

(No Model.)

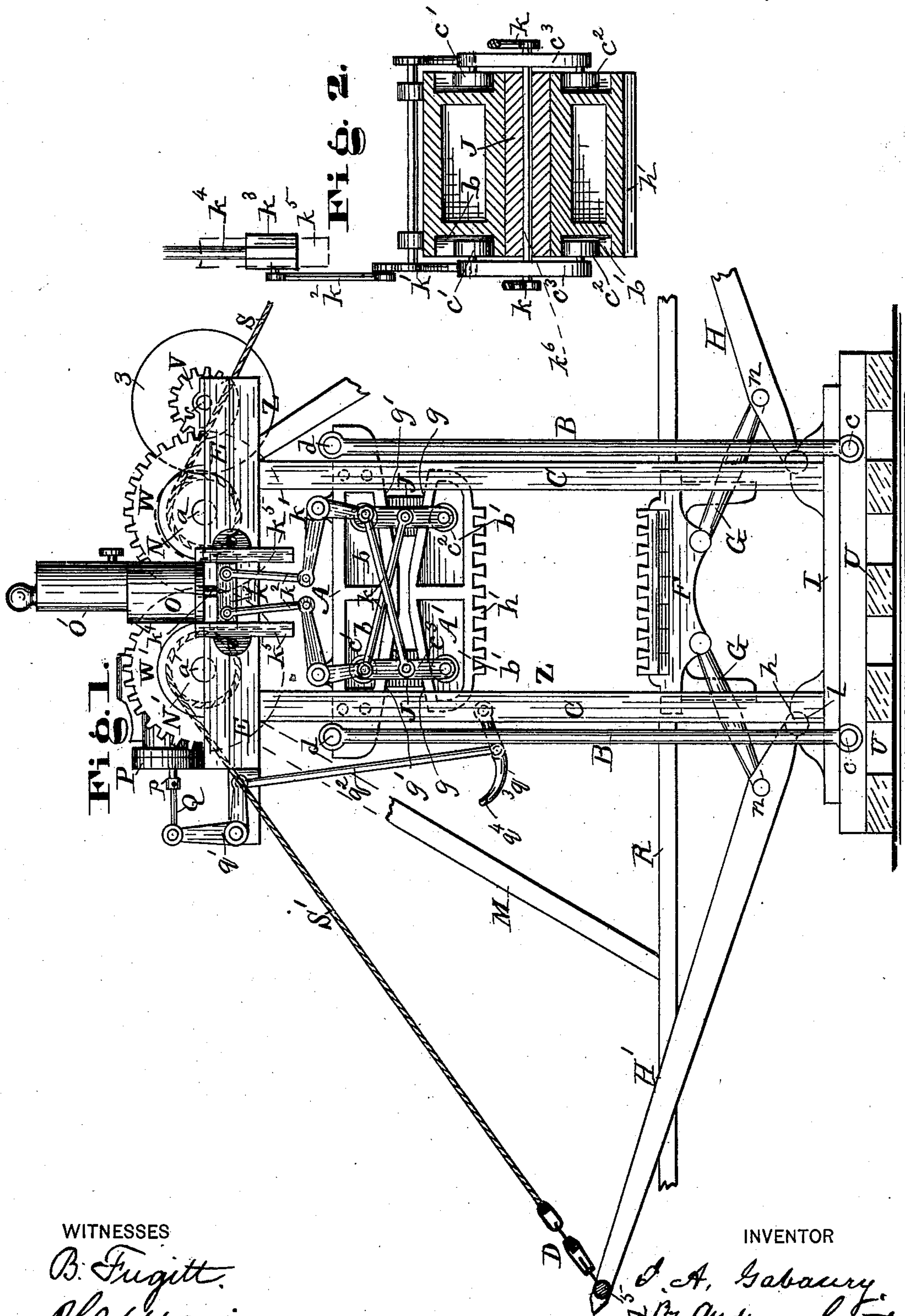
J. A. GABOURY.

4 Sheets—Sheet 1.

COTTON COMPRESSOR.

No. 373,357.

Patented Nov. 15, 1887.



WITNESSES

B. Fugitt.
A. C. Masie

INVENTOR

J. A. Gaboury
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ATTORNEYS

(No Model.)

4 Sheets—Sheet 2.

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Fig. 4.

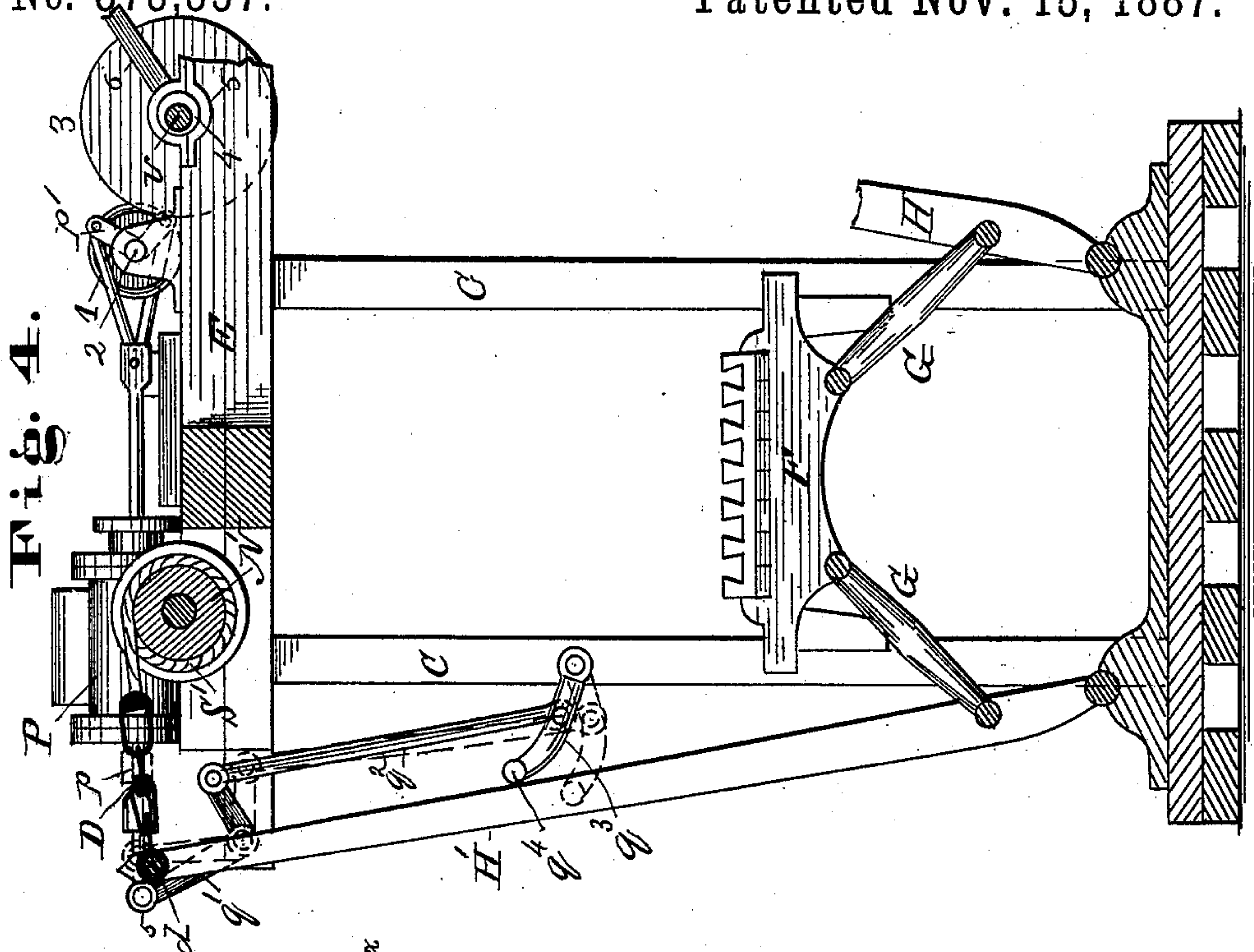
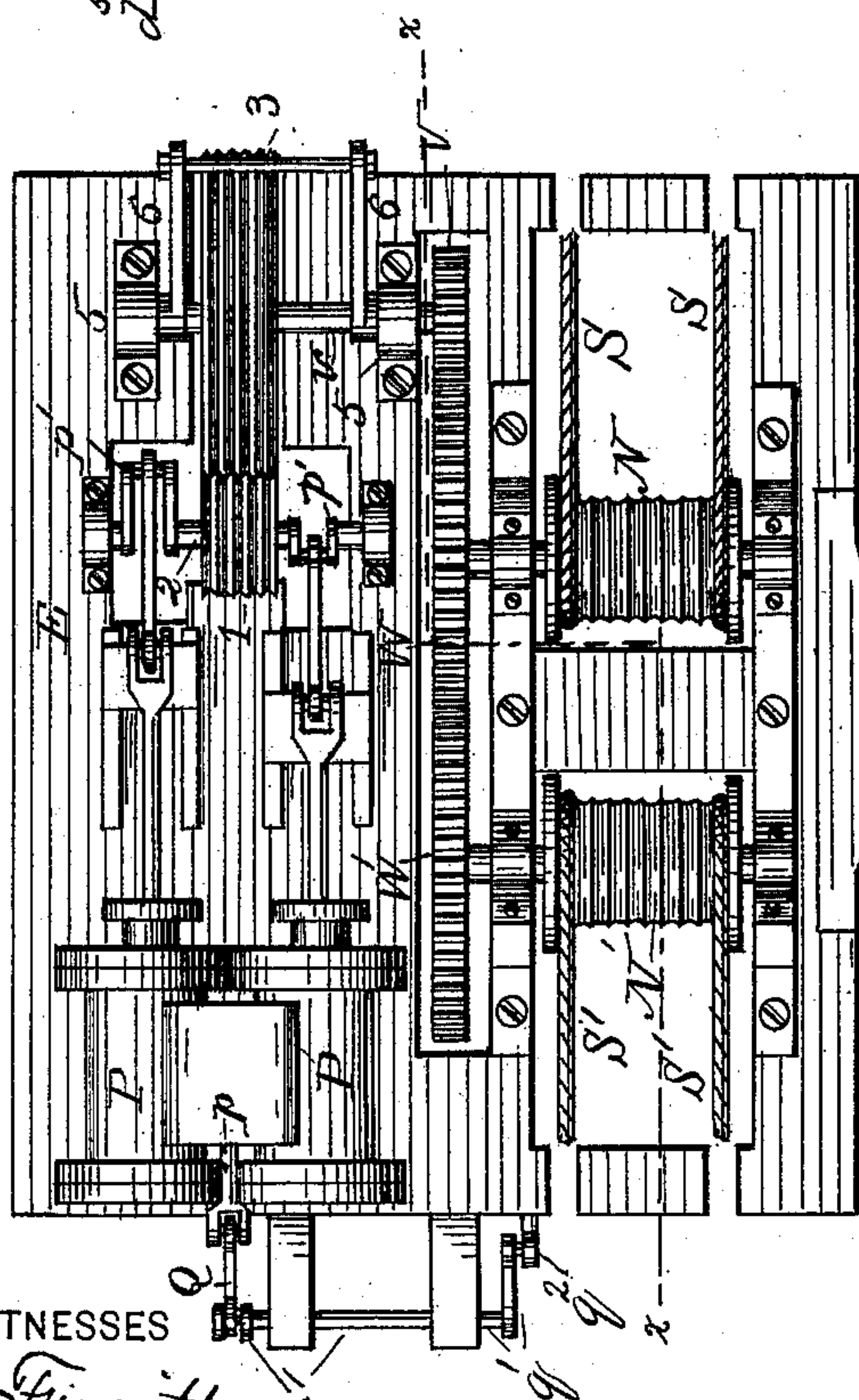


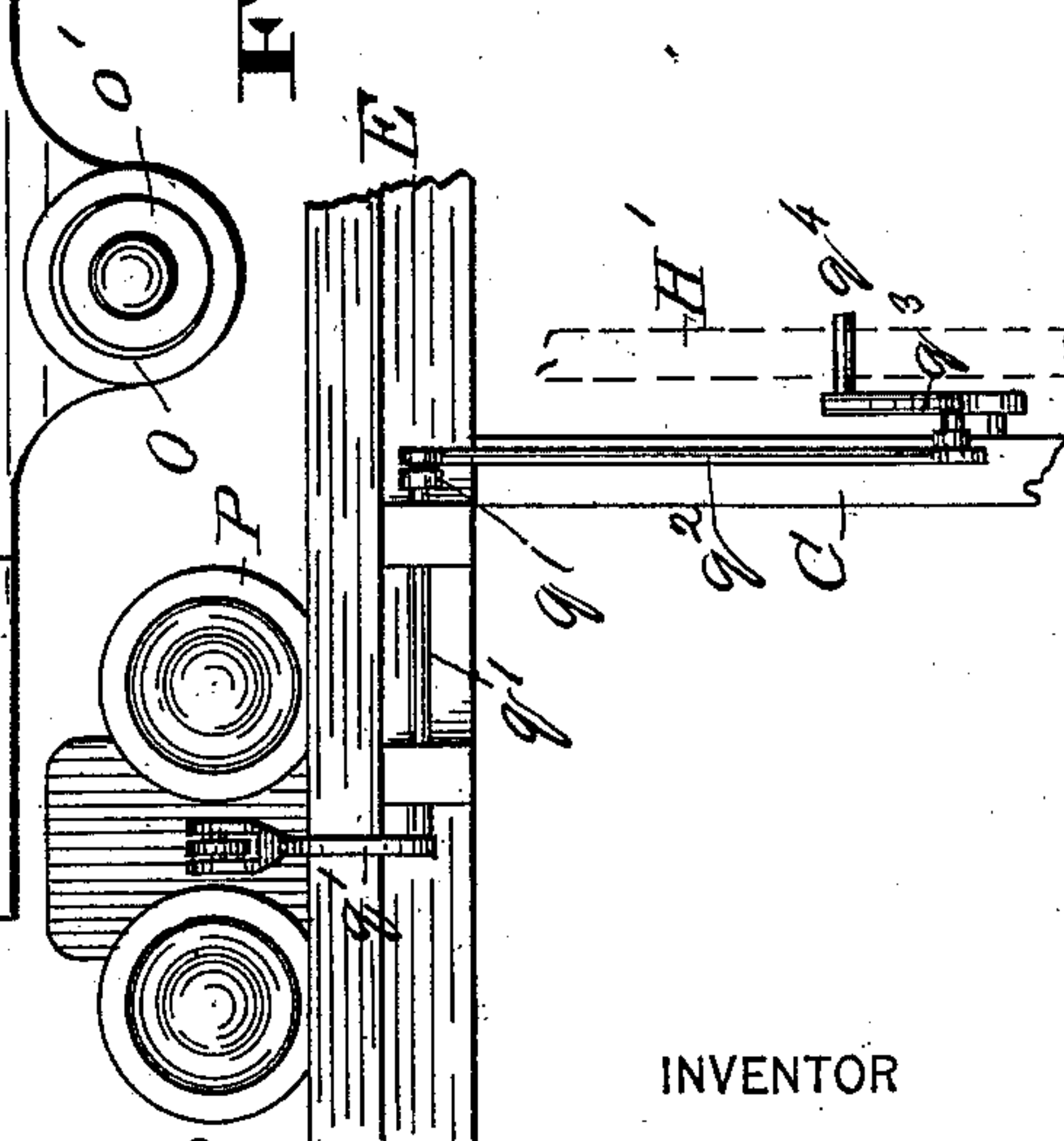
Fig. 3.



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Fig. 5.



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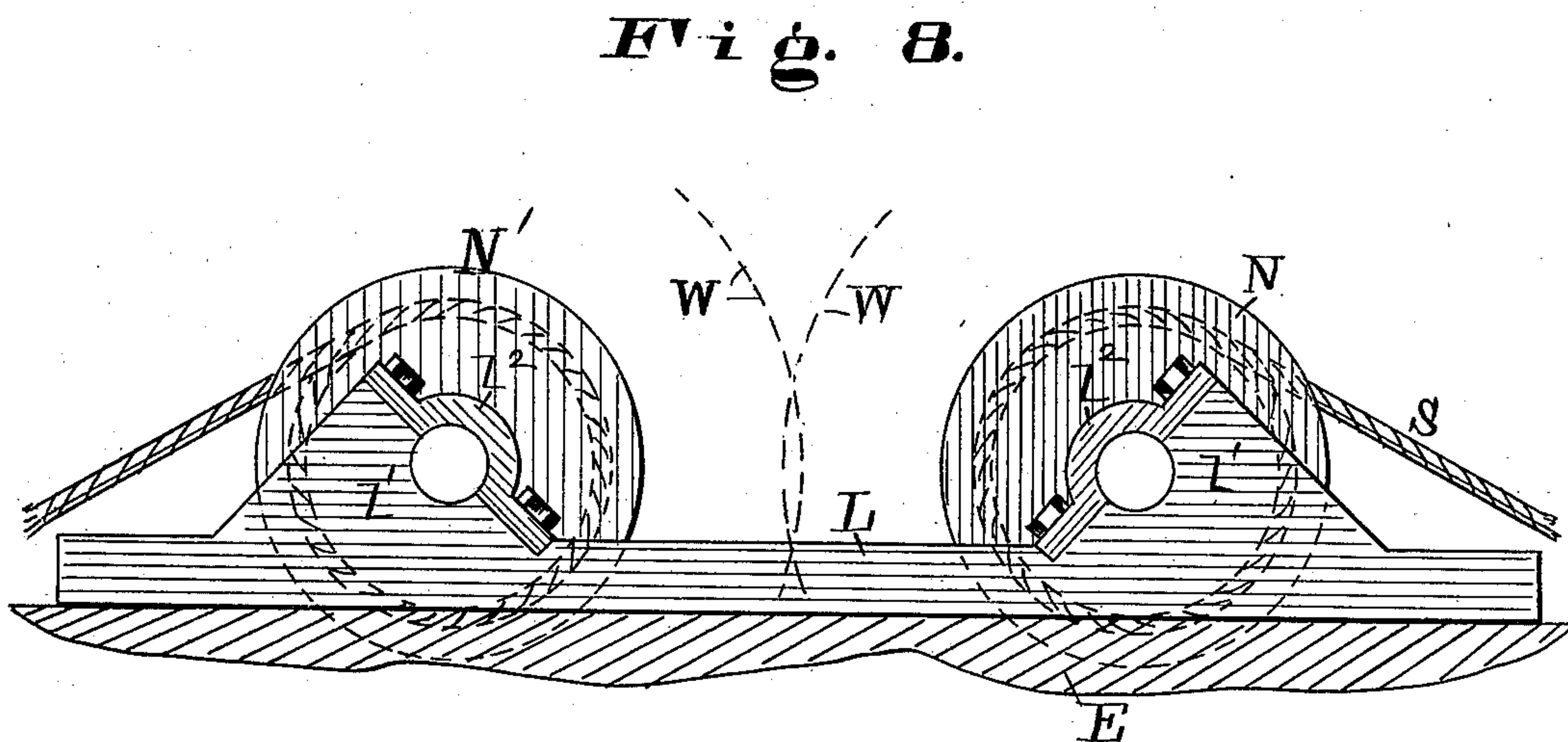
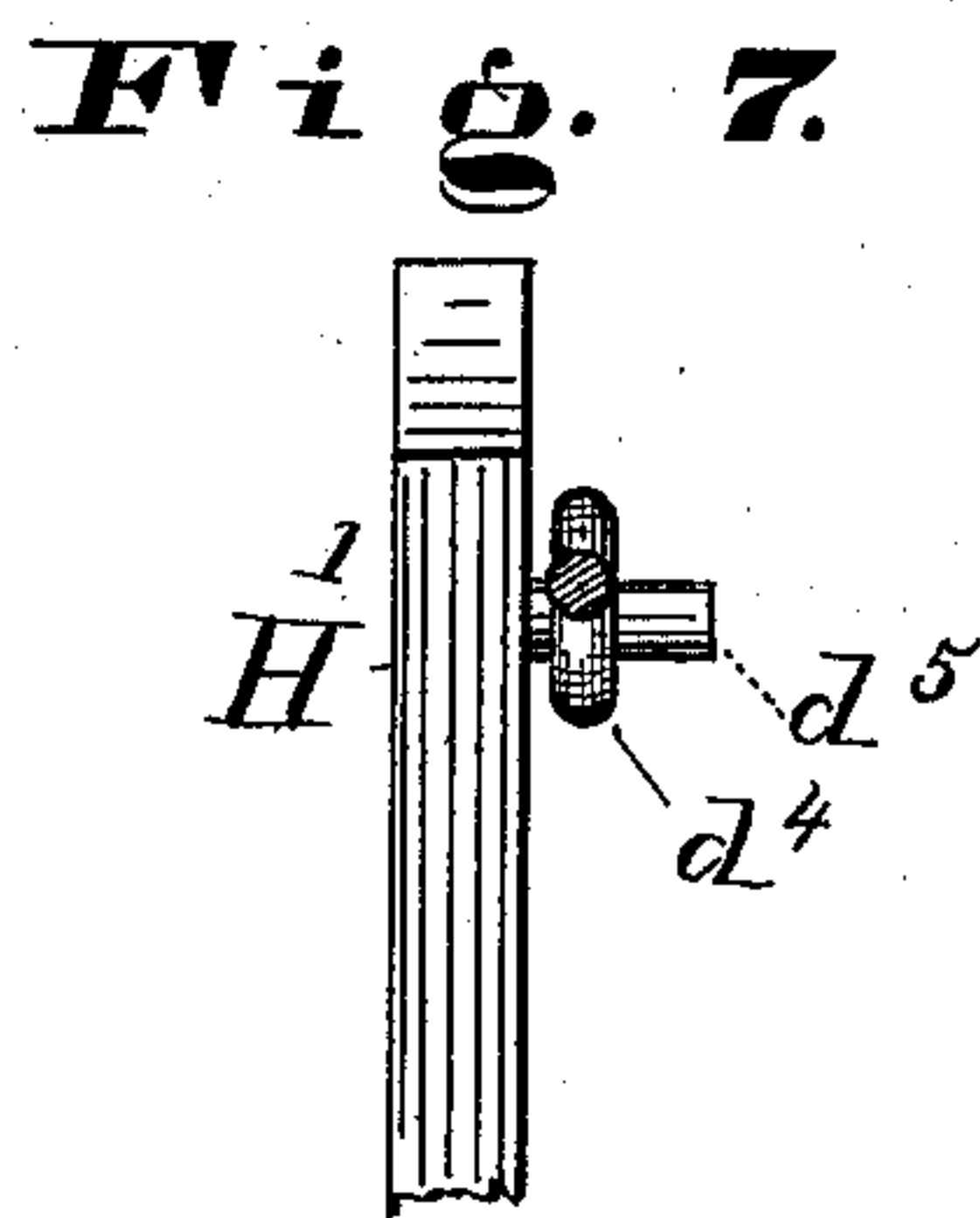
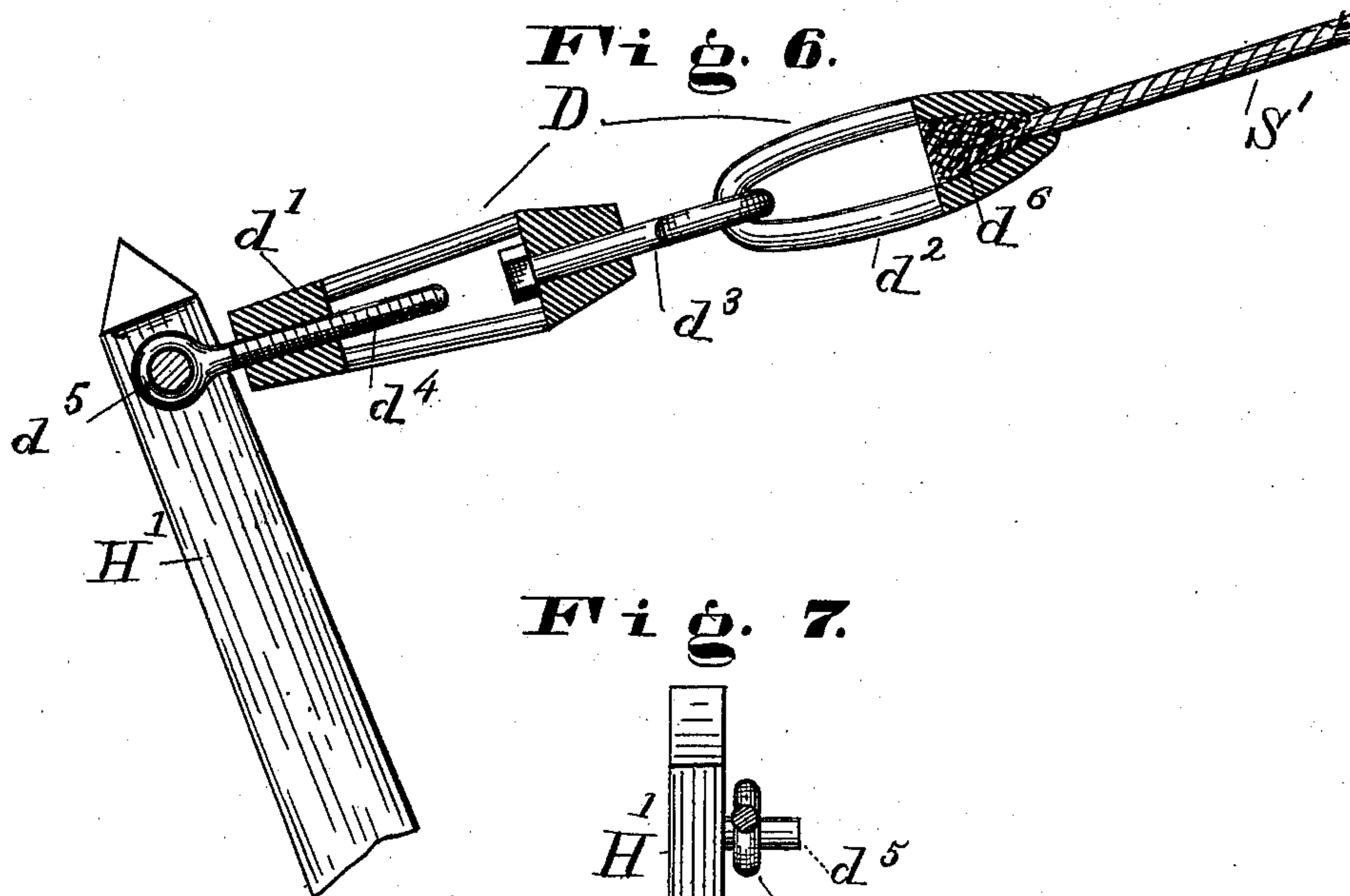
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4 Sheets—Sheet 4.

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COTTON COMPRESSOR.

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Fig. 9.

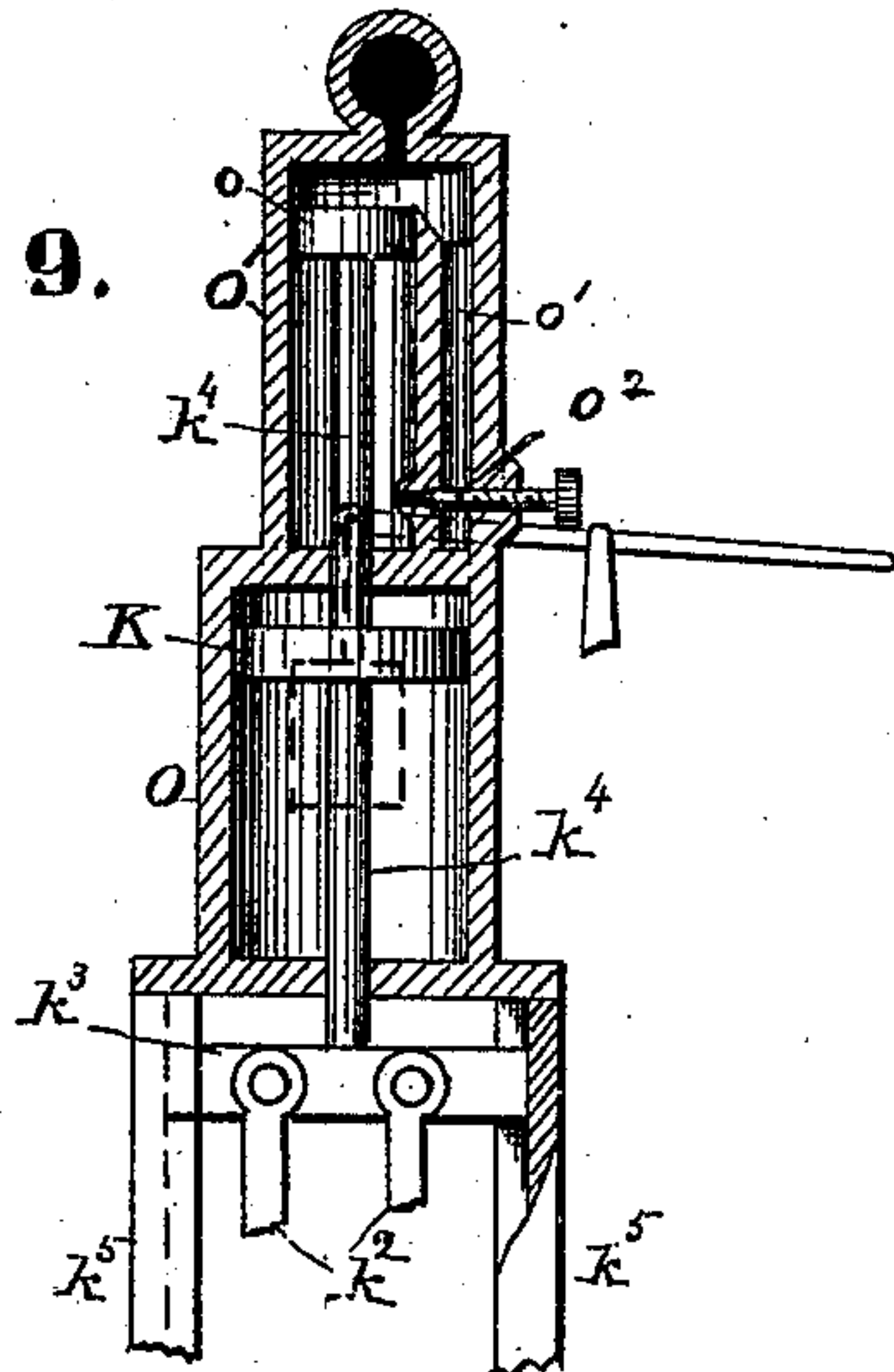


Fig. 10.

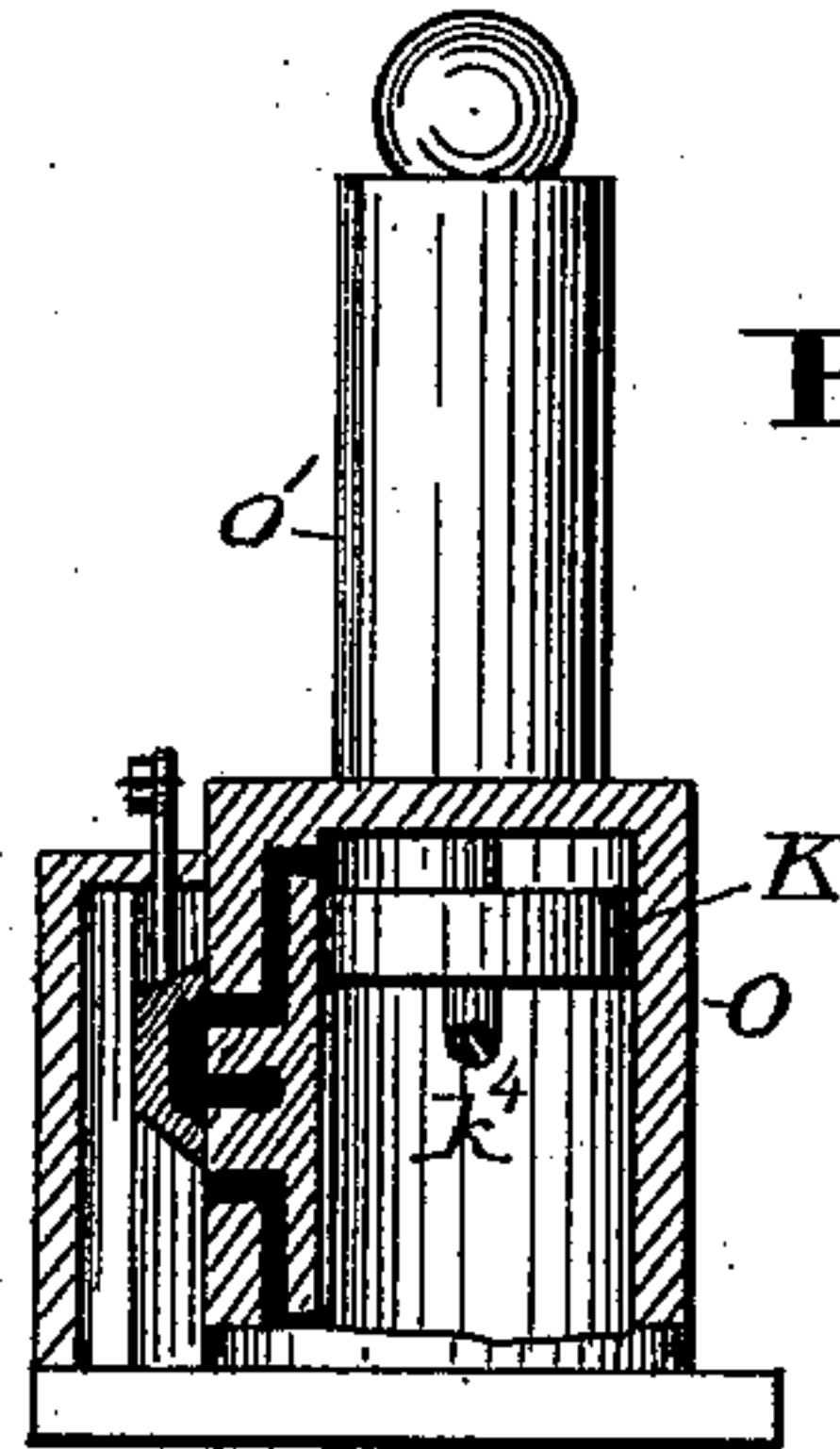


Fig. 11.

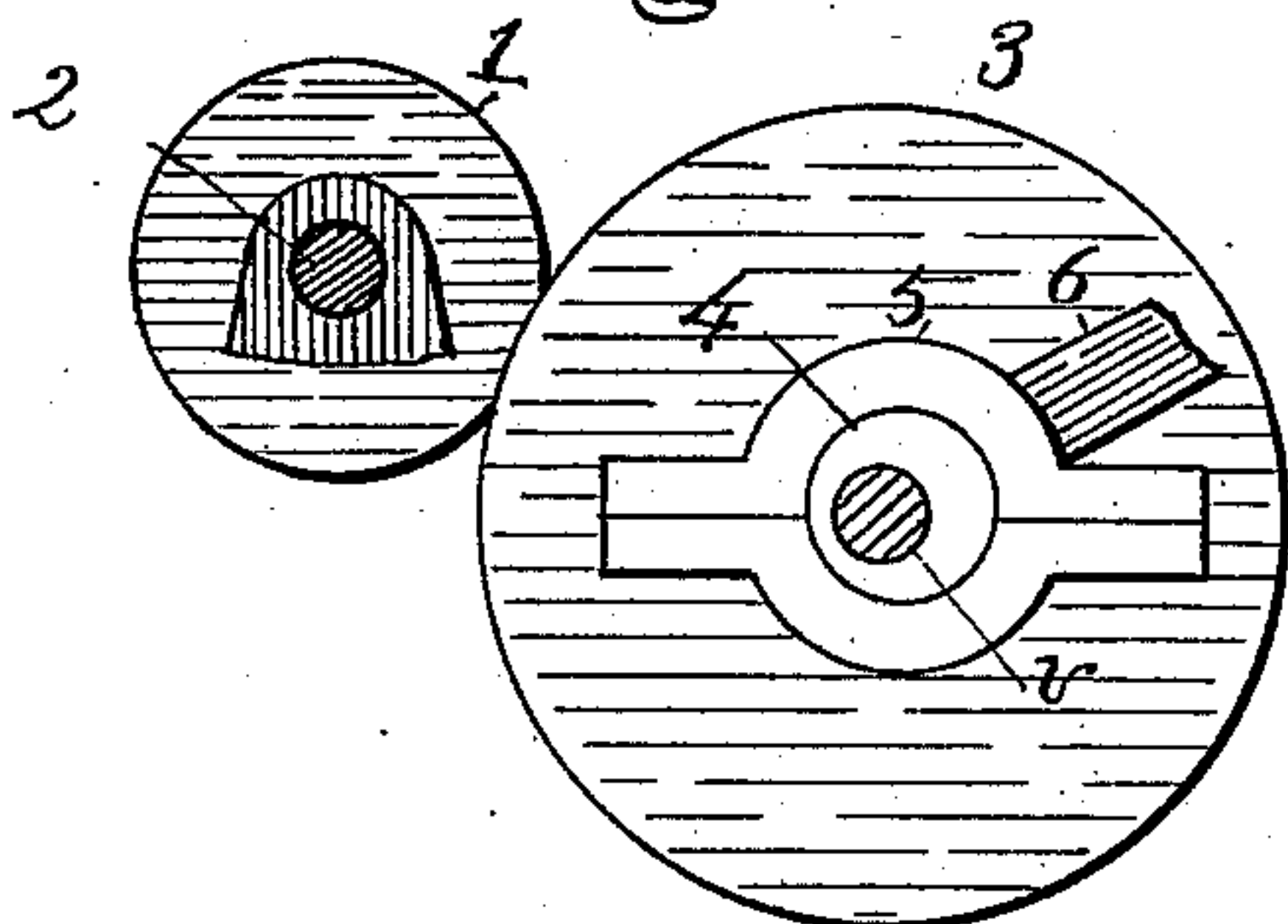


Fig. 12.

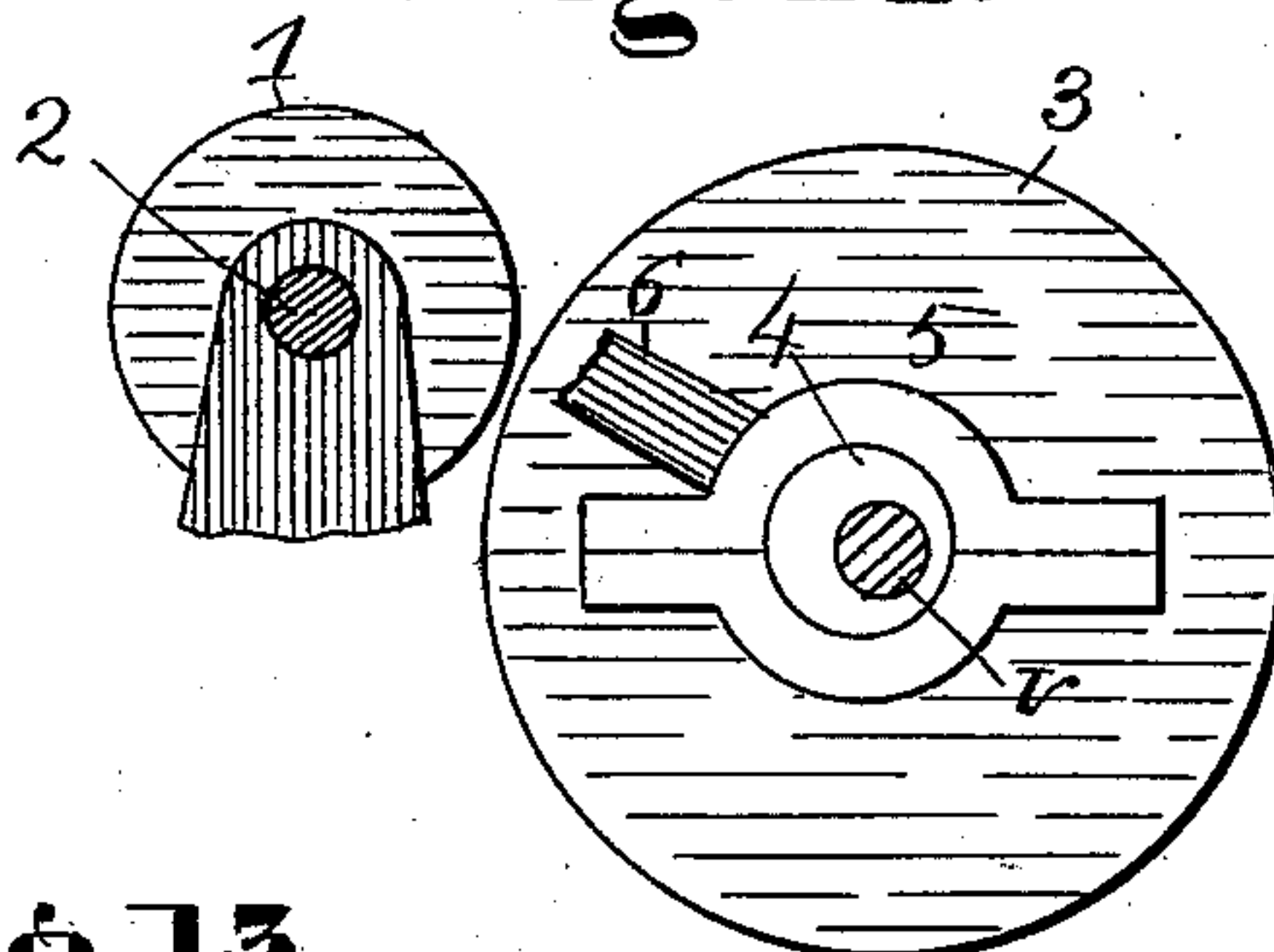
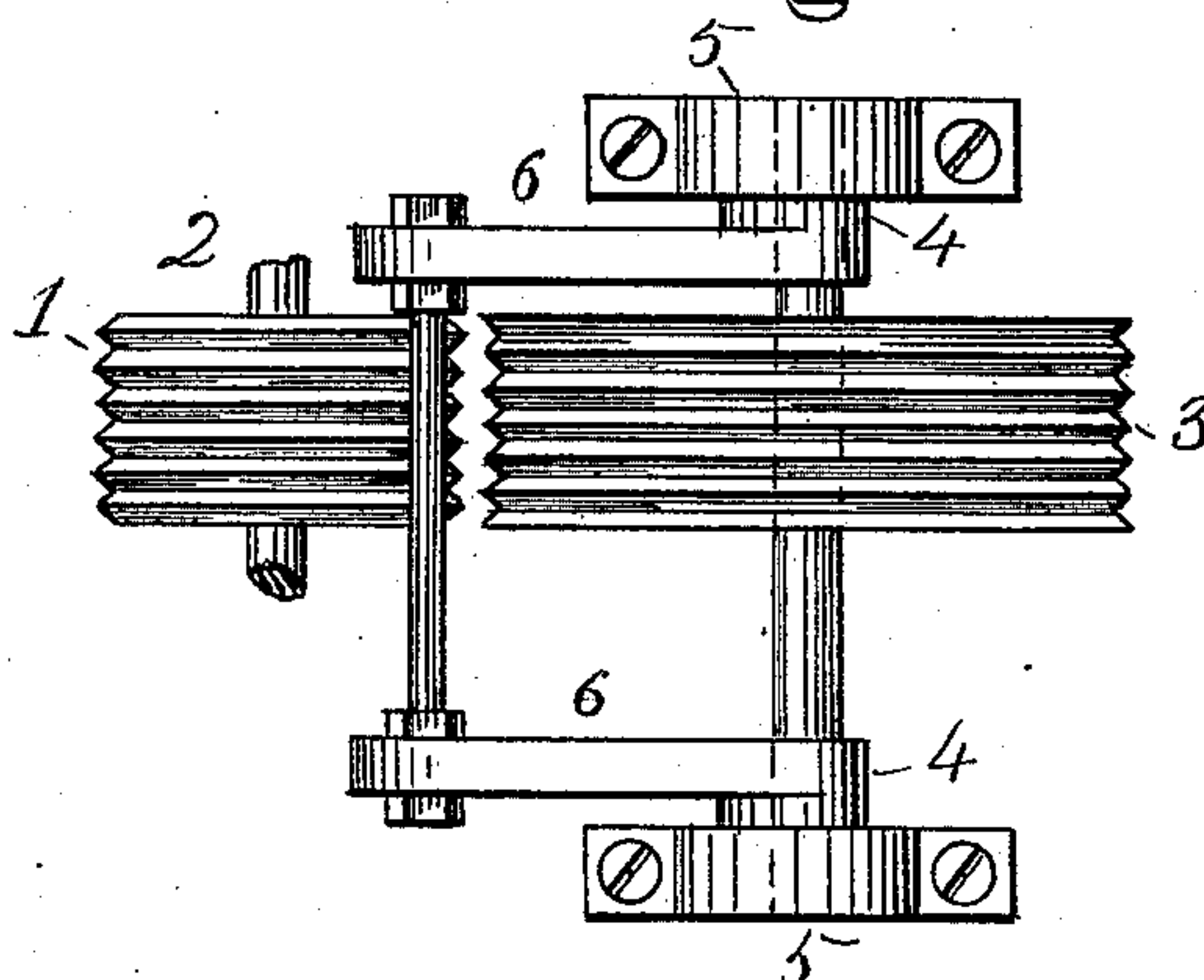


Fig. 13.



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UNITED STATES PATENT OFFICE.

JOSEPH A. GABOURY, OF MONTGOMERY, ALABAMA.

COTTON-COMPRESSOR.

SPECIFICATION forming part of Letters Patent No. 373,357, dated November 15, 1887.

Application filed November 16, 1886. Serial No. 219,046. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH A. GABOURY, a citizen of the United States, and a resident of Montgomery, in the county of Montgomery and State of Alabama, have invented certain new and useful Improvements in Cotton-Compressors; 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 letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 is a side elevation of a machine embodying the invention. Fig. 2 is a transverse section through one of the wedges and through the parts A and A' adjacent to the side wedges. Fig. 3 represents a plan view of the machine. Fig. 4 is a vertical section of the machine on the line *xx* of Fig. 3, with one roller and one gear-wheel detached. Fig. 5 is a detail view of the ends of the steam-cylinders and their supports. Fig. 6 is a detail view of one of the lever-arms and the device attaching the wire rope thereto. Fig. 7 is a detail edge view of the same. Fig. 8 is a detail view, partly in section, of the bed-block of the rollers. Fig. 9 is a central vertical section of the actuating steam-cylinder, oil-cylinder, and air-chamber. Fig. 10 is a side elevation showing the steam-cylinder, steam-valve, and slide in section and the oil-cylinder and air-chamber in full lines. Figs. 11, 12, and 13 are detail views of the friction-disk and a part of the actuating mechanism of the same.

My invention relates to compound compressors, being an improvement on a patent granted to me on the 18th day of May, 1886, and numbered 342,198, and having the following objects: to regulate the motion of the follower and attached platen, so that both ends of the latter may ascend and descend an equal distance; to render the platen connected with the fixed block adjustable to different distances from the platen of the follower, so that bales of cotton of different bulks may be equally compressed, and to stop the ascent and descent of the follower at proper points to prevent any breakage of the mechanism.

The invention consists in the construction

and novel arrangement of parts, hereinafter described, illustrated in the drawings, and pointed out in the claims hereto appended.

Referring to the drawings, Z designates the main frame of the machine, composed, principally, of the uprights C C, the sills U U, and the top cross-beams, E E, as shown.

R is the line of floor, to which the follower F, moving between the uprights C, descends, so that the cotton-bale is easily placed thereon, and M M are brace-beams to support and steady the frame.

L is a casting secured to the base-sill portion of the frame and provided with seats for the bars *c c*, which pass through the base-beams and through openings in the lower ends of the link-bar B, the upper ends of which are connected to the stationary part A of the upper platen-supporter by the bars *d*, which pass through openings in their upper ends and rest in seats on the upper surface of the said upper platen-block, which is bolted horizontally to the uprights C C, as shown.

H H and H' H' are respectively the opposite pairs of follower-actuating levers, each pair of which have their lower ends secured to a transverse bar, *h*, which rests in a socket, *l*, on the upper surface of the casting I on the corresponding side of the main frame.

G G are auxiliary levers, having the journals at their lower ends turning in the bearings *n* in the levers H H', near the lower ends of the same. The upper ends of the levers G are pivoted to the lower surface of the follower at equal distances from its ends.

P is a double-cylinder steam-engine situated on top of the main frame Z, and rotating, by means of its pistons and connecting-rods, the shaft V, carrying the gear-wheel V'. W W' are similar intermeshing gear-wheels on the shafts *a a'* of the similar drums, N N', which are suitably grooved to receive the wire ropes SS', running from the said drums to the end of the levers H H', respectively, the ropes winding over the tops of the drums, as shown, and the levers being at all times equally distant from the drums. The gear-wheels V and W mesh so that the drums are rotated by the action of the steam-engine.

A is the block to which is secured the upper platen, A'. Both the platen A' and the fol-

lower F have notched ends which slide between the uprights C, the latter forming guides for the same. The platen A' has its upper surface inclined upward and equally at g from its ends to its central horizontal portion. The lower surface of the fixed block A is similarly but reversely inclined at $g' g'$ to its horizontal central portion.

J J are adjusting-wedges, which fit between the upper surface of the platen A' and the lower surface of the block A on each side at equal distances from the centers of said blocks. The sides of the block A are provided with the recesses $b b$, having floors parallel with the underlying parts of the lower surface of said block, and the sides of the block A' have similar recesses, $b' b'$, but with their roofs parallel with the parts of its upper surface.

$c^3 c^3$ are vertical links on each side of the said blocks, and having their upper and lower ends respectively journaled to the shafts of the similar wheels, $c' c'$ and $c^2 c^2$. The upper wheels, c' , travel on the floors of the recesses $b b$, and the lower wheels travel on the roofs of the recesses b' .

$k k$ are link-bars having their lower ends pivoted centrally on the links c^3 , and their upper ends pivoted on the lower arms of the bell-crank levers k' , journaled at their angles in bearings on the upper side of the block A at equal distances from its end. The ends of the upper arms of the levers k' are pivoted to the lower ends of the rods k^2 , the upper ends of which are pivoted to the cross-head k^3 on the lower end of the piston-rod k^4 . The said cross-head moves vertically, its ends engaging the guides k^5 , secured to the top of the main frame.

K is the piston moving in the cylinder O above the main frame, which cylinder has above it the oil-cylinder O', in which moves a small piston, o , on the upper end of the rod k^4 . The oil-cylinder has an air-vessel on its top, and the upward motion of the piston o causes the oil to flow down the side channel, o' , and through its lower opening, so as to lubricate the piston-rod k^4 . o^2 is a valve, the point of which is made conical and the stem threaded, so that the lower orifice of the chamber o' can be more or less closed thereby and the flow of oil through said opening regulated. The oil lubricates the piston-rod k^4 and piston K, which piston by its action sets the platen A' in motion by means of the wedges and the link and crank mechanism. The air-chamber is of ordinary construction, and may be dispensed with, if necessary. It serves merely to equalize the pressure in the cylinder O'. The steam is admitted either above or below the piston K by means of a lever-handle and valve-connections of ordinary construction.

k^6 is the rod passing through one of the wedges from end to end thereof and connecting the rods k on each side. Cotton-bales usually vary in weight between three hundred and four hundred pounds. For compressing the larger bales the piston K is depressed, de-

pressing in its course the cross-head k^3 , which cross-head then, by means of the angle-irons or levers k' , rods k^5 , and link-rods k , moves the wedges J farther outward, and, by moving the platen A' upward, gives more room for the bales between the platens.

In compressing the lighter bales the piston is driven upward and the platens approximated. The links c^3 serve to hold the block A' in position in relation to the block A. The valve-rod p of the cylinders of the engine P is connected with a link mechanism, the link-rod Q of which has its inner end pivoted to said valve-rod and its outer end to the upper arm of a bell-crank lever, q' , pivoted at its angle on the main frame. The end of the lower arm of said lever q' is joined by a link-rod, q^2 , to the pivoted lever q^3 , having on the end of its outer arm a pin, q^4 . When one of the levers H' rises to a position near the block A, its inner edge strikes said pin, and by means of the levers $q^3 q'$, link Q, and rod p the valve is moved in such manner as to close the ports and admit no more steam to the pistons of the engine P, stopping the same and the upward motion of the lever-arms H H'. But for this the said arms would strike the ends of the block A and would break the ropes S S'. By using the two drums N N', one for each set of wire ropes, the same are wound up equally, and consequently the follower moves up without tilting. In my prior invention but one drum was used, and the ropes on one side passed under the same. The said ropes, when the lever-arms were raised, changed their tangential points very much more than the opposite set which passed over the drum. This had the effect of winding the former set up farther, and consequently tilted up the follower and attached platen on the corresponding side of the machine. The piston-rods of the two cylinders of the engine P have the outer ends of their connecting-rods attached to cranks $p' p$, standing at right angles to each other on the shaft Q. This prevents any dead-points and causes the motion of the lever-arms H H' to be more uniform.

D D are turn-buckles, by means of which the wipe rope may be made more or less taut on its corresponding lever-arm. Each turn-buckle consists of the links $d' d^2$, the swivel d^3 , and the eyebolt d^4 . The eye of said bolt surrounds a pin, d^5 , standing between the levers of a set, with its ends fixed in each lever. Its stem engages through a threaded opening in the base of the link d' . The swivel d^3 passes through an opening in the opposite end of said link, and has a loop or hook which engages the looped end of said link d^2 . The opposite end of said link is cup-shaped, and the rope S or S' passes through an opening in its apex and has its end unraveled therein. Solder is then poured in on the unraveled ends and allowed to solidify in the cup-shaped part d^6 of the link A, and a plug is formed thereby with the unraveled end of the rope, which is held firmly thereby to the turn-buckle. The strain

on the drums being very great, the bearings thereof are made inclined to support the same.

Fig. 8 shows the bearing-plate L. At one end of the shaft of the drums l' l' are the bearing-blocks, the faces of which are equally inclined upward and outward from said plate, and l'' l'' are the screw-caps which retain the journals in place. By making the blocks on the same plate the resistance to strain is increased.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with the main frame, of the follower having a platen attached, the lever-arms, the auxiliary levers forming toggle-joints with said arms, the two similar sets of wire ropes winding over their drums, the two similar drums connected by said ropes to the ends of the lever-arms, and mechanism, substantially as described, to rotate said drums at an equal speed in opposite directions, substantially as specified.

2. The combination, with the main frame and the follower moved up and down thereon by means substantially as described, of the fixed block A, secured to the main frame, provided with the recesses b and having its lower surface inclined upward and equally toward each end, the platen A' , moving on ways on the main frame, provided with the recesses b' and having its upper surface inclined downwardly and equally toward each end, the wedges J between said blocks, and mechanism, substantially as described, to move said wedges laterally and oppositely at an equal rate of speed, substantially as specified.

3. The combination, with the main frame and the follower moving up and down on ways thereon, of the fixed block A, provided with the side recesses b , the block A' , moving up and down on the main frame and provided with the side recesses b' , the wedges J, the links c^3 , the wheels c' c^2 , the rods k , bell-crank levers k' , rods k^2 , and cross-head k^3 , moving on ways k^5 and secured to the piston-rod k^4 and reciprocated by the piston K, substantially as specified.

4. The combination, with the main frame, the steam-engine P, the drums rotated thereby, the two opposite sets of lever-arms, and the corresponding sets of ropes, of the link mechanism actuated automatically by one of

the lever-arms and consisting of the link Q, the bell-crank lever q' , the rod q^2 , the pivoted lever q^3 , and the pin q^4 , substantially as specified.

5. The combination, with the main frame, the drums, the lever-arms provided with the pins d^3 , attached thereto, and the wire ropes, of the turn-buckles consisting each of the links d' d^2 , the swivel d^3 , and the eyebolt d^4 , constructed substantially as described.

6. The combination, with the main frame, the lever-arms, the wire ropes, the drums journaled on the main frame, and mechanism, substantially as described, to rotate the drums, of the bearing-plates L, having the bearing-blocks l' , with inclined faces, and the screw-bearing caps l'' , substantially as specified.

7. In a lever compress, the combination of the levers pivoted to the main frame, the drums rotated at equal speeds in opposite directions by the driving engine, and the wire ropes connecting the outer ends of said levers with the drums and winding upon the upper portion of the peripheries thereof, substantially as specified.

8. In a lever compress provided with a fixed upper block and a movable platen-bearing upper block below the said fixed block, two similar wedges situated between the inclined ends of the said blocks at equal distances from the central vertical line passing through the said blocks, which have their approximate or facing edges inclined in opposite directions on each side of their central portions, in combination with mechanism, substantially as described, whereby the said wedges can be moved outward or inward equally and simultaneously, substantially as specified.

9. In a lever compress operated by drums and wire ropes winding on said drums, the combination of the drums, the levers pivoted to the main frame and having the wire ropes attached to their upper end, and the automatic stop actuated by one of said levers when near its highest point of ascent, substantially as specified.

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

JOSEPH A. GABOURY.

Witnesses:

JNO. F. GAY,
J. T. ROBERTS.