

No. 653,430.

Patented July 10, 1900.

F. H. WIARD.  
WASHING MACHINE.

(Application filed Sept. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.

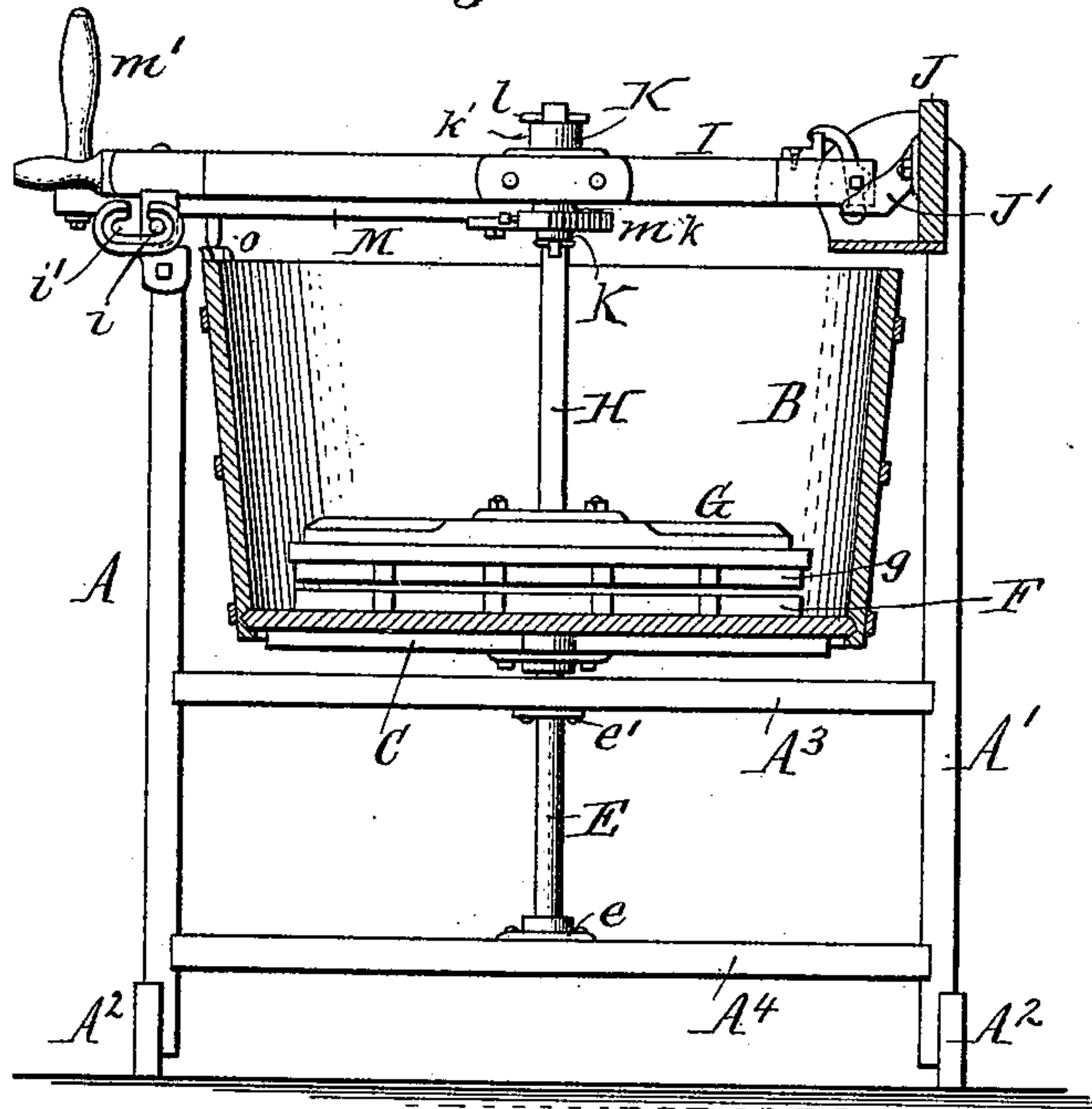
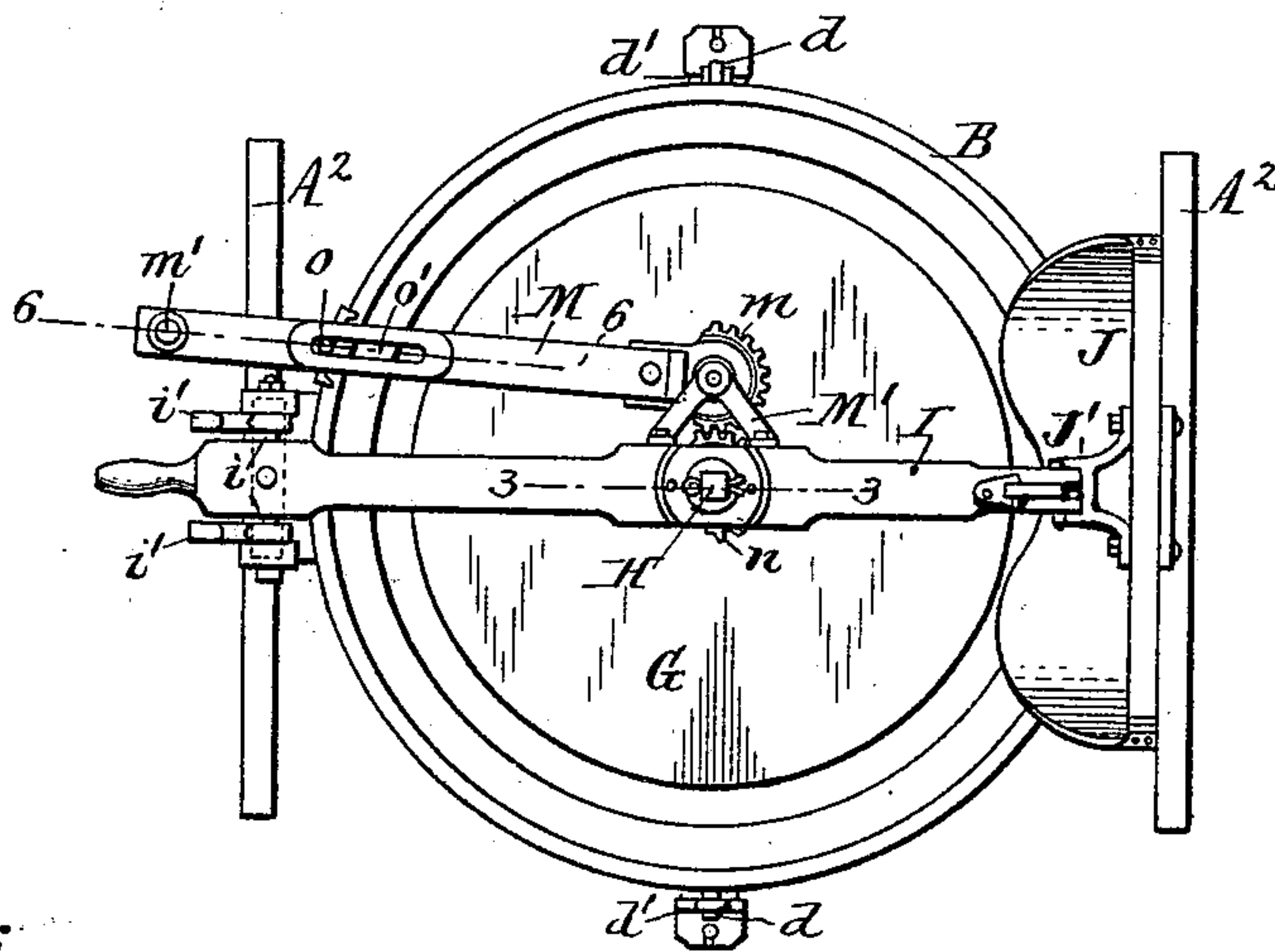


Fig. 2.



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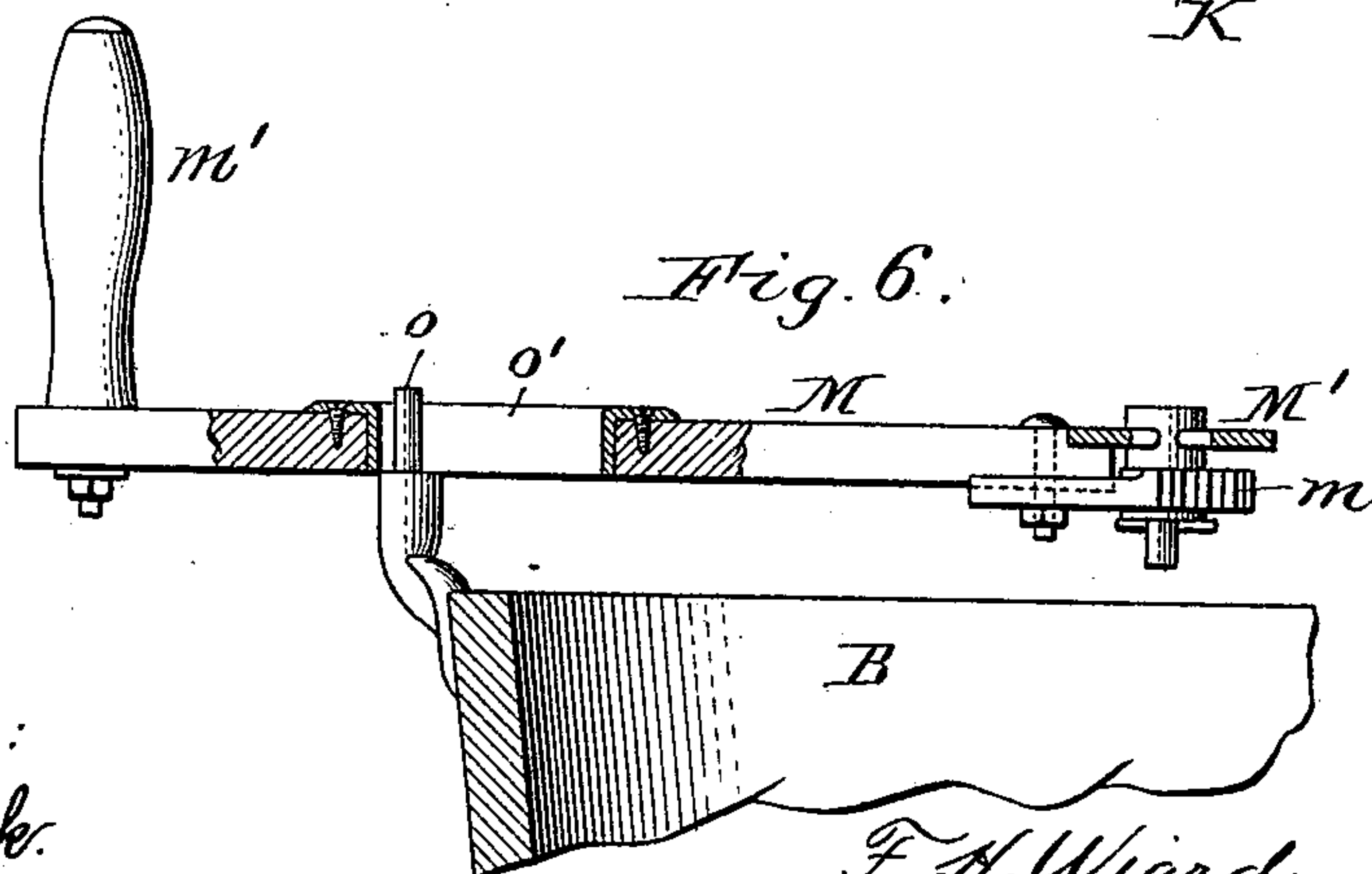
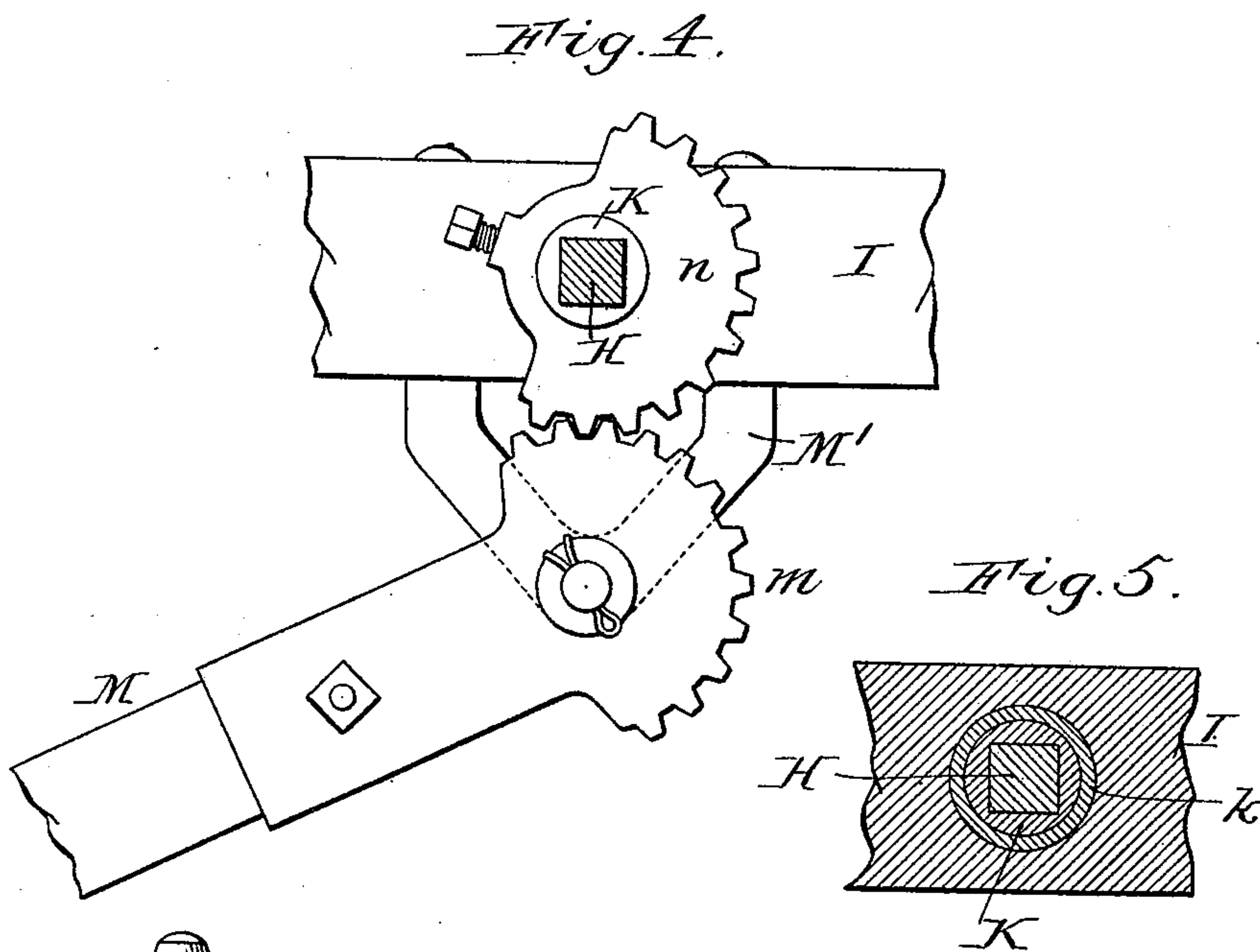
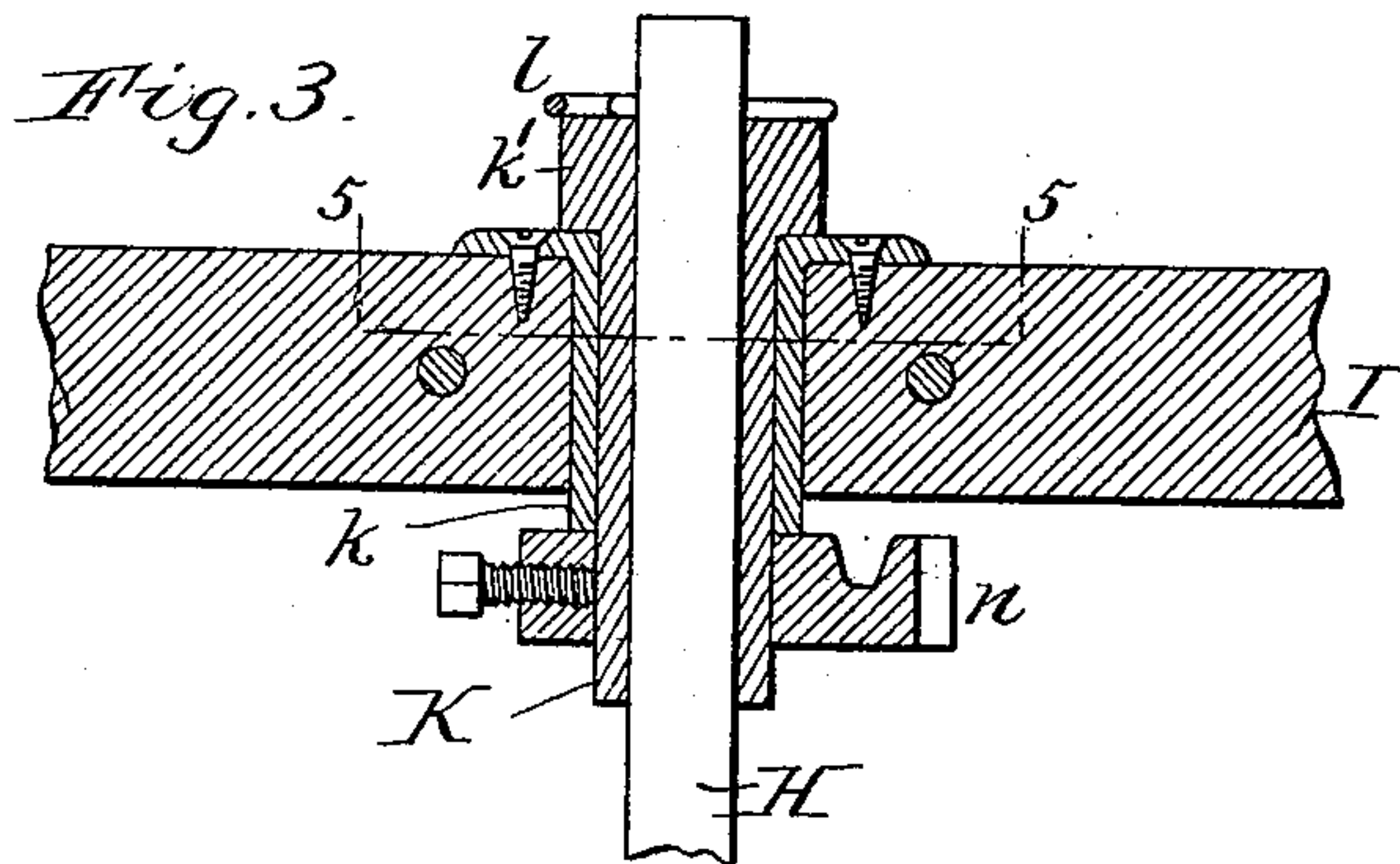
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F. H. Wiard Inventor.  
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# UNITED STATES PATENT OFFICE.

FREDERICK H. WIARD, OF EAST AVON, NEW YORK.

## WASHING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 653,430, dated July 10, 1900.

Application filed September 25, 1899; Serial No. 731,676. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK H. WIARD, a citizen of the United States, residing at East Avon, in the county of Livingston and State of New York, have invented a new and useful Improvement in Washing-Machines, of which the following is a specification.

This invention relates to that class of washing-machines which consist of an oscillating tub provided in its bottom with a ribbed or roughened surface forming a lower rubber, an upper oscillating head or rubber arranged in the tub and coöperating with the lower rubber carried by the tub, and means for oscillating the tub and the upper rubber in opposite directions.

The invention has particular reference to a machine in which the tub and the upper rubber are both operated from a horizontally-swinging hand-lever.

The object of my invention is to provide the machine with a simple and inexpensive operating mechanism of this character which affords a long and advantageous leverage and in which the hand-lever has a comparatively-long stroke and which at the same time permits the upper rubber to accommodate itself freely to the quantity of clothes placed in the tub and to always bear upon the same irrespective of whether a greater or less number of pieces are placed in the tub.

In the accompanying drawings, consisting of two sheets, Figure 1 is a sectional elevation of a washing-machine embodying my invention. Fig. 2 is a top plan view thereof. Fig. 3 is a fragmentary vertical section, on an enlarged scale, in line 3 3, Fig. 2. Fig. 4 is a bottom plan view, on an enlarged scale, of the central portion of the yoke, the hand-lever, and the gearing which connects the lever with the shaft of the upper rubber. Fig. 5 is a horizontal section in line 5 5, Fig. 3. Fig. 6 is a vertical section, on an enlarged scale, in line 6 6, Fig. 2.

Like letters of reference refer to like parts in the several figures.

The stationary frame of the machine is composed of a pair of standards or uprights A A', having feet A<sup>2</sup>, and upper and lower cross-pieces A<sup>3</sup> A<sup>4</sup>, which connect the lower portions of said standards.

B is the tub or vessel for receiving the clothes, which is preferably removably supported upon an oscillating platform C, arranged above the upper cross-piece A<sup>3</sup> of the frame. The tub is compelled to turn with this platform by any suitable means, the devices shown in the drawings consisting of horizontal pins *d*, projecting from diametrically-opposite sides of the tub, near its bottom, and engaging between the jaws of bifurcated upright lugs *d'*, secured to the adjacent portions of the platform. The platform is secured to the upper end of a vertical shaft E, which is supported at its lower end in a step-bearing *e*, arranged on the lower cross-piece A<sup>4</sup>, and is journaled near its upper end in a bearing *e'*, arranged on the upper cross-piece A<sup>3</sup>.

F represents raised ribs or bars secured to the upper side of the tub-bottom and forming with said bottom the lower rubber of the machine.

G is the upper rubber, arranged in the tub B and consisting of a circular head provided on its under side with ribs or bars *g*. This rubber is rigidly secured to the lower end of a vertical shaft H, arranged axially in the tub and suspended from a cross-bar or yoke I, which extends diametrically across the top of the tub. This yoke is preferably hinged at one end to the upper end of the adjacent standard A, as shown at *i*, so that the yoke and the rubber G, carried by the same, can be swung upwardly out of the way for placing the clothes in the tub and removing the same. The free end of the yoke is detachably connected with the adjacent standard A' by any suitable lock or catch. When a wringer-board J is secured to the standard A', as shown in the drawings, the free end of the yoke is preferably seated in a bracket J', secured to the inner side of said board, and the pivot pin or pins *i* of the yoke are arranged to slide in horizontally-slotted lugs *i'*, secured to the standard A, so that after releasing the yoke at its free end it can be slid lengthwise sufficiently to clear the wash-wringer mounted on the wringer-board. The shaft H of the upper rubber is capable of sliding vertically in a cylindrical bearing-sleeve K, which turns freely in a bushing *k*, secured in a central opening of the yoke I, as shown in Fig. 3, so that the



rubber can accommodate itself to the quantity of clothes in the tub. The shaft H, while free to slide in the sleeve K, is compelled to turn therewith by any suitable means. I prefer to make the shaft square for this purpose and provide the sleeve with a corresponding bore, as shown in Fig. 5. The shaft H is prevented from slipping downwardly out of the sleeve K by a cotter or cross pin *l*, secured to the upper end of the shaft or by any other suitable means.

M is a horizontally-swinging hand-lever whereby the tub and the upper rubber G are oscillated. This hand-lever is pivoted near its inner end to a bracket M', secured to the central portion of the yoke, and is provided at its inner end with a horizontal gear-segment *m*, which meshes with a similar gear-segment or pinion *n*, secured to the lower end of the bearing-sleeve K, so that upon moving the hand-lever back and forth the upper rubber G is oscillated through the medium of the gear-segments, but in a direction contrary to that of the hand-lever. The latter extends outwardly beyond the side of the tub and the frame of the machine and is provided at its free end with an upwardly-projecting handle *m'*. The bracket M' projects laterally from one side of the yoke I and is preferably arranged directly opposite the shaft of the upper rubber G, so that the pivot of the lever is located centrally between the standards A A', as shown in Fig. 2.

The bearing-sleeve K is held against downward displacement in the yoke I by a head or flange *k'*, formed at its upper end and resting upon the flanged upper end of the bushing *k*, and against upward displacement by the gear-segment *n*, secured to the lower end of the sleeve.

The tub is oscillated from the hand-lever M by a vertical pin *o*, which is secured to one side of the tub, at the top thereof, and which projects upwardly into a slot *o'*, formed lengthwise in the lever between its ends, as shown in Figs. 2 and 6, whereby the tub is compelled to take part in the oscillating movements of the lever. By this construction the tub is oscillated to the same extent as the hand-lever and in a direction contrary to that of the upper rubber.

By fulcruming the hand-lever M on the centrally-located bracket M' of the yoke a long stroke of the lever is afforded, which extends from the standard A, to which the yoke is hinged, to the spout of the wringer-board J at the opposite side of the machine, thereby

producing a correspondingly-long range of oscillation of the rubbers F and G.

The upper rubber G, the hand-lever M, and the intermediate gearing *m n* are all carried by the yoke I and are swung upwardly with the yoke when the same is raised. The lower rubber, although it remains in constant engagement with its actuating-gearing, is not restrained in its vertical movement by the gearing, but is free to rise to the top of the tub when the same is filled with clothes or descend to the bottom thereof when but a few garments are placed in the tub, thus always bearing upon the clothes and effectively rubbing the same, regardless of whether the tub is partly or wholly filled.

My improved actuating device, while rendering the machine easy of operation and efficient in action, is very simple and compact in construction and can be cheaply manufactured.

In the drawings the gear-segments *m n* are represented as being of the same radius; but, if desired, they may be differently proportioned for obtaining a greater or less oscillating movement of the upper rubber relatively to the stroke of the hand-lever.

I do not wish to claim in this application the peculiar construction of the sliding-hinge connection between the yoke and the stationary frame of the machine, as that feature is claimed in another application filed by me October 10, 1898, Serial No. 693,098.

I claim as my invention—

In a washing-machine, the combination with a stationary frame and an oscillating tub supported therein and provided at one side with an upright pin, of a yoke attached to said frame and extending across the top of the tub, an oscillating rubber arranged in the tub, an upright shaft carrying the rubber and journaled in said yoke and provided with a horizontal gear-segment, a bracket projecting laterally from the central portion of said yoke, and a horizontally-swinging hand-lever pivoted to said bracket and having at its inner end a gear-segment which meshes with the gear-segment of the rubber-shaft and provided between its ends with a longitudinal slot in which the upright pin of the tub engages, substantially as set forth.

Witness my hand this 15th day of September, 1899.

FREDERICK H. WIARD.

Witnesses:

HENRY GALLUP,  
JOHN T. COLE.