

No. 661,386.

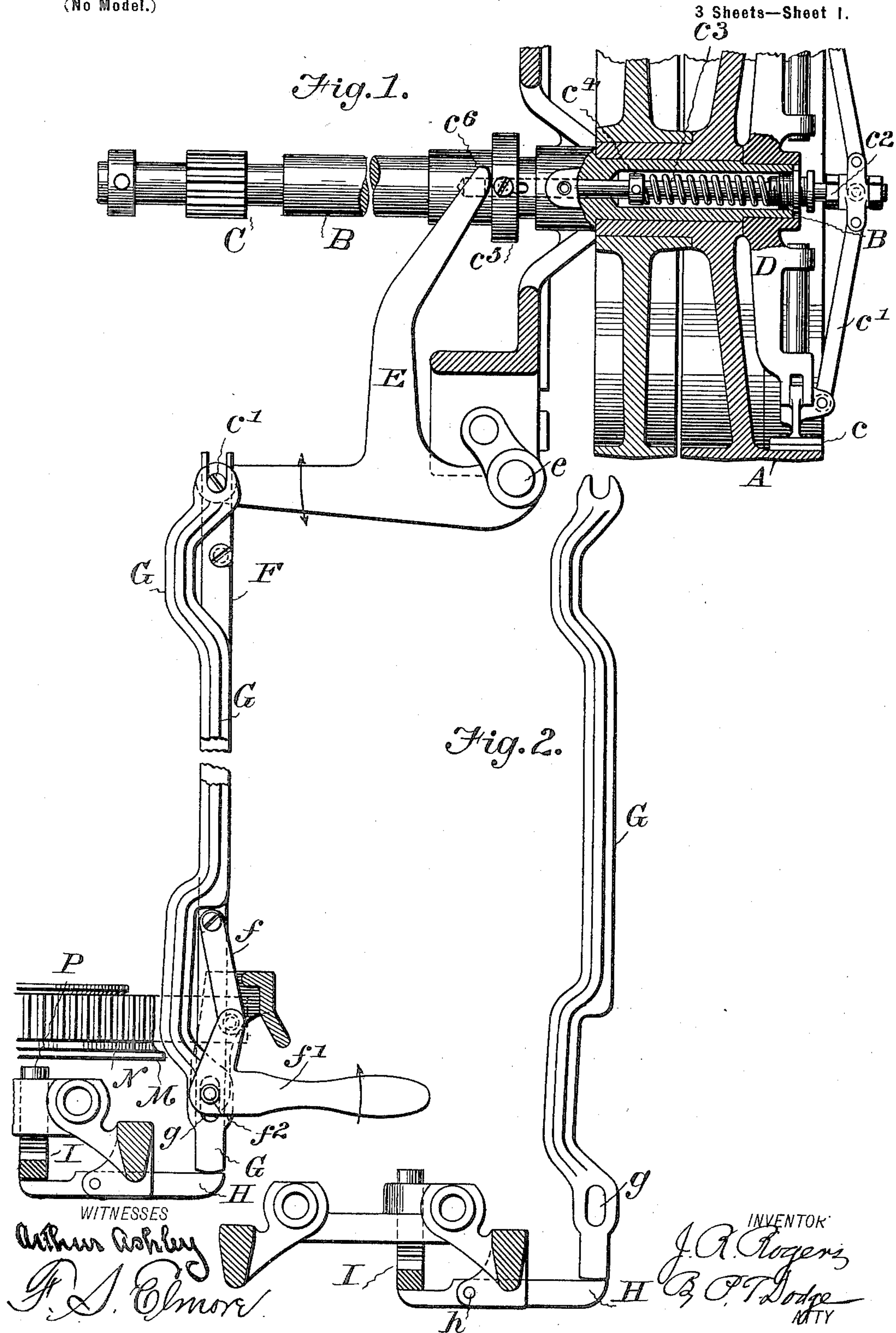
Patented Nov. 6, 1900.

J. R. ROGERS.
LINOTYPE MACHINE.

(Application filed June 5, 1900.)

(No Model.)

3 Sheets—Sheet 1.



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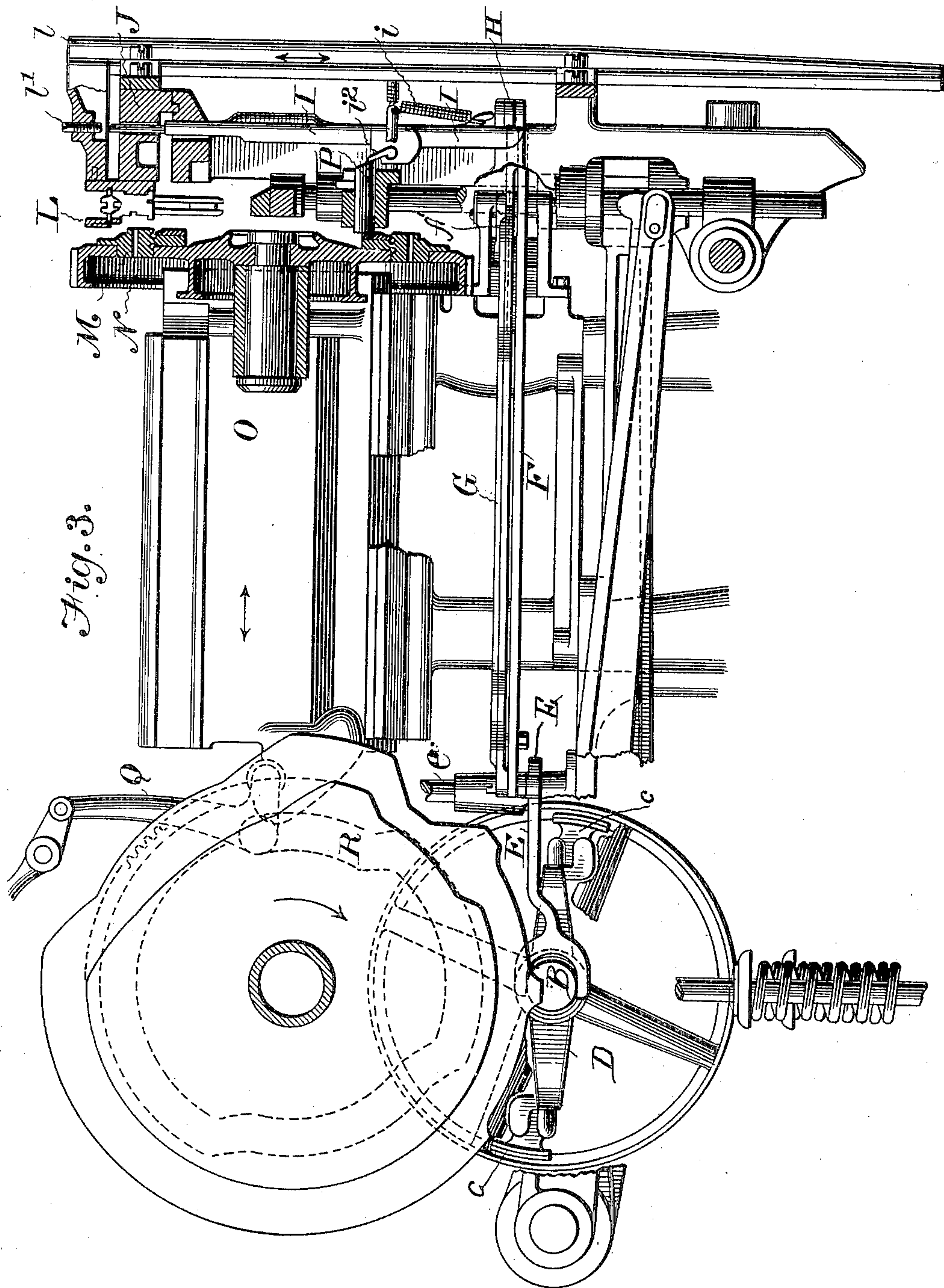
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WITNESSES

Arthur Ashby
P. S. Elmore

INVENTOR

J. R. Rogers
B. P. T. Dodge
ATTY

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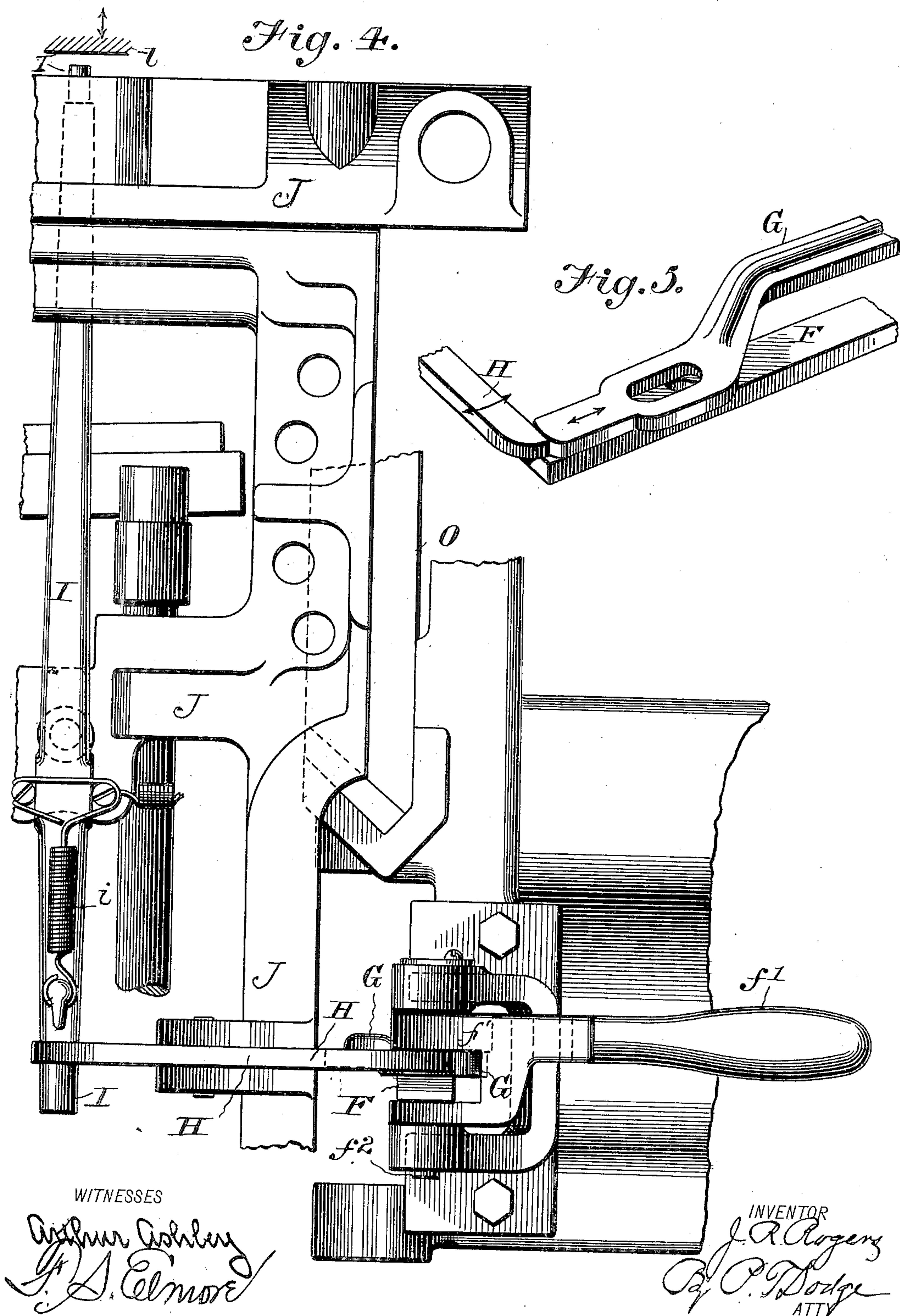
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INVENTOR

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J. R. Rogers
By P. Dodge
ATTY

UNITED STATES PATENT OFFICE.

JOHN R. ROGERS, OF NEW YORK, N. Y., ASSIGNOR TO THE MERGENTHALER
LINOTYPE COMPANY, OF NEW YORK.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 661,386, dated November 6, 1900.

Application filed June 5, 1900. Serial No. 19,136. (No model.)

To all whom it may concern:

Be it known that I, JOHN R. ROGERS, of New York, (Brooklyn,) county of Kings, and State of New York, have invented new and
5 useful Improvements in Linotype-Machines, of which the following is a specification.

This invention relates to improvements in the means for controlling the driving-clutch of the Mergenthaler linotype-machines of the
10 character represented in United States Letters Patent No. 436,532, dated September 16, 1890. In these machines a bar for throwing the main driving-clutch into and out of action is connected with a hand-lever, by which the
15 machine may be stopped or started at any time, and also with a second lever, actuated indirectly by the first elevator, which lowers the line of matrices to the casting position in front of the mold, the arrangement being
20 such that if the elevator fails to lower the matrices sufficiently for their ears to pass under the advancing mold the machine will be automatically stopped. This last-named mechanism is commonly known as the "vise
25 automatic."

In practice two principal objections have been developed against the original mechanism—first, that the adjustment of the driving-clutch which was sometimes necessary
30 had the effect of destroying the proper relations between the parts of the automatic clutch-controlling devices, and, second, that it was possible for an operator to throw the machine out of or into action at times when
35 there was danger of injury to the matrices. My invention is intended to overcome these difficulties; and it consists in connecting the automatic devices and the manual devices independently with the main clutch, so that
40 the adjustment of the clutch has no effect on the automatic devices and so that the operator is prevented from starting the machine unless the parts are in proper relation.

I have illustrated in the accompanying
45 drawings only so much of the machine as is necessary for an understanding of my invention. All other parts may be of the ordinary construction.

Figure 1 is a top plan view showing the
50 driving pulley and clutch and the connections for controlling the same, the main driving

pulley and clutch being shown in section. Fig. 2 is a top plan view showing in detail my improved clutch-controlling bar and the automatic devices with which it coöperates at
55 the front. Fig. 3 is a vertical section from front to rear through the mold-disk and adjacent parts, with the driving devices in side elevation. Fig. 4 is a front elevation, on a larger scale, showing the clutch-controlling
60 devices. Fig. 5 is a perspective view showing the two independent bars for operating the clutch.

Referring to the drawings, A represents the main driving-pulley, arranged to turn loosely
65 on the tubular end of the horizontal shaft B, which is seated in bearings in the frame and provided with a pinion C, through which motion is communicated to the various parts of the machine. The wheel A revolves continu-
70 ously, but communicates motion intermittingly to the shaft B through a clutch D, consisting of a cross-bar or yoke keyed fast to the end of the shaft and carrying the outwardly-sliding shoes c, actuated by links c', jointed
75 at their inner ends to ears on a spindle c², which is extended centrally into the main shaft and encircled by a spiral spring c³, seated between the collar c⁴ on the spindle and a collar on the outer end of the hub. This
80 spring tends to draw the spindle inward and through the links c' to force the clutch-shoes outward into engagement with the inner surface of the rim of the driving-pulley, thus locking the pulley to the main shaft B, so
85 that they must turn together. The disengagement of the shoes and the stoppage of the machine are effected by means of a horizontal angular lever E, pivoted to the main
90 frame at e and acting at its rear end against a collar c⁵, encircling the shaft, and connected with the spindle c² by a transverse pin or screw c⁶, passing through a slot to the interior spindle c². When the lever is released, the
95 spring automatically causes the engagement of the clutch and sets the machine in motion. The lever E must be pushed backward and held against the pressure of the spring in order to hold the machine at rest.

The manual control of the machine is ef-
100 fected by a horizontal bar F, having a slotted rear end seated against a stud e' on the clutch-

lever E and its forward end connected by link f to one end of the angular hand-lever f' , pivoted to the frame at f^2 . When this lever is pulled forward, it advances the bar F and the machine is set in motion. When the hand-lever is thrown backward until the link f stands on the center, the bar F is held back and the clutch held out of action. So far the parts are of essentially the same construction and arrangement as in the patent above referred to, the clutch being of somewhat different form, but being controlled by the central stem in like manner. In the patent the clutch-controlling bar F is also connected with the automatic devices controlled by the first elevator. I now omit this connection and connect the bar F with the hand-lever alone, as above explained.

As a means of controlling the clutch automatically by the elevator, I provide the second bar G, which is laid in position loosely above the bar F, with its slotted rear end in contact with the stud e' on the clutch-controlling lever. At its forward end the bar G is provided with a longitudinal slot g , through which the pivot on the hand-lever passes as a guide for the bar, there being, however, no connection between the hand-lever and the bar. At its forward end the bar G bears against one end of the horizontal lever H, pivoted at h in the main frame and arranged to bear at its opposite end against the lower end of an upright bar or lever I. This lever is extended loosely at its upper end through the top of the vise-frame J, a stationary part of the main frame. The lever I, commercially known as the "vise automatic lever," is free to swing forward and backward at its lower end to a limited extent and is also free to play upward and downward, its weight being sustained by a spiral spring i , connecting it with a projection from the frame. The composed line of matrices K is suspended for the time being in a support L, known as the "first elevator" and adapted to rise and fall, so that it may lower the matrices into operative position in front of the mold M. This mold is mounted, as usual, in a vertical rotary disk or wheel N, having its horizontal axis supported in an arm on the side of a slide O, mounted to move forward and backward in the main frame under the influence of lever Q, actuated by cam R, this motion permitting the mold to be moved forward against the matrices preparatory to the casting action and to be afterward withdrawn.

The first elevator L is attached to and carried by the long vertical slide l , mounted in the main frame and actuated by a cam mechanism. It is necessary that the matrices shall be lowered until the ears on their lower ends are below the level of the under edge of the mold, so that when the mold advances toward them it will override the ears, as presently explained. The object of the vise automatic or automatic clutch-controlling mechanism is to stop the machine if the elevator

L fails to lower the matrices to the required extent. If the elevator does descend properly, a screw l' in the elevator-slide acts on the upper end of the lever I and pushes it downward until a dog or projection i^2 on the lever is carried below a horizontal slide P, mounted in the main frame in front of the mold-disk.

When the mold-disk advances, carrying the mold toward the matrices, it pushes the slide P forward. If the matrices are lowered to their proper position and the lever I pushed down, as above stated, the slide P will pass forward over the top of the dog i^2 and the lever I will remain at rest and the clutch mechanism be permitted to continue the driving of the machine. If, however, the elevator L for any reason does not lower the matrices to the required extent, the lever I will not be pushed down far enough for its dog or shoulder to clear the slide P. In other words, the dog or shoulder i^2 will stand in the path of the slide P, and when the mold-disk advances it will cause the slide to push against the shoulder i^2 , and thereby swing the lower end of the lever I forward, the effect being to operate the horizontal lever H and push the bar G backward, causing it to throw the clutch out of action and stop the machine.

The lever I, the means for automatically controlling the same, and the lever H are essentially the same as in Patent No. 436,532; but beyond this the mechanism differs from that of the patent in having the connection from the lever H to the clutch mechanism independent of the manual controlling devices.

In the prior form of machine it was possible for the operator by using the manual lever to jar the parts into action, although the automatic devices had tripped the parts out of action because of the improper position of the first elevator and the matrix-line in relation to the mold. It therefore resulted that the machine was sometimes started at such time as to cause injury to the matrices. Under the present construction the connecting or coupling bar G renders it impossible for the operator to start the machine after it has been unclutched by the automatic devices until the other parts have been so adjusted as to secure their proper action.

It will be observed that in my mechanism the clutch is controlled by the vise automatic mechanism and by the manually-controlled devices independently. It will also be observed that the automatic devices render it impossible for the operator to start the machine by hand when the controlling-bar G is held back by the automatic devices.

It will be understood that my invention is not restricted to the use of any particular form of clutch and that the details of the mechanism may be variously modified provided the general mode of action is retained.

Having described my invention, what I claim is—

1. In the Mergenthaler linotype-machine, the combination of the main driving-clutch, the automatic devices controlled by the first elevator for throwing the same out of action, 5 and the manual devices, independently connected with the clutch by the bar G, substantially as described.

2. In a Mergenthaler linotype-machine and in combination with a clutch-controlling lever E, two independent actuating-bars, F and 10 G, the former connected with a manual device and the latter connected with devices operated by the first elevator.

3. In a Mergenthaler linotype-machine and in combination with a clutch-controlling lever E, actuating-bar G, lever H and lever I, 15 the latter controlled by the mold-disk and by the first elevator, substantially as described and shown.

In testimony whereof I hereunto set my hand, this 31st day of May, 1900, in the presence of two attesting witnesses. 20

JOHN R. ROGERS.

Witnesses:

JOSEPH B. PIGOT,
C. I. MCGOWAN.