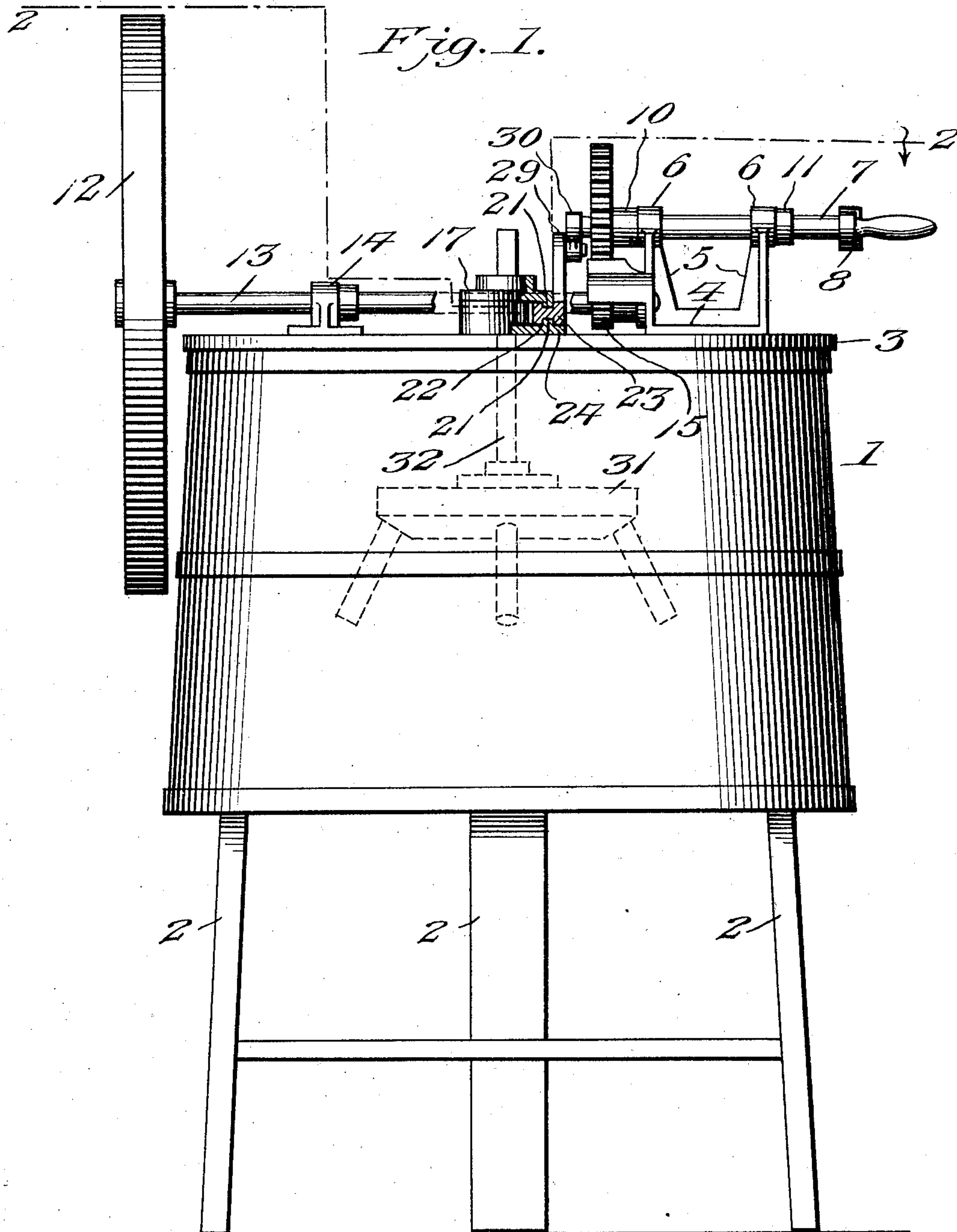


No. 837,874.

PATENTED DEC. 4, 1906.

S. McGRANAHAN.
WASHING MACHINE.
APPLICATION FILED MAY 27, 1905.

2 SHEETS—SHEET 1.



Inventor

Samuel McGranahan

Witnesses

Edwin G. McKee
A. M. Langley

By

Victor J. Evans

Attorney

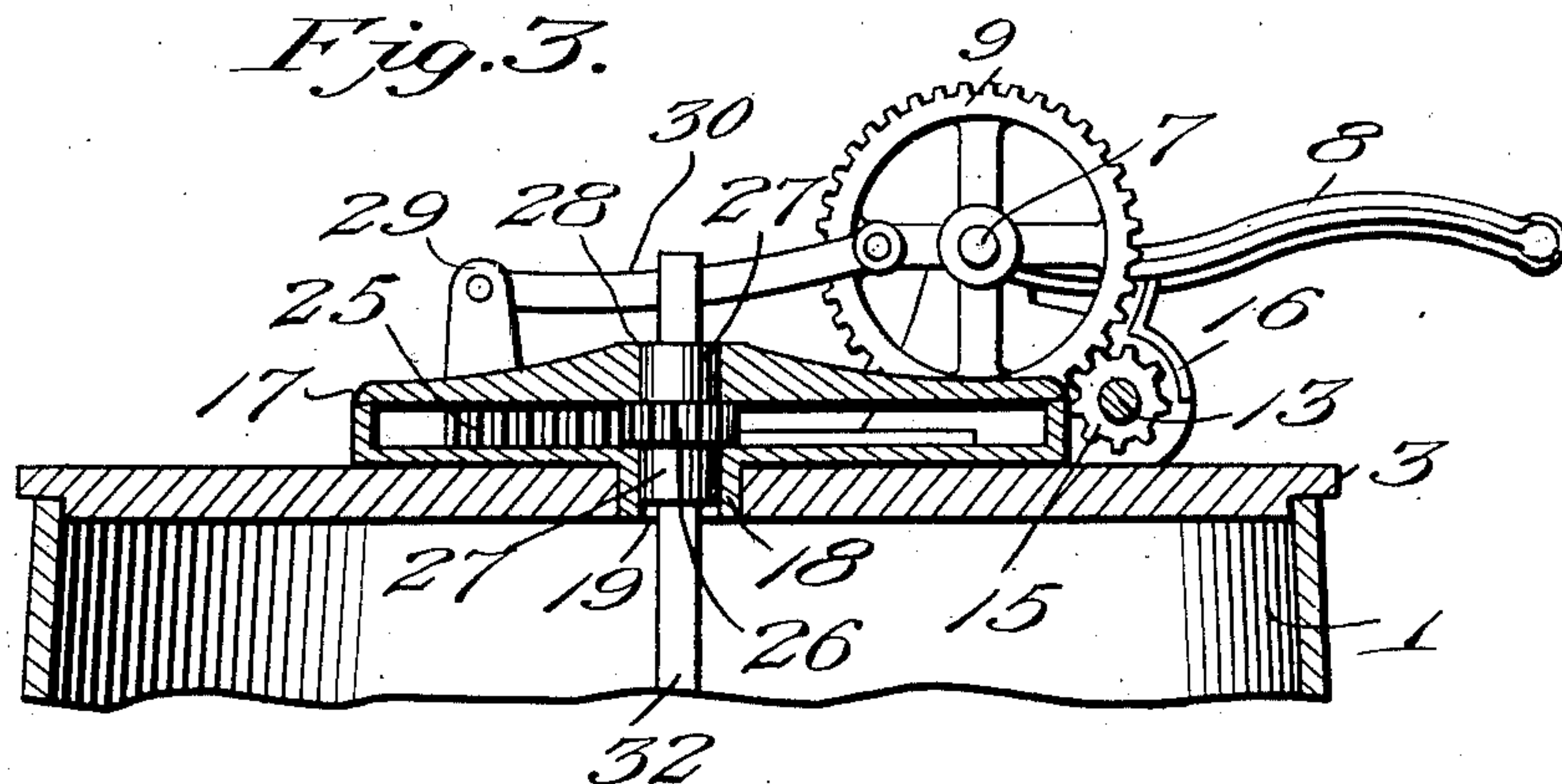
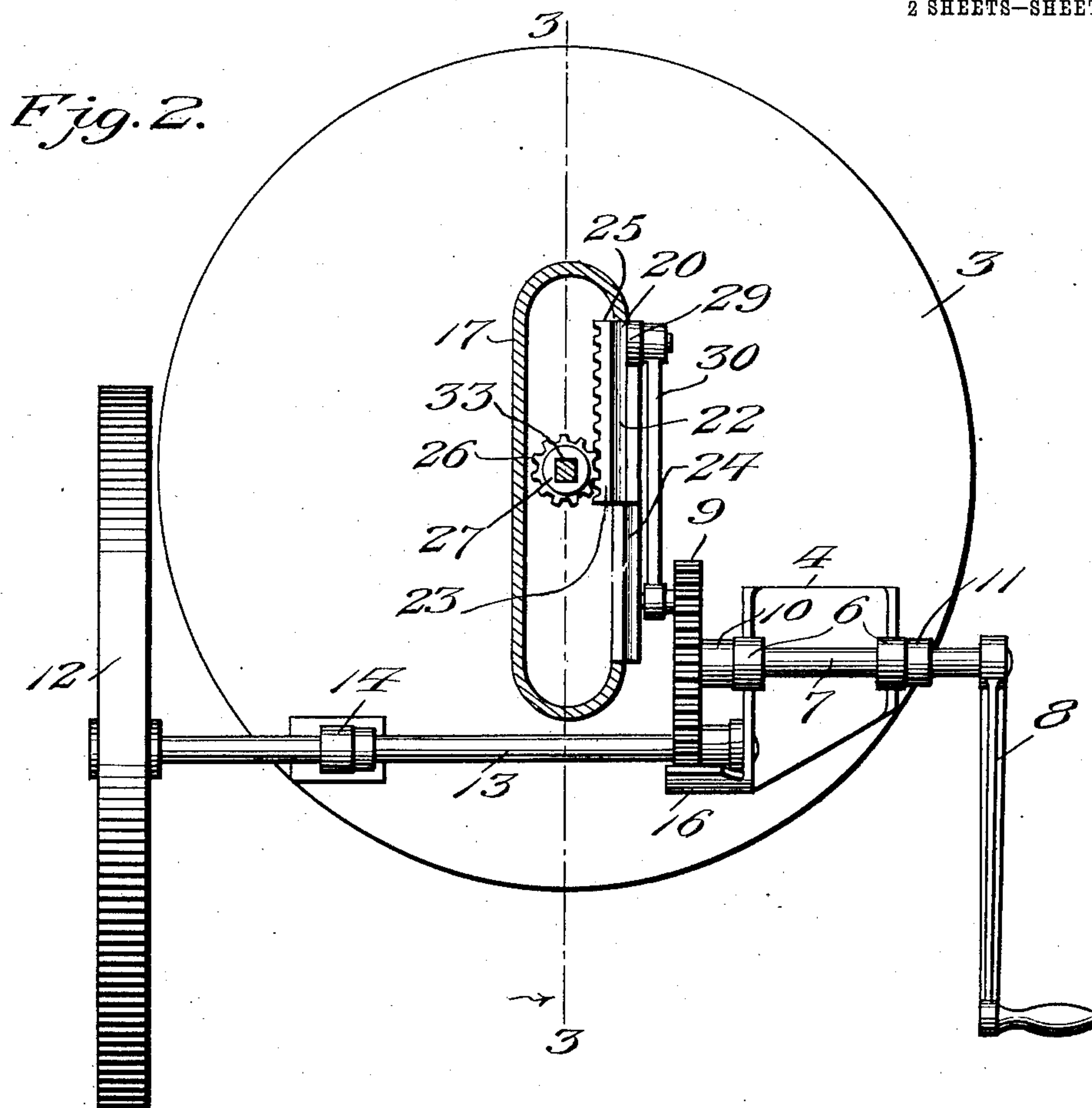
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UNITED STATES PATENT OFFICE.

SAMUEL McGRANAHAN, OF DAVENPORT, IOWA.

WASHING-MACHINE.

No. 837,874.

Specification of Letters Patent.

Patented Dec. 4, 1906.

Application filed May 27, 1905. Serial No. 262,866.

To all whom it may concern:

Be it known that I, SAMUEL McGRANAHAN, a citizen of the United States, residing at Davenport, in the county of Scott and State of Iowa, have invented new and useful Improvements in Washing-Machines, of which the following is a specification.

This invention relates to improvements in washing-machines of the class constructed and designed to impart a reciprocal rotary movement to the dasher.

The object of the invention is to provide a durable and simple and easily-operated device of the class described.

With this object in view the invention consists in certain details of construction and combinations of parts, which will be described in connection with the following specification, with reference to the accompanying drawings, in which—

Figure 1 is a view in side elevation of my improved washing-machine. Fig. 2 is a section on the line 2 2 of Fig. 1, and Fig. 3 is a partial section on the line 3 3 of Fig. 2.

Referring to the drawings, wherein like numerals of reference indicate corresponding parts throughout the several views, my improved washing-machine comprises the usual tub 1, which may be of any material or sectional dimensions desired, preferably supported on legs 2 and closed at its upper end by a removable cover 3, all of which parts may be constructed and arranged as desired, as the particular construction of the same forms no material part of the present invention.

4 represents a bracket secured to the cover 3, at one side of the center thereof, and including spaced vertical arms 5, formed at the upper ends with bearings 6. A power-shaft 7 is mounted for revolution on the bearings 6, being provided at the outer end with a crank-handle 8 and at the inner end with a gear 9, a spacing-collar 10 being preferably arranged intermediate the gear and bearing 6, which, together with a fixed collar 11 beyond the other bearing 6, prevents independent longitudinal movement of the shaft.

12 represents a power-wheel fixed on one end of the main shaft 13, mounted in bearings 14, fixed on the cover and projecting in proximity to the gear 9, being provided adjacent said gear with a pinion 15, arranged to

intermesh with the gear, said pinion being preferably protected by a shield 16, extending laterally from one of the arms 5 of the bracket 4.

17 represents what I term a "gear-housing" secured centrally of the cover 3 and formed with a depending boss 18 to engage the wall of a circumferential opening 19, centrally formed in said cover. The housing is preferably of elongated oval shape and wholly closed, except on the side next the gear 9, being there provided with an elongated longitudinally-arranged opening 20, practically coextensive with the vertical wall of the housing. The upper and lower walls of the opening 20 are formed with ribs 21, arranged in vertical alinement and designed to engage with recesses 22, formed in the upper and lower surfaces of a rack-bar 23, whereby said rack-bar is guided in longitudinal movement by the ribs. The lower wall of the housing is extended beyond the rib 21 at 24 to provide an extended bearing for said rack-bar, as clearly illustrated in Fig. 1. The rack-bar extends within the housing and is provided with a longitudinally-arranged row of teeth 25, arranged to mesh with the teeth 26, formed on a sleeve 27, arranged vertically and centrally of the housing, the body of the sleeve below the teeth fitting revolvably within the boss 18, the body of the sleeve above the teeth projecting through an opening 28, formed in the upper wall of the housing, said upper wall being preferably thickened at the bearing-point to properly support the sleeve. The rack-bar is provided at one end with a vertically-extending arm 29, connected, through the medium of a link 30, with the gear 9, being preferably connected adjacent the periphery of said gear, whereby revolution thereof will impart a reciprocating movement to the rack-bar.

31 represents the dasher, arranged within the tub 1 and of any preferred construction. A dasher-shaft 32, square in cross-section, projects vertically from the dasher 31 and slidably engages a square socket 33, formed centrally and vertically of the sleeve 27, whereby said dasher is freely movable in a vertical direction to accommodate itself to the quantity of clothes contained within the tub.

Assuming the parts to be constructed and

arranged as described, the operation of the crank 8 will, through the medium of the gear 9, rapidly reciprocate the rack-bar 24. The reciprocation of the rack-bar rapidly revolves
5 the sleeve 27, with the effect to impart the necessary rotation to the dasher.

It will be noted that the fly-wheel 12 is rapidly revolved under a comparatively slow movement of the power-shaft, owing to the
10 difference in diameter between the gear 9 and the pinion 15, and through this extreme of revolution of said fly-wheel the reversal of the dasher under the influence of the reciprocating rack-bar is accomplished with the
15 minimum of jerking or unsteadiness obviously resulting from the high momentum of the fly or balance wheel.

It will be noted that the dasher-rod 32 is freely movable vertically within the sleeve
20 27, whereby the dasher may accommodate itself automatically to the quantity of clothes within the tub, and will readily yield in an upward or downward direction under the influence of the operating mechanism to avoid
25 breakage in the event of a comparatively large accumulation of clothes immediately beneath the dasher at any time in the operation of the machine.

Having thus described the invention, what is claimed as new is—

In a washing-machine, the combination with a tub and a cover therefor, of a housing mounted upon said cover and provided with a bushing upon its lower side and a boss upon its upper side, a sleeve journaled in said bushing and boss, said sleeve being provided with a rectangular opening extending longitudinally therethrough, a rectangular agitator-shaft mounted in said opening, an agitator mounted upon said shaft, said housing being further provided with a horizontal slot, ribs upon the housing extending into said slot, a rack-bar movable within said slot and provided with recesses engaging said ribs, gear-teeth upon said sleeve engaging the rack-bar, an upright upon the outer side of said rack-bar, a crank-wheel mounted upon the cover, a link connecting said crank-wheel with said upright and means to rotate said crank-wheel.

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

SAMUEL McGRANAHAN.

Witnesses:

FRANK NEAL,
CHARLES W. NEAL.