

No. 711,317.

Patented Oct. 14, 1902.

E. L. HOWE.
WASHING MACHINE.

(Application filed Feb. 7, 1901.)

(No Model.)

Fig. 1.

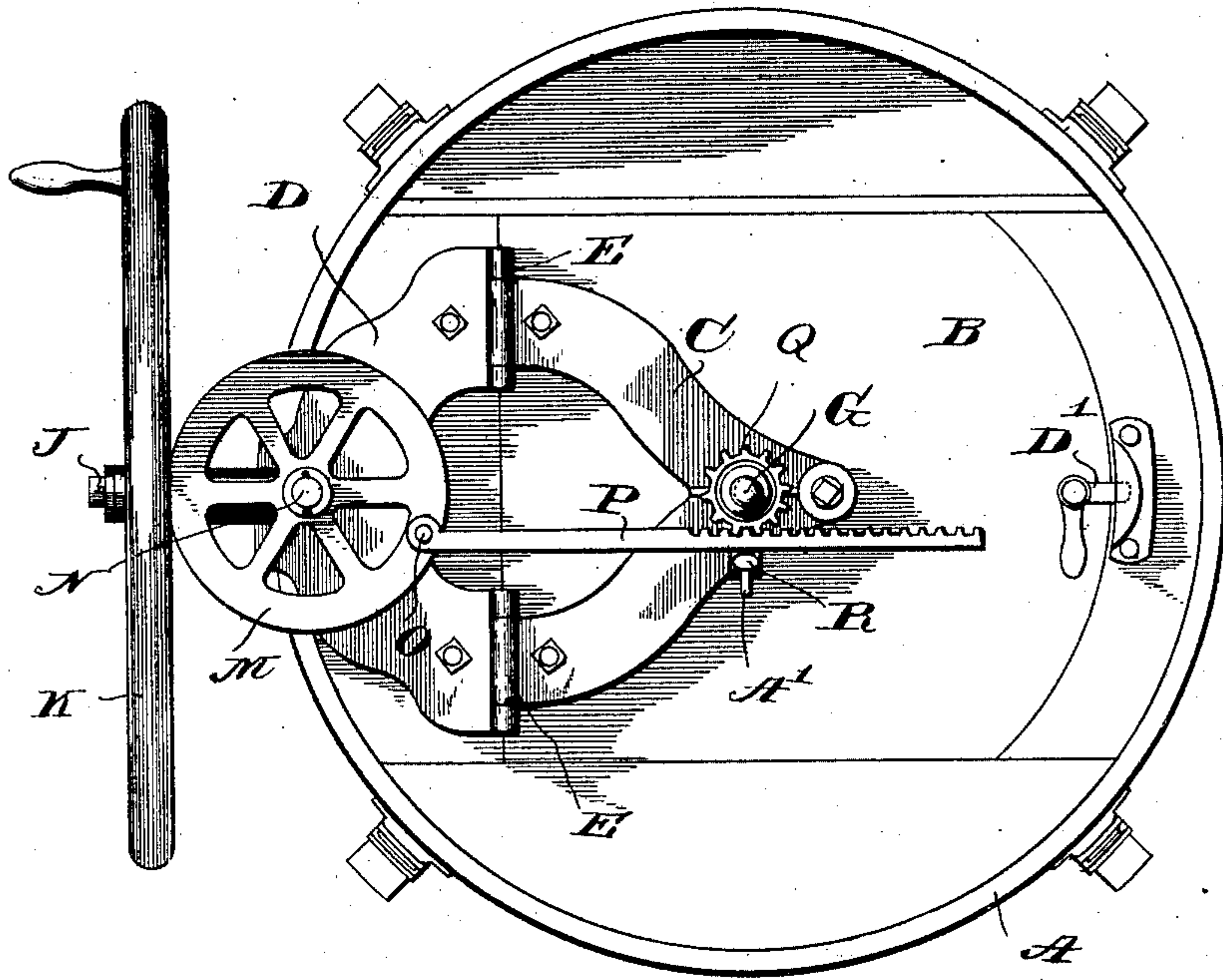


Fig. 2.

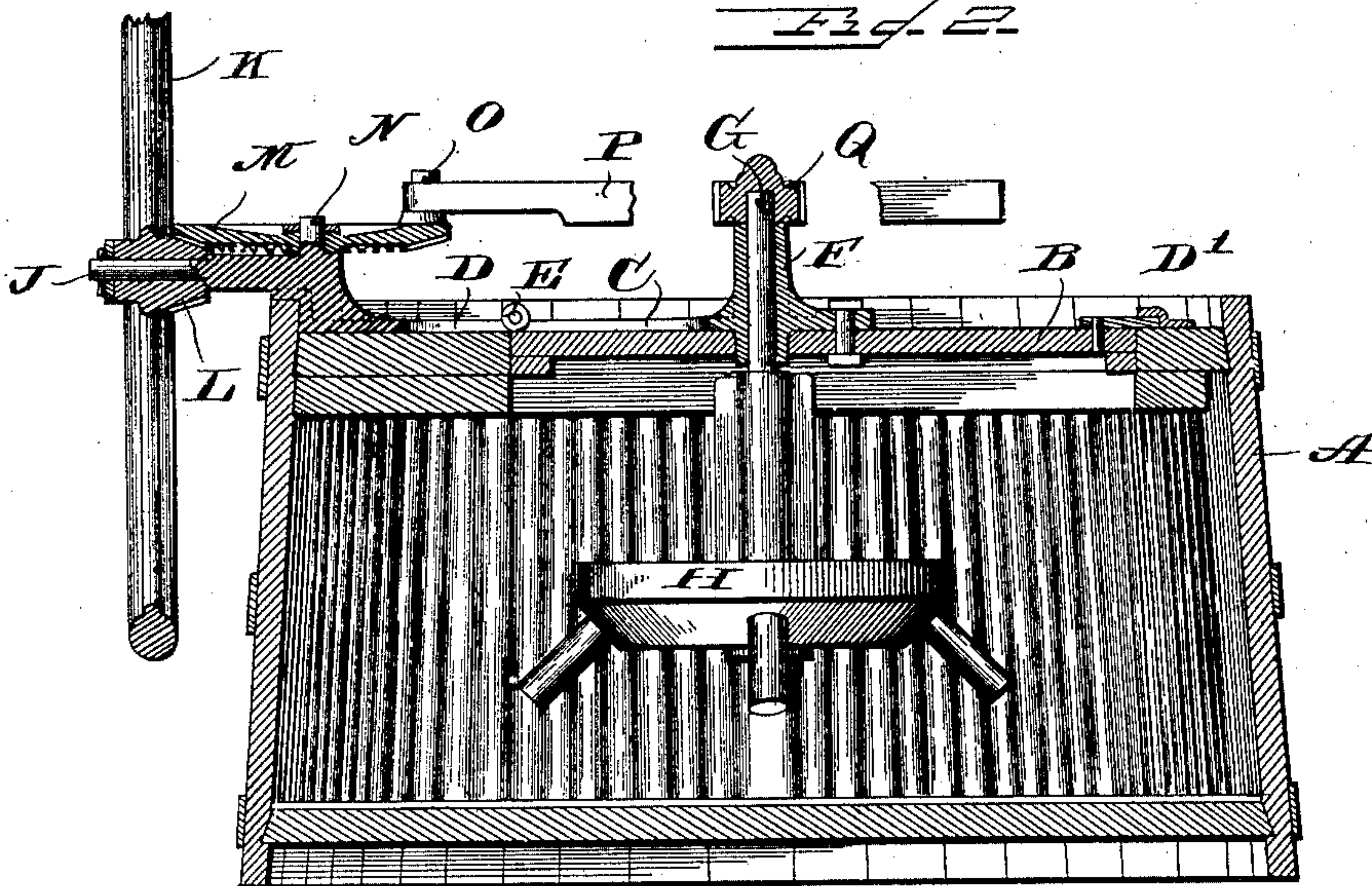


Fig. 4.

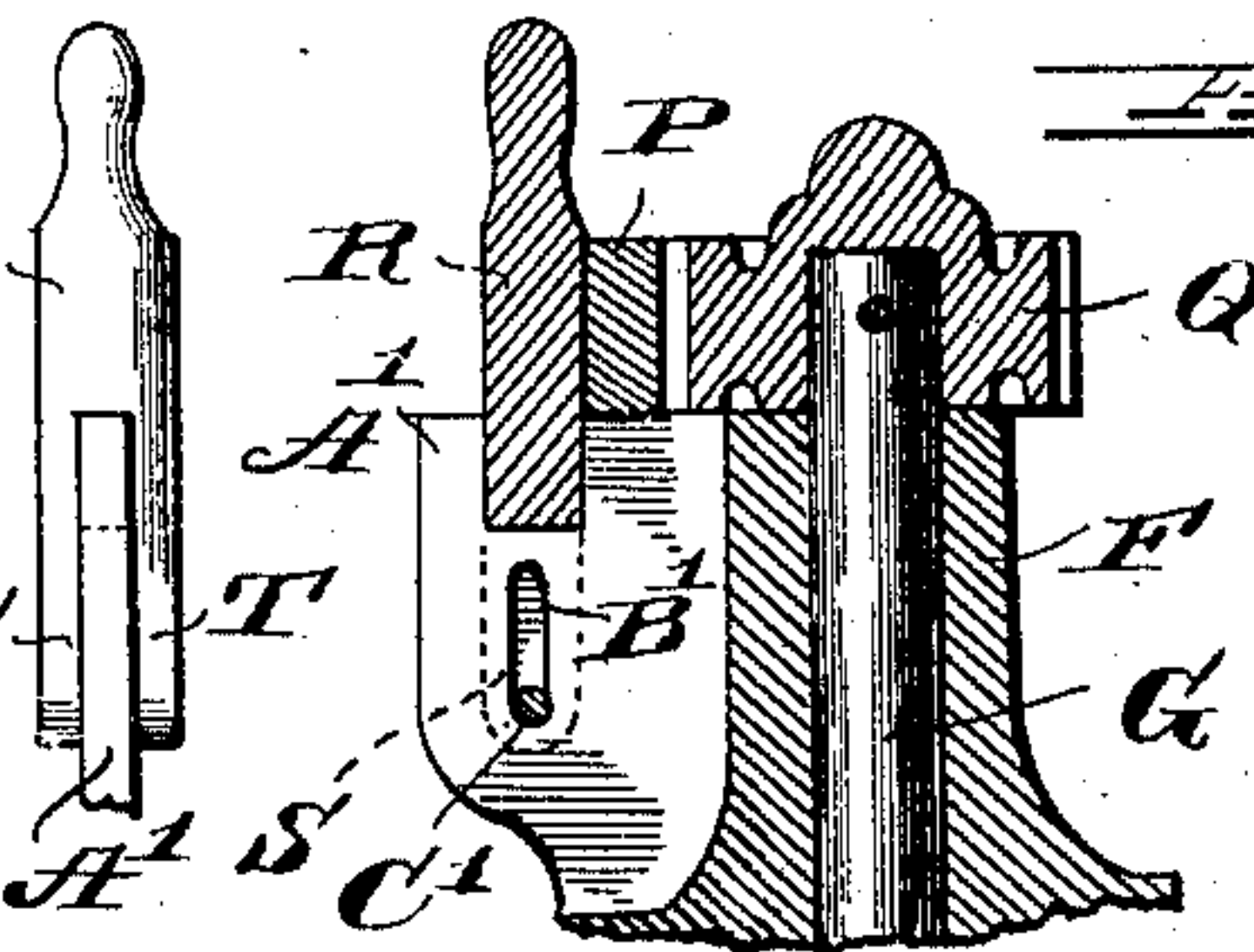


Fig. 5.

WITNESSES.

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EUGENE L. HOWE, OF MUSKEGON, MICHIGAN, ASSIGNOR TO THE MICHIGAN WASHING MACHINE COMPANY, OF MUSKEGON, MICHIGAN, A CORPORATION OF MICHIGAN.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 711,317, dated October 14, 1902.

Application filed February 7, 1901. Serial No. 46,460. (No model.)

To all whom it may concern:

Be it known that I, EUGENE L. HOWE, a citizen of the United States, residing at Muskegon, in the county of Muskegon and State of Michigan, have invented a new and useful Washing-Machine, of which the following is a specification.

This invention relates to washing-machines.

The object of the invention is to provide a construction and arrangement of washing-machine and operating means therefor which are simple and efficient in operation.

The invention consists, substantially, in the construction, combination, location, and arrangement, all as will be more fully hereinafter set forth, as shown in the accompanying drawings, and finally pointed out in the appended claims.

Referring to the accompanying drawings and to the various views and reference-signs appearing thereon, Figure 1 is a plan view of a washing-machine, showing the application thereto of an operating-gearing and mechanism embodying the principles of my invention. Fig. 2 is a vertical central longitudinal section of the same. Fig. 3 is a detached detail view, in vertical section, illustrating the stop for maintaining the operating-rack in engagement with the operating-pinion of the stirrer-shaft. Fig. 4 is a detached detail view, in side elevation, showing the stop.

The same part is designated by the same reference-sign wherever it occurs throughout the several views.

Reference-sign A designates a washtub or other receptacle, which may be of any suitable or usual construction and shape.

B designates the top or cover of the tub, suitably hinged at one side or edge thereof to a stationary or fixed part of the tub.

C designates a casting or bracket suitably bolted or otherwise secured to the hinged door B. B designates a similar bracket or casting suitably bolted or otherwise secured to a fixed part of the top or end of the tub A. These brackets or castings are suitably hinged together, as at E, and constitute the hinges for the cover B. The casting C is provided with a hub F, arranged at a point preferably

in central relation with respect to the tub, said hub being arranged to extend through the top or cover B and forming a bearing for a shaft G, said shaft being arranged to extend into the tub A and carrying a stirrer H, which stirrer may be of the usual or ordinary or well-known construction and arrangement. The casting or bracket D is provided with a journal-stud J, upon which is mounted an operating or driving means, such as a hand-wheel K. Formed on or suitably connected with the wheel K is a bevel-pinion L, arranged to mesh with and to rotate a cooperating bevel-gear M, suitably journaled upon a stud N, formed on or carried by a casting or bracket D. Suitably hinged or pivoted at one end eccentrically upon the face of gear M, as at O, is an arm or bar P, having rack-teeth, as clearly indicated in Fig. 1, and which rack-teeth are arranged to engage or mesh with the teeth of a pinion Q, carried upon the projecting end of stirrer-shaft G. The rack-bar P may be held in engaging relation with respect to pinion Q in many specifically different ways. It is desirable, however, that said rack-bar be so held in engaging relation with respect to said pinion that it may be readily detached from such engagement when desired. I have shown a simple and efficient manner for accomplishing this result, to which, however, my invention is not to be limited or restricted and wherein I provide a stop-pin R, having a forked end, the arms S T of which are arranged to straddle a web or flange A', formed on or suitably connected with the bracket or casting C of the hub F thereof, said web or flange being provided with a seat (indicated by a dotted line in Fig. 4) and also being slotted, as at B'. A pin C', carried by the stop R, is arranged to operate in the elongated slot B'. The operation of this part of my invention is as follows: When it is desired to hold rack-bar P in engagement with pinion Q, the pin R is seated in the seat of flange or web A' in position to maintain the rack-bar P, with the rack-teeth thereof, in engagement with the pinion. Under these conditions the pin C' occupies the lowest position thereof permitted by the elongated slot B', as clearly

shown in Fig. 3, and the bottom of the fork of stop R is received within the seat in the upper edge of web or flange A', thus forming an efficient bearing for the stop, and hence
 5 maintaining the rack-bar in engagement with the pinion. When it is desired to detach the rack-bar from the pinion, the stop R is raised until the bottom of the forked end thereof clears the top edge of web or bracket A' or
 10 the seat therein, the pin C' traveling or moving in slot B' until said stop may be swung back out of the way to permit the rack-bar to be disengaged from the pinion.

When the rack-bar is held in engagement
 15 with the pinion, by imparting rotation to hand-wheel K rotary movement is transmitted to gear M, thereby imparting an oscillatory reciprocation to bar P, the pivotal connection of said bar to the face of gear M permitting
 20 the oscillations thereof. The longitudinal movements or reciprocations of bar P effect rotary oscillations of stirrer-shaft G and stirrer H. It will be observed that the stirrer-shaft and stirrer are supported by the hinged cover
 25 of the tub. If desired, the cover may be locked in close relation with respect to the tub in any suitable or convenient manner. I have shown at D' a simple and efficient locking device for this purpose; but it is obvious
 30 that other forms of locks may be employed without departure from the spirit or scope of my invention.

From the foregoing description it will be seen that I provide an exceedingly simple
 35 and efficient construction of washing-machine wherein the gearing is of few parts and can be cheaply manufactured and assembled and wherein the driving-gearing may be readily disconnected from the stirrer-shaft when
 40 desired for placing the clothes or other articles to be washed within or removing the same from the tub.

Many variations and changes in the details of construction and arrangement of parts
 45 would readily occur to persons skilled in the art and still fall within the spirit and scope of my invention. I do not desire, therefore, to be limited or restricted to the exact details shown and described; but,

50 Having now set forth the object and nature of my invention and a form of construction embodying the principles thereof, what I claim as new and useful and of my own invention, and desire to secure by Letters Patent of the United States, is—

1. In a washing-machine, a hinged cover, a shaft journaled therein, a stirrer and a pinion mounted on said shaft, in combination
 60 with a tub, a drive-gear mounted thereon, a rack-bar pivotally connected eccentrically to said gear and arranged to engage said pinion, means for detachably maintaining said rack-bar in meshing relation with respect to said pinion, and means for actuating said drive-
 65 gear, as and for the purpose set forth.

2. In a washing-machine, a hinged cover,

a shaft journaled therein, a stirrer and a pinion mounted on said shaft, in combination
 70 with a tub, a drive-gear mounted thereon, a rack-bar pivotally connected eccentrically to said drive-gear and arranged to engage said pinion, a detachable stop arranged to hold said rack-bar in engagement with said pinion, and means for actuating said drive-gear where-
 75 by by removing said stop said rack-bar may be disengaged from said pinion to permit the cover to be swung to open position, as and for the purpose set forth.

3. In a washing-machine, a tub, a cover therefor, brackets or castings respectively
 80 mounted on said tub and cover, said castings being hinged together, a shaft journaled in said cover-casting and provided with a pinion, a stirrer carried by said shaft, a drive-gear journaled in said tub-casting, a rack-
 85 bar pivotally connected eccentrically to said drive-gear and arranged to mesh with and to actuate said pinion, a removable stop for maintaining said rack-bar in engagement with said pinion, whereby by removing said
 90 stop said rack-bar may be detached or moved out of engaging relation with respect to said pinion, and means for operating said drive-gear, as and for the purpose set forth.

4. In a washing-machine, a hinged cover,
 95 a shaft journaled therein and provided with a pinion, a stirrer carried by said shaft, in combination with a tub, a drive-gear mounted thereon, a rack-bar pivotally connected eccentrically to said gear and arranged to
 100 engage said pinion, a stop having a forked end, a web or flange upon which said stop is movably connected, said stop operating to maintain said rack-bar in engagement with
 105 said pinion but capable of being removed to permit said rack-bar to be detached from said pinion, as and for the purpose set forth.

5. In a washing-machine, a tub, a hinged cover therefor, brackets or castings mounted
 110 on said tub and cover, respectively, said cover bracket or casting provided with a journal-bearing and a web or flange, said web or flange having an elongated slot, a shaft journaled in said bearing, a pinion mounted on
 115 said shaft, a stirrer also carried by said shaft, a reciprocatory rack-bar arranged to mesh with said pinion, gearing mounted on said tub casting or bracket for actuating said bar, a stop provided with a forked end arranged
 120 to straddle said web or flange and having engagement in the slot in said web or flange, said stop operating to detachably hold said rack-bar in engaging relation with respect to
 125 said pinion, as and for the purpose set forth.

6. In a washing-machine, a tub, a hinged
 130 cover therefor, a bracket or casting mounted on said cover and provided with a journal-bearing, a shaft journaled in said bearing, said casting provided with a slotted web or flange having a seat therein, a pinion and a
 135 stirrer carried by said shaft, a rack-bar arranged to engage and mesh with said pinion,

gearing carried by said tub for actuating said
rack-bar, a stop having engagement with the
slot in said web or flange and adapted to be
removably received in the seat therein, said
5 stop when seated in said flange or web oper-
ating to hold said rack-bar in engagement
with said pinion, but when removed from
said seat, permitting said rack-bar to be dis-
engaged, whereby said cover may be swung

to open position, as and for the purpose set 10
forth.

In witness whereof I have hereunto set my
hand, this 26th day of January, 1901, in the
presence of the subscribing witnesses.

EUGENE L. HOWE.

Witnesses:

JAMES BROWN,
FRANK C. KIDNEY.