

June 26, 1962

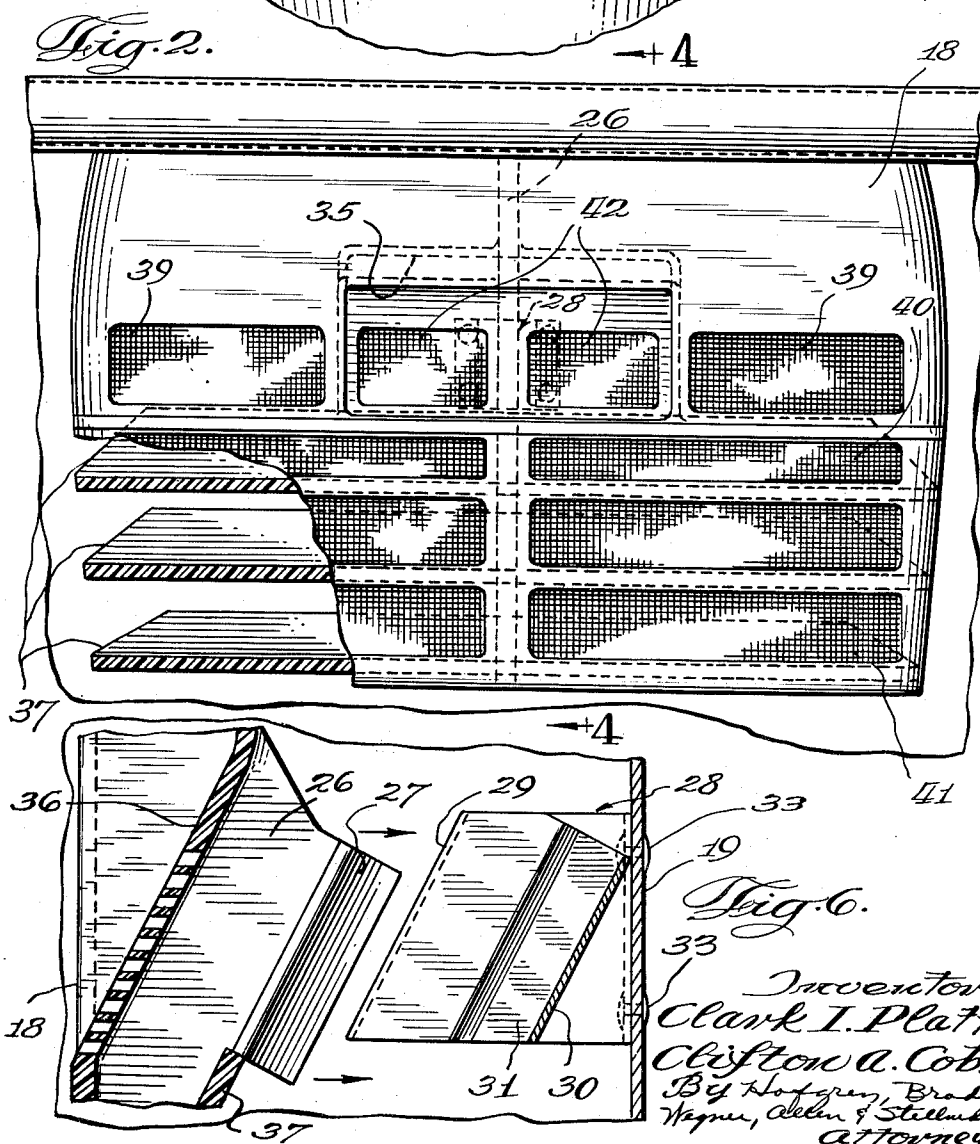
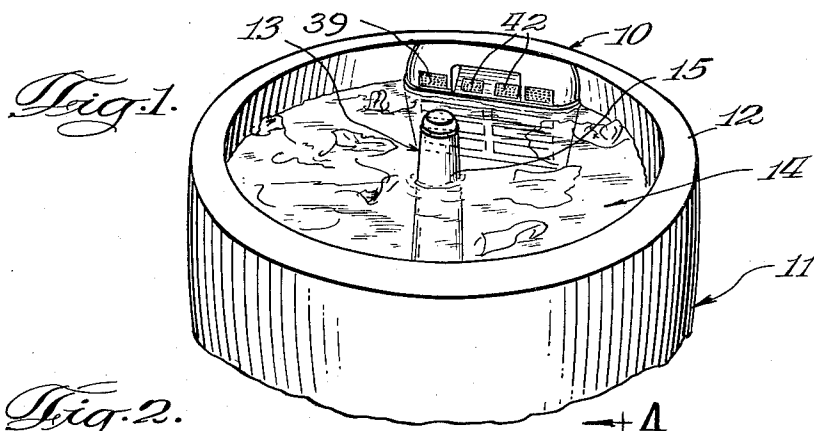
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LINT FILTER FOR USE WITH WASHING MACHINES

Filed Dec. 29, 1960

2 Sheets-Sheet 1



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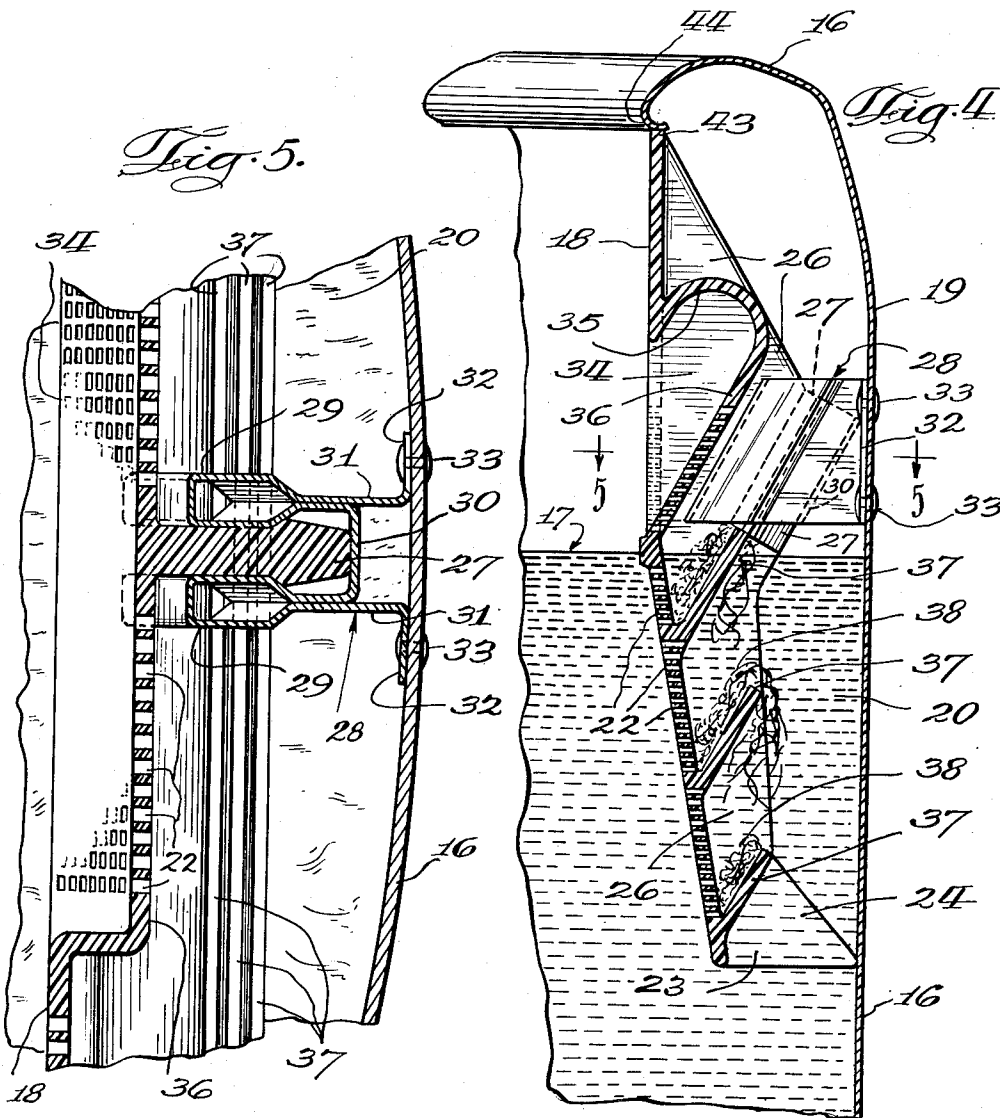
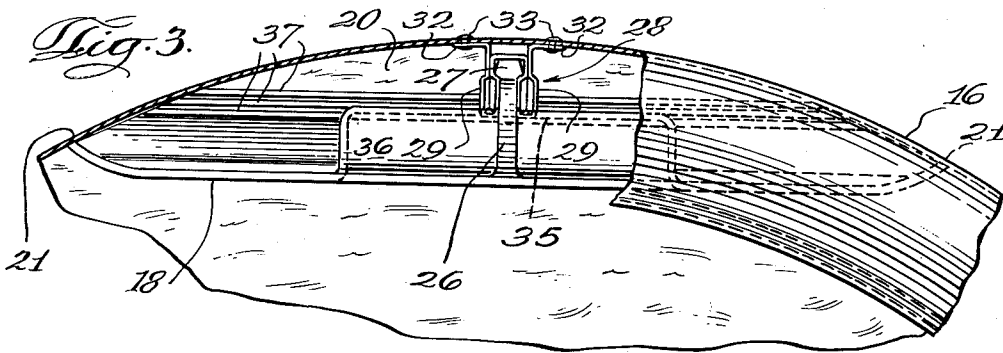
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LINT FILTER FOR USE WITH WASHING MACHINES

3,040,552

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This invention relates to washing machines and in particular to a lint filter for use with washing machines.

During the washing of cloth, lint may be released from the cloth into the washing liquid. As the liquid is circulated and recirculated through the machine during the washing operation, the lint is deposited on the clothing, creating an unsightly appearance and being difficult to remove.

The present invention is concerned with a new and improved lint filter for use in washing machines for effectively precluding such lint deposition during the washing operation.

A principal object of this invention, therefore, is to provide a new and improved lint filter for use such as in clothing washing machines.

Another object of the invention is to provide such a lint filter which is readily releasably mounted in a conventional washing machine.

Still another object of the invention is to provide such a lint filter adapted for use with washing machines of the vertical agitator type.

Yet another object of the invention is to provide a lint filter which utilizes in a new and improved manner the circulating action of the wash liquid to strain the lint therefrom.

A further object of the invention is to provide a lint filter for use in a washing machine having a tub and means for agitating a body of washing liquid in the tub, including means defining a chamber adjacent the wall of the tub and having an open lower portion for permitting delivery of washing liquid from the body thereof in the tub to the chamber as a result of the agitating of the liquid, and an upper portion defining a filter element for straining lint from washing liquid passing through the chamber to the body of the liquid in the tub, and means on the chamber defining means for collecting lint strained from the washing liquid by the filter element.

Other features and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

FIGURE 1 is a perspective view of a lint filter embodying the invention mounted in a portion of the tub of a washing machine;

FIGURE 2 is a fragmentary front elevation thereof, a portion of the filter being broken away;

FIGURE 3 is a plan view thereof, a portion of the tub rim being broken away;

FIGURE 4 is an enlarged vertical section taken substantially along the line 4—4 of FIGURE 2;

FIGURE 5 is a fragmentary horizontal section taken substantially along the line 5—5 of FIGURE 4; and

FIGURE 6 is an enlarged fragmentary vertical section illustrating the arrangement of the filter during installation thereof on the mounting bracket carried by the tub.

Referring now more specifically to the drawings, a lint filter generally designated 10, embodying the invention, is arranged to be releasably mounted in a conventional washing machine 11 having a tub 12 and provided with an agitator 13 for agitating liquid 14 therein. Herein agitator 13 comprises a conventional vertical agitator, oscillated about a vertical axis by suitable drive means (not shown). Agitator 13 circulates the body of

wash liquid 14 in a generally spiral path; that is, from adjacent post 15 thereof outwardly to tub 12, upwardly along the cylindrical tub wall 16, and back to adjacent the agitator post 15 adjacent the upper surface 17 of the wash liquid 14.

Lint filter 10 herein utilizes this wash liquid circulation in a novel manner to remove the entrained lint from this liquid. More specifically, lint filter 10 comprises a generally planar, foraminous wall 18 formed of a material such as a plastic and cooperating with tub wall portion 19 to form therewith a chamber 20, directly in the circulation path of the wash liquid. The horizontally opposed edges 21 of wall 18 are adapted to engage, snugly, tub wall portion 19 and effectively preclude return of the wash liquid 14 from chamber 20 around the edges back to the body of the liquid 14 in the tub 12. The liquid that is delivered to chamber 20 during the normal circulation cycle is forced instead, to return to the body thereof in the tub through straining means defined by perforations 22 provided in wall 18.

Delivery to chamber 20 of the liquid 14 as it proceeds upwardly along tub wall portion 19 is through a space 23 at the lower portion of wall 18 which is spaced from tub wall portion 19 by a triangular spacer 24 abutting tub wall portion 19. Continuing upwardly from spacer 24 is a spar 26 vertically bisecting wall 18. The intermediate portion 27 of spar 26 projects outwardly from the wall 18 toward the wall portion 19 and is laterally enlarged to be releasably received in a mounting bracket 28 secured to the tub wall portion 19. Bracket 28 comprises a generally H-shaped spring member having a pair of inner gripping arms 29, an intermediate transverse bar 30 and a pair of mounting arms 31. The mounting arms 31 are provided with flanges 32 for securing the bracket 28 to tub wall portion 19 by suitable fastening means such as rivets 33. Thus, lint filter 10 may be readily mounted on tub wall portion 19 by forcing intermediate portion 27 thereof between bracket arms 31 and engaging spacer 24 with wall 16. In this manner, filter 10 is securely mounted in tub 12 against the forces generated in the liquid during the washing operation. For facilitating removal of the lint filter 10 from mounting bracket 28 when desired, a portion of the foraminous wall 18 is arranged to define a handle 34 including an arcuate finger grip, upper portion 35 and a downwardly sloping foraminous back wall portion 36. For collecting lint strained from the liquid by the foraminous wall 18, a series of vertically spaced, horizontally elongated walls 37 slope upwardly partially across chamber 20 and outwardly from wall 18 forming thereby a plurality of troughs 38.

As shown in FIGURE 1, filter 10 is mounted on tub 12 to extend partially above the upper level 17 of wash liquid 14. During the wash cycle, the lint-carrying liquid is delivered to chamber 20 by the oscillation of agitator 13, is passed upwardly in a toroidal path through chamber 20 and inwardly therefrom through foraminous wall 18. As the liquid passes through wall 18, the lint particles are strained therefrom and collected in troughs 38. In the preferred embodiment, as best seen in FIGURE 2, perforations 22 in wall 18 are arranged in a pattern comprising generally rectangular areas 39, 40, and 41 on each side of spar 26 on the flat face of the wall 18, and area 42 in the handle 34. Because of the general turbulence of the liquid in chamber 20, the lint particles are trapped by the perforate areas and fall therefrom to be collected in troughs 38 below the respective areas.

To remove filter 10 when desired, as for flushing the lint particles therefrom, the filter is merely pulled inwardly toward the agitator post 15 and lifted from the

tub. As best seen in FIGURE 4, each wall 37 is outwardly displaced from the one next above, thereby catching spillover from the superjacent trough and improving the efficiency of the filtering.

As disclosed above, the snug interfit of edges 21 of wall 13 with tub wall portion 19 prevents lint-laden liquid from returning directly to the body of wash liquid in the tub. Upper edge 43 of wall 18 may abut an in-turned lip 44 at the top of tub wall portion 19, however a sealing engagement therewith is not required, as the wash liquid 14 normally is not urged to that level by the above described circulation.

The simple structure of lint filter 10 provides for facilitated, economical manufacture such as by molding. The improved, simple mounting thereon the bracket 28 facilitates maintenance while yet assuring positive retention of the filter in operating position during the washing operation.

Having described my invention as related to the embodiment shown in the accompanying drawings, it is my intention that the invention be not limited by any of the details or description, unless otherwise specified, but rather be construed broadly within its spirit and scope as set out in the accompanying claims.

We claim:

1. In a washing machine having a tub including a side wall, and means for agitating a body of washing liquid in the tub, a lint filter comprising: means defining at least partially a chamber adjacent a side wall of the tub, including an open lower portion for permitting delivery of washing liquid from the body thereof in the tub upwardly to the chamber as a result of the agitating of the liquid, and filter element means on an upper portion thereof for straining lint from washing liquid passing from the chamber to the body of the liquid in the tub; and means on the chamber defining means below the filter element for collecting lint strained from the washing liquid by the filter element, said means for collecting line having a horizontal extent substantially less than the horizontal dimension of said chamber to permit free liquid flow through said chamber at all times.

2. In a washing machine having a tub including a side wall and means for agitating a body of washing liquid in the tub, a lint filter comprising: means defining at least partially a chamber adjacent a wall of the tub, including an open lower portion for permitting delivery of washing liquid from the body thereof in the tub to the chamber as a result of the agitating of the liquid, and filter element means on an upper portion thereof for straining lint from washing liquid passing from the chamber to the body of the liquid in the tub; means on the chamber defining means below the filter element for collecting lint strained from the washing liquid by the filter element; and support means releasably mounting said chamber defining means on the tub wall with the lint collecting means disposed subjacent the upper surface of the washing liquid.

3. The lint filter of claim 2 wherein the lint collecting

means includes a wall associated with said filter element forming a trough therewith.

4. The lint filter of claim 2 wherein the lint collecting means comprises means defining an upwardly opening trough disposed in the chamber generally at below the level of the filter element.

5. In a washing machine having a tub including a side wall and means for agitating a body of washing liquid in the tub, a lint filter comprising: a foraminous wall defining with a portion of the tub a chamber, having an open lower portion for permitting delivery of washing liquid from the body thereof in the tub to the chamber as a result of the agitating of the liquid, said foraminous wall defining a filter element for straining lint from washing liquid passing from the chamber to the body of the liquid in the tub; and means in the chamber for collecting lint strained from the washing liquid by the foraminous wall, including a plurality of vertically spaced, horizontally elongated walls sloping upwardly partially across the chamber toward the tub portion and defining with said foraminous wall a plurality of troughs.

6. The lint filter of claim 5 wherein the lowermost elongated wall is spaced from the tub portion less than the spacing from the tub portion of each of the elongated walls above said lowermost elongated wall.

7. The lint filter of claim 5 wherein each of the horizontally elongated walls below the uppermost elongated wall is spaced from the tub portion less than the spacing of the next uppermost elongated wall.

8. The lint filter of claim 5 wherein said wall includes a portion defining a recessed handle having a foraminous filtering portion.

9. In a washing machine having a tub including a side wall and means for agitating a body of washing liquid in the tub, a lint filter comprising: a foraminous wall defining a filter element adjacent a portion of the wall of the tub and cooperating therewith to form a chamber, including a lower edge spaced from said tub wall portion defining an opening for delivery of washing liquid from the body thereof in the tub upwardly to the chamber as a result of the agitating of the liquid, and further including horizontally opposed edges abutting the tub wall portion therearound back to the body thereof in the tub; and lint collecting means for collecting lint strained by the foraminous wall from the washing liquid passing there-through from the chamber to the body of the liquid in the tub including, a series of vertically spaced horizontally elongated walls integral with a lower portion of said foraminous wall and sloping upwardly therefrom partially across the chamber, said lower portion of the foraminous wall being inclined downwardly toward the tub wall portion to define with the elongated walls a series of V-section troughs.

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