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Shibata

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[54] **INNER BASKET FOR DEHYDRATING WASHING MACHINE**

[76] Inventor: **Masaji Shibata,** 23, No. 30, Kamishima-cho, Kadoma, Osaka, Japan

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[52] **U.S. Cl.** **68/23;** 15/56; 15/76; 68/4; 68/63; 68/89; 68/92

[51] **Int. Cl.**[2] **D06F 9/00;** D06F 23/04

[58] **Field of Search** 68/4, 23, 31, 38, 43, 64, 68/65, 79, 134, 154, 174, 33–35, 46–48, 99, 100, 106, 115; 15/75, 76, 56

[56] **References Cited**

UNITED STATES PATENTS

929,222	7/1909	Hopkins	68/89
1,210,634	1/1917	Gallet	68/84
1,220,135	3/1917	Mandeville	68/89 X
2,231,061	2/1941	Ebner	15/76
2,556,153	6/1951	Collins	68/154 X
3,517,507	6/1970	Brundage	68/23

Primary Examiner—Harvey C. Hornsby
Assistant Examiner—Philip R. Coe
Attorney, Agent, or Firm—Wolfe, Hubbard, Leydig, Voit & Osann, Ltd.

[57] **ABSTRACT**

This invention relates to an inner basket for a washing machine of turbulent type having an inner basket functioning as a centrifuging basket which has a cylindrical member fixed to an oscillating shaft and another cylindrical member is disposed at the peripheral wall of the inner basket in space with the former member.

3 Claims, 5 Drawing Figures

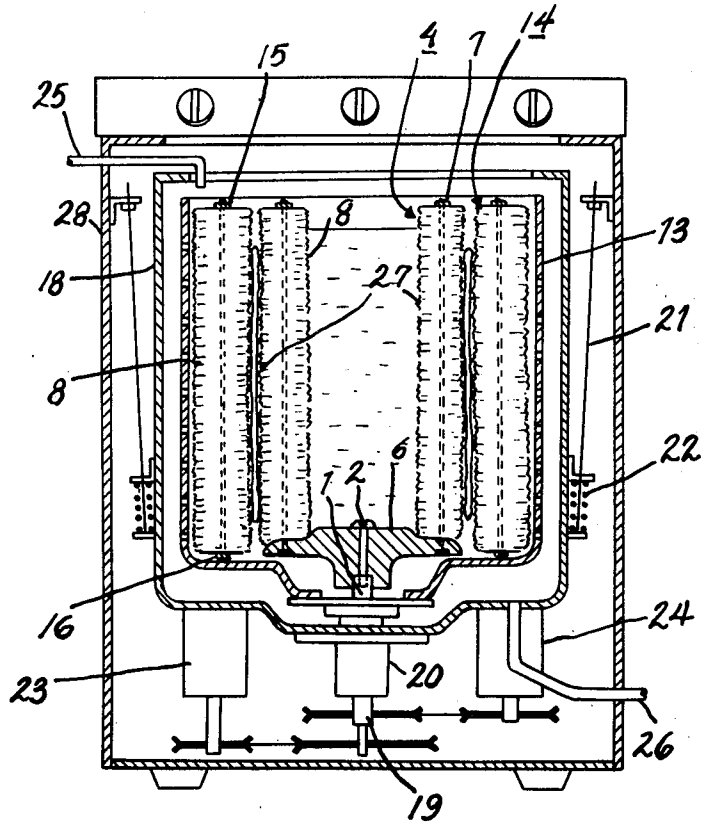

Fig 1

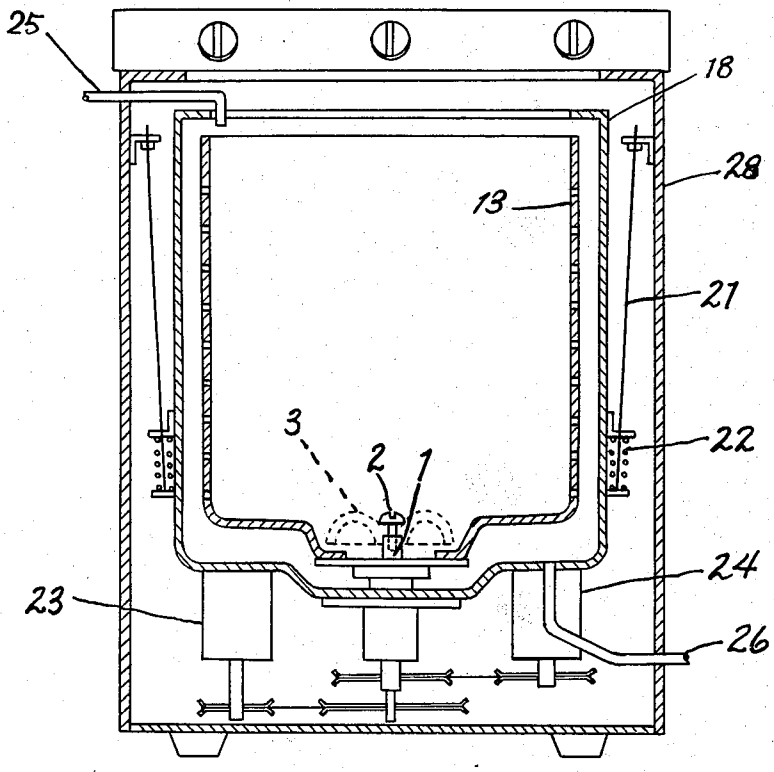
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Fig 2

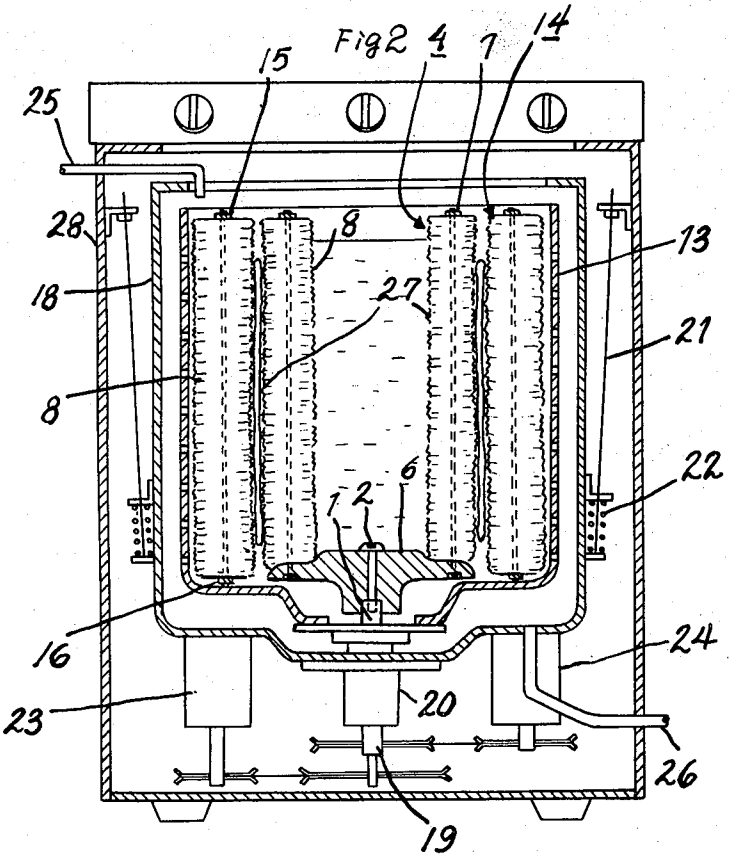
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Fig 3

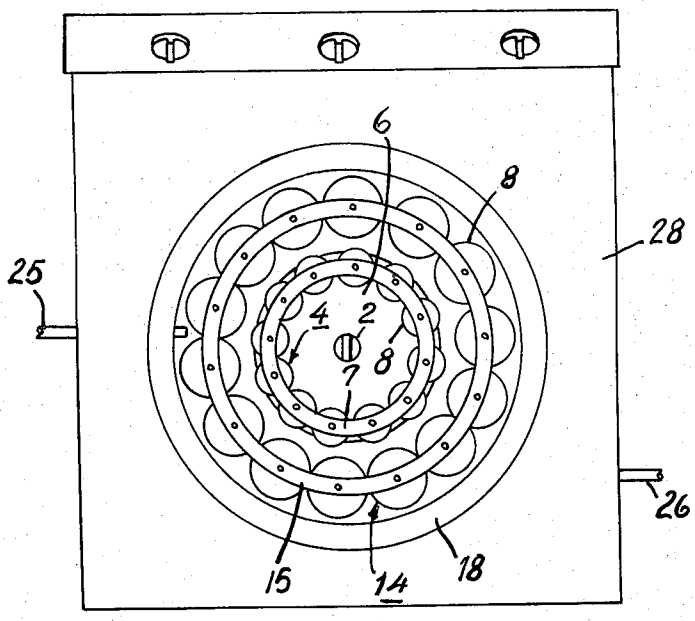
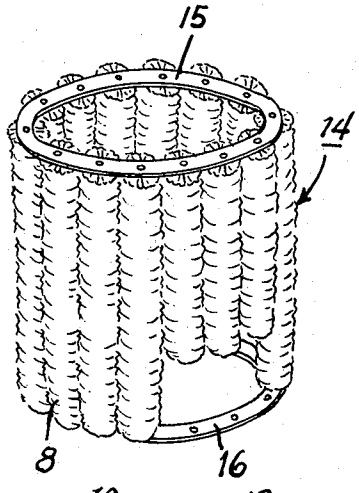


Fig 4



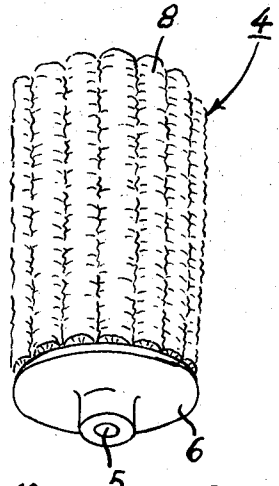
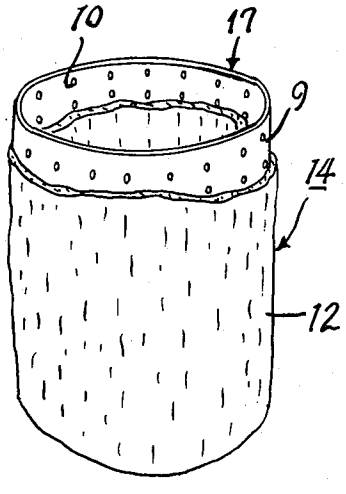
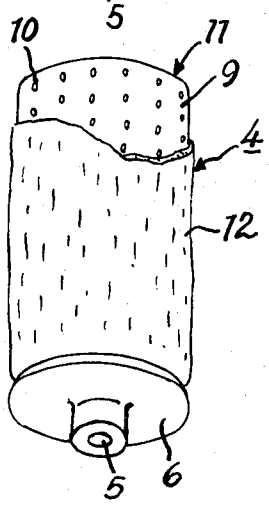


Fig 5





INNER BASKET FOR DEHYDRATING WASHING MACHINE

This invention relates to a washing machine, and more particularly to an inner basket for a washing machine having a centrifugal basket.

It is an object of the present invention to provide an inner basket for a washing machine which may wash articles which cannot be suitably washed with the conventional washing machine of turbulent type.

It is another object of the present invention to provide an inner basket construction for a washing machine which may wash the above type articles simply by removing the agitator thereof and by placing two cylindrical members within the centrifugal basket thereof using the conventional washing machine of turbulent type.

In order to perform the above objects, the inner basket for the washing machine of the present invention has one cylindrical soft member fixed to an oscillating shaft and another cylindrical soft member disposed at the inside peripheral wall of the centrifugal basket in spaced relation with the first cylindrical soft member.

These and other objects and features of the present invention will become more fully apparent from the description taken in conjunction with the accompanying drawings, in which:

FIG. 1 is a longitudinal sectional view of the conventional dehydrating washing machine of turbulent type showing an agitator with a broken line;

FIG. 2 is a longitudinal sectional view of a washing machine having two cylindrical soft members of brush constructed according to the present invention;

FIG. 3 is a plane view of the washing machine shown in FIG. 2;

FIG. 4 is a perspective view of the two cylindrical soft members of brush used in the present invention; and

FIG. 5 is a perspective view of the two cylindrical soft members of sponge used in the present invention.

Referring now to FIG. 1, which shows the conventional washing machine, wherein an agitator 3 fixed to an oscillating shaft 1 by screws 2 is shown by a broken line.

In this invention, this agitator 3 is removed from the conventional washing machine, and a cylindrical soft member 4 is removably secured to the oscillating shaft 1 by screws 2, as shown in FIG. 2. This cylindrical soft member 4 is made of brush or sponge. The cylindrical soft member 4 shown in FIG. 4 is made of brush, and a number of brushes 8 are cylindrically fixed between the bottom plate 6 having a hole 5 for engaging the pulsator shaft 1 and screws 2 at the center and upper ring plate 7.

The cylindrical soft member 4 shown in FIG. 5 is made of sponge having a bottom plate 6 having a hole 5 for engaging the oscillating shaft 1 and screws 2. A permeable sponge-like material 12 is coated on cylindrical member 11 having a number of perforations 10.

The above cylindrical soft member 4 is secured by screwing the screws 2 into the screw holes provided at the pulsator shaft 1. Another cylindrical soft member 14 is disposed on the peripheral wall of the inner basket 13 in spaced relation to the cylindrical soft member 4.

This cylindrical soft member 14 is also made of brush or sponge, and the soft member 14 shown in FIG. 4 is made of brush and is fixed cylindrically with a number

of brushes 8 between the upper and lower ring plates 15 and 16.

The cylindrical soft member 14 shown in FIG. 5 is made of sponge, and is coated with a permeable sponge-like material 12 on a perforated cylindrical member 17.

The centrifuge basket 13 has a number of perforations 10 to function as washing and dehydrating in provision within the machine frame 28 together with the outer basket 18. The inner basket 13 is secured to the cylindrical shaft 19 provided coaxially with the oscillating shaft 1, and the oscillating shaft 1 and the cylindrical shaft 19 of the inner basket are supported by the bearing cases 20, respectively. The outer basket 18 is supported by a support 21 having a spring 22. The oscillating shaft 1 and the inner basket 13 are driven by electric motors 23 and 24, respectively.

In the drawings, numeral 25 represents an inlet hose, and 26 a drain hose.

In operation, after clothes 27 to be washed are entered in the space between the two cylindrical soft members 4 and 14, water is poured into the inner basket 13 and then cleanser is also poured into the basket 13. Then, if the electric motor 23 is rotated so as to drive the oscillating shaft 1, the cylindrical soft member 4 is also oscillated.

The clothes 27 to be washed in contact with the soft member 4 are held in contact with the cylindrical soft member 4 by the rotation of the shaft 1 so as to clean and wash the clothes 27.

On the other hand, the cylindrical soft member 14 continues to move in the same direction as the cylindrical soft member 4 by the hydraulic pressure of the water caused by the cylindrical soft member 4. In such movement of the soft member 14, the articles 27 to be washed are cleaned by the sliding contact of the soft member 4 and also by the contact of the articles 27 moving with the cylindrical soft member 14.

In experiments, it is found that if the dirty clothes are placed in contact with the cylindrical soft member 4 side, the clothes 27 are better cleaned. Articles placed in the space do not drop to the bottom because they are held against cylindrical soft member 14 by the hydraulic pressure of the water. They are cleaned while they maintain the shape which they had when originally placed in the space without being frayed.

Chemical and cloth-like fibers are better used with the cylindrical soft members 4 and 14 of brush owing to its cloth property. Wool-type fibers are better used with the cylindrical soft members 4 and 14 of sponge. The type of cylindrical member is selected depending upon the cloth of the articles to be washed.

After washing the articles are centrifuged. When the centrifuge basket 13 is rotated by the motor 24, the clothes 27 to be washed are held against the cylindrical soft member 14 by centrifugal force, and accordingly they do not contact the stationary cylindrical soft member 4.

It should be understood from the foregoing description that home washing machines can be easily equipped with the inner basket construction of the present invention and hence clothes which cannot be washed due to the deformation of the shape and fraying may be washed at home. Also, since the inner basket of this invention is easily installed by removing the agitator of a conventional washing machine and by securing one cylindrical soft member to the pulsator shaft and further by disposing the other cylindrical soft member

in the inner basket, clothes such as coat, trousers, skirt, raincoat, sweater, etc., may be simply washed thereby.

I claim as my invention:

1. A washing machine having an independently driven oscillating shaft and an independently driven perforated basket for centrifuging the articles washed, a first hollow cylindrical member having a relatively thick wall of soft water-permeable material mounted on the shaft and located coaxially within the perforated basket, a second hollow cylindrical member having a relatively thick wall of soft water-permeable material and having a diameter larger than said first cylindrical member and smaller than the perforated basket freely interposed between said first member and the perforated basket and spaced outwardly from said first member sufficiently to define an annular space for insertion therein of articles to be washed.

2. The combination as claimed in claim **1** in which said first cylindrical member consists of a plurality of cylindrical brushes closely spaced parallel to each other so as to form a cylindrical locus with each brush mounted on a base plate which in turn is mounted on the oscillating shaft for oscillating motion of said first cylindrical member, and in which said second cylindrical member consists of a plurality of cylindrical brushes closely spaced parallel to each other so as to form a cylindrical locus, and ring plates at the ends of the cylindrical members for captively mounting the opposite ends of each brush so as to locate each brush in fixed relation to adjacent brushes, the brushes in each cylindrical member being mounted substantially edge to edge.

3. The combination as claimed in claim **1** in which said first cylindrical member consists of perforated cylindrical wall coated on the outside with a permeable sponge-like material and said second cylindrical member consists of a perforated cylindrical wall coated on the inside and outside with a permeable sponge-like material.

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