

No. 688,231.

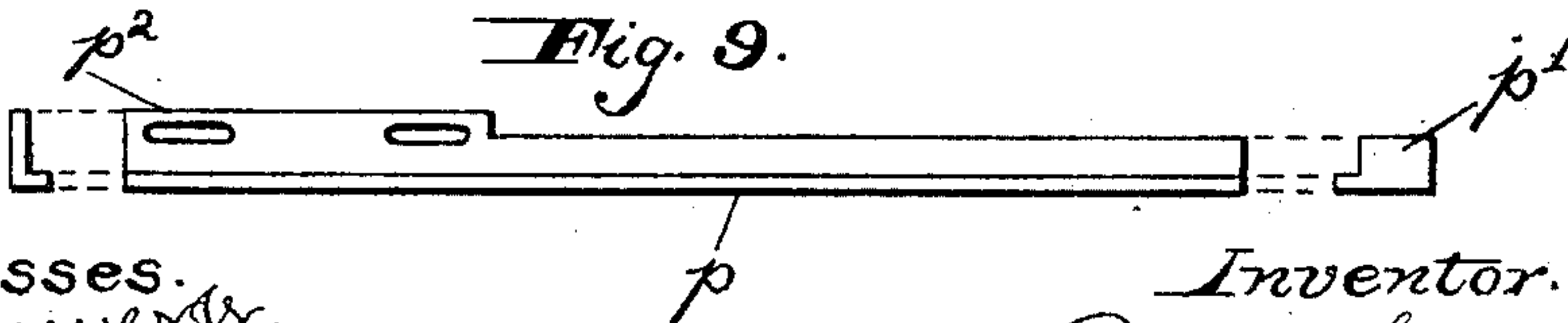
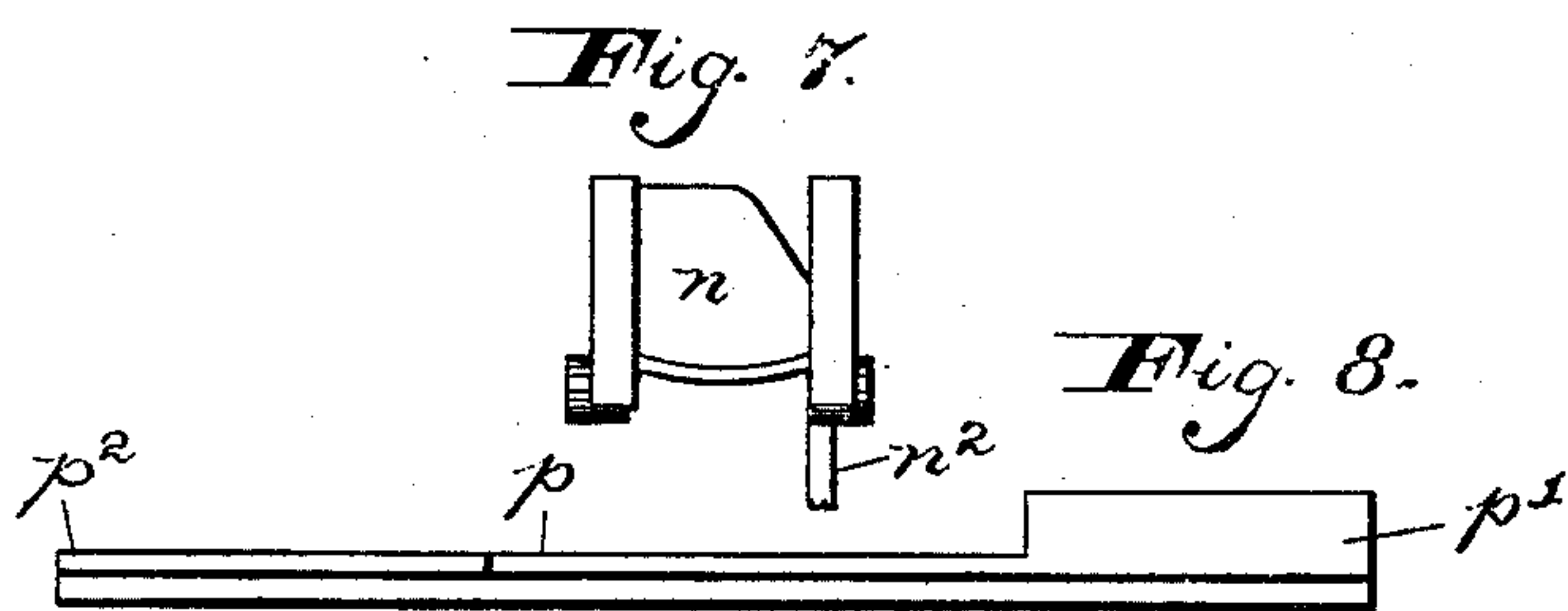
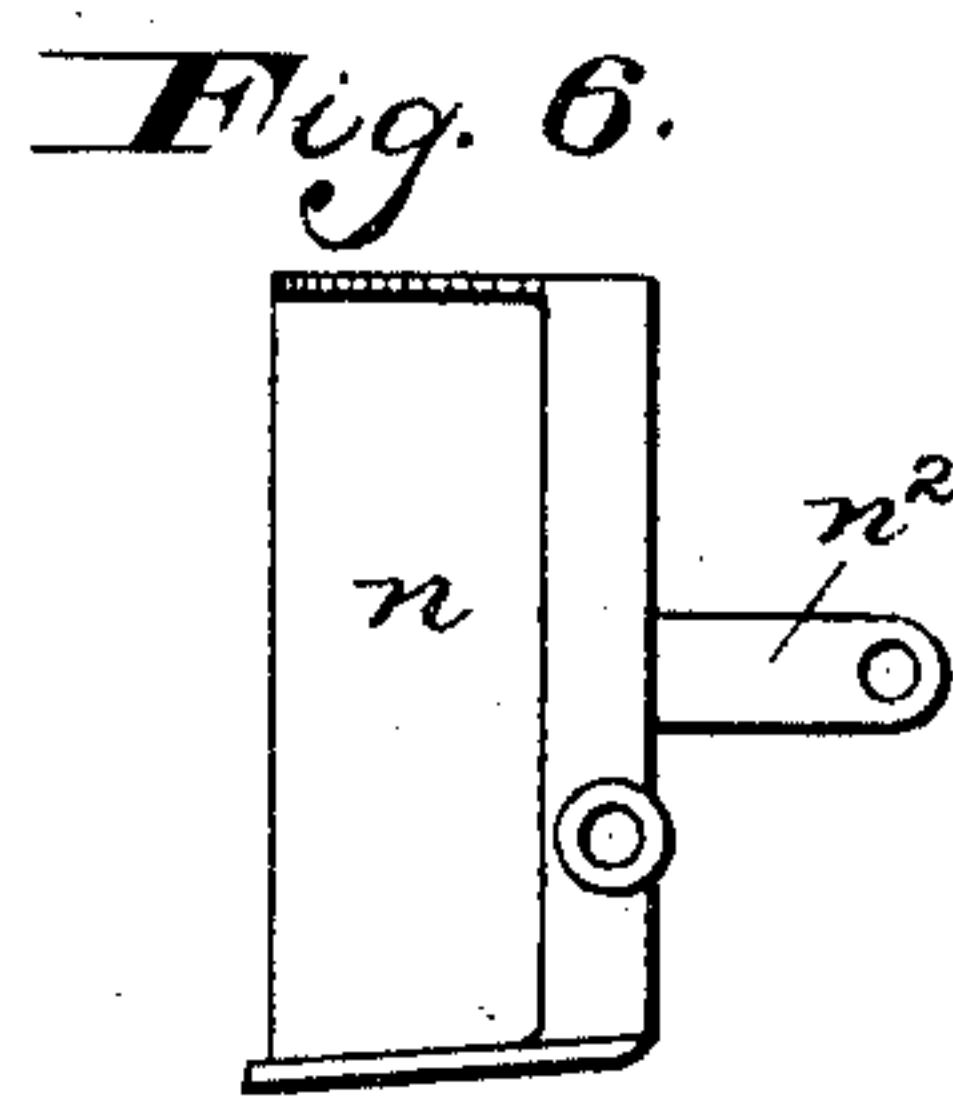
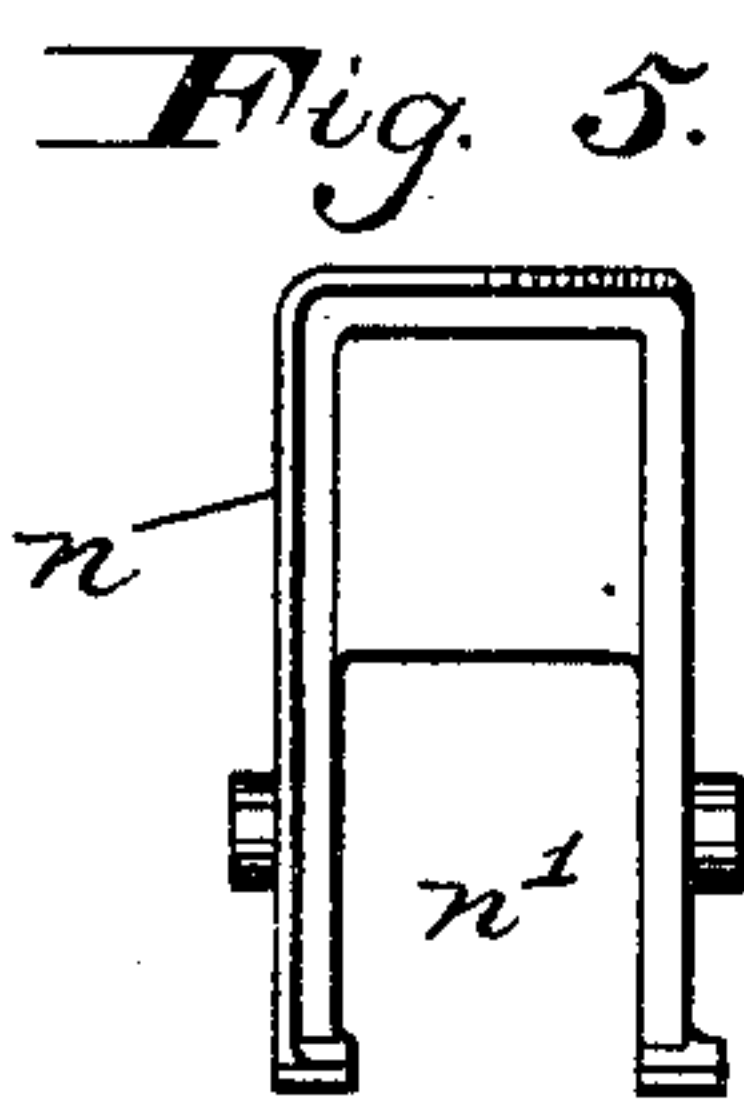
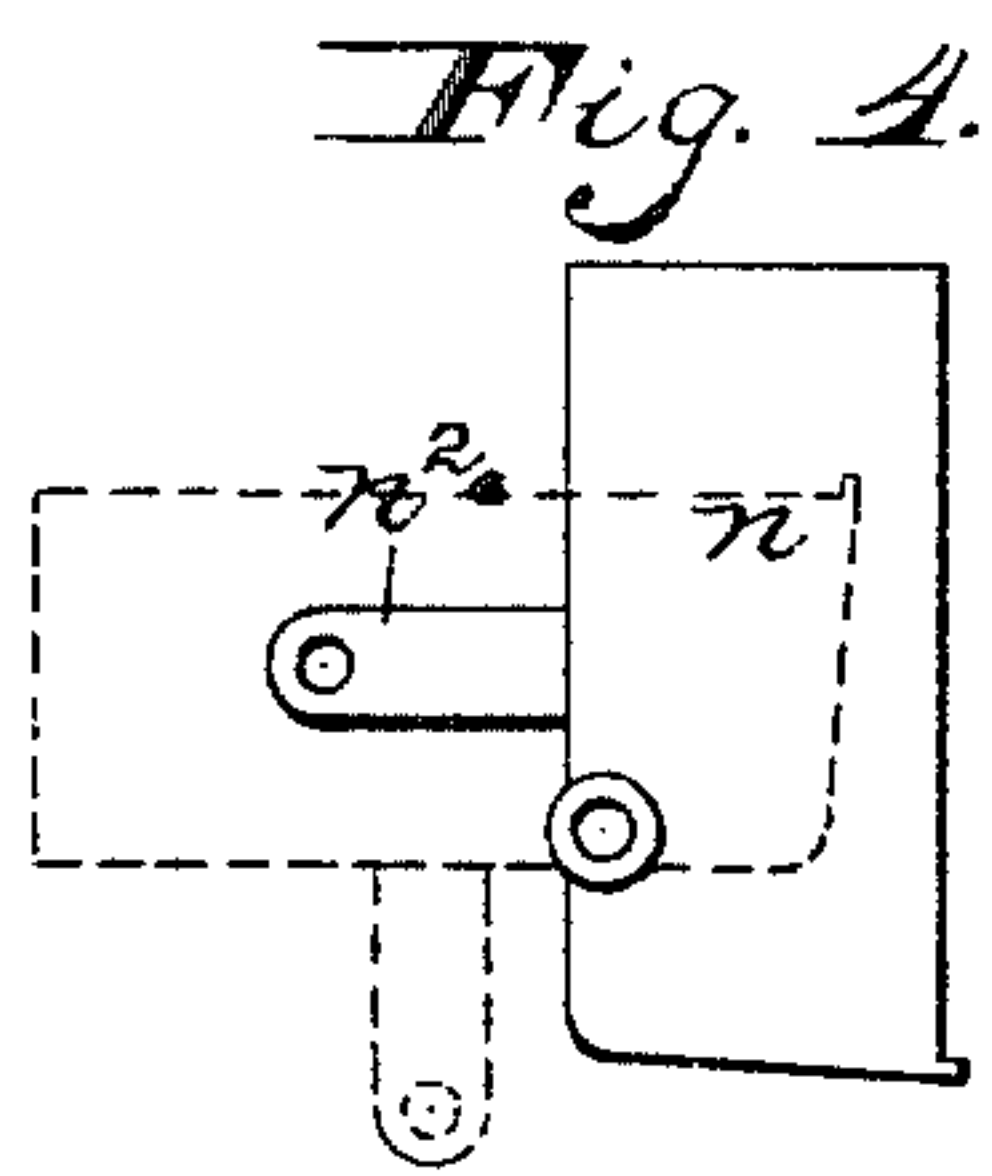
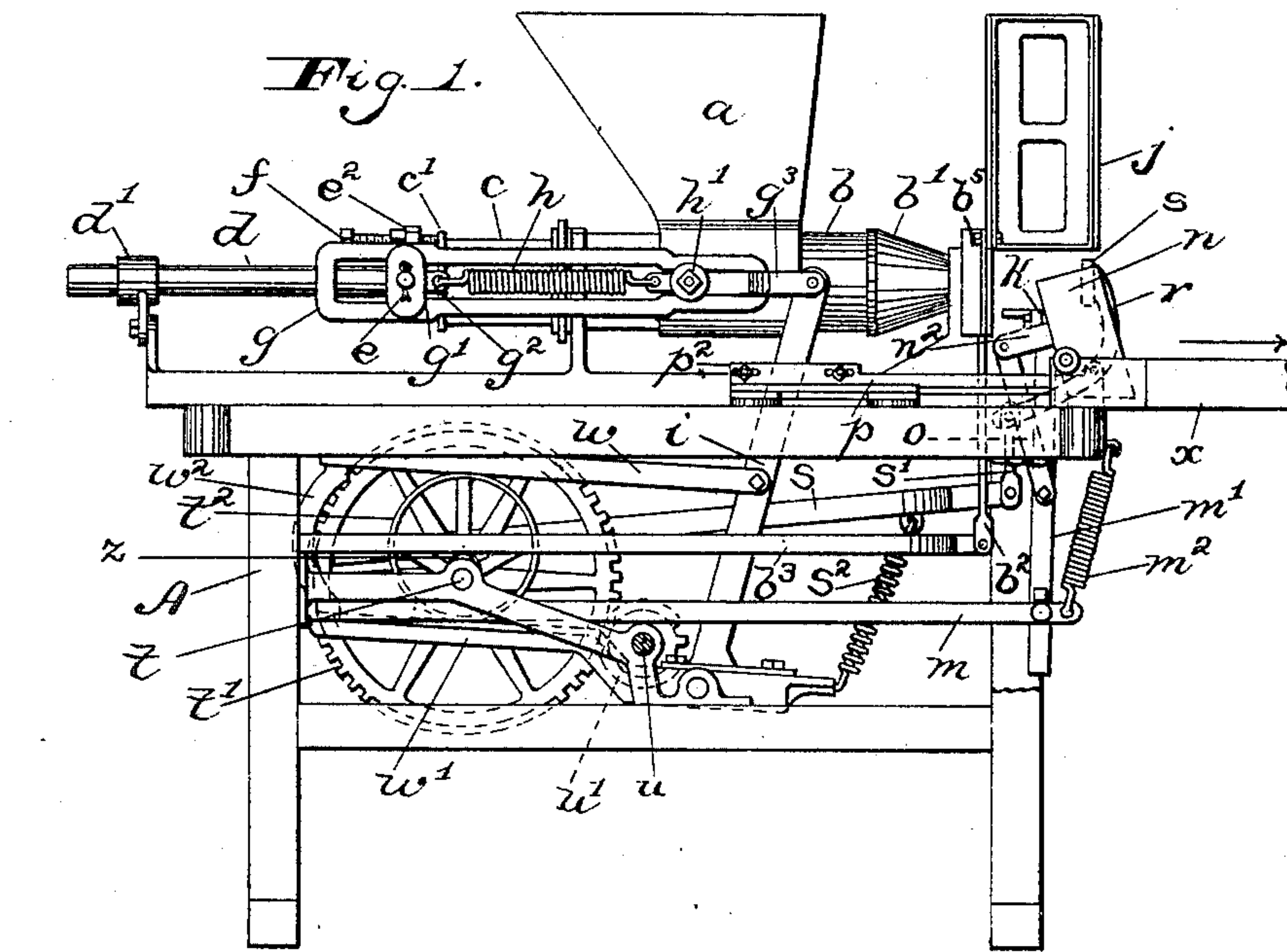
Patented Dec. 3, 1901.

C. H. AYARS.
CAN FILLING MACHINE.

(Application filed Aug. 7, 1901.)

(No Model.)

3 Sheets—Sheet 1.



Witnesses.
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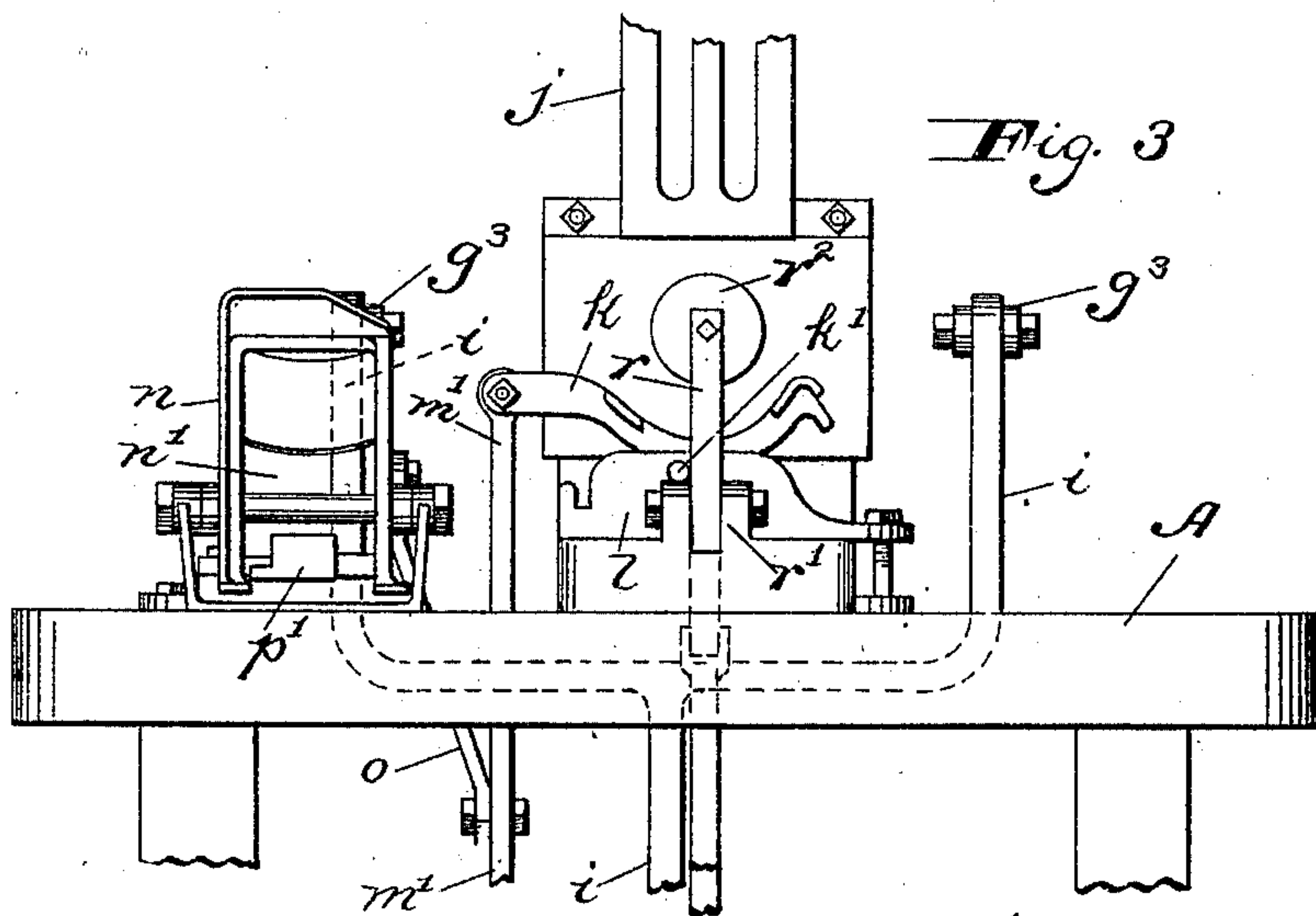
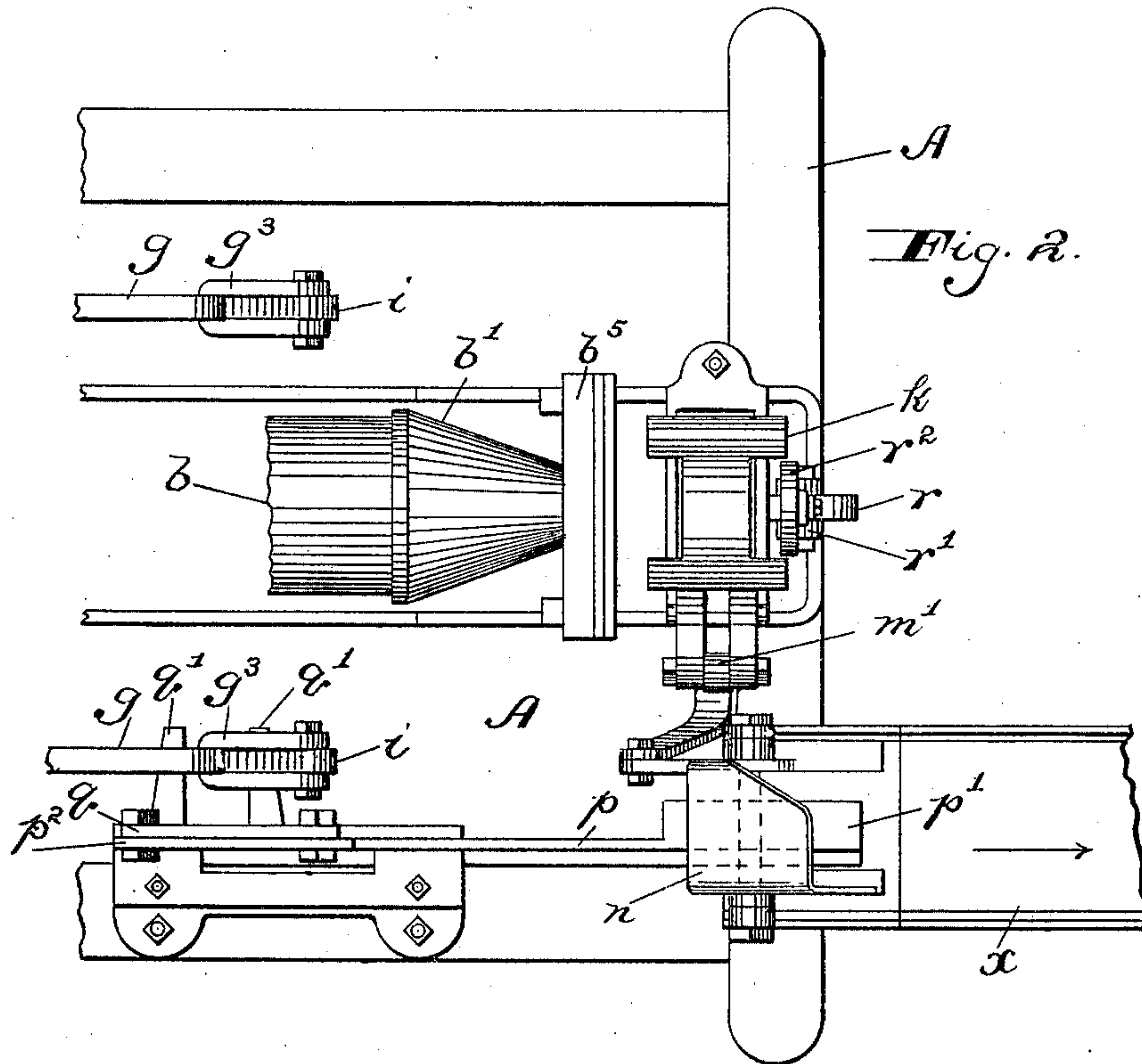
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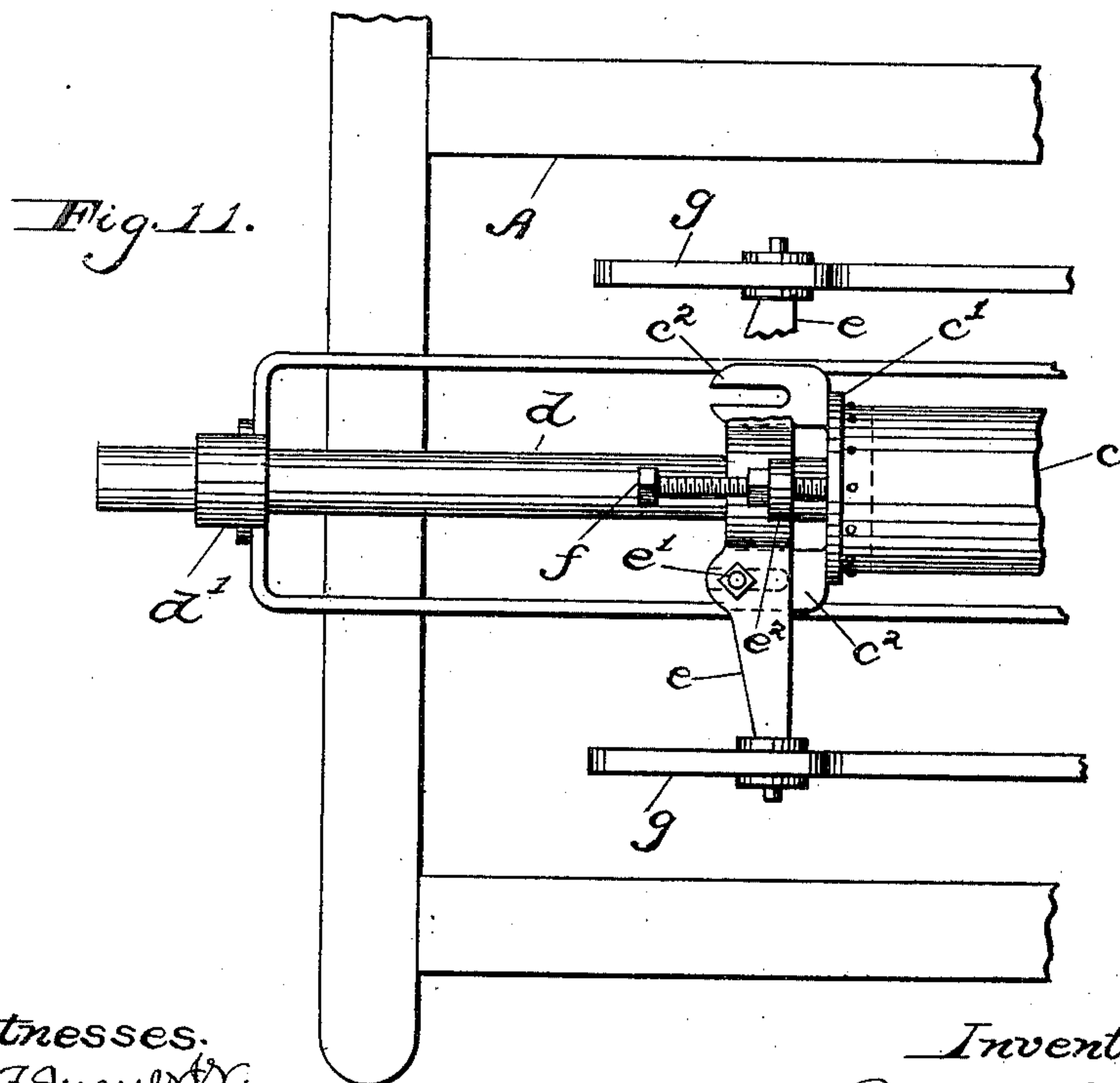
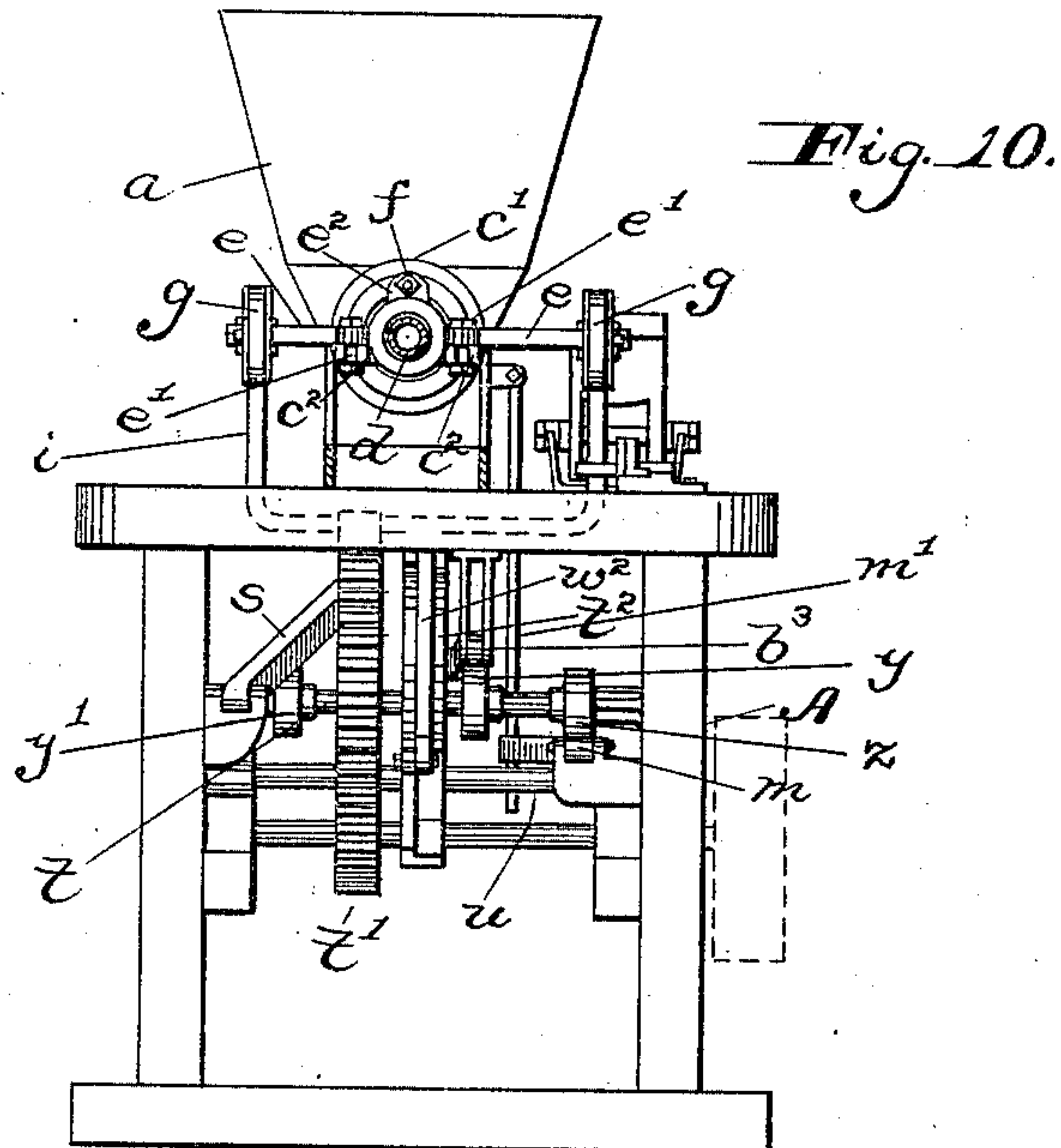
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UNITED STATES PATENT OFFICE.

CHARLES H. AYARS, OF SALEM, NEW JERSEY, ASSIGNOR TO AYARS
MACHINE COMPANY, A CORPORATION OF NEW JERSEY.

CAN-FILLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 688,231, dated December 3, 1901.

Application filed August 7, 1901. Serial No. 71,123. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. AYARS, a citizen of the United States, residing at Salem, in the county of Salem and State of New Jersey, have invented certain new and useful Improvements in Can-Filling Machines, of which the following is a specification.

This invention relates to machines for filling cans with vegetables, such as tomatoes or the like; and one of the objects of the invention is to provide a machine of this character with means whereby the empty tin cans will be successively fed while their sides are in a horizontal position to the filling devices and then when filled will be automatically turned with their open tops upward and pushed onto a table.

With this and other objects in view the invention consists in certain constructions, arrangements, and combinations of the parts hereinafter fully described and claimed, reference being had to the accompanying drawings, in which—

Figure 1 is a side elevation of the can-filling machine. Fig. 2 is an enlarged top plan view of one end of the machine and illustrates the can holding, righting, and delivering devices, the can-receptacle being left off. Fig. 3 is a front end elevation of a portion of the machine with a portion of the can-receptacle shown. Figs. 4, 5, 6, and 7 are detail views of the can-righting device. Figs. 8 and 9 are detail views of the can-delivering device or pusher. Fig. 10 is an end elevation of the machine. Fig. 11 is a top plan view of the other end of the machine from that shown in Fig. 2 and illustrates the adjustable plunger.

Referring to the drawings, the letter A designates the machine-framework, on which is mounted a hopper *a*, adapted to hold the vegetables or other material and deliver it into a horizontally-extending tubular casing *b*, and a horizontal plunger *c* reciprocates across the bottom of said hopper and forces the said material out of said casing into the can, as will be hereinafter more fully described. To the rear end of the said plunger *c*, as shown best in Fig. 11, is rigidly secured a circular casting *c'*, having two rearwardly-extending slotted ears *c²*. A rod *d* is rigidly secured to said casting *c'* and works through

a bearing *d'* on the rear end of the framework A, and a cross-head *e* is adjustably secured by bolts *e'* to the slotted ears *c²* of the casting *c'* and is provided with an upwardly-extending tongue *e²*, in which a set-screw *f* works. The advance end of said screw bears against said casting *c'*.

The two oppositely-extending arms of the cross-head *e* are secured between the upper and lower bars of two horizontally-extending reciprocating frames *g*, located one on each side of the hopper *a*, and said arms abut against shoulders *g'* on said frame-bars, whereby to limit any forward movement of the cross-head irrespective of said bars, and are provided with lugs *g²*, to which one end of coil-springs *h* are fastened. The other ends of said springs are rigidly secured by bolts *h'* to the forward ends of the reciprocating frames, as indicated in Fig. 1.

Projecting from the forward end of each reciprocating frame *g* is a fork *g³*, to each of which is pivoted one branch of a forked vertically-vibrating lever *i*, fulcrumed on the lower part of the framework A, and as the said lever is moved by mechanism hereinafter described the said frames *g* are reciprocated and carry (through the medium of the cross-head *e*) the plunger *c* back and forth across the lower end of the hopper *a* and out of and into the casing *b*. The tapering discharge end *b'* of the casing *b* is opened and closed by a gate secured to a rod *b²*, moved up and down by a lever *b³*.

It is sometimes necessary to change the position of the plunger *c*, so that it will go farther or not so far into the casing *b*, and to do this the bolts *e'* are loosened, the set-screw *f* is turned to adjust the plunger and its rod *d* with respect to the cross-head *e*, and the bolts *e'* are again tightened when the desired adjustment has been effected.

In order to allow the plunger to yield in its movement in case it has filled a can to its capacity before the lever *i* has completed its forward movement, the springs *h* are provided, said springs stretching and permitting the frames *g* to continue to advance slightly irrespective of the advance of the cross-head.

At the tapering discharge end *b'* of the casing *b* is the usual plate *b⁵*, through which the

vegetables are discharged and against which the open mouth of the can is held while the can is being filled, and adjacent said plate is a can-receptacle *j*, in which a number of
 5 empty cans are to be placed, the cans resting one upon the other and being disposed horizontally or on their cylindrical sides with their open tops facing the gate in the said discharge-plate *b*⁵ of the casing *b*. The low-
 10 ermost can rests in a rocking cradle *k*, pivoted on a pin *k'*, between two plates *b*, as shown best in Figs. 2 and 3, and to one side of said cradle is connected the upper end of a link *m'*, whose lower end is connected to the free
 15 end of a vertically-moving lever *m*, forced upwardly by a spring *m*², as shown in Fig. 1.

On the framework *A* at the lever side of the cradle *k* and at the entrance end of a slideway *x* is pivotally mounted a can-righting device *n*, in the form of a substantially rectangular box, as shown in detail in Figs. 4, 5, 6, and 7, and open at one end, as shown at *n'*, and provided with a rearwardly-extending arm *n*², to which one end of a link *o* is
 20 connected. The other end of said link is connected to the cradle-rocking link *m'*, as shown in Figs. 1 and 3, so that the said cradle *k* and the righting device *n* will move simultaneously.

A can-pusher *p* (shown in detail in Figs. 8 and 9) is mounted to slide back and forth on the upper surface of the framework *A*, with its forward end *p'* passing through the lower open end *n'* of the righting device *n*, and the
 35 rear end *p*² of said sliding pusher is adjustably connected to a plate *q*, provided with two spaced-apart lugs *q'*, which take one on each side of one of the branches of the plunger-operating lever *i*, as shown in Fig. 2, so
 40 that the pusher will be slid back and forth as the said lever moves.

Eulcrumed between ears *r'* in front of the cradle *k* is a clamping-arm *r*, provided at its upper end with a disk or plate *r*², adapted to
 45 be brought into contact with the bottom of a can on the cradle, whereby to clamp the can tightly against the discharge end *b'* of the casing *b* while the can is being filled. Below its pivot the clamping-arm *r* is secured by a link
 50 *s'* to a lever *s*, which is pulled downwardly by a spring *s*², thereby tending to press the clamping-arm against the bottom of a can, and which is moved upwardly by a cam on a horizontal transverse shaft *t*. The said shaft
 55 *t* carries all the cams that operate the various parts of the machine and is provided with a relatively large gear-wheel *t'*, meshing with a small pinion *u'* on the main driving-shaft *u*, which latter is driven by a pulley,
 60 as shown in dotted lines, Fig. 10.

The plunger-operating lever *i* is actuated from the said transverse shaft *t* by means of a cam-wheel *i*², acting alternately on upper and lower beams *w* and *w'*, secured to said lever at their forward ends and connected together at their rear ends, which are otherwise free, by means of a link *w*². The gate-slide

lever *b*³ and clamping-arm lever *s* are moved upwardly by means of cams *y y'* on said shaft, and the lever *m* for rocking the cradle *k* and righting device *n* is pressed downwardly
 70 against the tension of its spring *m*² by another cam *z* on said shaft *t*.

The practical operation of the machine is as follows: The empty tin cans are placed in the receptacle *j* on their sides—that is, turned
 75 down or tilted—with their open tops in a vertical position and facing the discharge-opening of the casing *b*, and the parts of the machine are in the position shown in the drawings—that is, the cradle *k* is in a horizontal
 80 position and the righting device *n* is in a substantially vertical position. As the shaft *t* rotates the gate is drawn down by its rod *b*³ and lever *b*³, the clamping-arm *r* is pressed
 85 against the bottom of the can resting in the cradle *k* and holds the open mouth of the can against the discharge-plate *b*⁵, and the plunger *c* is moved forwardly to fill said can. The plunger then immediately moves rearwardly,
 90 the gate at once rises to close the discharge-opening, the clamping-arm releases the can, and the lever *m* is moved downwardly, which rocks the righting device *n* to a horizontal position and tilts the cradle *k*, so that the
 95 filled can will roll off the cradle into the righting device, and as the lever *m* moves upwardly again the cradle will be tilted back to receive another can, and the righting device will be moved to a vertical position to
 100 place the can with its open top uppermost, while at the same time the lever *i*, moving forwardly to fill another can, will move the pusher *p*, which will push the filled can out of the righting device and into the slideway
 105 *x*, which leads, preferably, to a topping and wiping machine. As the can rolls off the cradle *k* onto the righting device *n* its open mouth will face along the discharge-plate *b*⁵
 110 and will lie against the top of the righting device, thereby preventing the contents of the can from being spilled while the can is in the horizontal position—that is, with its open top sidewise.

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

1. In a machine of the character described, can-filling mechanism; means for presenting a can in a horizontal position, that is, with
 120 its open top sidewise, to said can-filling mechanism; means for righting the can after it has been filled; and means for removing the can from the can-righting means.

2. In a machine of the character described, the combination of can-filling mechanism; a rocking cradle at the discharge end of said
 125 can-filling mechanism and adapted to hold a can in a horizontal position, that is, with its open top adjacent said discharge end; a can-righting device adapted to receive the can
 130 from said cradle; and means for rocking said cradle whereby to roll the can therefrom onto the said righting device.

3. In a machine of the character described, the combination of can-filling mechanism; a can-receptacle at the discharge end of said can-filling mechanism; a rocking cradle underneath said receptacle and adapted to support the lowermost can in the latter; a rocking can-righting device mounted at one side of said cradle; and a connection between said can-righting device and said cradle whereby they will operate together.

4. In a machine of the character described, the combination of can-filling mechanism; a rocking cradle adapted to present a can in a horizontal position, that is, with its open top sidewise, to said can-filling mechanism; a rocking can-righting device mounted at one side of said cradle and assuming a vertical position when the cradle is in its normal horizontal position; and means for rocking said can-righting device to a horizontal position and at the same time tilting said cradle whereby the can on the latter will roll onto said can-righting device.

5. In a machine of the character described, the combination of can-filling mechanism; means for presenting a can in a horizontal position, that is, with its open top sidewise, to said can-filling mechanism; a device for righting the can after it has been filled; and a slide working through said can-righting device and adapted to push the can away from the latter.

6. In a machine of the character described, the combination with a framework, of can-filling mechanism thereon; means for presenting a can in a horizontal position, that is, with its open top sidewise, to said can-filling mechanism; means for righting the can after it has been filled; a slideway on which the filled cans may move and adjacent said can-righting means; and a reciprocating slide adapted to push the can from the can-righting means onto said slideway.

7. In a machine of the character described, the combination of can-filling mechanism, including a plunger and a lever arranged to reciprocate said plunger; means for presenting a can in a horizontal position, that is, with its open top sidewise, to said can-filling mechanism; means for righting the can after it has been filled; and a reciprocating pusher provided with spaced-apart lugs taking around the plunger-reciprocating lever, and said pusher moved by the latter to push the filled can in an upright position away from the can-righting means.

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

CHARLES H. AYARS.

Witnesses:

J. G. RICHMOND,
LOUIS P. PLUMMER.