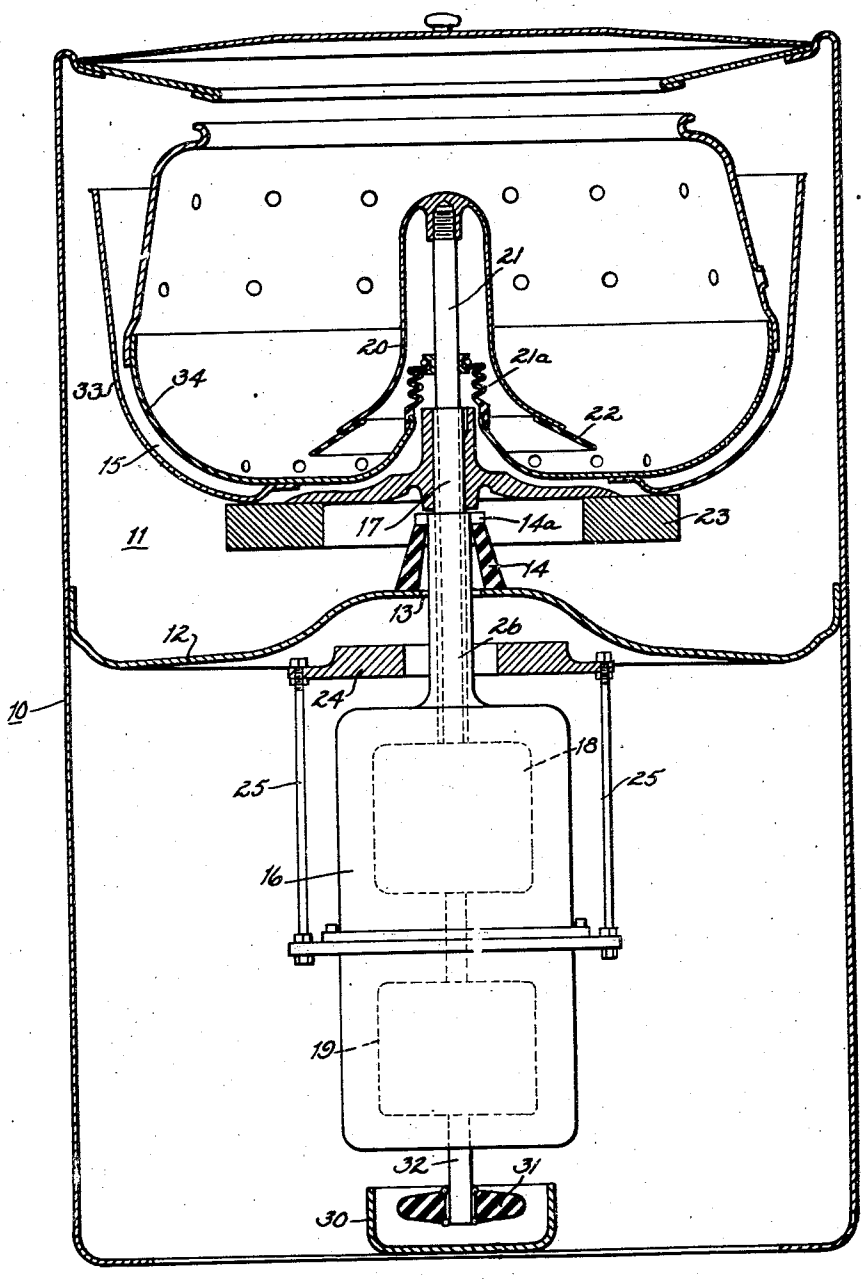
Oct. 1, 1946. K. CLARK 2,408,509

DOMESTIC APPLIANCE

Filed Aug. 14, 1941



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Patented Oct. 1, 1946

2,408,509

UNITED STATES PATENT OFFICE

2,408,509

DOMESTIC APPLIANCE

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Application August 14, 1941, Serial No. 406,881

3 Claims. (Cl. 68—23)

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This invention relates to domestis appliances, and more particularly to clothes washing machines.

An object of this invention is to provide a washing machine in which the clothes may be washed and centrifugally dried, and in which the rotating parts of the machine are counterbalanced in an improved manner.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawing, wherein a preferred form of the present invention is more clearly shown.

In the drawing:

The figure is a vertical cross-section of the machine, somewhat diagrammatically shown.

A machine embodying features of my invention may include in general an outer cabinet or frame 10 having an upper compartment 11 provided with a bottom wall or support 12. The bottom wall 12 is provided with an opening 13 around which is placed a flexible collar 14, of rubber or the like, which is supported on the wall 12 around the opening 13. A rotatable basket 15 is supported on and above the collar 14, while a power casing 16 is supported on and below the collar 14 by a flange 14a. The power casing 16 is drivingly connected to the basket 15 through the medium of a shaft 17. The shaft 17 is connected through a transmission 18 with a motor 19 in the casing 16.

In addition, an agitator 20 may be placed in the basket 15 and may be drivingly connected with the power casing 16 through the medium of a vertically reciprocable shaft 21 which is also connected to the motor 19 through the transmission 18. The agitator 20 is vertically reciprocable, and has imparted thereto a series of short vertical vibrations of such extent and speed as to produce a toroidal action to liquid enclosed within the basket 15. The agitator is provided with a flexible ring 22 along its lower periphery in order to produce this toroidal action. A flexible bellows 21a, or similar seal, is hermetically secured to the shaft 21 and the basket 15 to prevent the flow of water out of the basket or into the transmission casing 16.

The details of the basket 15, agitator 20, transmission 18, motor 19 and shafts 17 and 21 are substantially the same as those disclosed in my copending application Serial No. 358,871, filed September 28, 1940 for Domestic appliance, now Patent No. 2,366,236 to which reference is made, if necessary for a further disclosure thereof.

The machine is counterbalanced in a manner

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somewhat different from that disclosed in my Patent No. 2,366,236. The basket 15 is provided with a rotatable counterbalancing or stabilizing weight 23 carried by, and secured to, the lower portion of the basket 15 to rotate therewith as a unit. This counterweight 23 preferably is in the form of a ring and is placed at the lower portion of the basket, as indicated. A non-rotatable counterbalancing or vibration damping weight 24 is resiliently supported on the power casing 16 through the medium of flexible rods 25 to oscillate with respect to said casing and with respect to the supporting wall 12. The weight 24 preferably is in the form of a ring surrounding the portion 26 of the casing 16.

The motor 19 preferably is of the type which imparts a predetermined maximum speed of rotation to the basket 15. The weight 24 is resiliently supported by rod springs 25. The springs 25 are shown as straight metallic springs for the purpose of illustration, but coiled metallic springs or rubber springs may be used interchangeably to accomplish the same results. The weight 24 and the springs 25 comprise a vibrating system which is tuned to vibrate at or near the frequency of said predetermined maximum speed of rotation of said basket. When so constructed the weight 24 and the springs 25 act as a tuned vibration absorber for the washing machine mechanism and absorb unbalanced vibrations caused by spinning an unbalanced load in the basket.

The lower portion of the frame 10 is provided with a limiting structure or cup 30, while the bottom of the power casing 16 is provided with a rubber snubber or wheel 31 rotatably mounted on the stationary shaft 32. This snubber construction tends to limit the maximum centrifugal deflection of the system.

In operation, clothes and washing liquid may be placed in the basket 15, which is constructed to retain the liquid and clothes by reason of an outer imperforate basket 33 surrounding an inner perforate basket 34, the perforations being arranged as disclosed in my Patent No. 2,366,236. The transmission 18 is set so that the motor 19 imparts vertical vibration to the agitator 20 and produces a toroidal action in the clothes and liquid. This action continues for the necessary period of time to clean the clothes. Thereafter the transmission 18 is set so that the motor 19 rotates the basket 15 and attains the predetermined maximum speed. During this rotation, a vortex is produced in the liquid, and the scum is removed from the bottom of the vortex by the lower perforations in the basket 34. Thereafter

substantially all of the liquid is removed from the clothes by continued rotation of the basket, as more fully described in my said copending application. This method of removing scum from the clothes is described and claimed in another copending application Serial No. 335,748, filed May 17, 1940, now Patent No. 2,344,982.

The method of washing the clothes and of spinning the basket tends to distribute the clothes somewhat evenly in the basket; but some unbalance exists. The construction of the counterbalancing weights **23** and **24** is such that the centrifugal deflections in the machine are reduced and kept within safe limits.

While the form of embodiment of the invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A machine comprising a frame, a rotatable basket member, an agitator member in said basket member, a power member drivingly connected to said basket member and said agitator member, said members being movably supported on said frame, a non-rotatable vibration damping weight flexibly secured to said power member and being

oscillatable with respect to said frame, and a rotatable stabilizing weight carried by said basket.

2. In apparatus for cleaning fabrics and for centrifuging cleaning fluid therefrom, the combination of a container for a body of cleaning fluid and the fabrics to be treated, driving means for agitating the fabrics in the body of cleaning fluid at relatively low frequency for cleaning the fabrics and for rotating the fabrics in the container at relatively high frequency, in the absence of said body of fluid, for centrifugally extracting fluid from the fabrics, means for resiliently supporting the container and said driving means as a unitary structure, a balancing mass and means for resiliently carrying said balancing mass upon the unitary structure.

3. A machine comprising a frame; a unitary structure resiliently mounted on said frame and including a rotatable basket, an agitator in said basket, a power member drivingly connected to said basket and said agitator to selectively agitate said agitator and rotate said basket and a rotatable stabilizing weight carried by said basket; and a non-rotatable vibration damping weight flexibly secured to said unitary structure and being oscillatable with respect to said frame.

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