unit for use in a clothes dryer comprising a cover pad, said pad having a perforated top portion and a perforated base portion, a filling of absorbent material between said top and base portions, a tank having a perforated top wall for contact with said perforated base portion of said pad, magnetic means for securing said tank to said pad and magnetic means for securing said unit to said dryer.

5. A dry cleaning unit for use in a clothes dryer comprising a tank member, said tank member including a top portion having a plurality of apertures and a bottom portion, a cover pad, said cover pad having a base portion for contact with said top portion of said tank, said base portion having a plurality of apertures, a layer of an absorbent material in contact with the base portion of said cover pad, said cover pad having a top portion of porous material disposed over said absorbent material and means for securing said tank and said cover pad to said clothes dryer.

6. A dry cleaning unit for use in a clothes dryer comprising a tank member, said tank member including a top portion having a plurality of apertures and a bottom portion, a cover pad, said cover pad having a base portion for contact with said top portion of said tank, said base portion having a plurality of apertures, a layer of an absorbent material in contact with the base portion of said cover pad, said cover pad having a top portion of porous material disposed over said absorbent material and magnetic means for securing said tank and said cover pad to said clothes dryer.

7. A dry cleaning unit in accordance with claim **6** wherein said base portion of said cover pad is steel wire mesh and magnetic means for securing said cover pad to said tank.

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