

No. 749,723.

PATENTED JAN. 19, 1904.

D. S. DUFUR.
CARRIAGE RETURN FOR TYPE WRITERS.
APPLICATION FILED FEB. 28, 1903.

NO MODEL.

Fig. 1.

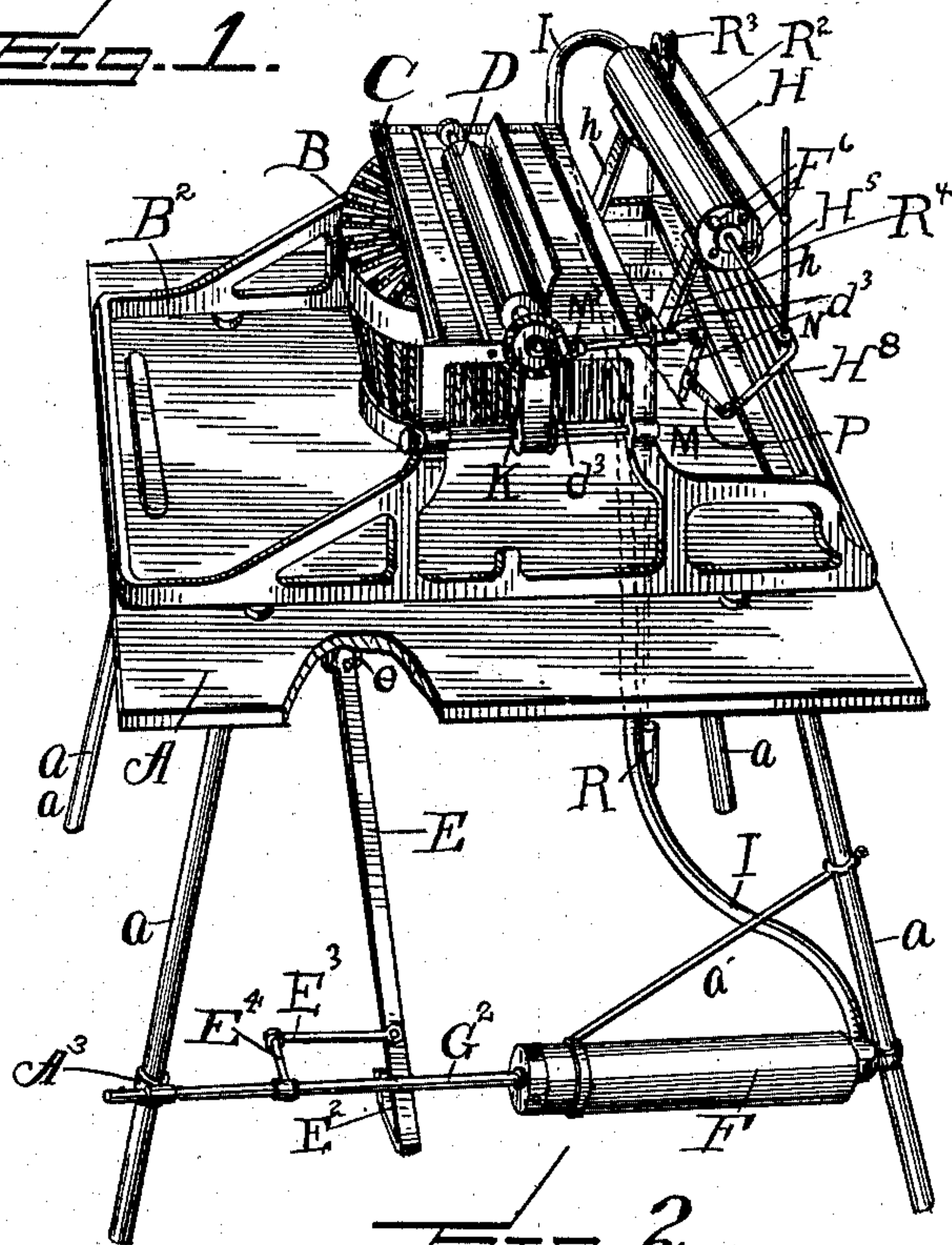


Fig. 2.

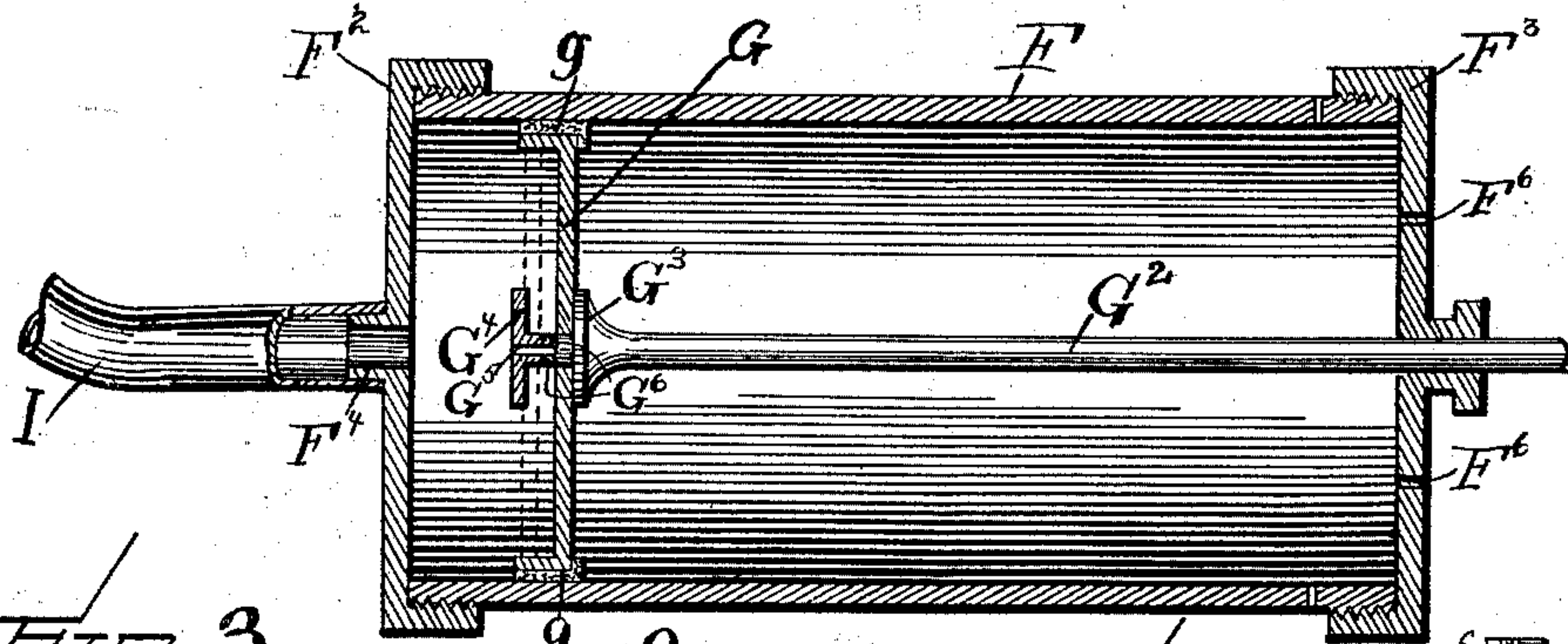


Fig. 3.

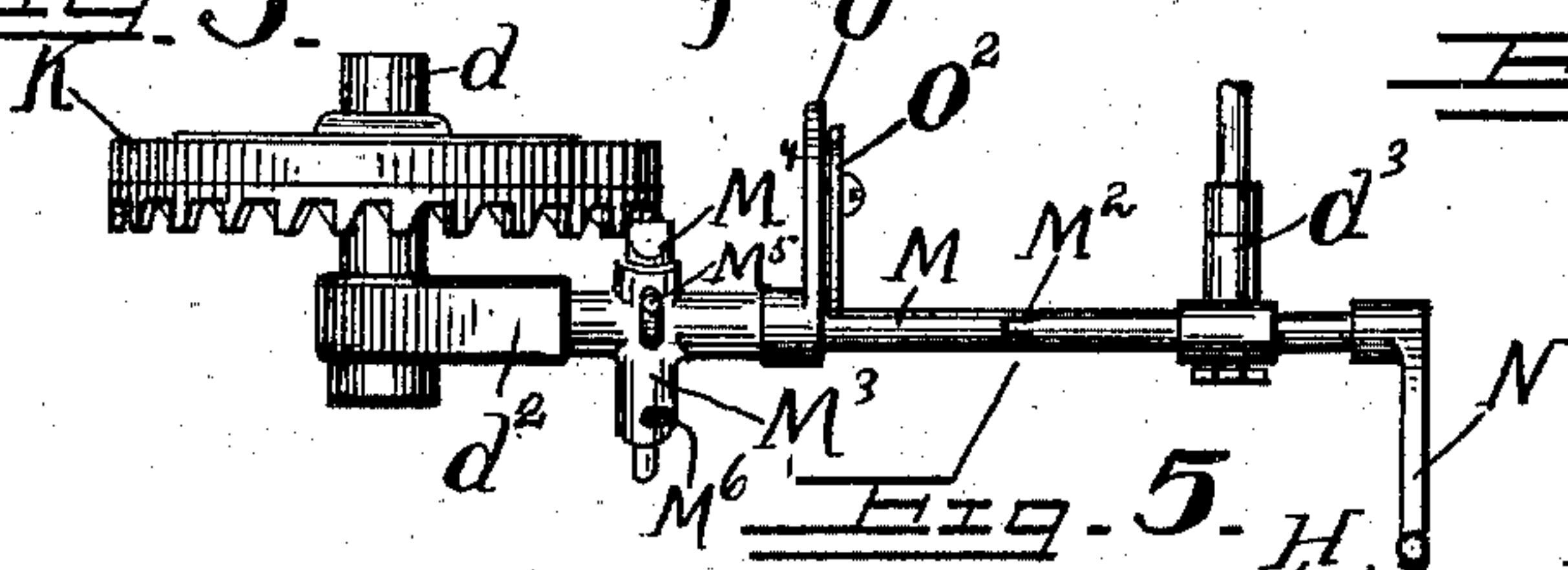


Fig. 4.

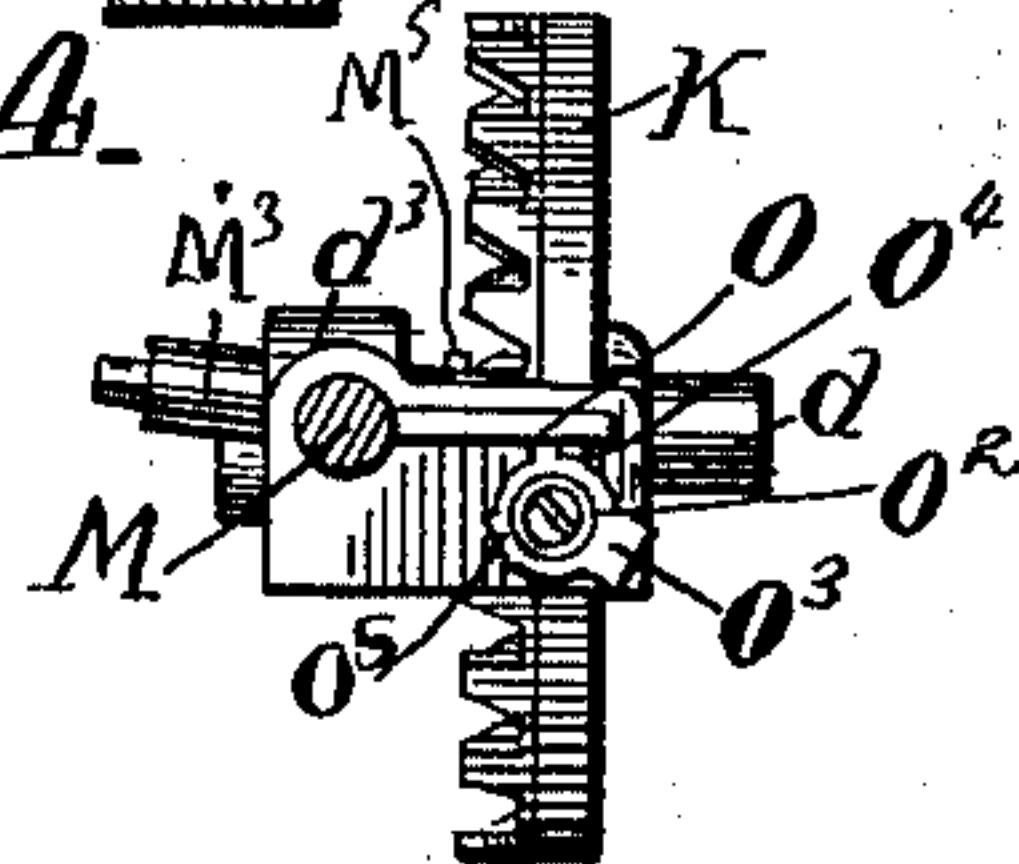
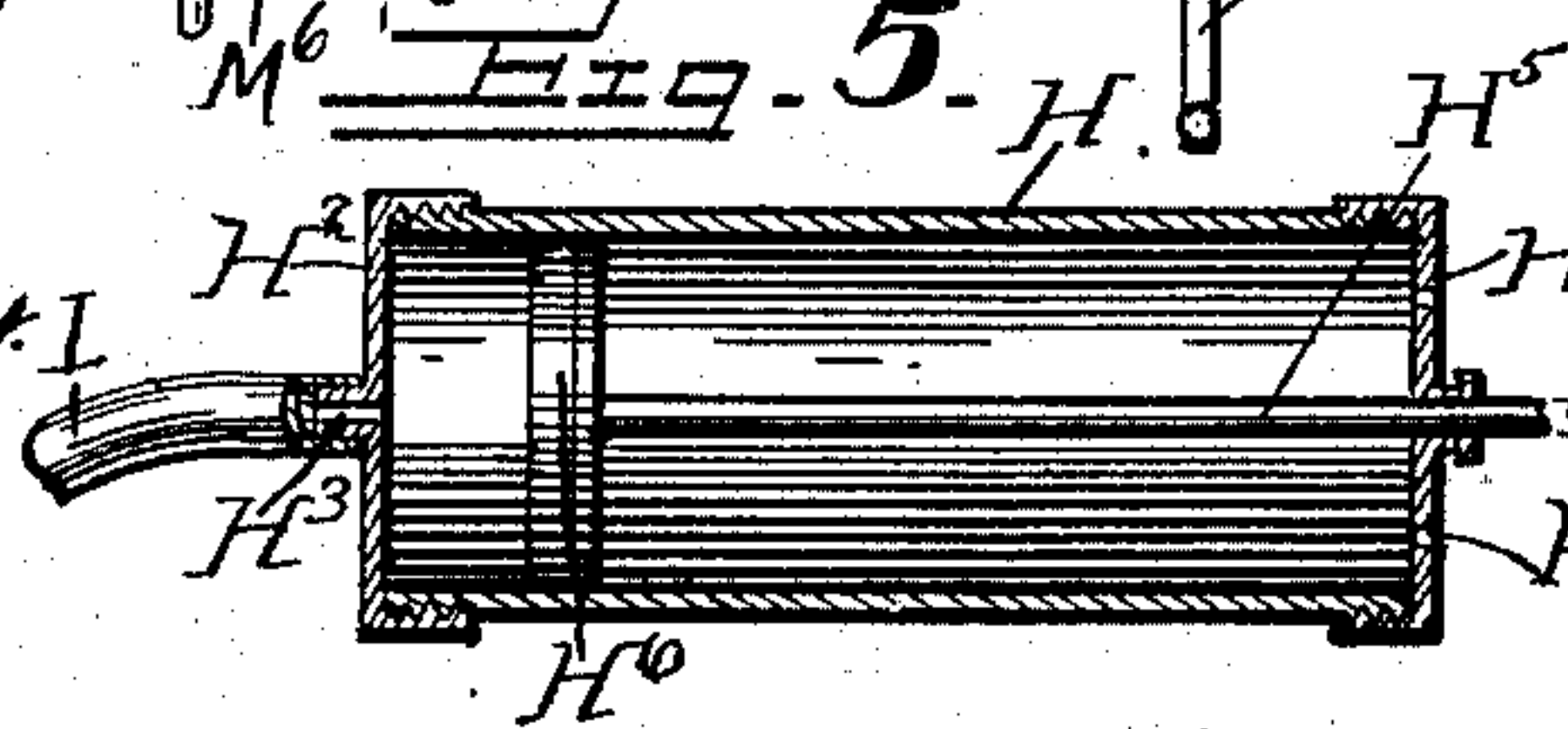


Fig. 5.



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UNITED STATES PATENT OFFICE.

DOUGLAS S. DUFUR, OF THE DALLES, OREGON.

CARRIAGE-RETURN FOR TYPE-WRITERS.

SPECIFICATION forming part of Letters Patent No. 749,723, dated January 19, 1904.

Application filed February 28, 1903. Serial No. 145,607. (No model.)

To all whom it may concern:

Be it known that I, DOUGLAS S. DUFUR, a citizen of the United States, residing at The Dalles, in the county of Wasco and State of Oregon, have invented certain new and useful Improvements in Carriage>Returns for Type-Writers; and I do hereby 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.

The object of my invention is to provide pneumatically-operated means for actuating a reciprocatory member, and especially for returning a type-writer carriage to its initial position.

A further object of my invention contemplates means for returning a type-writer carriage to its initial position and rotating its supported platen for line-spacing.

With these objects in view and others my invention consists in the constructions, arrangements, and combinations of parts hereinafter described and claimed.

In the drawings forming a part of this application, and in which similar reference-letters indicate corresponding parts in the several views, Figure 1 is a perspective view of my invention applied to a type-writer. Fig. 2 is a section of the compression-cylinder, on an enlarged scale. Fig. 3 is a plan view of the platen-rotating device, on an enlarged scale. Fig. 4 is a detail of the latter mechanism, and Fig. 5 is a sectional view of the carriage-actuating cylinder and piston.

While I have shown my invention as applied to a type-writer of the Densmore type supported on the usual stand, the invention is applicable to other forms of type-writers and may be attached to any form of table, desk, or cabinet.

This invention may also be applied to any kindred apparatus, such as a linotype-machine, wherein there is a reciprocable member that is moved in one direction by the operation of keys.

Referring to the drawings more in detail, A indicates a suitable stand provided with the legs *a a*. B indicates a type-writing machine,

which is here shown conventionally with the keyboard and certain details omitted for greater clearness. The type-writer frame B² is shown supporting the usual carriage C, which carries the rotatable platen D. A pneumatic cylinder F, provided with a piston G and piston-rod G², is suitably supported on one of the legs *a*, and a guide A³ is preferably provided for the outer end of the said piston-rod. A swing-arm E is pivoted at *e* to the stand and is provided at its lower end with a stirrup E², conveniently located for actuation by the operator's foot. The swing-arm is operatively connected to the piston-rod G² by a link E³, pivotally connected to said swing-arm and to a pin E⁴, secured to the piston-rod. The front end of cylinder F is provided with a head F³, having air-passages F⁶ formed therein, and the rear end of said cylinder carries a head F², provided with an apertured boss F⁴. The piston G is slidably mounted between two abutments G³ G⁴ on the piston-rod, and said rod is provided at its extremity with a bore G⁵, arranged in communication with radial apertures G⁶. The bore G⁵ is so proportioned that when the piston-rod is moved forward with the piston engaging the abutment G³ no communication will exist between the two ends of the cylinder F, and when the piston-rod is moved back with the piston engaging the abutment G⁴ free communication between the two ends of the cylinder F will be permitted through the bore G⁵ and its communicating apertures G⁶. The piston G will be frictionally held in the cylinder by its usual packing *g* until engaged by one of the abutments G³ or G⁴. A second cylinder H, supported upon standards *h h* on the stand A, is provided with a piston H⁶ and piston-rod H⁵, the piston-rod having a bent portion H⁸. A head H⁴, provided with air-passages H⁷, is secured to one end of the cylinder, and the other end of the cylinder carries a head H², having an apertured boss H³. A weight R is shown attached to a cord R², which is guided by a pulley R³ and secured to a pin R⁴ on the piston-rod H⁵. This weight is designed to overcome the frictional resistance of the piston H⁶ in its cylinder during the movement of the

type-writer platen while the operator is writing. A suitable pipe I, secured to the bosses H³ and F⁴, affords communication between the cylinders F and H, as shown. A shaft M is mounted in a support d², journaled on the end of the platen-shaft d and in a bracket d³, secured to the type-writer carriage C. Slidably mounted in a cross-arm M³ on the shaft M is a pawl M⁴, which is held in engagement with a crown-gear K on the platen-shaft by a spring M⁶. A pin M⁵ limits the travel of the ratchet M³. The shaft M carries a crank N, which is connected to the bent portion H⁸ of piston-rod H⁵ by a spring-bar P. The spring P acts to prevent the transmission of shocks or vibrations from the piston-rod H⁵ to the type-writer carriage. The shaft M is provided with a joint M² intermediate its supports to permit the type-writer platen being raised from its carriage.

When the shaft M is rocked by the arm N, secured to its free extremity, the ratchet M⁴ will engage the crown-gear K, and thereby rotate the platen a distance regulated by means of a pin O, secured on the shaft M, which engages a three-armed stop O², adjustably mounted on the carriage C and provided with arms of graduated length. When the disk is turned so that the longest arm O³ will be engaged by the pin O, the ratchet will move the crown-gear the distance of one tooth. When the arm O⁴ is arranged to engage the pin O, the ratchet will move the crown-gear the distance of two teeth. When the shortest arm O⁵ of the disk is engaged by the stop-pin O, the ratchet can move the crown-gear the distance of three teeth.

The operation of the above parts is as follows: The foot-lever E is moved forward to advance the piston-rod G². After a line has been written or it is desired to return the carriage and platen the operator moves the foot-lever forward, which through the link connecting rod E³ will cause the piston-rod and piston G to be advanced. This movement of the piston drives the air contained in cylinder F out through the pipe I and into the cylinder H, thereby advancing the piston H⁶ and its rod H⁵ and rocking the shaft M. The shaft M in rocking will rotate the platen D until its pin O engages the stop O². Thereupon the continued movement of the piston-rod H⁵ will draw the carriage C along to the limit of its movement. The cylinder H is so proportioned that its piston will not have advanced the full length of the cylinder when the carriage reaches the end of its travel. Therefore the further movement or pressure by the foot after the carriage has been returned will act to further compress the air in the cylinder H, which will act as a cushion and obviate any shock or jar that would necessarily occur were the carriage returned by a rigid mechanical movement. The lever E is thereupon retract-

ed by the foot, causing the piston G to move into engagement with the end abutment of the piston-rod G² and the ports G⁵ and G⁶ to establish communication between the two ends of the cylinder F. Consequently the return movement of the piston G will not tend to cause a vacuum in the pipe I and cylinder H. The writing movement of the machine that advances the carriage will serve to return the piston-rod H⁵ and piston H⁶, which latter movement will force the air back of the piston H⁶ through the pipe I and into the cylinder F, where it will escape through ports G⁵ G⁶ and apertures F⁶. The next advanced movement of the arm E and piston-rod G² will cause the piston-rod to move through the piston G until said piston is again in engagement with the abutment G³, when the action of the several parts will be as hereinbefore described.

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

1. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, and constructed to be moved rearwardly without affecting the pressure in said first cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

2. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, and constructed to be moved rearwardly without affecting the pressure in said first cylinder, means constructed to permit the piston in said first cylinder to be returned without affecting the pressure in its cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

3. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, a valve device constructed and arranged to permit the return of said sec-

ond piston in its cylinder without affecting the pressure in the first cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

4. In a type-writing machine having the usual carriage, the combination of a cylinder, a piston in said cylinder and arranged to return the type-writer carriage to position for beginning a line of type-writing, a second cylinder arranged in communication with the first cylinder, a piston in said second cylinder, and arranged to, upon its advance movement, actuate the first piston and return the type-writer carriage, a valve device constructed and arranged to permit the return of said second piston in its cylinder without affecting the pressure in the first cylinder, means constructed to permit the piston in said first cylinder to be returned without affecting the pressure in its cylinder, and means, under the control of the operator, arranged to advance and retract said second piston, substantially as described.

5. In a type-writing machine having the usual carriage, the combination of pneumatically-actuated means arranged to return the type-writer carriage to position for beginning a line of type-writing, a pneumatic cylinder arranged in communication with said pneumatically-actuated means, a piston-rod carrying two abutments and provided with a bore-opening adjacent said abutments, a piston in said cylinder slidably mounted on the piston-rod between said abutments, and means arranged to operate said piston-rod and piston, substantially as described.

6. In a type-writing machine having the usual carriage, the combination of a cylinder and its piston, means arranged to connect said piston to the type-writer carriage, said means including a spring-bar, a second cylinder arranged in communication with the first cylinder, a piston in the second cylinder, and means arranged to operate said second piston, substantially as described.

7. In a device of the character described, the combination with a reciprocable member

movable in one direction by the writing mechanism, of a cylinder, a piston movable in the cylinder and arranged to move said member in the opposite direction, a second cylinder having an axial aperture, a piston in said latter cylinder, a piston-rod in said latter cylinder passing through said apertured portion of the piston, two abutments on said piston-rod, one arranged on each side of said piston, said piston-rod having an axial aperture and radial apertures from said aperture arranged between said abutments, a pipe affording communication between the said cylinders, and means for operating the piston-rod in said second cylinder by the leg of the operator, substantially as described.

8. In a type-writing machine having the usual carriage and platen, the combination of a cylinder, its piston and piston-rod, a toothed wheel arranged to be secured to the type-writer platen, a shaft carrying a pawl in engagement with said toothed wheel, a crank secured on said shaft, a spring-bar connecting said crank and piston-rod, a second cylinder in communication with the first cylinder, a piston in said second cylinder, and means arranged to operate said second piston, substantially as described.

9. In a type-writing machine having the usual carriage and platen, the combination of a cylinder, its piston and piston-rod, a toothed wheel arranged to be secured to the type-writer platen, a shaft carrying a pawl in engagement with said toothed wheel, an adjustable stop arranged to limit the rotation of said shaft, a crank secured on said shaft, a spring-bar connecting said crank and piston-rod, a second cylinder in communication with the first cylinder, a piston in said second cylinder, and means arranged to operate said second piston, substantially as described.

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

DOUGLAS S. DUFUR.

Witnesses:

CHAS. F. MICHELBAUGH,
WM. H. REID.