

(No Model.)

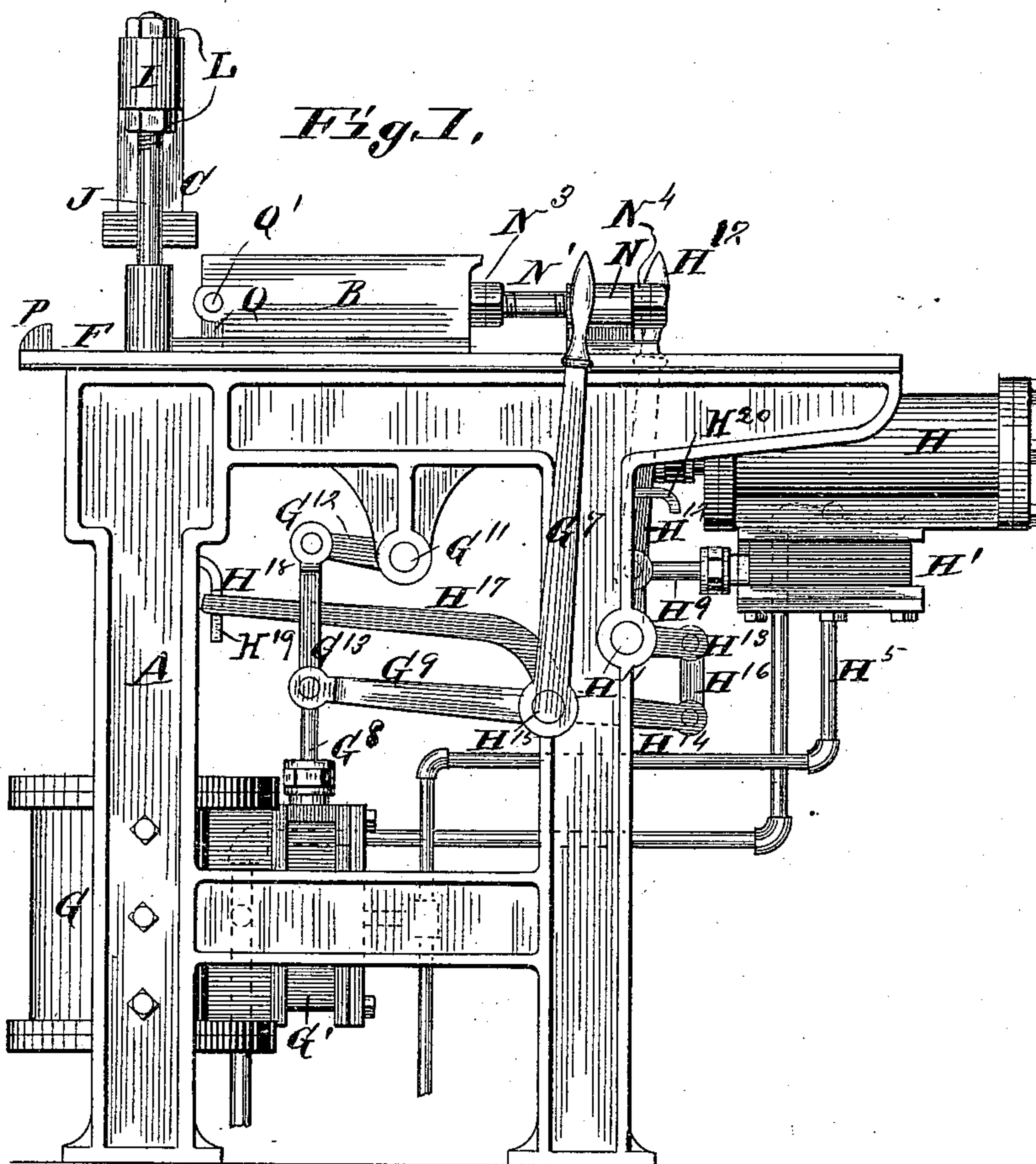
3 Sheets—Sheet 1.

J. NOBLE.

PLUG TOBACCO MACHINE.

No. 355,409.

Patented Jan. 4, 1887.



Attest!
Charles Pickles
F. A. Sopkin

Inventor:
Jay Noble
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(No Model.)

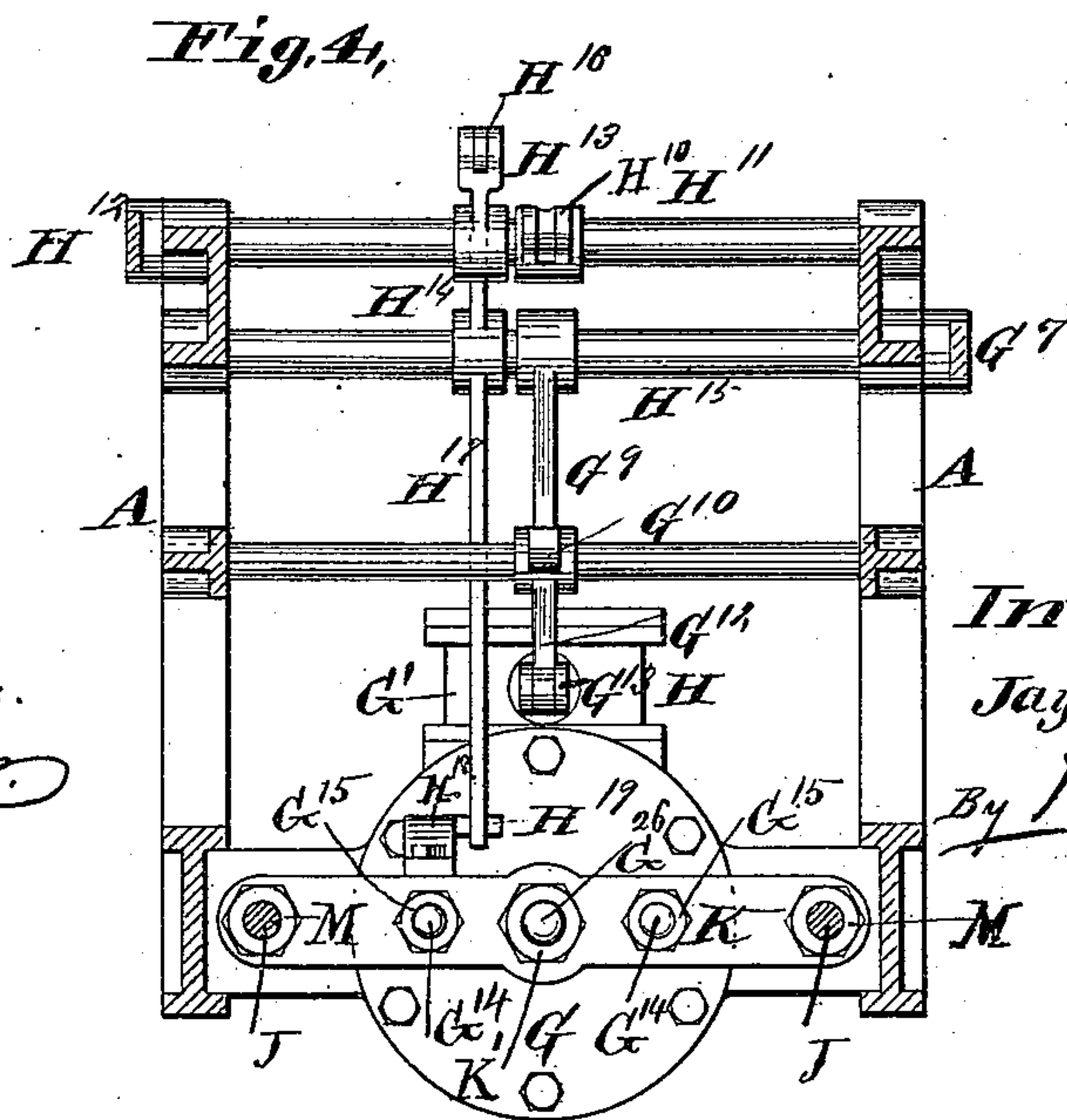
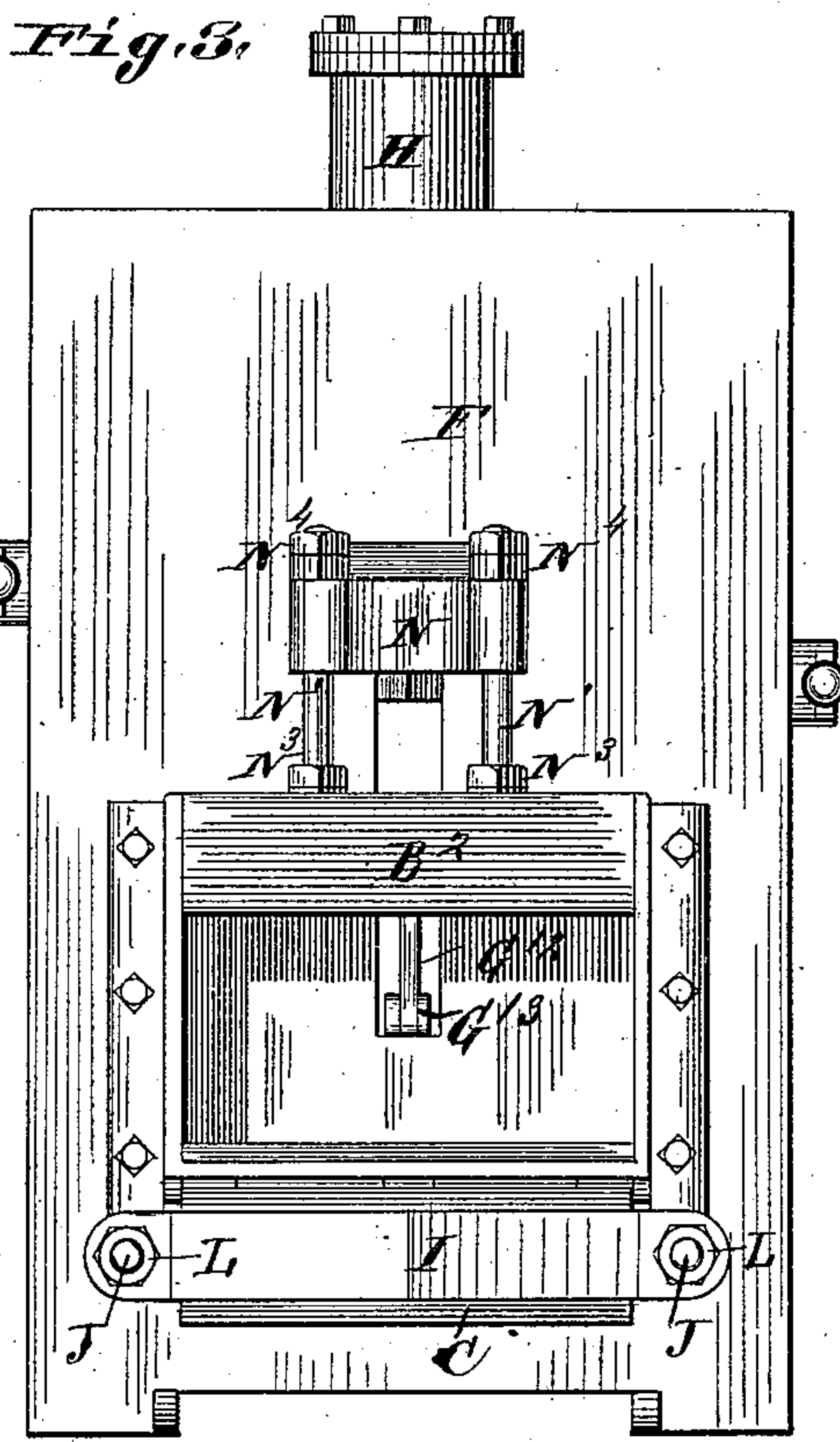
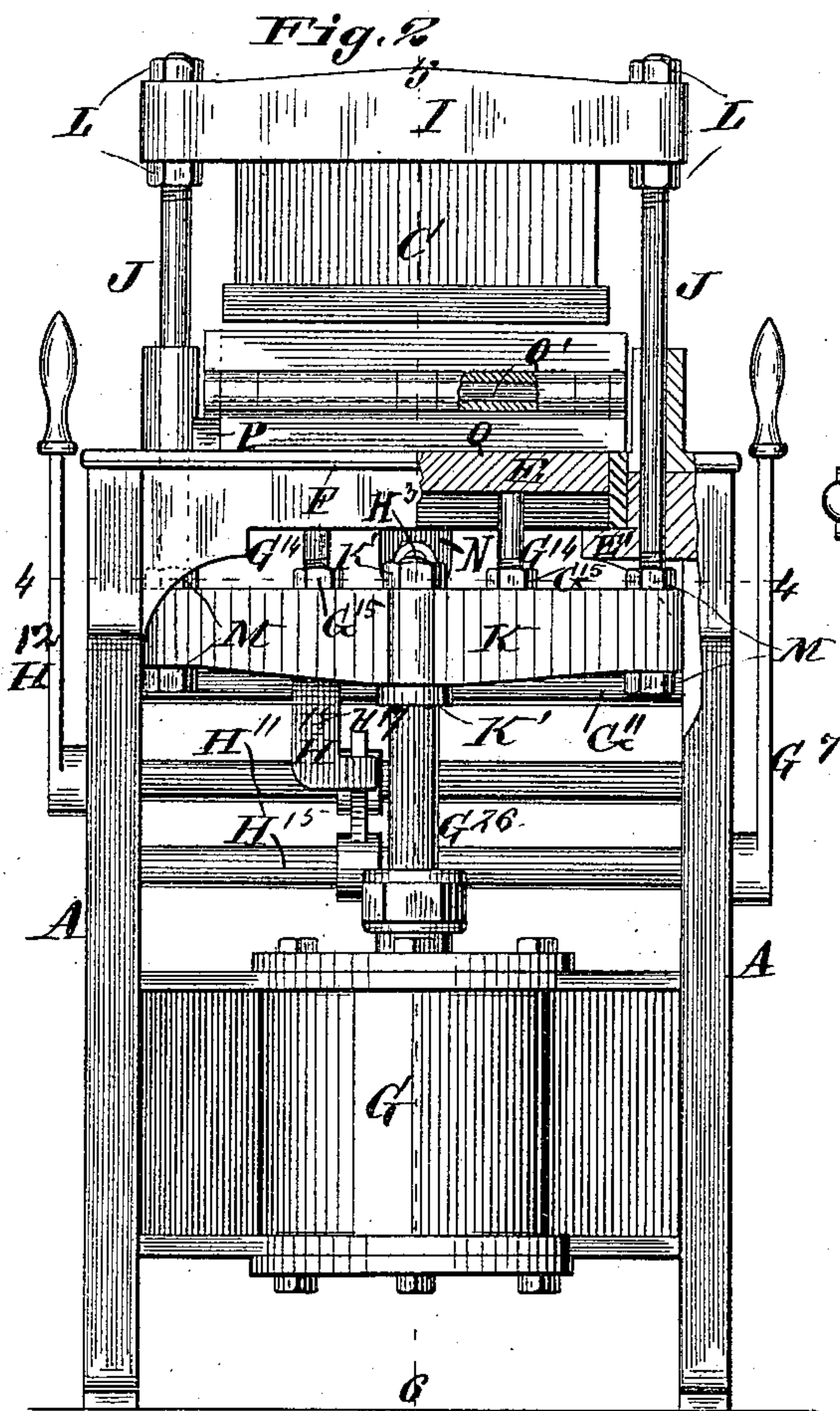
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J. NOBLE.

PLUG TOBACCO MACHINE.

No. 355,409.

Patented Jan. 4, 1887.



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Fig. 5.

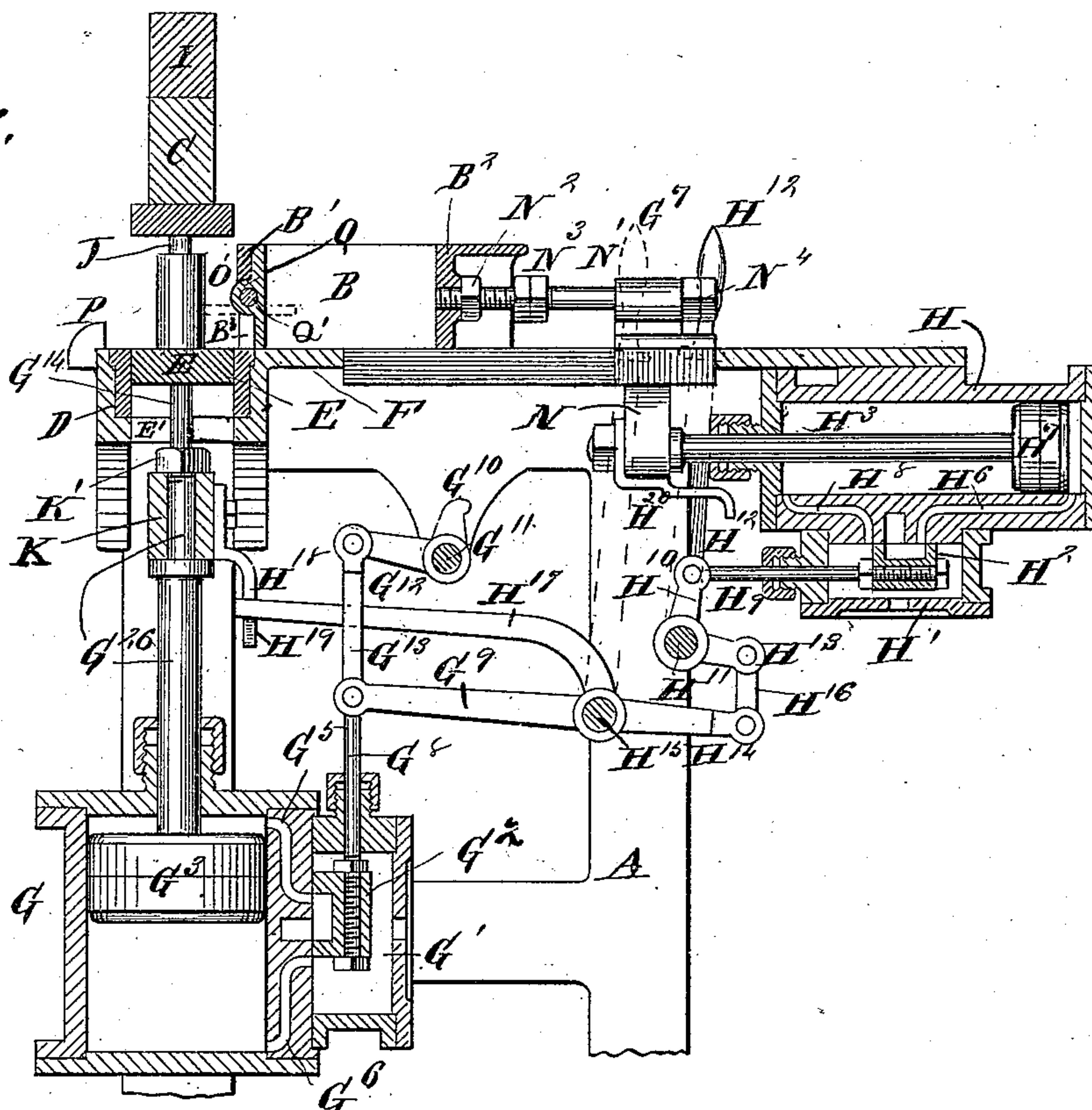
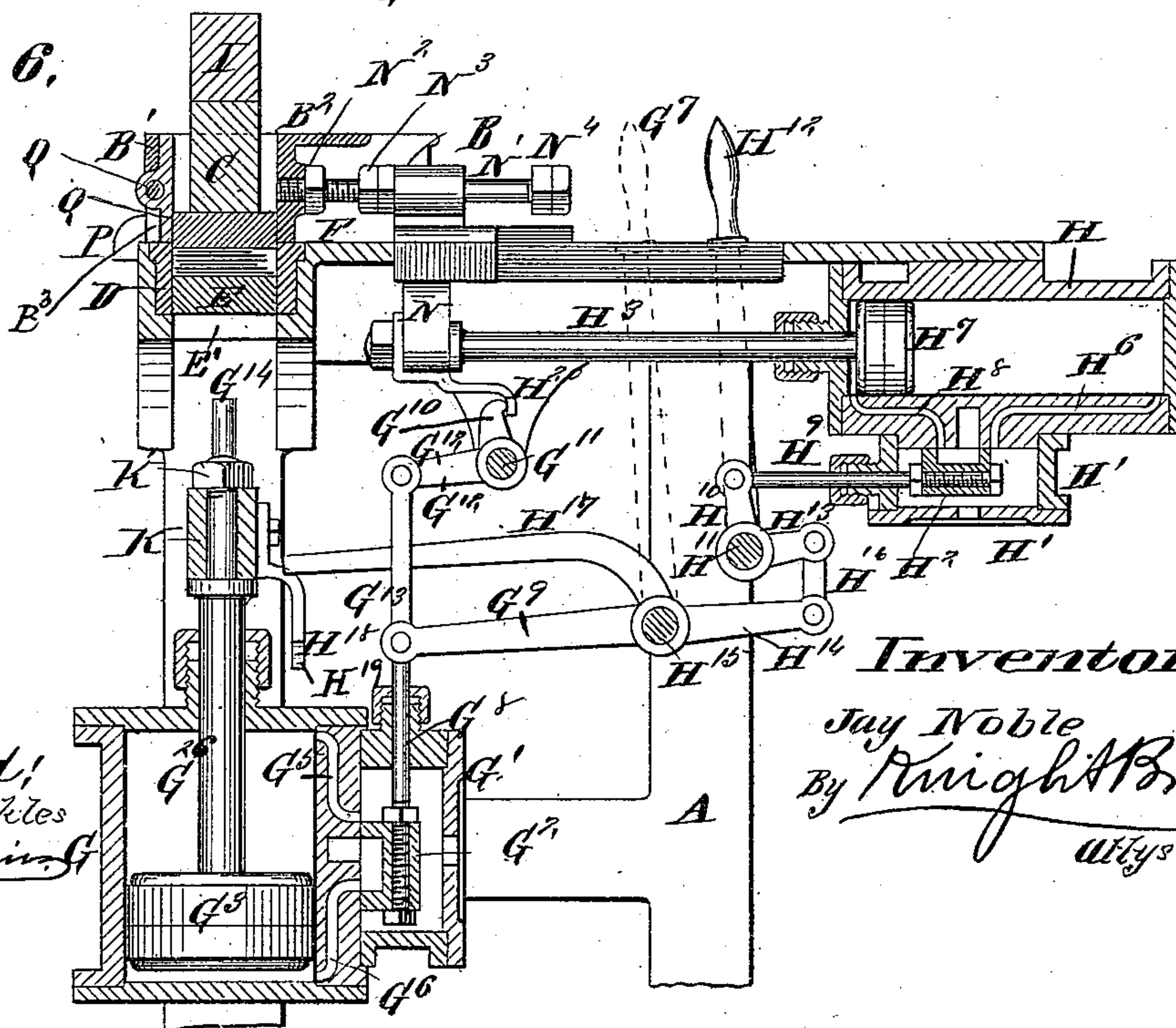


Fig. 6.



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UNITED STATES PATENT OFFICE.

JAY NOBLE, OF ST. LOUIS, MISSOURI.

PLUG-TOBACCO MACHINE.

SPECIFICATION forming part of Letters Patent No. 355,409, dated January 4, 1887.

Application filed December 14, 1885. Serial No. 185,631. (No model.)

To all whom it may concern:

Be it known that I, JAY NOBLE, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Plug-Tobacco Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification, and in which—

Figure 1 is a side elevation of my improved machine. Fig. 2 is a front end view, part in vertical section. Fig. 3 is a top or plan view. Fig. 4 is a horizontal section taken on line 4 4, Fig. 2. Figs. 5 and 6 are vertical longitudinal sections taken on line 5 6, Fig. 2, Fig. 5 showing the charger in its rear or normal position and the plunger in its elevated position, and Fig. 6 showing these parts in the opposite positions.

My invention relates to an improved machine for forming tobacco into plugs by means of hydraulic pressure; and it consists in features of novelty hereinafter fully described, and pointed out in the claims.

Referring to the drawings, A represents the frame of the machine.

B represents the charger, C the plunger, D the mold, E the movable bottom of the mold, F the table of the machine, G an engine for operating the plunger and the movable bottom of the mold, and H an engine for operating the charger.

G' represents the steam or water chest of the engine G, and G² the valve located therein.

H' represents the steam or water chest of the engine H, and H² the valve located therein.

The plunger depends from a cross head or beam, I, connected by means of vertical rods J to a cross-beam, K, beneath the mold. The rods have nuts L and M, which respectively hold the cross-heads I and K from vertical movement thereon.

The piston-rod H³ of the engine H is connected at its outer end to the charger B by means of a vertical post, N, and rods N', as shown in Figs. 3 and 5, the rods N' being preferably secured in the charger, as shown, and held from turning by means of a jam-nut, N². The post N has a movement upon the rods N' between nuts N³ and N⁴. When it comes against the nuts N³, it causes the charger to move for-

ward, and when it comes against the nuts N⁴ it causes the charger to recede.

H⁵ represents the supply-pipe of the engine H. When the valve H² is in the position shown in Fig. 6, it opens the port H⁶, admitting the motor power behind the piston H⁷ of the engine, and causes it to be forced forward to the position shown in Fig. 6, which produces the forward movement of the charger.

When the valve H² is reversed and moved to the position shown in Fig. 5, the port H⁸ is opened and the motor power is allowed to enter the cylinder in front of the piston and force the piston rearward to the position shown in Fig. 5, thus causing the charger to recede.

The valve-stem H⁹ is connected by means of a crank, H¹⁰, to a rock-shaft, H¹¹, provided with a hand-lever, H¹². By moving the lever in either direction the valve may be operated by hand. It may be operated automatically at the proper time to cause the charger to recede by connecting another lever, H¹³, on the shaft H¹¹ to a lever, H¹⁴, on a rock-shaft, H¹⁵, by means of a link, H¹⁶. The shaft H¹⁵ is provided with an arm, H¹⁷, that extends toward the engine G, and is engaged (as the piston of the engine moves upward) by an arm, H¹⁸, thereon, which has a projecting end, H¹⁹, that extends under the free end of the arm H¹⁷, as shown. The charger is thus caused to move automatically at the proper time, so that it is only necessary to use the lever H¹² to start the charger forward.

The charger is composed of side pieces, a stationary end piece, B', and a movable rear piece, B². The movable rear piece, B², is connected to the engine H, as described, and when it has moved forward a certain distance, compressing the tobacco, the entire charger will be forced forward until it comes against stops P. I do not claim anything novel in this form of the charger, knowing it to be old, and it will be unnecessary for me to describe it further.

When the charger has reached its forward position and the tobacco therein is brought over the mold, the plunger C descends from the position shown in Fig. 5 to that shown in Fig. 6, this movement being caused by the piston G³ of the engine G being forced from the position shown in Fig. 5 to that shown in Fig.

6. The piston-rod G^{26} being connected to the beam K by means of a nut and washer, K' , and the downward and upward movement of the piston thus causes the downward and upward movement of the plunger.

When the valve G^2 of the engine G is moved from the position shown in Fig. 5 to that shown in Fig. 6, the port G^5 is opened, admitting the access of the motor power above the piston G^3 , and when the valve is moved in the opposite direction a port, G^6 , is opened, admitting the access of the motor power beneath the piston. The former movement of the valve is caused by means of a lever, G^7 , connected to the rock-shaft H^{15} , the shaft being connected to the valve stem G^8 by means of an arm, G^9 . The valve is automatically moved in the opposite direction to cause the plunger to descend by the forward movement of the piston of engine H , and is engaged by means of an arm or trip, H^{20} , on the front end of the piston-rod H^3 , or on the post end, which comes against a short arm, G^{10} , on a rock-shaft, G^{11} , connected by means of a lever, G^{12} , and a link, G^{13} , to the upper end of the valve-stem G^8 of the valve G^2 . Thus, when the plunger has been raised to the position shown in Fig. 5 and the charger completes its forward movement, the trip H^{20} comes against this arm G^{10} and causes the valve G^2 to be reversed, admitting the motor power above the piston G^3 and causing the piston, and consequently the plunger, to descend. It is thus unnecessary to operate the lever G^7 when the plunger is to be lowered, the engine G being automatically reversed by the charger. Just before the plunger has completed its upward movement pins G^{14} , inserted in the beam K and secured by jam-nuts G^{15} , come against the movable bottom E of the mold and lift it to the position shown in Fig. 5, which ejects the plug from the mold, and the parts are so adjusted that the bottom is held in this position until the charger comes forward and shoves the plug from over the mold, and when the plunger C descends the bottom of the mold is forced down to its lower position on its supports E' . To close the opening B^3 in the front end, B' , for filling the charger, I provide a gate, Q , hinged by pin Q' to the front end over the opening. When the charger recedes, the plug opens the gate to the position indicated by dotted lines in Fig. 5, to permit the front end to pass over the plug.

I claim as my invention—

1. The combination, with the engines, of

the devices for connecting the engines together, which consist of the trip H^{20} , arm H^{18} H^{19} , short arm G^{10} , lever G^{12} , link G^{13} , rock-shaft H^{15} , having arms G^9 and H^{17} , rock-shaft H^{11} , having lever H^{13} and crank H^{10} , lever H^{14} , and link H^{16} , substantially as set forth.

2. The combination, with a charger, of a plunger, C , cross-head I , supporting the plunger, cross-beam K , rods J , connecting the cross-head and cross-beam, engine G , consisting of a cylinder having ports G^5 G^6 , chest G' , piston G^3 , having rod G^{26} , on which the plunger-frame is supported, and valve G^2 , having stem G^8 , and rock-shaft H^{15} , having lever G^7 and arm G^9 , substantially as set forth.

3. The combination, with a charger, of the cross-head I , having plunger C , the rods J , cross-beam K , mold D , supports E' , movable mold-bottom E , pins G^{14} , secured to the cross-beam, engine G , having piston-rod G^{26} , on which the cross-beam is supported, and the rock-shaft H^{15} , having lever G^7 , and arm G^9 , connected to the valve-stem of the engine, substantially as set forth.

4. The combination of a charger having post N , an engine, H , connected to the post, plunger-frame, engine G , for raising and lowering the plunger-frame, trip H^{20} , rock-shaft G^{11} , having short-arm G^{10} and lever G^{12} , and link G^{13} , connecting the lever and valve-stem of the plunger-engine, substantially as set forth.

5. The combination of a charger having post N , an engine, H , connected to the post, plunger-frame having arm H^{18} , formed with projecting end H^{19} , rock-shaft H^{15} , having arms H^{17} G^9 and lever H^{14} , link H^{16} , and rock-shaft H^{11} , having lever H^{13} and crank H^{10} , substantially as set forth.

6. The combination, with the engines, of the devices for connecting the engines together by their main valves, which consist of the rock-shaft H^{11} , having lever H^{13} and crank H^{10} , rock-shaft H^{15} , having arm G^9 , lever H^{14} , and link H^{16} , substantially as shown and described.

7. The combination, with the engines, of the trip H^{20} , arm H^{18} H^{19} , and the devices, substantially as shown and described, for connecting the engines together, so that the action on one engine depends on the action of the other engine.

JAY NOBLE.

In presence of—

SAML. KNIGHT,

EDW. S. KNIGHT.