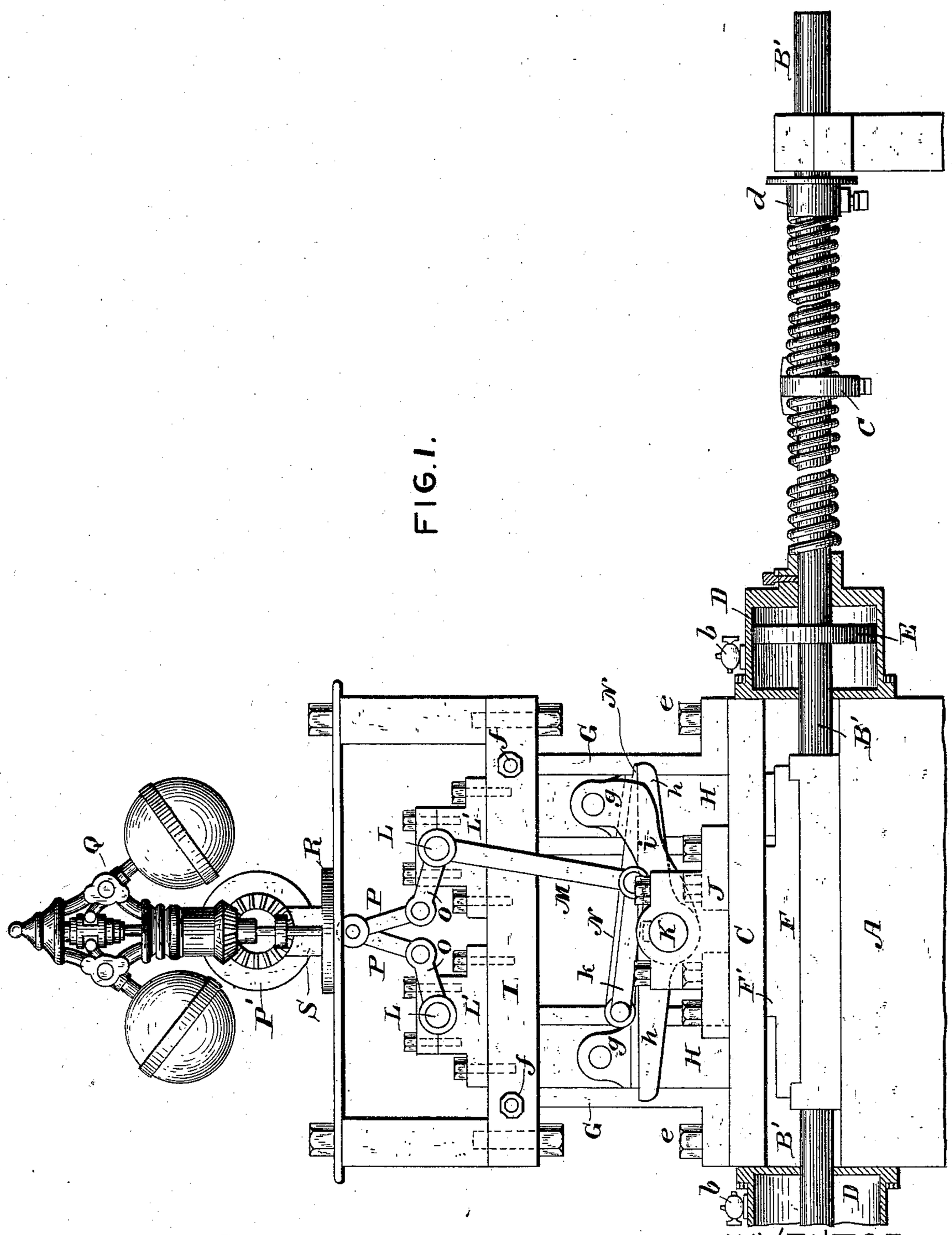
(No Model.) 4 Sheets—Sheet 1.

M. WILKES.

AUTOMATIC SLIDE VALVE CUT-OFF MECHANISM.

No. 389,731. Patented Sept. 18, 1888.

FIG. 1.



ATTEST.

J. Henry Kaiser.
Victor J. Evans

INVENTOR.

Moses. Wilkes
By atty Wm. C. Linthicum Jr.

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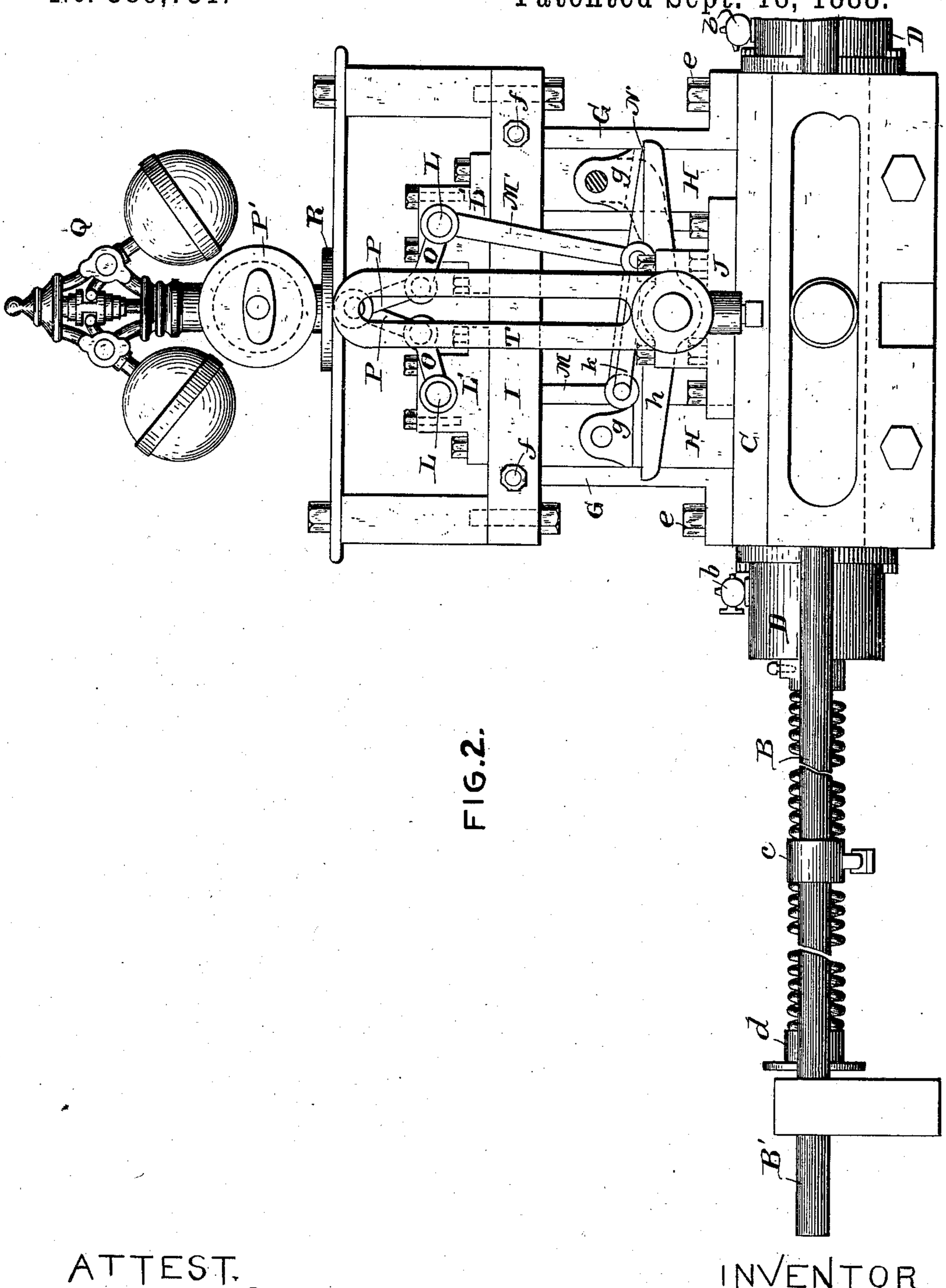

FIG. 2.

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AUTOMATIC SLIDE VALVE CUT-OFF MECHANISM.

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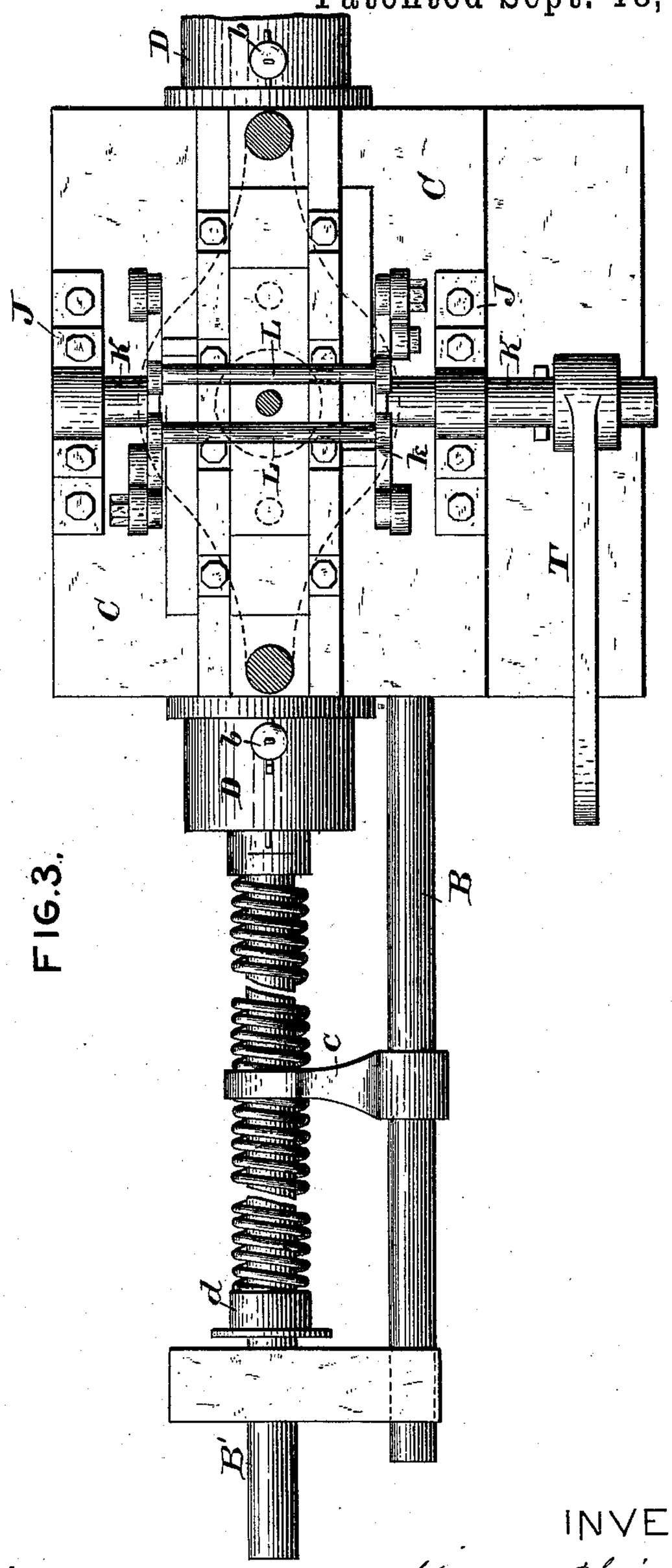

FIG. 3.

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(No Model.) 4 Sheets—Sheet 4.

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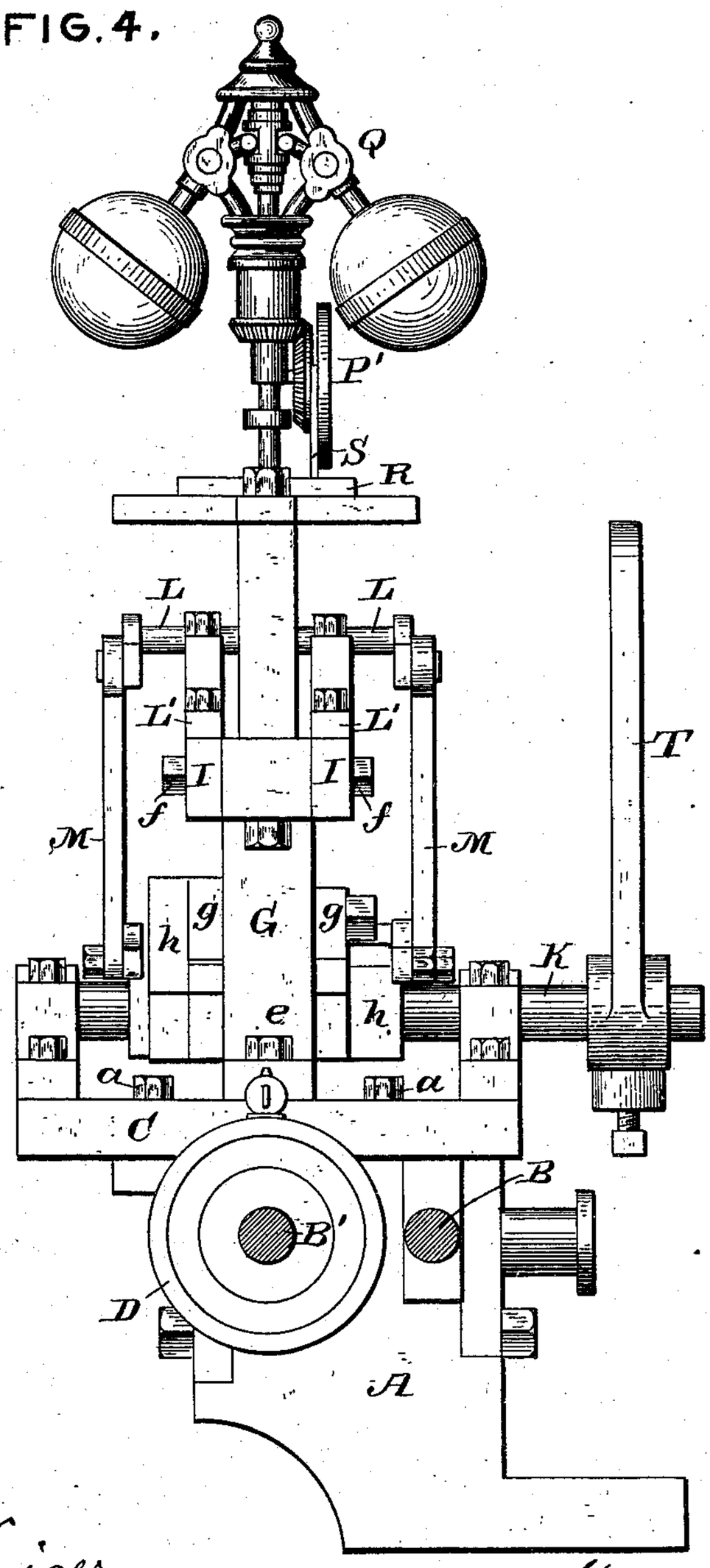
AUTOMATIC SLIDE VALVE CUT-OFF MECHANISM.

No. 389,731. Patented Sept. 18, 1888.

FIG. 4.



ATTEST.

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Victor J. Evans.

INVENTOR

Moses Wilkes

By Atty Wm. C. Linthicum

UNITED STATES PATENT OFFICE.

MOSES WILKES, OF TRENTON, NEW JERSEY.

AUTOMATIC SLIDE-VALVE CUT-OFF MECHANISM.

SPECIFICATION forming part of Letters Patent No. 389,731, dated September 18, 1888.

Application filed April 16, 1888. Serial No. 270,826. (No model.)

To all whom it may concern:

Be it known that I, MOSES WILKES, a citizen of the United States, residing at Trenton, Mercer county, New Jersey, have invented new and useful Improvements in Automatic Slide-Valve Cut-Off Mechanism, of which the following is a specification.

This invention relates to certain new and useful improvements in automatic slide-valve cut-off mechanism; and it consists, substantially, in such features of arrangement, construction, and combinations of parts, as will hereinafter be more particularly described.

Figure 1 is a vertical longitudinal elevation of my improved automatic slide-valve cut-off as when viewed from one side. Fig. 2 is a similar view thereof as when viewed from the opposite side. Fig. 3 is a top plan view, and Fig. 4 is a vertical end elevation.

In former Letters Patent granted me on February 22, 1887, numbered 358,318, I have set forth and claimed certain improvements in this class of inventions, and wherein a double-toed rocker is employed to act on and alternately depress the inner ends of certain levers against the action of springs which tend to normally hold such ends up, the depression of said levers in the manner explained acting to close the cut-off valve by the force of the spring carried on its stem. In connection with these devices I employ in the Letters Patent referred to several other elements or devices, such as stop-blocks on the cut-off-valve stem, reciprocating wedges, gear-wheels operating the wedges through movable connections, &c.

The object of the present invention is to dispense with nearly, if not all, of the contrivances above referred to and to obtain better results from a much simplified arrangement and less number of parts, thereby greatly economizing over my own as well as other former patents in this art.

Reference being had to the several parts by the letters marked thereon, A represents a guide-box, in which the main-valve rod B and the cut-off-valve rod B′ work back and forth, the said guide-box being adapted to be bolted to the bed-plate of an engine or otherwise, as occasion may require. On top of this guide-box is secured by means of bolts *a a* the bed-plate C, on which the parts or mechanism constituting my invention are supported. Secured to each end of the guide-box is a dash-pot, D, and working in these dash pots are the pistons E E, carried by the stem of the cut-off valve B′, the said dash-pots being provided with cocks *b b*, for controlling the amount of air therein, by which to regulate the force of the springs inclosing the cut-off valve.

In my former patent referred to I have set forth the arrangement of a spring surrounding the cut-off-valve stem, and this spring is gripped by a yoke adjustably secured to the stem of the main slide-valve. In the present instance two springs are employed on the stem of the cut-off valve, (one to either end of the guide-box A,) and these springs are gripped by yokes *c c*, adjustably held on the stem of the main slide-valve, substantially in like manner as in the former instance referred to. The tension of the springs may be regulated or adjusted at will by the collars *d d*, having set-screws, as shown.

F represents a steel catch-plate, which is securely fitted in the cut-off-valve stem, and which is engaged by vertically-reciprocating posts, hereinafter described. This plate is formed longitudinally with an elevated portion, F′, by which the engagement of such plate by the posts is effected.

G G represent two sets or pairs of standards securely fastened or bolted to the bed-plate C, as represented by the letters *e*, each pair of such standards constituting guides for the vertically-moving posts H H. A plate, I, is secured to each side of the standards at their upper ends by means of bolts *f*, thus forming, as it were, boxes for the posts to work in.

The posts H H move in the spaces formed between the standards and side plates, I I, and each post is provided on its opposite side with a movable steel toe, *g*, through the medium of which said posts are lifted in the manner hereinafter described. The said posts pass through the bed-plate C and engage the catch-plate F in the manner hereinafter stated.

J J represent pillow-blocks secured to the top of the bed-plate on opposite sides, as shown, and in these blocks is held or supported an oscillating shaft, K, on which shaft are two vibrating rockers, *h h*, (one on each side of the posts,) and two levers, *i i*, keyed to said shaft,

also on opposite sides of the posts, but in a reverse position to each other. These levers *i i* are provided with suitable portions (not shown) resting upon the rockers for depressing said rockers on the rocking of the shaft K.

L L represent small shafts having their bearings in boxes L′ L′, securely bolted to the tops of the side plates, I I, and to opposite ends of these shafts is keyed or fastened a rod, M, which rods are movably connected to reciprocating wedges N N through the medium of links *k k*. These wedges act, in the manner hereinafter described, to elevate the movable posts through the action of the governor. Attached, also, to the shafts L L are levers O O, movably connected to rods P P, which extend up through and are connected with the stem of the governor Q. This governor is of the well known construction, and receives rotation from the belt-drum P′, acting through the medium of miter-wheels, and the stem is raised and depressed by the action of the governor-balls. The governor is supported by a top plate, R, extending across the tops of two vertical standards, S S, the said plate being secured by bolts, as shown.

T represents a slotted arm keyed on the shaft K, and to which attachment is made of a pitman-rod attached to or extending from an eccentric on the engine-shaft, in the usual manner.

From the foregoing description, taken in connection with the accompanying drawings, it will be seen that nearly all of the operative parts of my present improvements are in duplicate, a set being to either side, and reversely arranged so as to obtain a proper action thereof to raise and lower the movable posts.

It will be seen that while the engine is running the oscillation of the shaft K will cause the rockers to alternately raise and lower the movable posts, and the engagement of the catch-plate by these posts serves to hold the cut-off valve stationary until by the action of the governor and the movable connection of its stem with the sliding wedges the said posts will be elevated simultaneously, at which moment the spring-actuated cut-off valve will be operated in an obvious manner.

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

1. In an automatic cut-off and regulator for engine slide-valves, the combination, with a governor and its vertically-movable stem, of twin shafts movably connected to said stem, a main oscillating shaft, twin rockers thereon, twin levers keyed to said main shaft, the reciprocating wedges, and a movable connection between said wedges and the twin shafts, substantially as described.

2. In a cut-off-valve regulator, the combination, in a movable shaft supported by suitable bearings, twin rockers upon said shaft, twin levers thereon, vertically-moving posts having movable toes on their sides engaged by the rockers for lifting said posts, the reciprocating wedges, twin shafts movably connected to the governor-stem, and rods at opposite ends of said shafts, movably connected to the wedges by links, substantially as described.

3. In a cut-off-valve regulator, the combination, with the spring actuated cut-off valve having in its stem the catch-plate F, of vertically-movable posts adapted to engage said plate, and the devices herein described, whereby said posts are elevated simultaneously through the action of the governor and its stem, as set forth.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

MOSES WILKES.

Witnesses:
JACOB S. LAIR,
WILLIAM T. WEST.