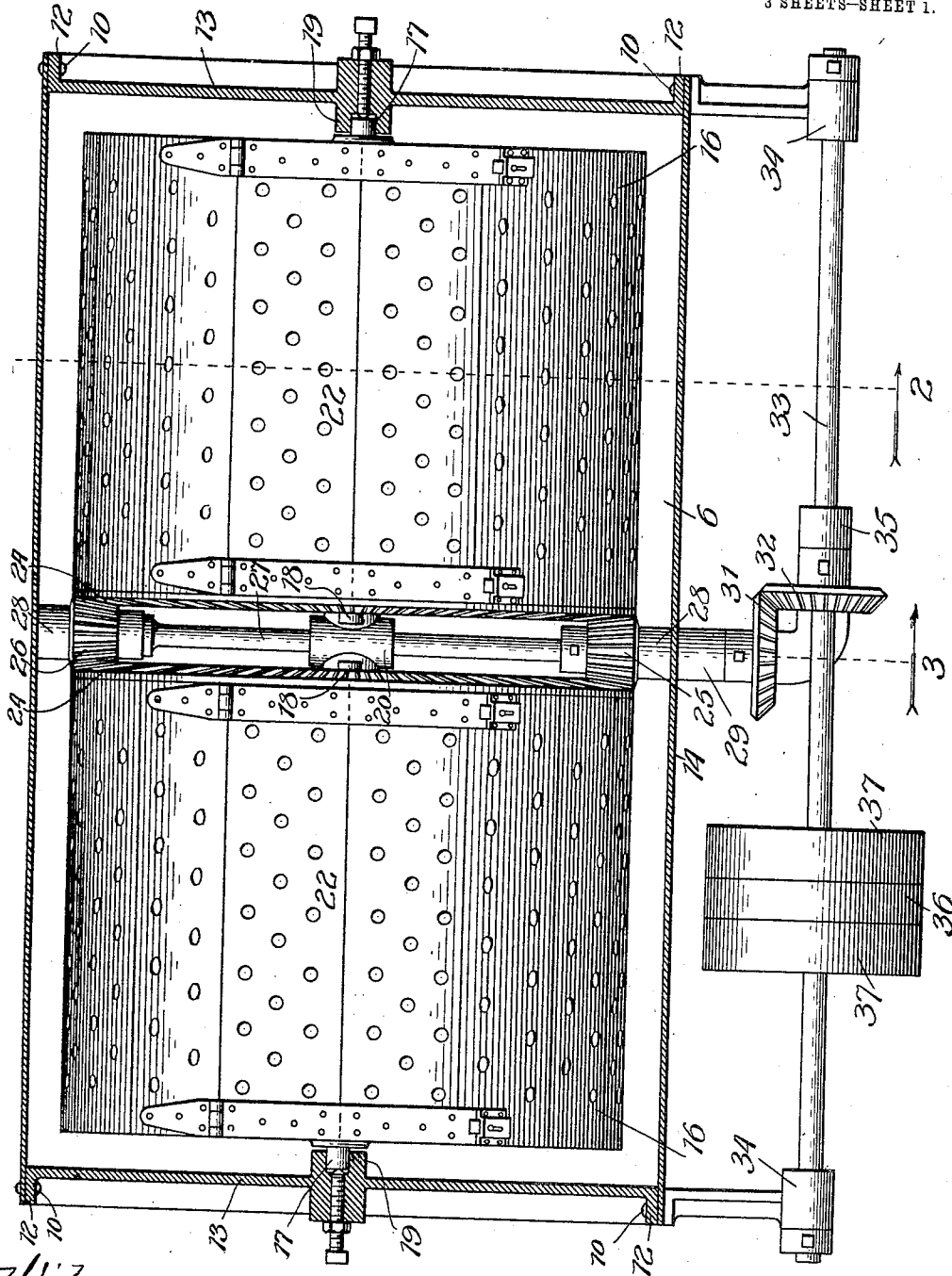


F. J. CRAMER.
 WASHING MACHINE.
 APPLICATION FILED JUNE 24, 1912.

1,052,131.

Patented Feb. 4, 1913.

3 SHEETS—SHEET 1.



Witnesses:
 E. J. Chas. J. Chas.

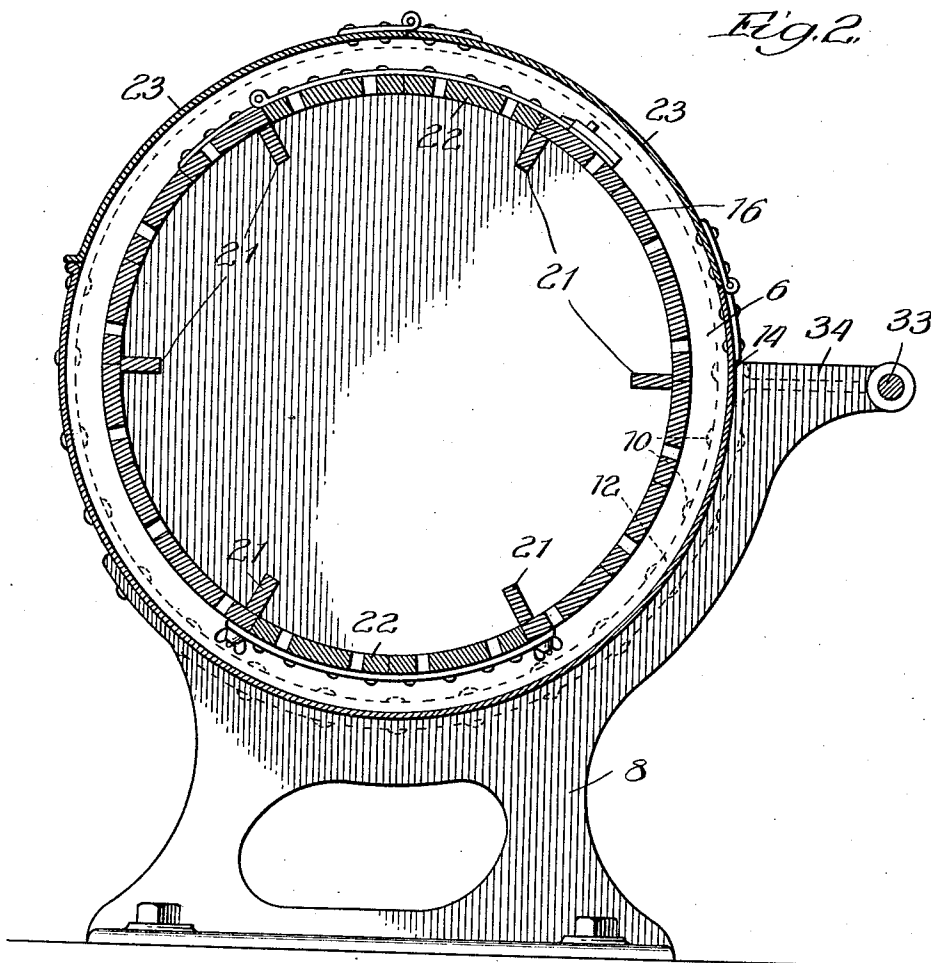
Fig. 1

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3 SHEETS—SHEET 2.



Witnesses:
E. J. Chas. J. Chase.

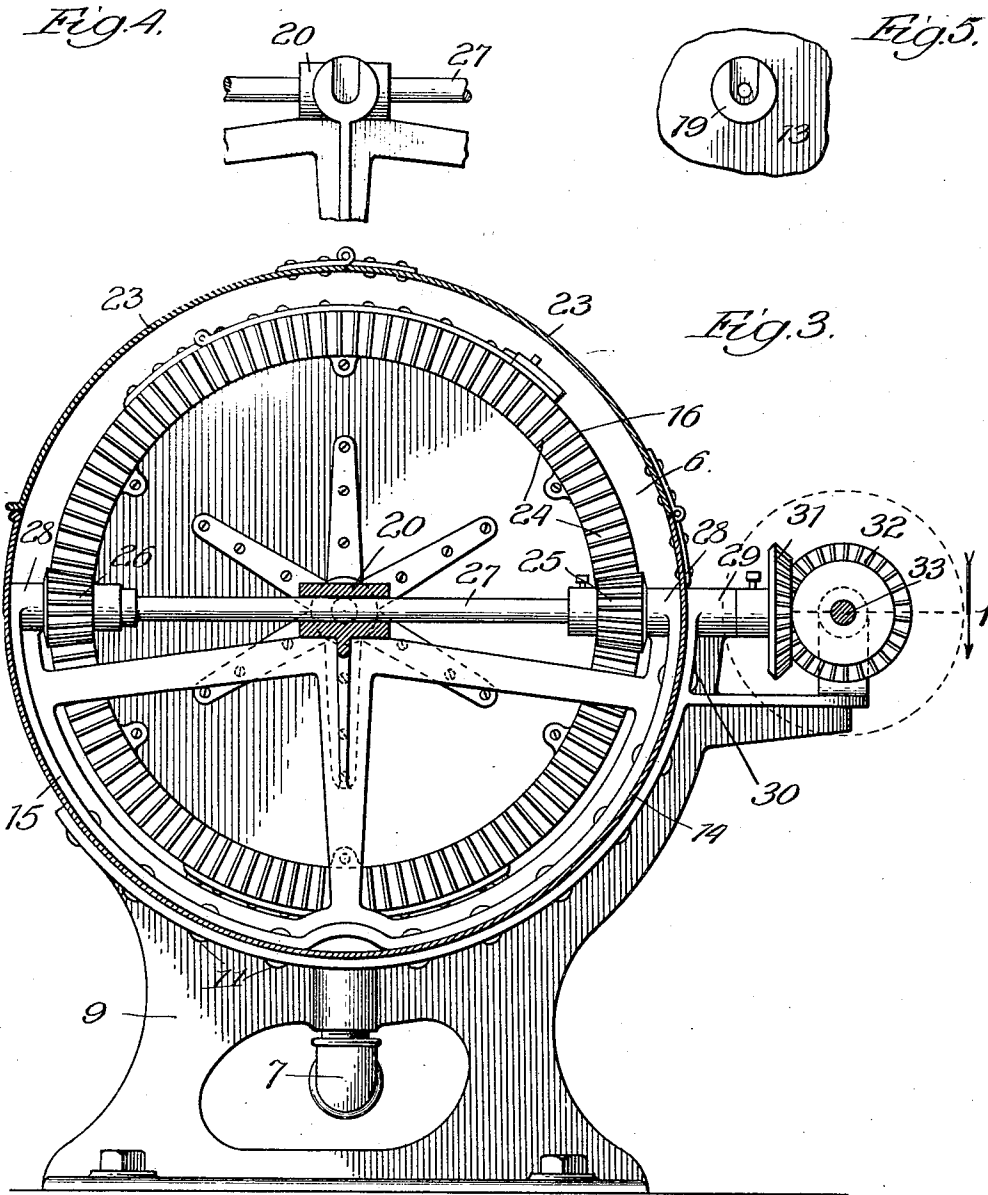
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

FRED J. CRAMER, OF CHICAGO, ILLINOIS.

WASHING-MACHINE.

1,052,131.

Specification of Letters Patent.

Patented Feb. 4, 1913.

Application filed June 24, 1912. Serial No. 705,531.

To all whom it may concern:

Be it known that I, FRED J. CRAMER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Washing-Machines; of which the following is a specification.

My invention relates, more particularly, to improvements in washing machines used in dry-cleaning establishments and laundries, for cleansing fabrics.

My primary object is to provide improvements in washing machines of the class to which the present invention relates to the end of producing greater agitation of the washing fluid in the machine and increasing the circulation thereof through the cylinder and in contact with the fabrics therein, whereby the washing operation will be greatly expedited.

Referring to the accompanying drawings—Figure 1 is a horizontal sectional view of a machine constructed in accordance with my invention, the section being taken at the line 1 on Fig. 3 and viewed in the direction of the arrow. Fig. 2 is a section taken at the line 2 on Fig. 1 and viewed in the direction of the arrow. Fig. 3 is a section taken at the line 3 on Fig. 1 and viewed in the direction of the arrow. Fig. 4 is a broken view in elevation of a detail of the supporting member for the trunnions of the perforated cylinders and the bearing for a shaft forming a part of the driving mechanism for the cylinders; and Fig. 5, a broken view in elevation of one end of the shell showing a bearing for a trunnion of one of the cylinders.

The shell of the machine which may be of sheet metal, or any other suitable material, and which is designed to receive the washing fluid, is represented at 6, and in the construction illustrated is connected at its lower end with a pipe 7 through which the washing fluid may be introduced into, and withdrawn from, the shell.

The shell is shown as of cylindrical form and is supported on frames 8 and 9, the frames 8 being located toward opposite ends of the shell and the frame 9 in the center thereof, the frames 8 and 9 being formed on their upper surfaces with flanged curved seating surfaces upon which the shell rests and to which it is secured as by rivets 10 and 11, the rivets 10 passing through the frames 8, the annular flanged portions 12

of the heads 13 of the shell, and the cylindrical wall of the latter, and the rivets 11 passing through the frame 9, the cylindrical wall 14 and through a spider frame 15 which is located in the shell preferably midway between the ends of the latter.

Located in the shell and spaced from the wall 14 thereof are a pair of perforated cylinders 16 spaced apart a slight distance and provided with trunnions 17 and 18 which are journaled, respectively, in bearings 19 on the inner surfaces of the heads 13 of the shell and in a bearing 20 provided on the upper end of the frame 15.

The cylinders 16 which are provided at intervals about their inner surfaces with longitudinally-extending ribs 21, as is common in washing-machines, are provided for receiving the fabrics to be cleansed, which may be introduced into, and withdrawn from, the cylinders through openings in the walls thereof controlled by removable sections 22 of the cylinders, the wall of the shell 6 being formed with hinged sections 23 for permitting access to the cylinders.

In carrying out my invention, the cylinders 16, located in the single inclosing shell 6, as described, are rotated simultaneously in opposite directions, and preferably by a reversing movement as is common in washing-machines. Any suitable means for thus operating the cylinders may be provided, a description of those shown being as follows: The inner opposing ends of the cylinders 16 are provided with gears 24 concentric with the axis about which the cylinders rotate, and mesh with beveled pinions 25 and 26 disposed on opposite sides of said axis on shaft 27 journaled in bearings 28 on the frame 15 and a bearing 29 on the extension 30 of the frame 9, the pinion 25 being fixed on the shaft 27 and the pinion 26 being loose thereon. The shaft 27 at its rear end is equipped with a beveled pinion 31 which meshes with a similar pinion 32 fixed on a shaft 33 journaled in bearings 34 and 35 on the upper ends of the frames 8 and 9, respectively, the shaft 33 being adapted to be driven from any suitable source of power (not shown) and preferably with a reversing movement, through the medium of reversing mechanism commonly employed on washing-machines and the belt-driven tight and loose pulleys of which are represented at 36 and 37, respectively.

It will be understood from the foregoing

that rotation of the shaft 33 in either direction rotates the pinion 25, and consequently the cylinders 16 are simultaneously driven in opposite directions. As the cylinders 16 are rotated, as stated, the fabrics therein are tumbled about by the action of the ribs carrying them part way up the sides of the cylinders. The effect of rotating the cylinders simultaneously in opposite directions in the single shell 6 is to overcome the tendency of the cylinders to carry the fluid up the side of the shell adjacent to the side of the cylinders against which the fabrics lie, so that the washing fluid will be maintained substantially level in the shell 6 and cylinders 16. Thus instead of having the greater volume of the washing fluid in the part of the shell which is adjacent to the side of the cylinder against which the clothes lie, with a consequent reduction of the amount of fluid at the opposite side of the shell where the perforations in the cylinder are unobstructed, the fluid is caused to extend to a relatively high point on the side of the shell which is adjacent to those portions of the cylinders in which the perforations are unobstructed and consequently the fluid flows freely and in large quantities into and through the cylinders 16 and in contact with the fabrics therein. Furthermore, by rotating the cylinders 16 in opposite directions the fluid is caused to eddy in the shell and thus agitated the circulation thereof through the cylinders and fabrics is greatly augmented, with the result of greatly expediting the washing operation.

The feature of the central drive for the cylinders 16 is of advantage in a machine of this character as the load is substantially evenly distributed on opposite sides of the drive-shaft which causes the machine to operate smoothly, which is of especial advantage where a reversing movement for the

cylinders 16 is employed, and requires the minimum amount of power for its operation.

While I prefer to embody my invention in a machine wherein the cylinders are rotated through a complete rotation or rotations, it will be manifest that it may be used to advantage, and within my invention, in a machine wherein the cylinders are merely given an oscillatory movement in opposite directions. Furthermore, the machine illustrated may be otherwise variously modified and altered without departing from the spirit of my invention.

In using the word "cylinders" in the appended claims, I do not wish to be understood as intending to limit the invention to the use of a cylindrical housing for the fabrics to be cleansed, as the rotatable container for the clothes may be of any other suitable form within the spirit of my invention.

What I claim as new and desire to secure by Letters Patent is—

1. A washing-machine comprising a shell, a plurality of perforated cylinders journaled in end-to-end relation, in said shell, for receiving the fabrics to be washed, and means for simultaneously turning said cylinders in opposite directions.

2. A washing-machine comprising a shell, a plurality of perforated cylinders journaled in end-to-end relation, and spaced apart, in said shell, for receiving the fabrics to be washed, and driving means engaging with the opposed ends of said cylinders for simultaneously turning them in opposite directions.

FRED J. CRAMER.

In the presence of—
R. A. SCHAEFER,
JOHN WILSON.