

[54] **DISCHARGING DEVICE ON A ROTATABLE DRUM** 3,550,406 12/1970 Jack et al. 68/210

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[57] **ABSTRACT**

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[58] Field of Search 68/210, 139, 142, 144, 146

A device at the discharge end of a rotating drum, e.g. in a washing machine, through which elongated, flexible objects such as bed sheets are transported, for preventing the discharged objects from being twisted or turned when placed on a conveyor band located below the drum. The drum is, at the discharge end, provided with projecting members designed to lift momentarily a discharged portion of an object from the conveyor band during the rotation of the drum.

[56] **References Cited**

**UNITED STATES PATENTS**

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**5 Claims, 2 Drawing Figures**

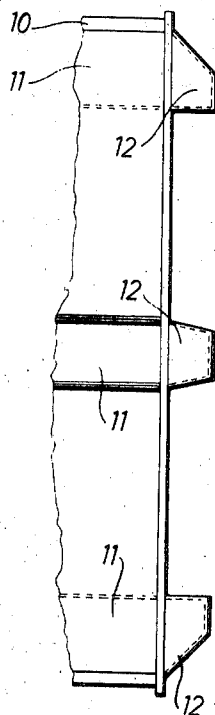


Fig. 1

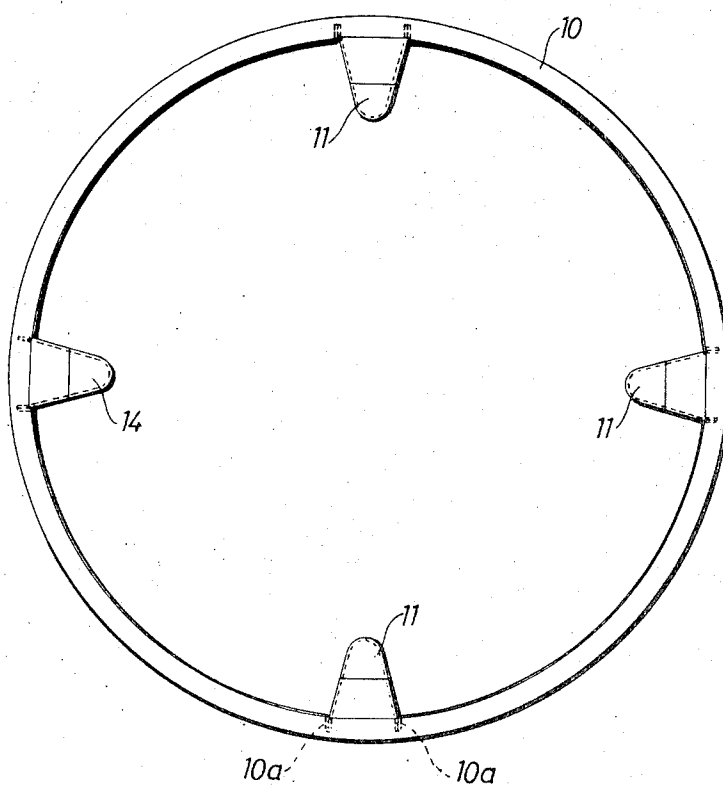
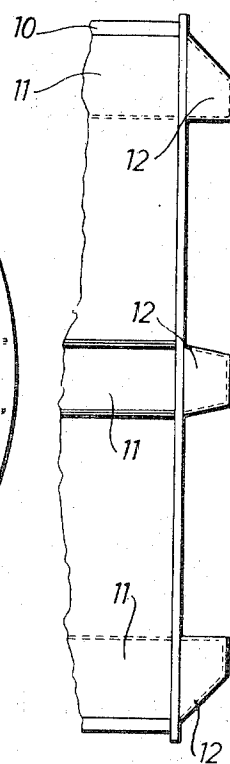


Fig. 2



## DISCHARGING DEVICE ON A ROTATABLE DRUM

The present invention relates to a discharging device on a rotatable drum and more specifically to a device on a rotatable drum, through which elongated, flexible objects can be transported, e.g. bed sheets or overalls in connection with washing or drying, for preventing discharged objects from the drum to be twisted or turned when placed on a transport member located below the drum, e.g. a conveyor. If the objects are twisted or turned, the further treatment of the objects will be more complicated.

In modern washing machines rotating tubes or drums are often utilized, through which the objects to be washed are passed during the washing process. It often then occurs that the objects to be washed must be transported from one machine to another for the continued treatment. The objects are thereby fed out from the rotating tube or the rotating drum and are allowed to fall down on to a conveyor for further transport to the succeeding machine. This discharge and further transport of the objects to be washed operates satisfactory, when the objects to be washed are relatively small. In the washing of large longated objects, such as mantles and bed sheets, of which the last mentioned may have a length of 3 meters or more along a diagonal, it has, however, proved that the objects are turned or twisted during the transfer to the conveyor in a manner which to a great extent complicates the continued treatment of the object. If e.g. a sheet or a mantle is to be transported from the drum or the tube to a mangle or a drying machine, the object in question must first be folded out or flattened manually before it can be introduced into the succeeding machine. This operation is time consuming and costly and reduces the capacity of the washing plant to a great extent.

The turning of the elongated objects to be washed occurs due to the fact that one end of the objects falls down on to the conveyor and remains there, while the other end of the object is still located in the rotating tube or the rotating drum and, consequently, is provided with a rotary movement relative to the end located on the conveyor. One way to avoid this disadvantage is to place the conveyor at such a large distance below the discharging end of the tube or the drum that the end of the object first discharged will not reach the conveyor, until the complete object has been discharged from the tube or the drum. Since the objects may be very long, e.g. 3 meters or more, however, it is highly impracticable to place the conveyor at such a large distance below the discharging aperture.

The object of the present invention is to eliminate or, at least, substantially reduce the turning and twisting of the objects during the discharge from the tube or the drum. This object is attained by the device according to the invention having the features as defined in claim 1.

The device according to the invention has the advantage that the conveyor can be placed relatively close to the discharging aperture and that still the twisting and turning of the objects discharged during the discharge operation is eliminated or in any case considerably reduced so that the continued treatment of the objects is substantially simplified.

An embodiment of the invention will be described more closely below with reference to the accompanying drawing, of which

FIG. 1 shows a rear view of a washing drum adapted for rotation and

FIG. 2 shows the rear portion of the washing drum of FIG. 1 in a side-view.

The washing drum illustrated in FIG. 1 comprises a tube 10, which is adapted to be rotated in either direction around its longitudinal axis and which is, at its internal surface, provided with axially extending ribs 11. These ribs are adapted to facilitate the tossing around of the objects within the drum and are secured in a convenient manner at outwardly bent edges 10a on the internal periphery of the tube.

FIG. 2 illustrates the rear portion of the tube 10 with the ribs 11 projecting a certain distance from the end of the tube. The ribs at their radially external edges present an area 12, which is inclined rearwardly towards the axis of the tube. This inclined area 12 prevents the elongated objects, which are discharged from the tube, from being wound around the projecting portions of the ribs during the rotation of the tube.

When an elongated object after treatment in the rotating tube is beginning to be discharged, the first end will fall down over the edge of the tube at the end thereof. The discharged end falls downwardly, until it meets the conveyor located below the discharge aperture. Due to the rotation of the tube around its axis, however, one of the projecting rib ends will carry that portion of the object which has passed the edge of the tube so that the discharged portion of the object will be lifted and the end of the object will momentarily leave the conveyor. When the tube has made between a quarter and a half of a revolution, the object will slide off the projecting portion of the rib due to the inclined area 12 on the projecting rib portion and again fall down on the conveyor. Since washing tubes and washing drums of the type utilized for the washing of elongated objects, such as sheets and mantles, usually have a relatively large diameter, e.g. 1 - 2 meters, a substantial lifting of the discharged end of the object can be attained. Since the discharged end in this manner is momentarily lifted from the conveyor during the rotation of the tube, the turning of the objects is prevented during the discharge from the rotating tube.

The projecting rib ends at the discharged end of the tube can, of course, be designed in many different ways within the scope of the invention. E.g., it is not necessary that the projecting rib ends are long, also comparatively short projections can be used if properly designed. Further, it is not necessary that the ribs located in the tube are utilized as carrying members. The same result may, of course, be achieved by means of separate members, which are secured at convenient positions adjacent the discharge end of the tube, either immediately inside said aperture or else outside thereof and then at least partly projecting beyond the aperture. The design of the projecting portions in order to facilitate the sliding off of the objects during the rotation of the tube can, of course, also be carried out in many different ways.

What I claim is:

1. A device on a rotating drum (10), through which elongated, flexible objects are transported, e.g. sheets in connection with washing or drying, for preventing discharged objects from the drum to be twisted or turned when placed on a transport member located below the drum, characterized in that the drum (10) at the discharged end thereof is provided with projecting

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members (11) for carrying the portion of the objects discharged from the drum along at least a part of the rotary path of the drum, so that the discharged portion of the objects is lifted from the transport member and will momentarily depend freely downwards from the discharge aperture of the drum.

2. A device as claimed in claim 1, characterized in that the carrying members consist of ribs (11), which are arranged at the internal wall of the rotating drum (10).

3. A device as claimed in claim 2, characterized in that the ribs (11) project a certain distance from the

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discharge aperture of the drum.

4. A device as claimed in claim 3, characterized in that the projecting portions of the ribs (11) have a surface (12), which is inclined rearwardly towards the axis of the drum, whereby the carried portion of an object slides off, when the carrying rib has arrived at an upper position during the rotation of the drum.

5. The device as claimed in claim 1, characterized in that the carrying members consist of separate members, which are secured to the drum adjacent the discharge aperture thereof.

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