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WASHING MACHINE FOR CENTRIFUGE-DISCS

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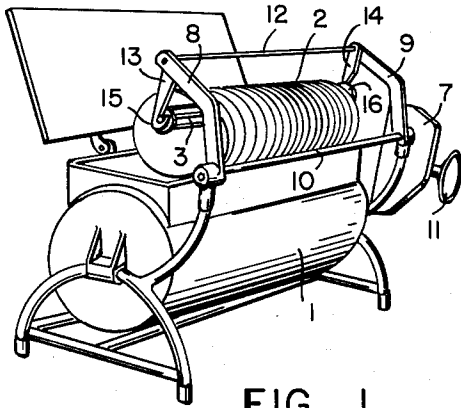


FIG. 1

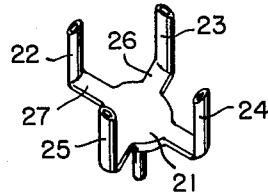


FIG. 3

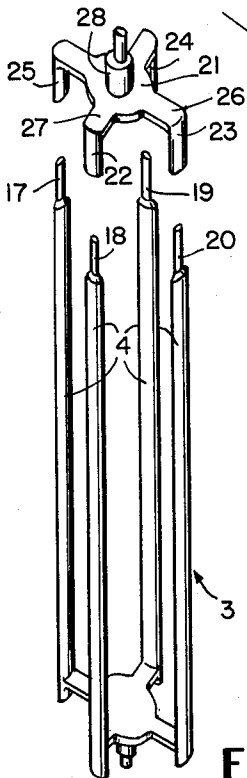


FIG. 2

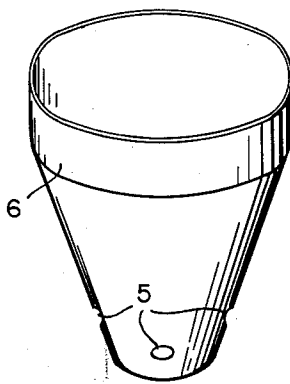


FIG. 4

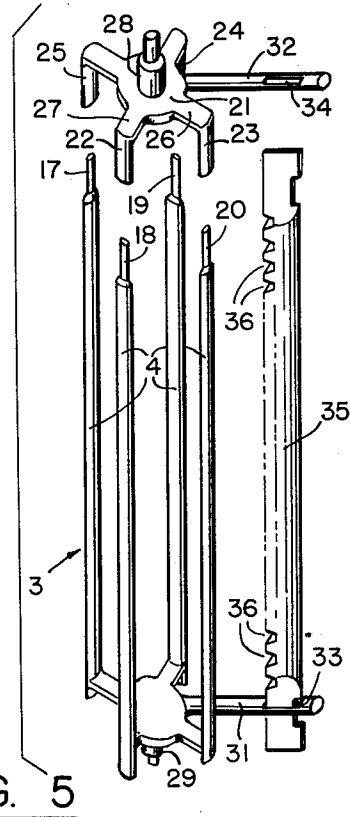
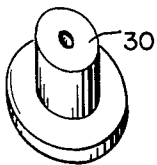


FIG. 5



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1

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WASHING MACHINE FOR CENTRIFUGE-DISCS

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4 Claims. (Cl. 134—164)

The invention relates to a washing machine for centrifuge-discs. The intention is to provide an apparatus, with which one is certain that the discs stay at their place during the cleaning of same, so that the cleansing liquid can come into contact with all places of the discs, so that one can be assured of a complete cleansing.

The apparatus according to the invention comprises a system of a number of parallel axles, which are kept at a distance from each other corresponding to the distance of the passages being present in the centrifuge-discs and which system of axles can be attached in supporting members and can be plunged with same in a liquid container. The passages in the centrifuge-discs are always present for having passed the liquid to be centrifuged.

In order to arrange the discs on the system of axles a head is provided near at least one of the ends of the system of axles, which head can be removed from the axles and which can be placed again on the axle ends after the arrangement of the discs.

When the centrifuge-discs are arranged on the axles there is a possibility that the discs move mutually, in consequence of which the cleansing-process will be unfavourably influenced.

In order to prevent this, means are provided between the heads which can keep the discs at their places. Said means can consist of a bar provided with notches, recesses or teeth, said bar being attached to a level of the heads.

The invention is illustrated in the accompanying drawings and more precisely described underneath.

Fig. 1 shows perspective a washing machine according to the invention.

Fig. 2 shows perspective the system of axles, before the discs have been arranged.

Fig. 3 shows the removable head.

Fig. 4 shows perspective a centrifuge-disc.

Fig. 5 shows a system of axles with means for keeping the centrifuge-discs spaced.

The washing machine according to the invention has a liquid container 1, to which the cleansing liquid can be supplied in a non-illustrated manner.

The discs 2 are suspended to a system of axles 3. This system of axles 3 consists of a number of parallel axles 4, being arranged at such a distance from each other as corresponds with the distance of the passages 5 in the centrifuge-discs 6.

The system of axles 3 is suspended to a lever mechanism 7 in such a way that when the levers 8 and 9 are moved down the discs come in the liquid container 1. The levers 8 and 9 have pivotably been arranged to the horizontal axle 10. By means of a handle 11 and a transmission, which will not be described, the levers 8 and 9 are moved up and down. A stiffening rod 12 is provided between the levers 8 and 9. Cross levers 13 and 14 are arranged on the levers 8 and 9, said cross levers ending in hooks 15 and 16 for receiving and supporting the system of axles 3. When the discs have been provided to the axles 17, 18, 19 and 20 of the system of

2

axles 3, so that they are all concentrically with respect to each other, the combination is suspended to the cross levers 13 and 14. For cleansing purposes the lever system 8, 9, 13, 14 is moved down in the described manner.

In order to be able to attach the centrifuge-discs 6 to the system of axles, this system is provided with at least one removable head. Same is clearly shown in Fig. 3. The head 21 has short tube ends, which can telescope round or in the axles 17, 18, 19 and 20. These short tube ends 22, 23, 24 and 25 are attached round the cross supports 26 and 27, to which supports a pivot 28 is arranged. A corresponding pivot or projection 29 is arranged at the other end of the system of axles. Pivots 28 and 29 are inserted in hooks 15 and 16.

In order to fix the discs easily, whereby the system of axles must be vertically, the pivot 29 is, when using the system of axles, temporarily placed in a support 30, which is illustrated in Fig. 2 at some distance from that pivot 29.

The head 21 is separately illustrated in Fig. 3, whereas Fig. 2 illustrates same mounted on the system of axles 3. If after having mounted the discs and the head 21 the system of axles is brought in a horizontal position in the machine, the discs all have the same position at distances from each other and the cleansing liquid can easily wash between the disc surfaces.

The liquid container can in a known way be provided with a heating apparatus, e. g. steam heating. A stirring device may be provided in the container 1.

If the handle 11 is carried out so-called self-braking, the lever system with the system of axles and the discs can be secured against displacement in all desired positions. In the upward position, as illustrated, the discs can if desired be finally cleaned with washing water.

If one wants to have telescoped the head 21 with the tube ends attached to same round the axles of the system of axles, the axles may be massive. If the axles are performed as tubes, the short tube ends of the head 21 can telescope in those tubes.

Dependent on the shape of the centrifuge-disc, especially concerning the distance of the passages in same, an extra number of systems of axles 3 with several distances of the axles can be delivered for each machine.

As the system of axles with the discs is rather heavy, it is sufficient to support the pivot ends in eyes of the lever system, which eyes are open at the top side. Said eyes need not to be closed, though same is naturally possible.

When the centrifuge-discs are placed on the axles 4, same could move mutually, if no special measures are taken. The invention gives means, by which this drawback is overcome. According to the invention means are arranged between the heads, which can block the centrifuge-discs in the mounted position. Said means consist of the supporting levers 31 and 32, which are fixed to the heads. The supporting lever has openings 33, 34 near the ends opposite the heads, in which a rod 35 can be placed. Said rod has notches near the ends, which can grip round the supporting levers, so that the rod 35 cannot displace after the mounting of the heads. Notches and recesses are made in the rod, in the present case teeth, whereby the centrifuge-discs can be blocked in the space 36 between two adjacent teeth. In this way it will not be possible during the cleaning that the centrifuge-discs move mutually, in consequence of which the cleaning-process will be unfavourably influenced.

I claim:

1. A washing machine for cleaning centrifuge-discs having a plurality of orifices therein, comprising a tank, a rack formed by a plurality of parallel rods spaced

from each other according to the spacing of the orifices in said discs, a supporting means for suspending the rack in said tank, and separating means holding said discs in fixed relative positions on said rack.

2. The washing machine of claim 1 wherein said rack 5 has on one end a removable head whereby the discs can be easily removed from said rack.

3. The washing machine of claim 1 wherein said rack supporting means is interconnected with a lever system 10 for supporting said rack and the discs thereon in selected positions of tilt.

4. The washing machine of claim 1 wherein the disc separating means comprises a toothed bar mounted parallel to said rack and so constructed and arranged that

when the discs are mounted on said rack their edges will engage the teeth of said bar.

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