

No. 653,357.

J. A. MONTGOMERY.
COAL JIGGER.

Patented July 10, 1900.

(No Model.)

(Application filed Mar. 10, 1900.)

3 Sheets—Sheet 1.

Fig. 1

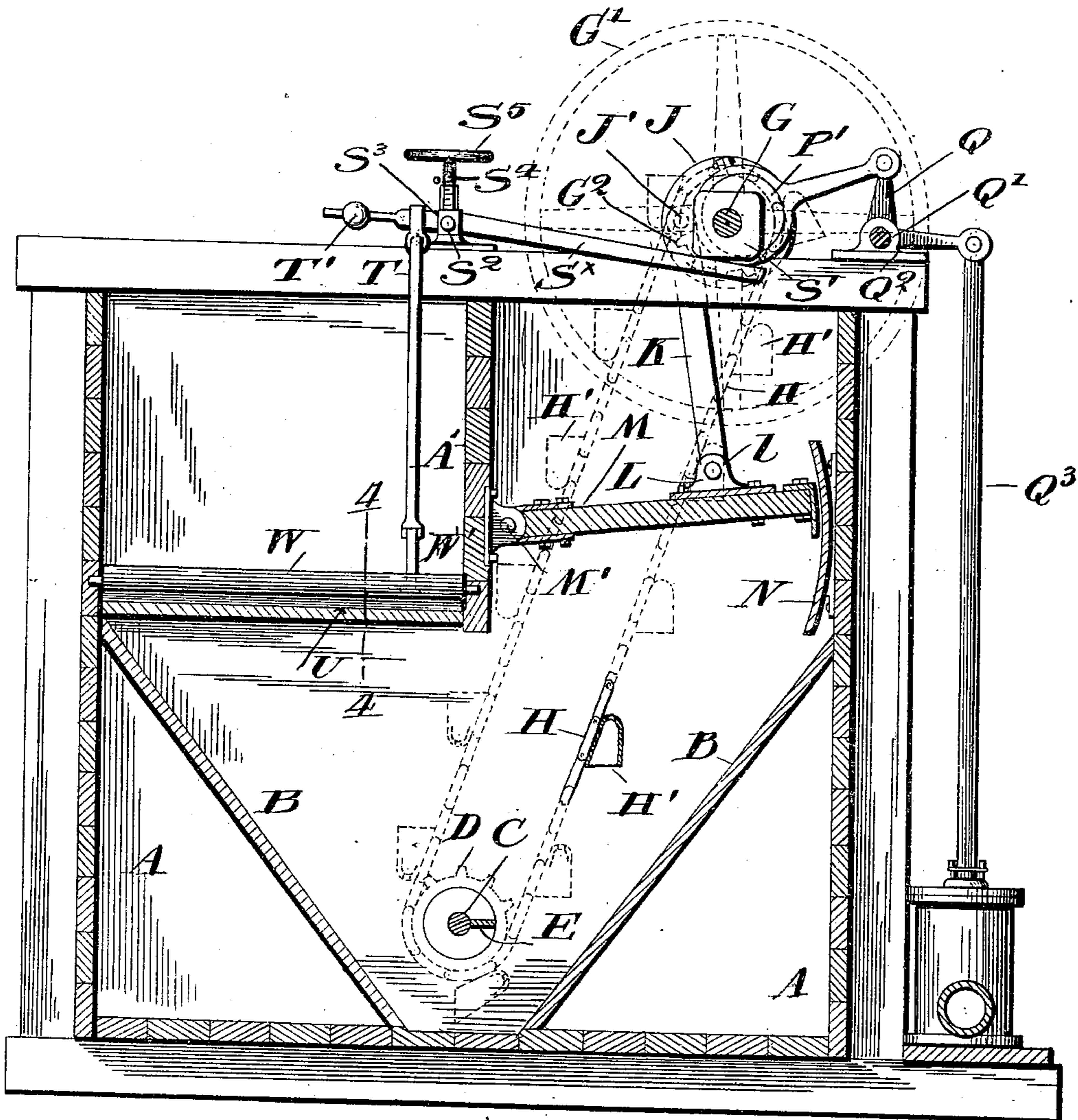
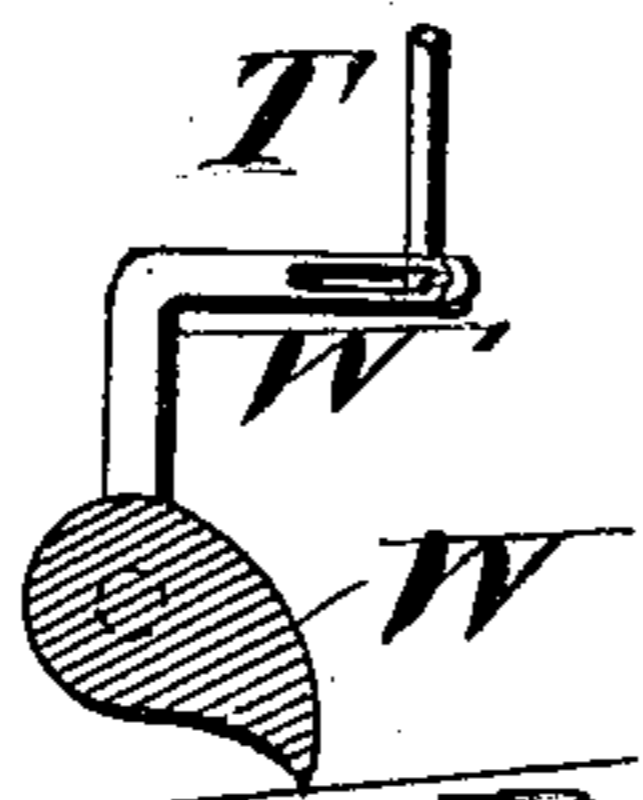


Fig. 4



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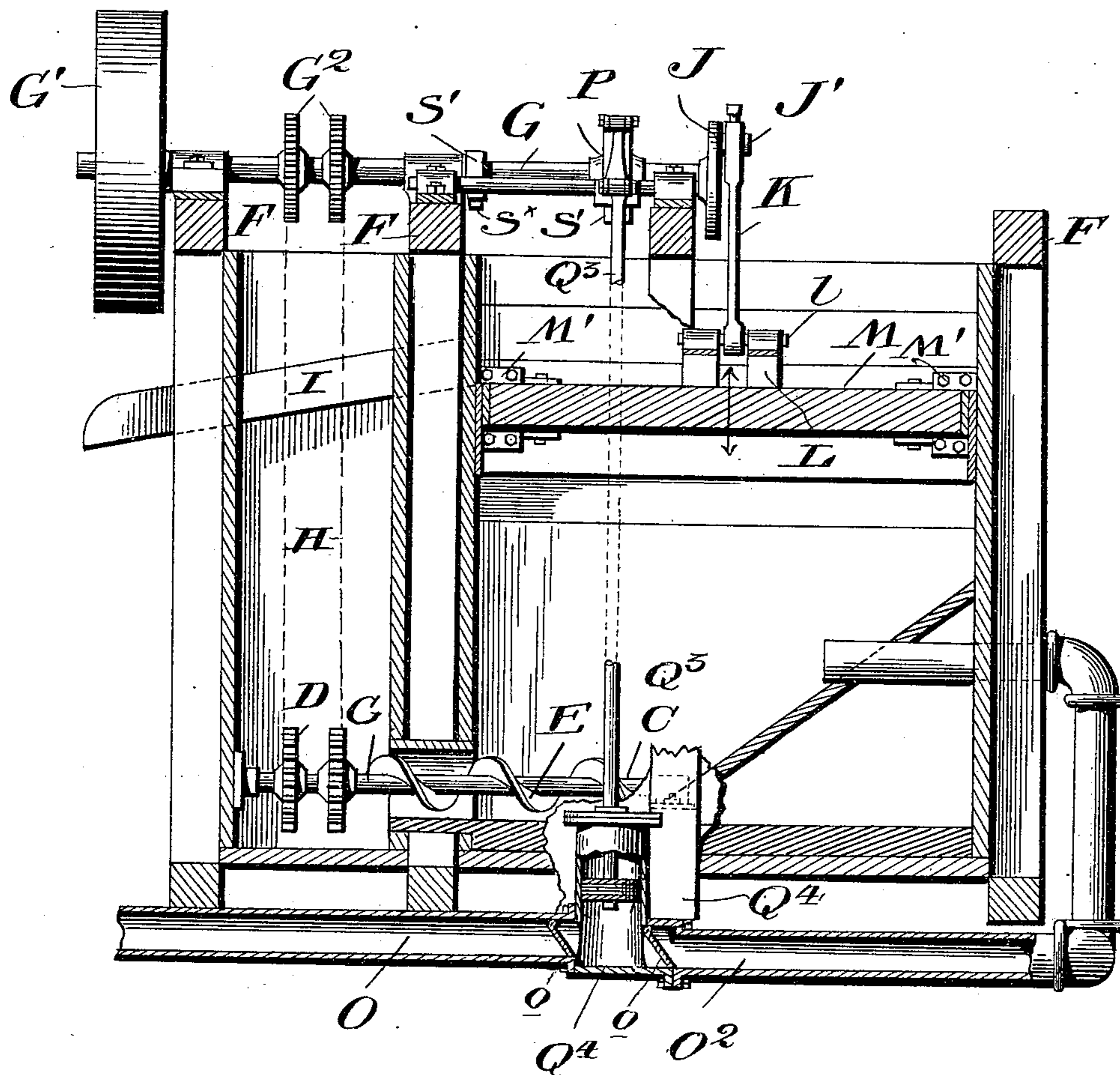
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Fig. 2.



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Fig. 3.

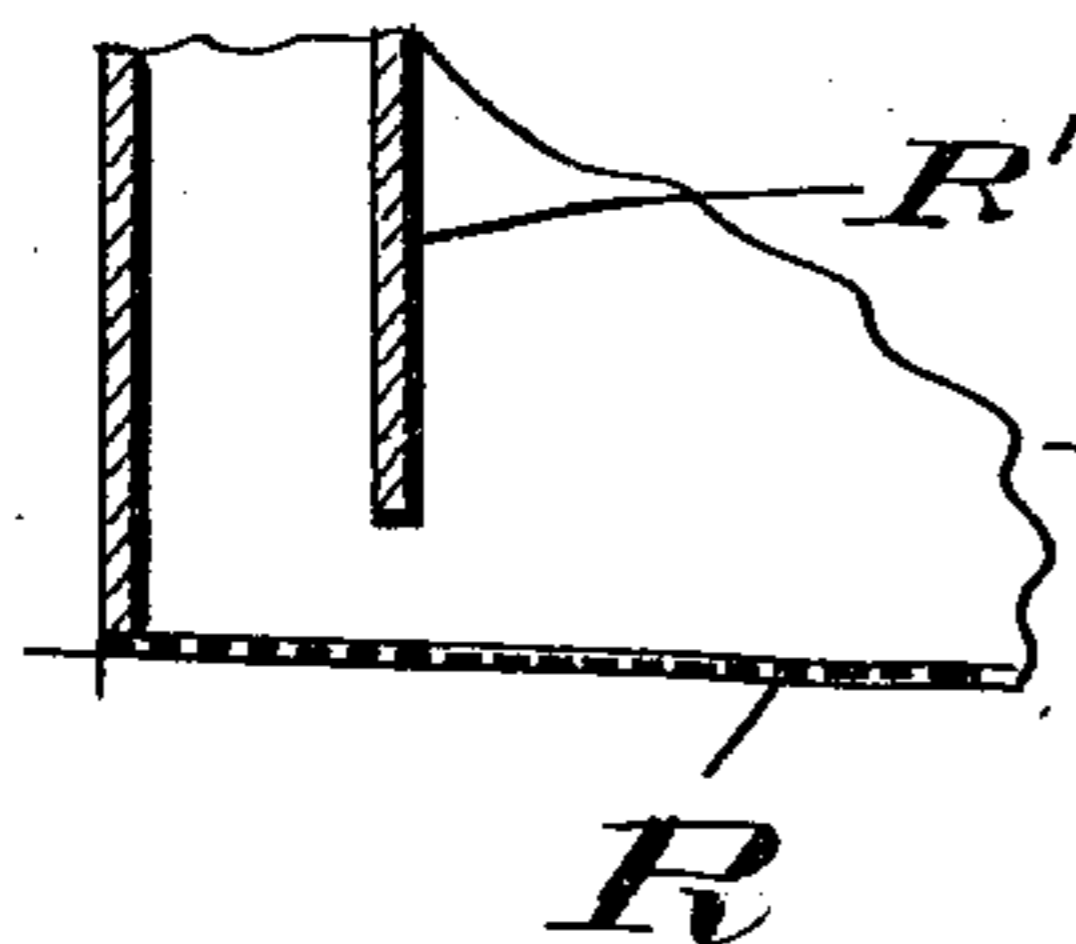
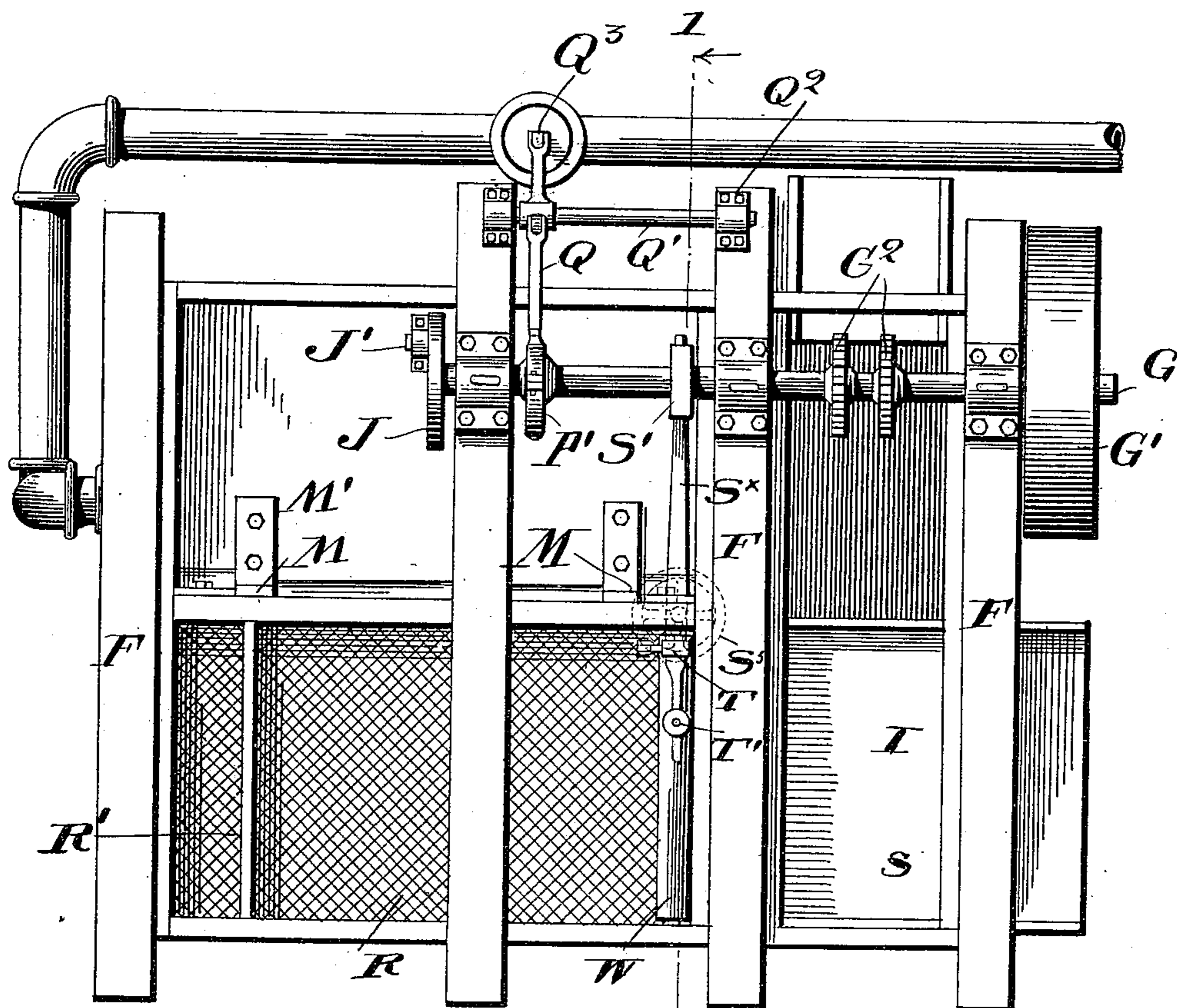


Fig. 3^a

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UNITED STATES PATENT OFFICE.

JAMES ALEXANDER MONTGOMERY, OF BROOKWOOD, ALABAMA, ASSIGNOR
OF ONE-HALF TO MURRAY S. HITCHCOCK, OF SAME PLACE.

COAL-JIGGER.

SPECIFICATION forming part of Letters Patent No. 653,357, dated July 10, 1900.

Application filed March 10, 1900. Serial No. 8,218. (No model.)

To all whom it may concern:

Be it known that I, JAMES ALEXANDER MONTGOMERY, a citizen of the United States, residing at Brookwood, in the county of Tuscaloosa and State of Alabama, have invented certain new and useful Improvements in Coal-Jiggers; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in coal-jiggers, and especially to a machine whereby the coal and slate may be separated, the latter being conveyed away from a suitable settling-tank, while the coal which is separated from the slate as the water is forced through the screen on which the coal and slate are contained passes down an inclined trough into a settling-compartment.

More specifically, the invention consists in the provision of a coal-jigger in which a pivoted plunger is provided for forcing the water through the coal-screen to separate the coal from the slate and the provision of a rocking gate adjacent to one end of the screen, whereby the slate is allowed to pass through the slate-outlet and into the compartment from which it is conveyed by an endless carrier to a slate-dumping chute.

To these ends and to such others as the invention may pertain the same consists, further, in the novel construction, combination, and adaptation of parts, as will be hereinafter more fully described and then specifically defined in the appended claims.

My invention is clearly illustrated in the accompanying drawings, which, with the letters of reference marked thereon, form a part of this application, and in which drawings—

Figure 1 is a central vertical sectional view through the apparatus. Fig. 2 is a vertical sectional view taken on a plane at right angles to the plane upon which Fig. 1 is taken. Fig. 3 is a top plan view of the apparatus. Fig. 3^a is a sectional view vertically through the screen-box, showing the space beneath the

partition R'. Fig. 4 is a sectional view on line 4 4 of Fig. 1.

Reference now being had to the details of the drawings by letter, A designates the inclosure, which has a compartment-wall A' extending down one-half the height of the inclosure, and B B are two inclined walls tapering inward at their lower ends. Journaled in suitable bearings in the walls of the inclosure and adjacent to the lower ends of said inclined walls is a shaft C, on which sprocket-wheels D are keyed. On said shaft is also a worm E, provided for the purpose of conveying the slate which falls into the slate-compartment having the inclined walls. Mounted in suitable bearings on the cross-pieces F is a shaft G, which has a pulley-wheel G' keyed thereto and two sprocket-wheels G². Over said sprocket-wheels D and G² endless chains H pass, to which the perforated buckets H' are attached. Near the sprocket-wheels G² is a chute I, into which the slate which is elevated by the buckets is dumped as the buckets successively turn about the sprocket-wheels G² and are inverted. Keyed to one end of the shaft G is a wheel J, having an eccentrically-mounted pin J' thereon, to which pin is pivoted the pitman K, which pitman is pivoted at its lower end to the pin L, mounted in the arms of the casting L, that is fastened to the upper face of the plunger M. Said plunger is hinged on its inner edge to the partition-wall A', as at M', and adjacent to the free swinging edge of said plunger is a concaved segment-plate N, which is stationary and provided for the purpose of preventing the water rising above the plunger when the latter is forced down by the pitman.

At any suitable location outside of the inclosure of the apparatus is a pump O, and leading to and communicating with the cylinder of said pump are the pipes O' and O², the former of which conveys the water from the source of supply, which is preferably the settling-tank, (not shown,) while the second pipe O² communicates with the interior of the compartment in which said hinged plunger works, entering same at a location below the plunger, as shown in the drawings. Mounted on the shaft G is an eccentric, and P' is

an eccentric-rod actuated thereby, which is pivoted to an arm of the angle-lever Q, which is journaled on a stub-shaft Q', carried by suitable bearings Q², secured to the top of one of the walls of the inclosure. To the second arm of said angle-lever is pivoted the pump-rod Q³, which rod is fastened at its lower end to the plunger Q⁴. Suitable valves o o are provided, which are mounted to work in opposite directions, one valve being at the outlet end of the pipe O', while the other is at the inlet end of the pipe O².

On one side of the compartment-wall A' is a screen R, which is set preferably at a slight inclination, and at one end of the compartment having a screen-bottom is a partition R', which extends down to a location a short distance above the screen, and the coal which is fed into the apparatus enters this space between said partition R' and the outside wall of the inclosure. Leading from an elongated aperture in the opposite end of the compartment having a screen-bottom is a chute S, through which the cleansed coal is designed to pass into a settling compartment or chamber. (Not shown.)

On the shaft G is mounted a cam S', and pivoted on a pin S² on the superstructure of the apparatus in suitable boxing S³ is a lever S^x. This boxing is made to be adjustably raised and lowered by means of the threaded screw S⁴, having a hand-wheel S⁵. This lever S^x is pivoted to a rod T and has at its extreme end an adjustable or sliding weight T', while its other or free end contacts with the circumference of said cam-wheel S'.

Journaled in the opposite walls of the compartment having a screen-bottom is the rocking gate W, and to an angle-arm W' of said gate is pivoted in a slot therein a pin Y, carried by the rod T. An outlet-passage U at the lower end of the screen is provided, through which outlet the slate, which is heavier than the coal and as a consequence settles upon the screen, may pass into the compartment having inclined walls, from which latter compartment the slate is elevated and dumped by means of the endless conveyer.

The operation of my invention will be readily understood and is as follows: The coal and slate mixed therewith is fed into the compartment having a screen-bottom, and the inclosure having the two compartments is nearly filled with water, and as the hinged plunger is raised and lowered the water is

forced up through the bottom of the screen on the opposite side of the partition-wall, and the coal, which is lighter than the slate, will gather on the top of the slate and be washed out of the coal and water chute, and as the slate-gate is rocked the slate will be forced out of the slate-outlet and into the compartment beneath, from which the worm conveys the slate to the endless chains carrying the buckets, which buckets are perforated to allow the water to run out as the slate is elevated.

Having thus described my invention, what I claim to be new, and desire to secure by Letters Patent, is—

1. In combination in a coal-jigger, of the hinged plunger, the concaved plate adjacent to its free swinging edge, and means for operating said plunger, the compartment having a screen-bottom, the coal-outlet passage in the vertical wall of said compartment, a rocking gate, an angle-lever secured thereto, having a slot in one of its arms, a tilting lever and means for tilting the same, and connections between said lever and the slotted angle-lever, substantially as shown and described.

2. In combination with the main operating-shaft, the cam mounted thereon, a compartment with screen-bottom, a rocking slate-gate journaled in the walls of said compartment, a slotted angle-arm integral with or secured to said gate, a pivotal lever having one end contacting with the circumference of said cam-wheel and having pivotal connection with said slotted arm, as shown and described.

3. In combination with the main operating-shaft, the cam-wheel thereon, the lever and box in which said lever is pivoted, an adjacent screw for raising and lowering said lever, one end of the latter adapted to contact with the circumference of said cam, a weight carried at its other end, a compartment having a screen-bottom, a rocking gate mounted adjacent to the outlet of said compartment, a slotted angle-arm connected to said gate, and pivotal connections between said angle and tilting levers, as shown and described.

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

JAMES ALEXANDER MONTGOMERY.

Witnesses:

E. M. SELLERS,
C. WALL.