No. 638,180. Patented Nov. 28, 1899.

W. G. GIBBINS.

WASHING MACHINE.

(Application filed Nov. 7, 1898.)

(No Model.) 4 Sheets—Sheet 1.

Fig. 3.

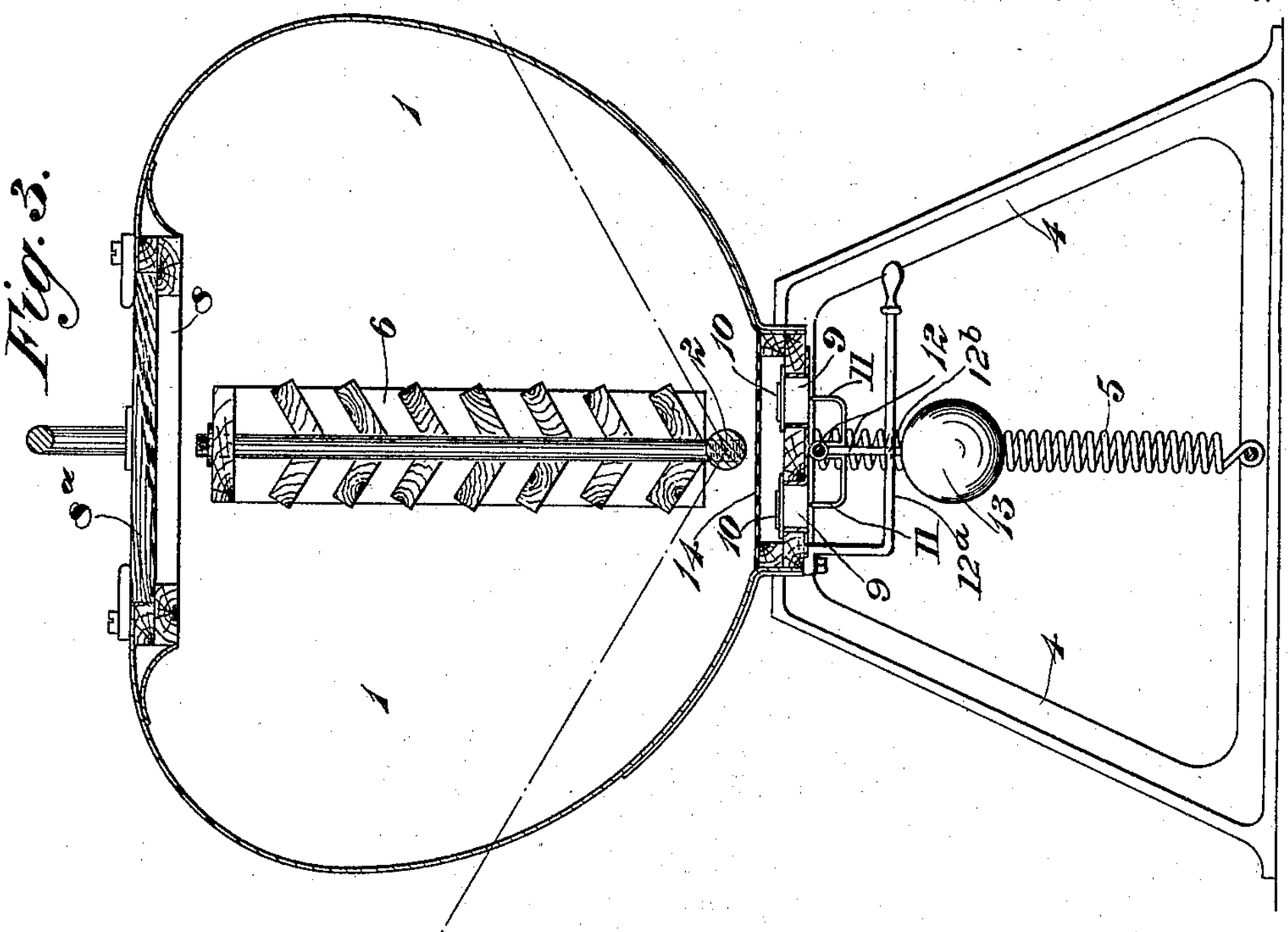
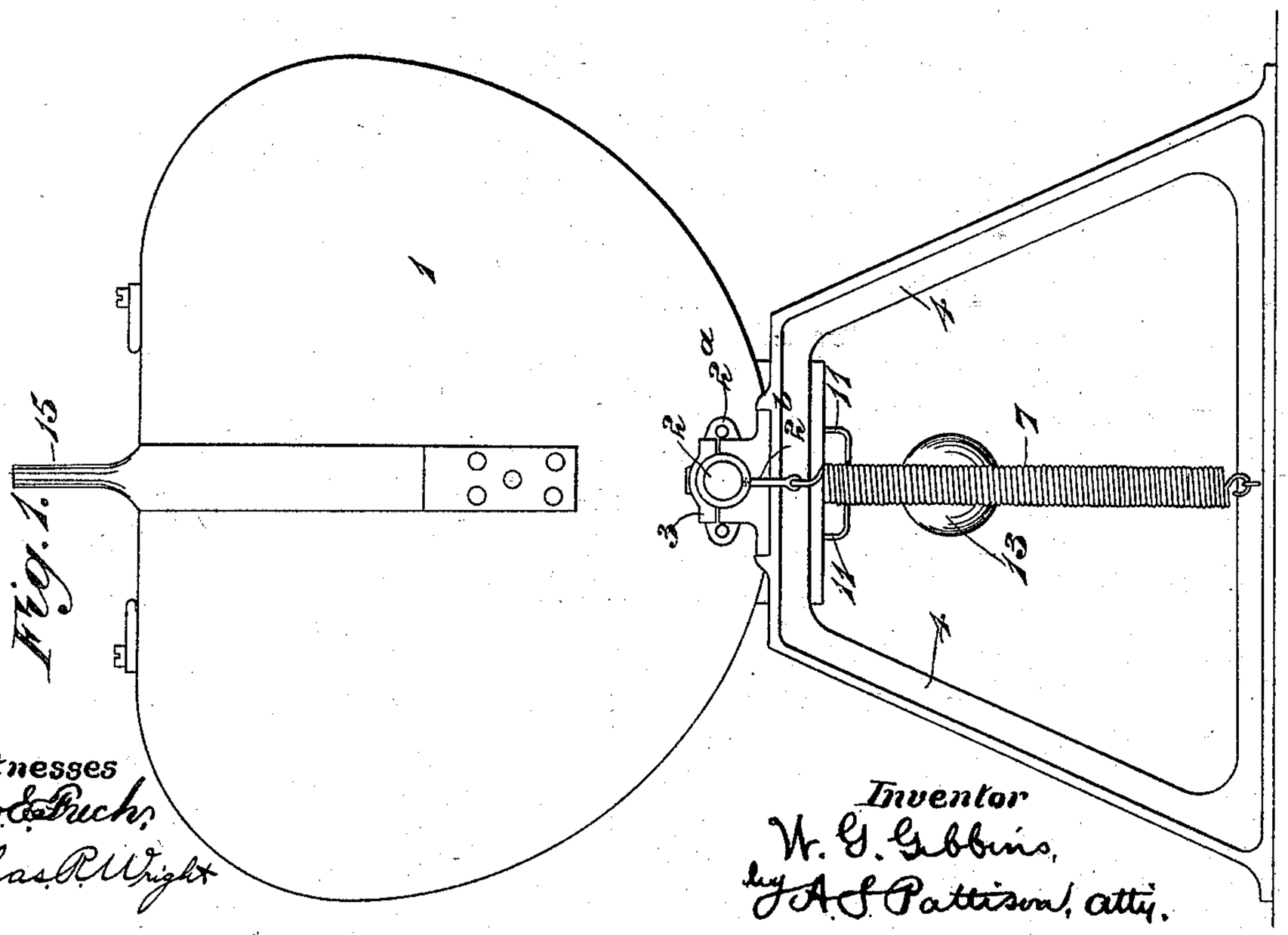


Fig. 4.



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4 Sheets—Sheet 2.

Fig. 4.

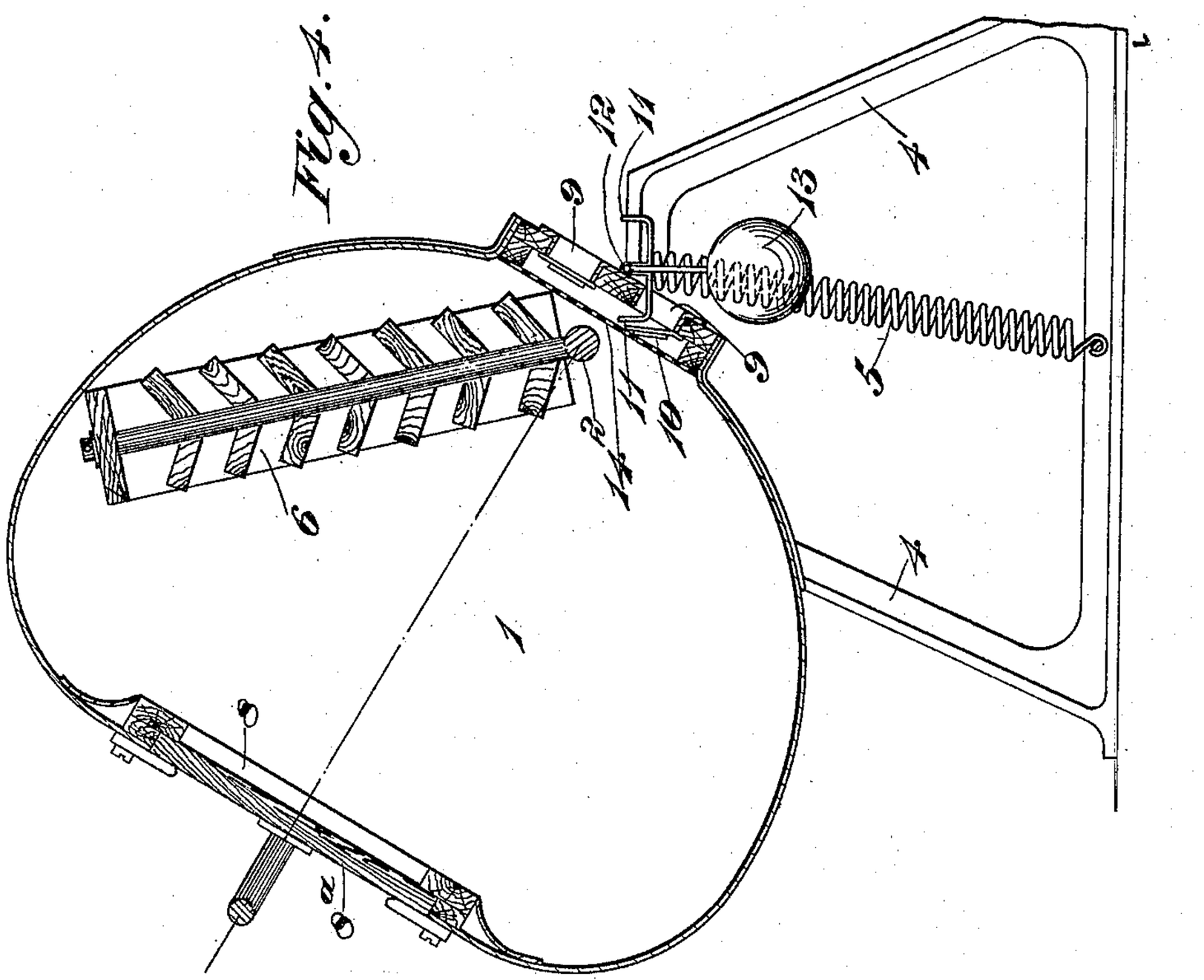
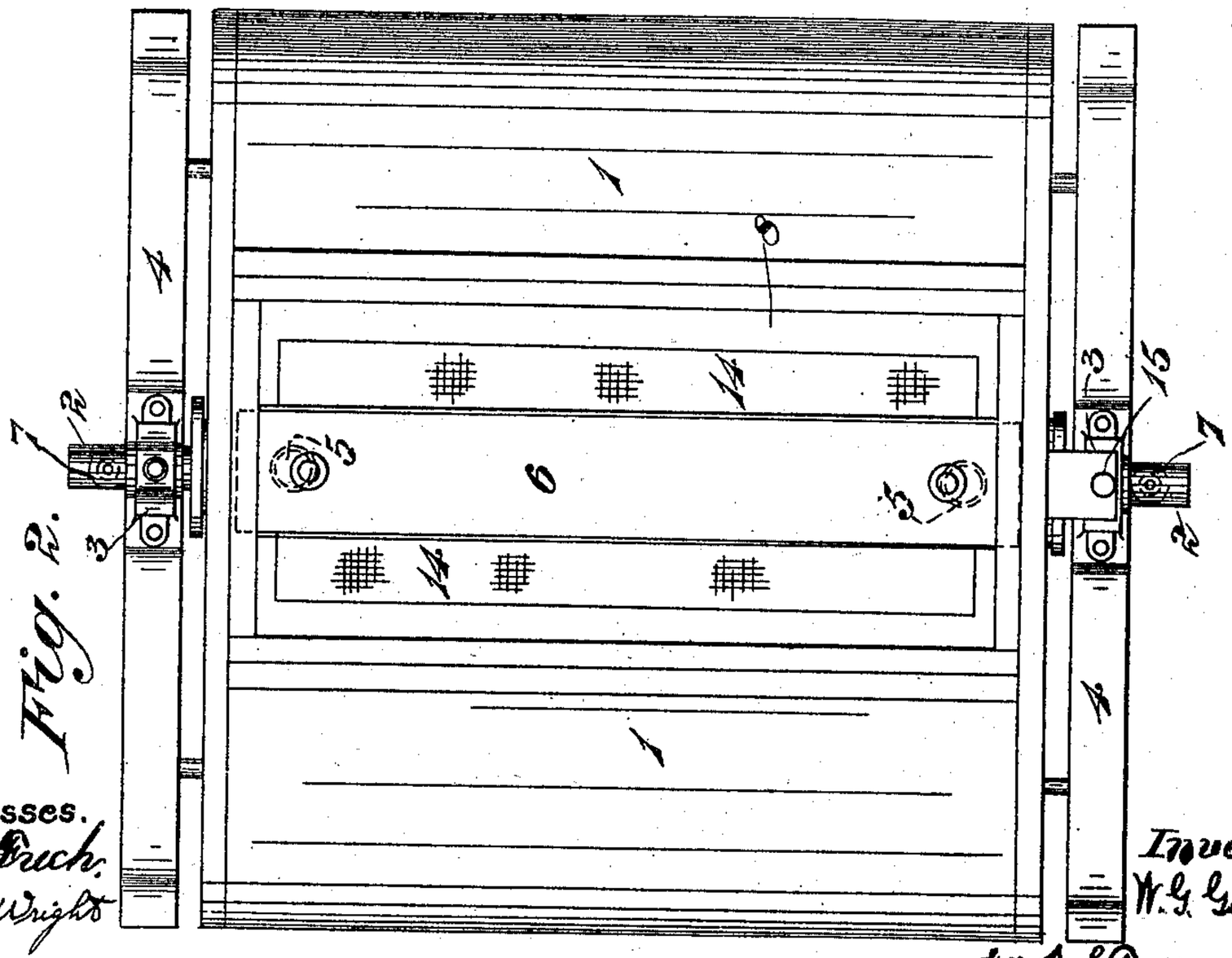


Fig. 2.



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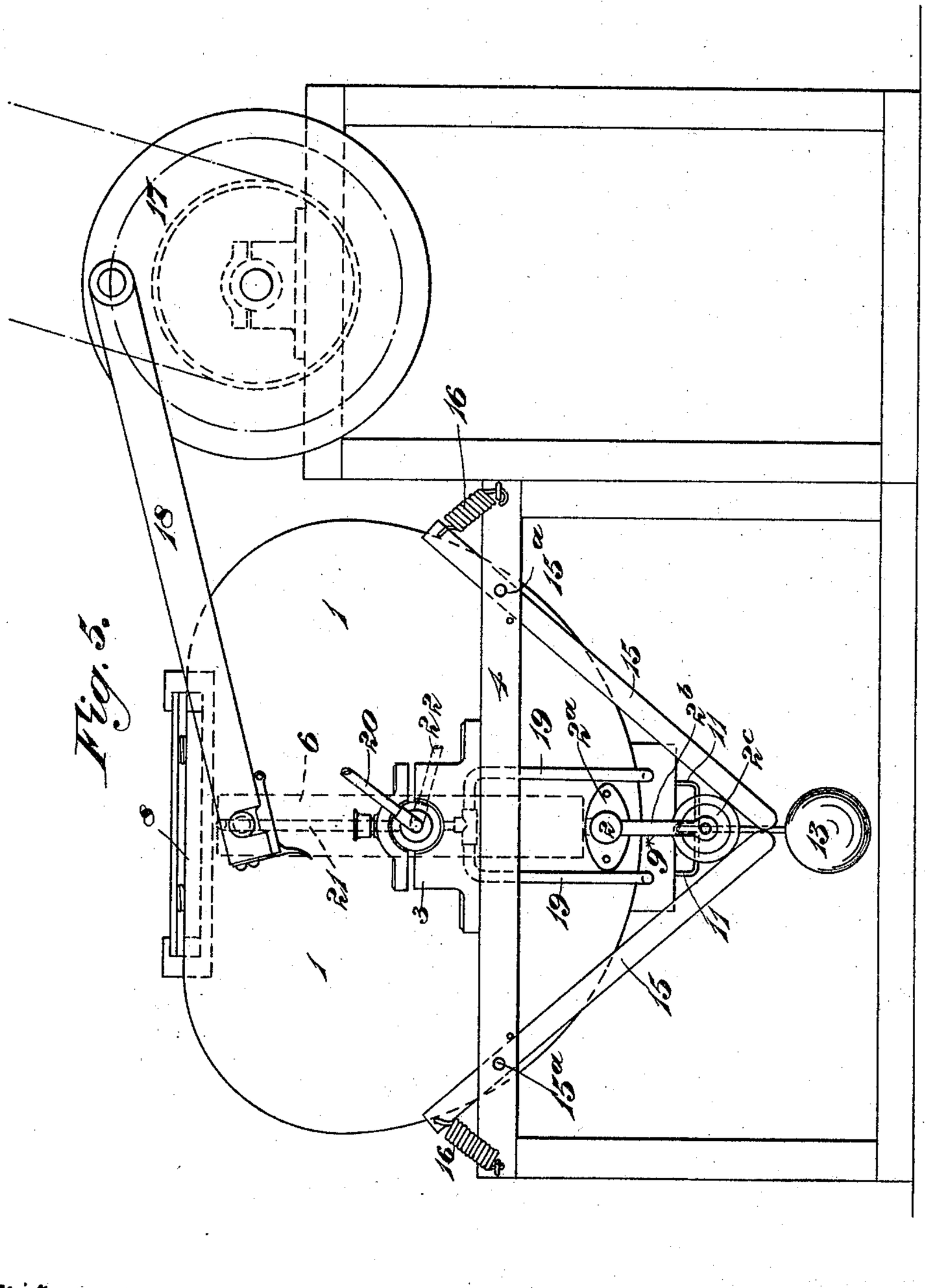
(No Model.) 4 Sheets—Sheet 3.



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WASHING MACHINE.

(Application filed Nov. 7, 1898.)

(No Model.) 4 Sheets—Sheet 4.

Fig. 6.

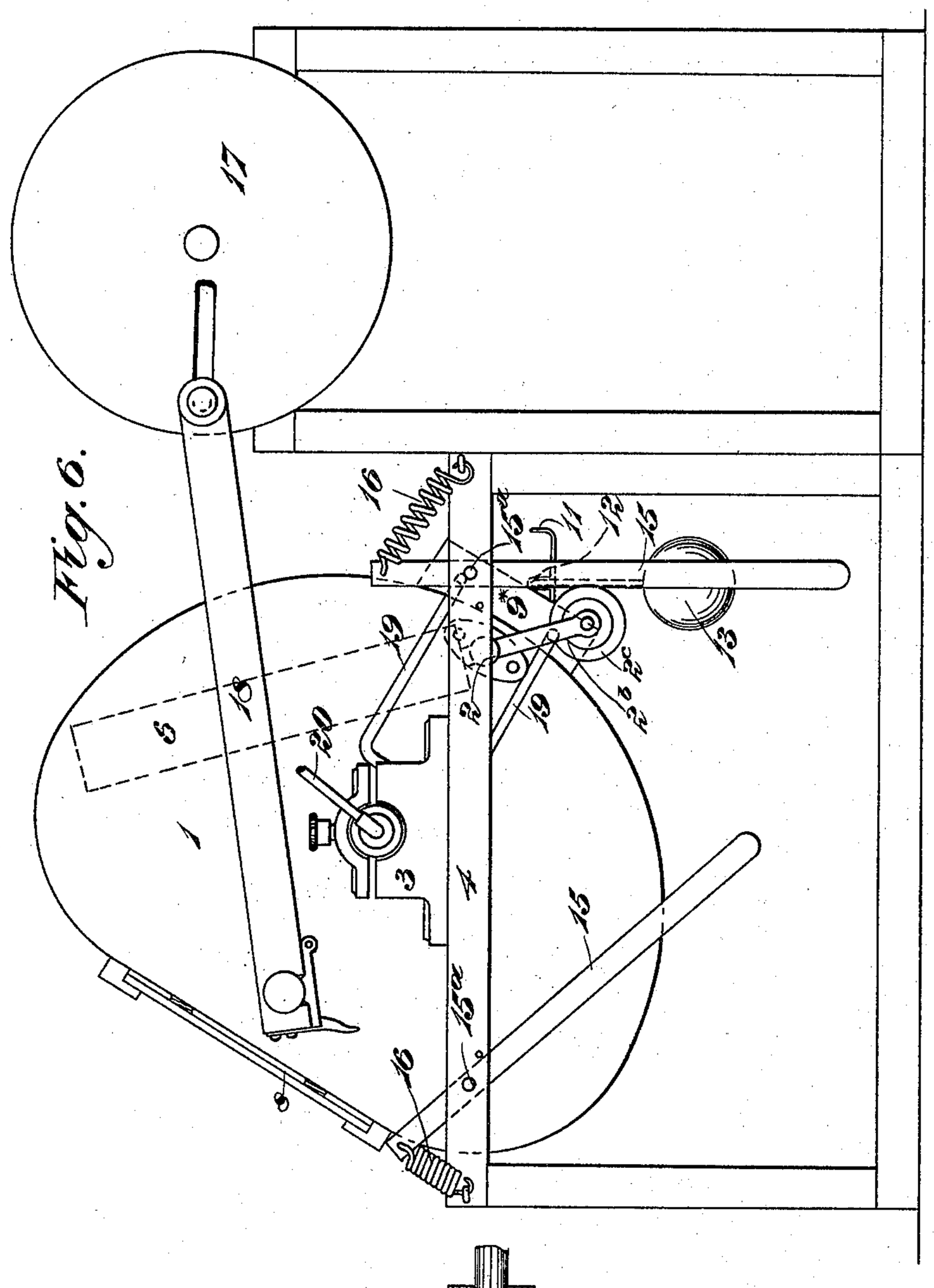
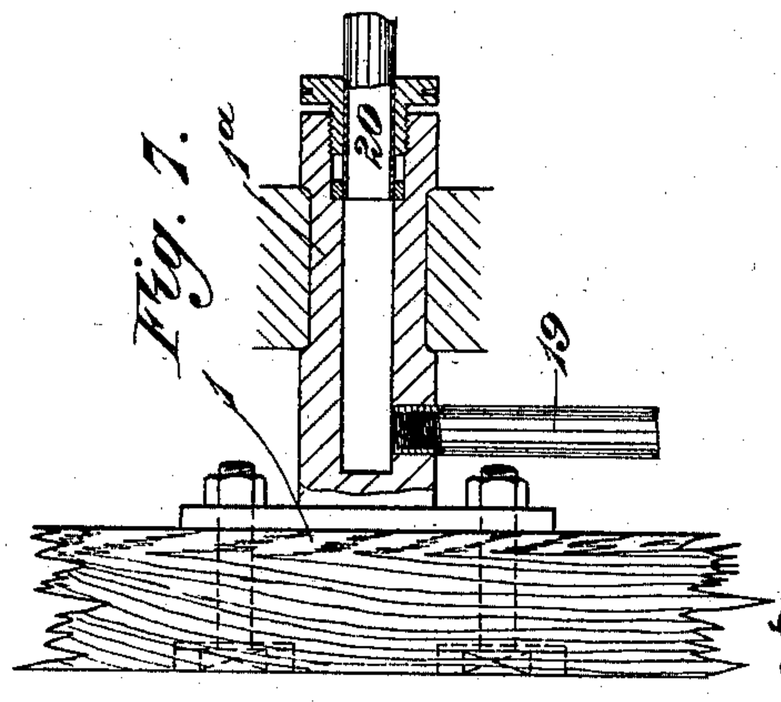


Fig. 7.



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UNITED STATES PATENT OFFICE.

WILLIAM GEORGE GIBBINS, OF LONDON, ENGLAND.

WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 638,180, dated November 28, 1899.

Application filed November 7, 1898. Serial No. 695,725. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM GEORGE GIBBINS, a subject of the Queen of Great Britain and Ireland, residing at Leytonstone, London, in the county of Essex, England, have invented Improvements in Washing-Machines, of which the following is a specification.

This invention has reference to improvements in washing-machines, the object being to so construct such machines that the goods to be washed shall be alternately immersed in the cleansing liquid, so as to become charged therewith, and squeezed, the dirty liquid from the goods being allowed to escape from the machine as soon as it is squeezed from the goods.

Referring to the accompanying drawings, Figure 1 is an end elevation of a machine according to this invention suitable for working by hand. Fig. 2 is a plan with the cover removed; and Figs. 3 and 4 are cross-sections thereof, showing the vessel in different positions. Figs. 5 and 6 are similar end elevations of a power-machine according to this invention. Fig. 7 is a detail view hereinafter referred to.

In one arrangement suitable for working by hand the vessel is mounted so as to be capable of oscillating about a horizontal axis or shaft 2, that passes through stuffing-boxes and glands 2^a into the lower part of the vessel 1 and that is mounted in suitable bearings 3 on the frame 4 of the machine. The vessel is counterbalanced or provided with springs 5, so as to normally rest in an upright position. On the shaft 2 is fixed a partition or division-plate 6, which is preferably formed of two sets of louvers arranged side by side at a short distance apart and downwardly inclined toward each other, as shown. The partition 6 has imparted to it by a spring 7, attached outside the vessel to an arm 2^b on the said shaft, a tendency to maintain a vertical attitude. The vessel is formed at its upper part with an inlet-opening 8, fitted with a door 8^a, and at its bottom with outlet-openings 9, each provided with a valve 10, adapted to be intermittently opened during the oscillation of the vessel by an arm or abutment 11, which is carried by a pin 12, hinged to the bottom of the vessel 1 and controlled by a weight 13. Above the valves 10 a perforated plate 14 may be provided to prevent the goods being washed interfering with the working of the valve or valves. Attached to the vessel 1 is a handle 15, by which it may be rocked. With such an arrangement if the vessel 1 be charged with cleansing liquid and goods be placed on either side of the partition 6 as the vessel is rocked about the shaft 2 to the position shown in Fig. 4 the goods on the right-hand side will be squeezed between the partition and the adjacent wall of the vessel. The dirty liquid squeezed from them will pass down between the louvers and through the perforated plate 14 to the outlets 9, the valves 10 of which will be opened at the required times by the arm or abutment 11, so as to allow the escape of the dirty liquid, and thus prevent it mixing with the rest of the liquid. Meanwhile the goods on the other side of the partition will fall into the for the time being lowermost part of the vessel 1, and the liquid at the same time in rushing to that part of the vessel will turn the goods over, so as to present a different surface to be squeezed, the vessel being, as shown, formed with sides curved with gradually-decreasing radii toward their upper parts for this purpose. During this time the goods will become charged with liquid, which will be squeezed out again and discharged through the valve 10 during the return movement of the vessel, the goods being then squeezed between the left-hand side of the partition 6 and the wall of the vessel. This action will be continued until practically all the liquid has been discharged from the vessel. For holding the arm or abutment 11 out of action when required, so as to enable the escape of liquid to be prevented until the dirt or other matter to be removed from the goods has been softened sufficiently to allow it to be squeezed out with the water, means, such as a notched bar 12^a, pivoted at one end to the vessel 1 and formed with a notch 12^b, is provided to engage with the pin 12.

In the power-machine (illustrated in Figs. 5, 6, and 7) the vessel 1 is provided with trunnions 1^a, which rest in the bearings 3, and the partition 6 is carried by a shaft 2, that extends across the interior vessel 1, passing through the stuffing-boxes and glands 2^a to the exterior of the vessel, where it is pro-

vided with an arm 2^b, that carries an anti-friction-roller 2^c, which when the vessel is rocked bears alternately against two levers 15, pivoted at 15^a to frame of the machine and normally held in the position shown in Fig. 5 by springs 16. The arrangement is such that the spring-actuated levers tend to keep the partition 6 in an approximately vertical attitude, while allowing it to move from side to side with the vessel 1. The tension of the springs 16 is such as to give the required squeeze to the goods being washed. The vessel is rocked through a suitably-driven crank-disk 17 and connecting-rod 18, which is preferably formed with a gab, so that it can be easily disconnected from the vessel to enable the latter to be turned completely over and the goods contained in it discharged. The trunnion 1^a at one end of the vessel 1 is hollow, as shown in Fig. 7, and is fitted with a forked branch pipe 19, that passes down the outside of and under the vessel 1 to a recess or well 9 in the bottom thereof. When it is desired to boil goods within the vessel, steam is supplied thereto through the trunnion and pipe 19 from a pipe 20, that is fitted with a controlling-valve. (Not shown.) The other trunnion is also made hollow and is fitted with a branch pipe 21, to which water is supplied through the trunnion by a pipe 22, the water being discharged into the vessel 1 above the partition 6. The pipe 22 is fitted with a cock (not shown) for controlling the water-supply. It is sometimes desirable to be able to vary the extent to which the vessel 1 is rocked, and for this purpose the crank-pin may be made adjustable toward and from the center of the crank-disk 17 along a radial slot therein, as is shown in Fig. 6.

What I claim is—

1. A washing-machine comprising an oscillating or rocking vessel, adapted to contain the goods to be washed and cleansing liquid, formed with sides of gradually-decreasing radii toward the upper parts, provided with openings in the lower part of said vessel, valves over the openings, means for opening said valves intermittently, and a partition mounted within said vessel so as to be capable of oscillation as set forth.

2. A washing-machine comprising an oscillating vessel, adapted to contain the goods to be washed and cleansing liquid, formed with sides of gradually-decreasing radii toward the upper parts—provided with openings in the lower part of said vessel, valves over the openings, means for opening said valves intermittently, a shaft passing through said vessel, a partition within said vessel having its lower side secured to said shaft, said partition being capable of oscillation as set forth.

3. A washing-machine comprising an oscillating or rocking vessel adapted to contain the goods to be washed and cleansing liquid and having a valved opening, means for intermittently opening same and a partition mounted within said vessel so as to be capable of oscillation therewith but having a tendency to maintain a vertical attitude, as set forth.

4. A washing-machine comprising an oscillating or rocking vessel formed with valved openings in its lower part, a shaft passing through the lower part of said vessel and carrying a partition and means external to said vessel allowing said partition to oscillate but having a tendency to maintain it in a vertical attitude as set forth.

5. A washing-machine comprising an oscillating or rocking vessel having openings in its lower part, valves over the openings, means for opening said valves intermittently, a shaft passing through the walls of said vessel, a partition carried by said shaft and means external to said vessel for imparting to said partition a tendency to maintain a vertical attitude as set forth.

6. A washing-machine comprising a vessel having valved discharge-openings in its lower part, balanced abutments adapted to open said valves, means for oscillating said vessel, a shaft passing through the lower part thereof and carrying a partition located within said vessel, yielding means tending to maintain said partition in a vertical attitude as set forth.

7. A washing-machine comprising a vessel having valved discharge-openings in its lower part, means for oscillating said vessel, means for supplying water thereto during working, abutments adapted to open the valved discharge-openings at the required time during each oscillation, a partition located within said vessel and yielding means tending to maintain said partition in a vertical attitude, substantially as set forth.

8. A washing-machine comprising a vessel having sides of gradually-decreasing radii toward their upper parts—valved discharge-openings in the lower parts, means for oscillating said vessel and adapted to be easily disconnected therefrom, means for supplying water and steam thereto simultaneously, abutments adapted to open the valved discharge-openings at the required period of oscillation, a partition located within said vessel and yielding means tending to maintain said partition in a vertical attitude, as set forth.

9. A washing-machine comprising an oscillating vessel 1 with valved discharge-openings 9, abutments 11, louver-board partition 6 carried by a shaft 2 passing through lower part of the vessel 1, and yielding means for maintaining said partition in a vertical attitude as set forth.

Signed at 2 Pope's Head Alley, Cornhill, London, England, this 24th day of October, 1898.

WILLIAM GEORGE GIBBINS.

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PERCY E. MATTOCKS.