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TORQUE DRIVE FOR WASHING MACHINE AGITATORS

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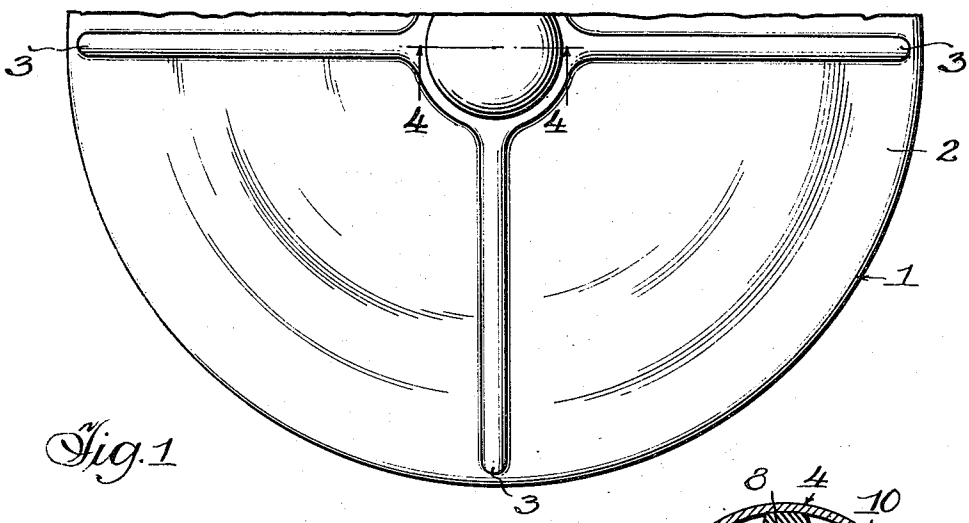


Fig. 1

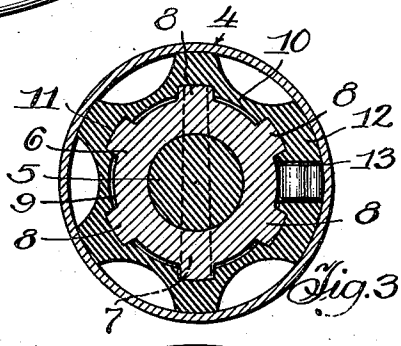


Fig. 3

Fig. 2

Fig. 4

INVENTOR.
Charles K. Woodin,
BY
Parkinson & Lane
ATTORNEYS.

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TORQUE DRIVE FOR WASHING MACHINE AGITATORS

Charles K. Woodin, Newton, Iowa, assignor to The Maytag Company, Newton, Iowa, a corporation of Delaware

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1 Claim. (Cl. 287—53)

The present invention relates to a splined torque drive and more particularly to the combination of novel complementary splined torque drive members associated with the drive shaft and agitator of a washing machine or the like.

Among the objects of the present invention is to provide a novel torque construction comprising a male and a female drive member so constructed and arranged as to prevent wear and play between these members and which will firmly retain the agitator in its downward, adjusted position against any normal tendency to lift, yet can be readily and easily removed by the operator for cleaning.

In the present construction of domestic washing machines employing agitators, objections are made concerning the knocking and lifting of the agitator due to wear and play in the drive torque connecting and driving the agitator from the drive shaft which generally extends upwardly through the bottom of the tub. Numerous means and methods have been devised and are now being employed to retain the agitator in its predetermined position in the tub. One of the most widely used methods is to employ a screw or the like for firmly retaining or locking the agitator upon the drive shaft.

One objection to the use of screws or the like for retaining and locking the agitator in its operative position is that the operator or housewife will allow the agitator to remain in the machine rather than take the time or trouble to remove the screw or similar locking means, and thus neglect proper cleaning of the agitator and the space therebelow in which sediment collects. The present invention allows a ready assembly and positioning of the agitator and a quick and easy removal for cleaning.

A further object of the invention is the provision of a novel torque construction for driving the agitator and a detent spring for preventing the accidental or unintentional lifting or removal of the agitator.

Further objects are to provide a construction of maximum simplicity, efficiency, economy and ease of assembly and operation, and such further objects, advantages and capabilities as will later more fully appear and are inherently possessed thereby.

The invention further resides in the construction, combination and arrangements of parts illustrated in the accompanying drawing, and while I have shown therein a preferred embodiment, it is to be understood that the same is susceptible of modification and change, and comprehends other details, arrangements of parts, features and constructions without departing from the spirit of the invention.

In the drawing:

Figure 1 is a fragmentary plan view of an agitator.

Fig. 2 is a view in side elevation of the agitator.

Fig. 3 is a view in horizontal cross-section on the line 3—3 of Fig. 4.

Fig. 4 is a view in vertical cross-section taken on the line 4—4 of Fig. 1.

Referring more particularly to the disclosure in the drawing, the novel invention is shown as embodied in a washing machine agitator 1, provided with a base 2, a plurality of upstanding liquid impelling blades or vanes 3, and a high center post 4. This agitator is adapted to be mounted upon and driven by a drive shaft 5 generally extending through the base or bottom of a washing machine tub.

To the upper end of the drive shaft is keyed a male torque block 6 by means of a pin or fastening key 7. This torque member is provided with splines or ribs 8 and channels 9 therebetween adapted to inter-engage or interlock with the splines 10 and channels 11 of a complementary female member 12 suitably connected to the upper end of the high center post 4 of the agitator.

Within a recess 13 in the female member 12 is seated a detent spring 14. This spring is confined within the recess by the tubular upper portion of the center post 4. This spring is provided or formed with a projection 15 adapted to seat in a detent groove 16 located adjacent the lower end of the channels 9 in the male member 6. This detent forms a shoulder 17 against which the projection 15 seats whenever the torque members are in their proper adjusted position.

It will be clearly evident that the seating of this projection 15 against the shoulder 17 prevents the lifting of the female torque member 12 and the agitator, and the accidental or unintentional removal thereof.

The present invention also eliminates wear and play between the driving parts caused primarily by the oscillation of the agitator. Although the agitator is retained firmly in position, it may be readily removed or replaced for proper cleaning and access to the tub bottom for removal of any sediment that may collect thereat.

Having thus described the invention, I claim:

In a torque drive construction for driving a washing machine agitator from the drive shaft, a female torque member secured within a tubular post at the upper end of the agitator, a male torque block mounted on the upper end of the drive shaft, complementary interlocking splines with channels therebetween on said torque block and female torque member for locking said parts together against relative rotary movements, vertical grooves forming detents located adjacent the lower end of the torque block intermediate adjacent splines, each groove terminating in an interlocking shoulder, and a detent spring confined within a recess in the female torque member by said tubular post and having a projecting part adapted to align with and seat in any one of said detent grooves and interlock with its respective shoulder to prevent accidental or unintentional lifting or removal of the agitator.

CHARLES K. WOODIN.