

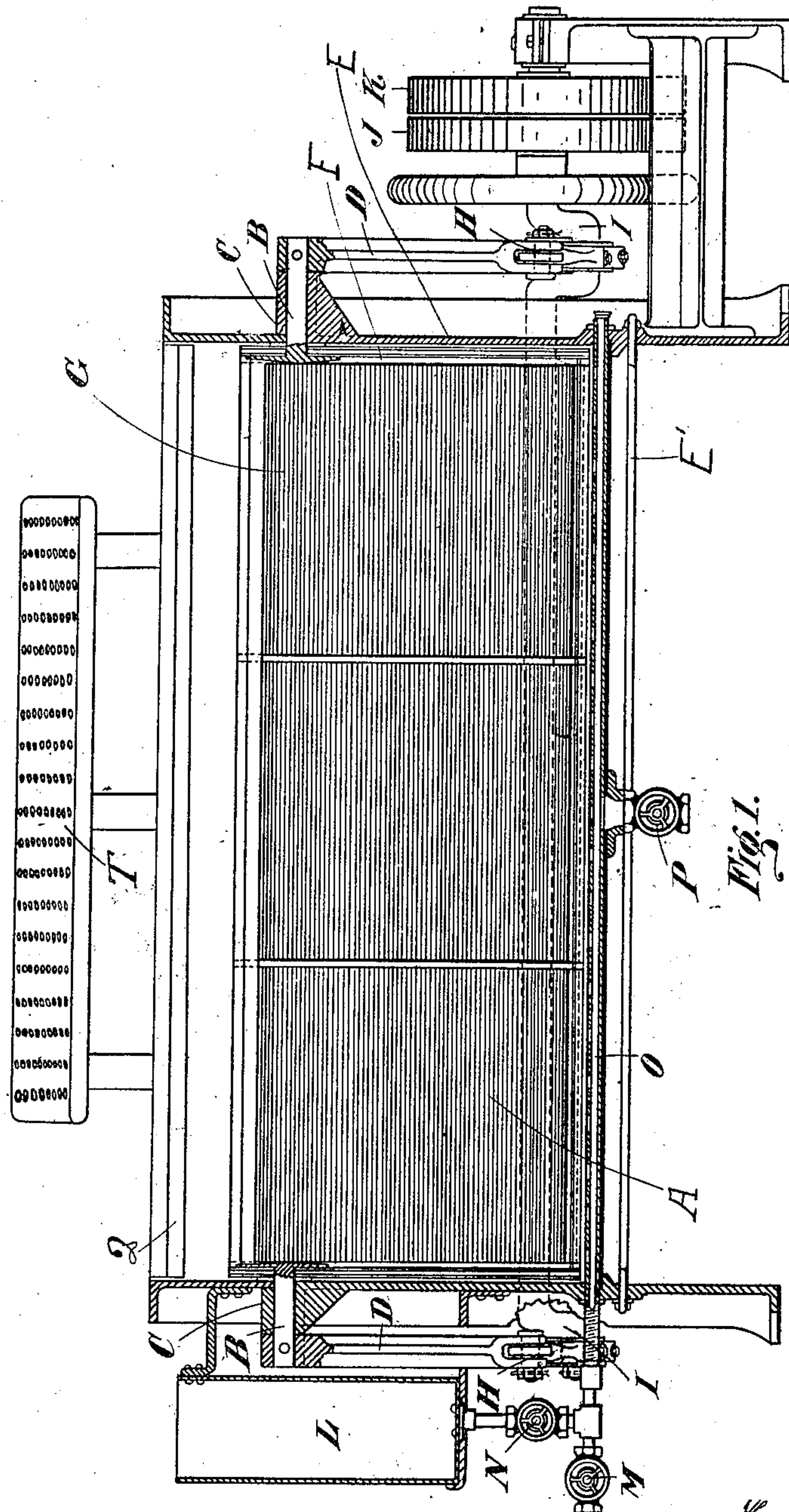
H. SYMONDS.  
WASHING MACHINE.

APPLICATION FILED DEC. 27, 1909.

981,715.

Patented Jan. 17, 1911.

2 SHEETS—SHEET 1.



Witnesses.

Charles R. Perkins.  
Balfour Melville.

Harold Symonds  
Inventor

per  
Sydney E. Page  
Attorney

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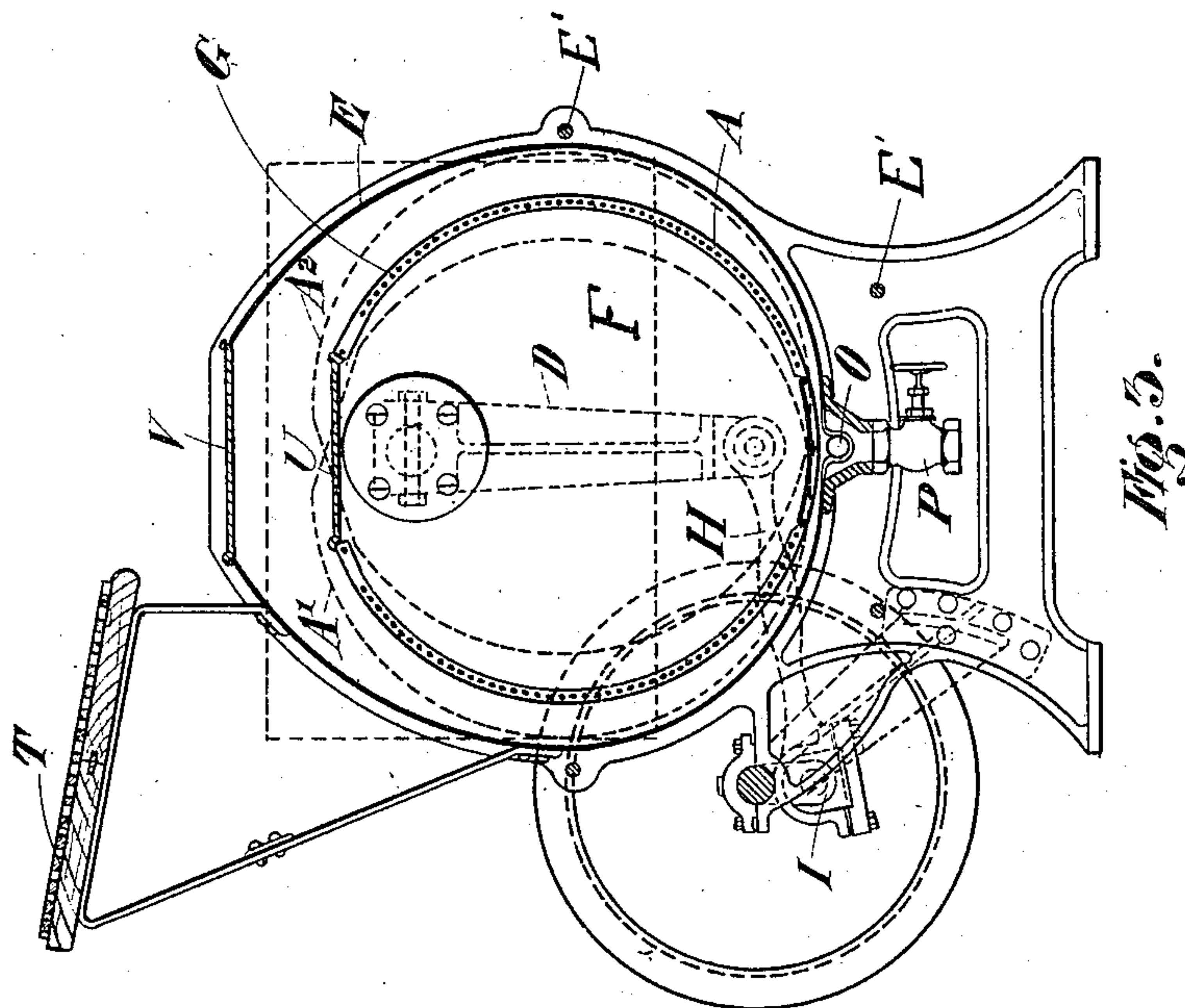


Fig. 3.

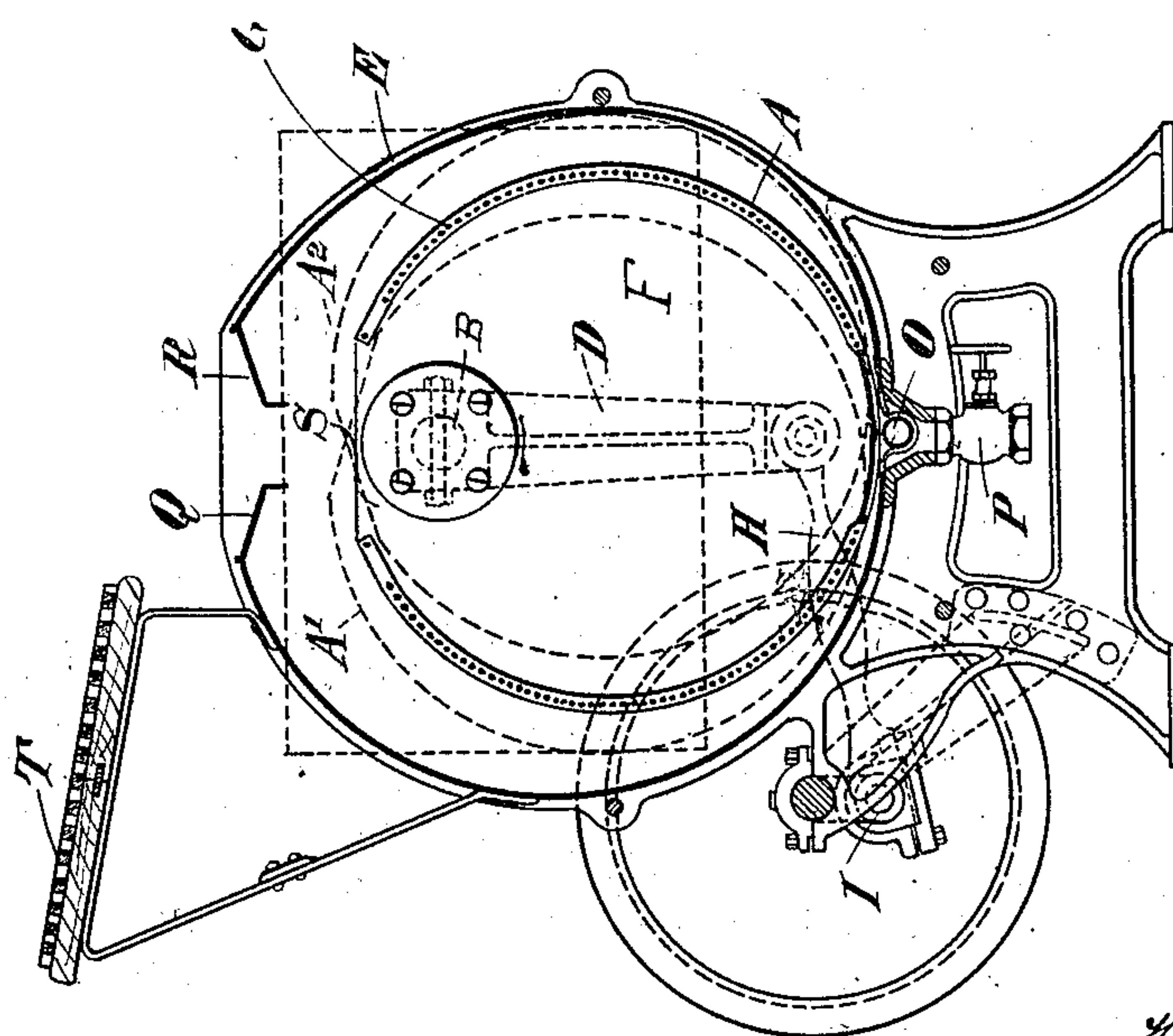


Fig. 2.

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Charles R. Perkins  
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 Inventor  
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 Sydney E. Page  
 Attorney.



# UNITED STATES PATENT OFFICE.

HAROLD SYMONDS, OF LONDON, ENGLAND.

WASHING-MACHINE.

981,715.

Specification of Letters Patent.

Patented Jan. 17, 1911.

Application filed December 27, 1909. Serial No. 535,121.

*To all whom it may concern:*

Be it known that I, HAROLD SYMONDS, a subject of the King of Great Britain, residing at London, England, have invented certain new and useful Improvements in Washing-Machines, of which the following is a specification.

My invention relates to improvements in washing machines in which the clothes are contained in a separate receptacle within a casing containing the washing liquors.

The invention though adapted to wash any class of material is especially useful for washing flannels or other goods in which there is great difficulty in preventing shrinking of the material. It may also be used however for washing clothes which require to be subjected to a boiling process.

The object of the invention is to produce a machine which will efficiently and quickly wash clothes without damage to the fabric of which they are made, and which especially will not cause shrinking of flannel goods.

Heretofore in rotary machines, difficulty has been experienced by reason of the winding of the contents into ropes which not only is destructive to the said contents but prevents proper cleansing of the goods; in this invention, by simply passing the clothes backward and forward in strong currents of the washing liquor, without squeezing of serious consequence, the clothes are subjected to only the lightest treatment consistent with thorough cleansing, the washing liquor obtaining full access to all parts of the contents.

In carrying out my invention I cause the cage, or receptacle, containing the clothes to be rocked backward and forward within the casing containing the washing liquor, the said cage being provided with suitable openings around its sides so that the liquor passes therethrough at each swing; further by varying the conformation of the casing with respect to the cage I provide that other currents may be formed entering at the opening of the cage in certain cases.

Without limitation to the particular construction representing one form of my invention, which is susceptible of many modifications, the said invention will be described with reference to the accompanying drawings forming a part of this specification, and will then be pointed out in the claims.

Figure 1, is a side elevation partly in section of a washing machine; Fig. 2, is an end

elevation partly in section; Fig. 3, is an end elevation partly in section showing a machine arranged for a boiling process.

Referring to Figs. 1 and 2. A is the cage which is formed of solid ends F joined by a large number of bars G arranged so as to leave small spaces between them for the passage of liquid. The cage is mounted for oscillation on trunnions B which are located near the tops of the ends F.

E is the casing or tank which holds the washing liquors; the body E is formed of metal, wood, or the like, firmly attached to two solid castings at either end secured together by bolts such as E'; a depression is formed, in the base of this casing in which is located a pipe O, for the supply of liquors to the casing. The casing is provided on the outside with bearings C, fixed near the top, which receive trunnions B of the cage and to which levers D are firmly attached at either end, being rocked by the connecting rods H actuated by the crank shaft I. The crank shaft I is driven by fast and loose pulleys, J, K, and it will be seen therefore that revolution of the crank shaft causes rocking of the cage A about its pivots B. B.

L is a soap tank, and M a valve on a water supply; while O is a pipe passing into the base of the casing and having openings in its upper side throughout its length, and also on its under side opposite the outlet cock P. By suitable manipulation of the valves N and M, soap and water are admitted to the machine and pass backward and forward through the cage owing to its rocking.

A material element of the invention resides in the relative formation of the cage and the casing. Referring to Fig. 2, the dotted outlines A' and A'' represent the extreme positions reached by the cage in left and right directions respectively; with the casing in the position shown at A' on the left a considerable body of liquor is caused to rush up the casing and, guided by the flap, or door Q, to enter the cage again through its open top S; this has not only the advantage of further washing the clothes but prevents them from tending to get out of the cage. Looking now at the right hand side position A'' it will be noticed that there is less clearance here between the cage and the casing which conform closely together in their lower portions; as the water does not have time to reach the top of the cage when



the pressure due to the rocking comes upon it, it must pass through the sides of the cage and this formation in fact causes that result to take place, some small amount of liquor being directed into the cage by the door R. The flaps Q and R for directing the liquor back into the cage may preferably be hinged to the casing. The slanting board T is for placing the contents on to drain on removal from the machine.

Referring now to Fig. 3, since this machine is for use with a boiling process, doors U and V must be provided on the cage and the casing respectively and since no liquor is required to come over into the top of the cage, the sides of the casing are shown with a small amount of clearance only so that the liquor is forced backward and forward through the sides of the cage only.

It must be understood that the cage is of such a size and shape that only the smallest possible clearances are allowed between the base of the cage and the casing, and between the ends of the cage and the casing, so that no liquor to speak of can pass that way.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination in a washing machine, of an approximately circular casing having its lower part of a flattened semi-circular conformation, a cage with openwork sides and an open top, pivots for the cage on the said casing eccentrically placed with regard to the central axis thereof, so that the cage can be rocked in the base of the casing leaving a clearance space expanding upward between the casing and the cage in its extreme position, and means for rocking the cage within the casing, substantially as set forth.

2. The combination is a washing machine, of an approximately circular casing having its base of a flattened semi-circular conformation, a cage with openwork sides, pivots for the cage on the said casing eccentrically placed with regard to the central axis thereof, so that the cage is rocked in the base of the casing, a section of the base of the casing concentric with the cage when in its extreme position so that no unnecessary clearance is left between the adjoining parts, and means for rocking the cage with-

in the casing, substantially as set forth herein.

3. The combination in a washing machine, of an approximately circular casing having its base of a flattened semi-circular conformation, a cage with openwork sides and an open top, pivots for the cage on the said casing eccentrically placed with regard to the central axis thereof, so that the cage is rocked in the base of the casing, a section of the base of the casing eccentric to the cage when in its extreme position in one direction, a section of the base of the casing concentric with the cage when its extreme position is in the opposite direction, and means for rocking the cage within the casing.

4. The combination in a washing machine, of an approximately circular casing having its lower part of a flattened semi-circular conformation, a cage with openwork sides and an open top, pivots for the cage on the said casing eccentrically placed with regard to the central axis thereof so as to leave a clearance space expanding upward between the casing and the cage in its extreme position, flaps on the casing for directing the liquor current back into the top of the cage, and means for rocking the cage within the casing.

5. The combination is a washing machine, of an approximately circular casing having its lower part of a flattened semi-circular conformation, a cage with openwork sides and an open top, pivots for the said cage on the said casing eccentrically placed with regard to the central axis thereof so as to leave a clearance space expanding upward between the casing and the cage in its extreme position, hinged flaps on the casing for directing the liquor current back into the top of the cage, levers attached to the pivots of the cage, a crank shaft actuated by suitable motive power, and connecting rods connecting the ends of the said levers with the cranked portions of the cranked shaft.

In testimony whereof I affix my signature in presence of two witnesses.

HAROLD SYMONDS.

Witnesses:

CARL R. LOOP,  
H. D. JAMESON.