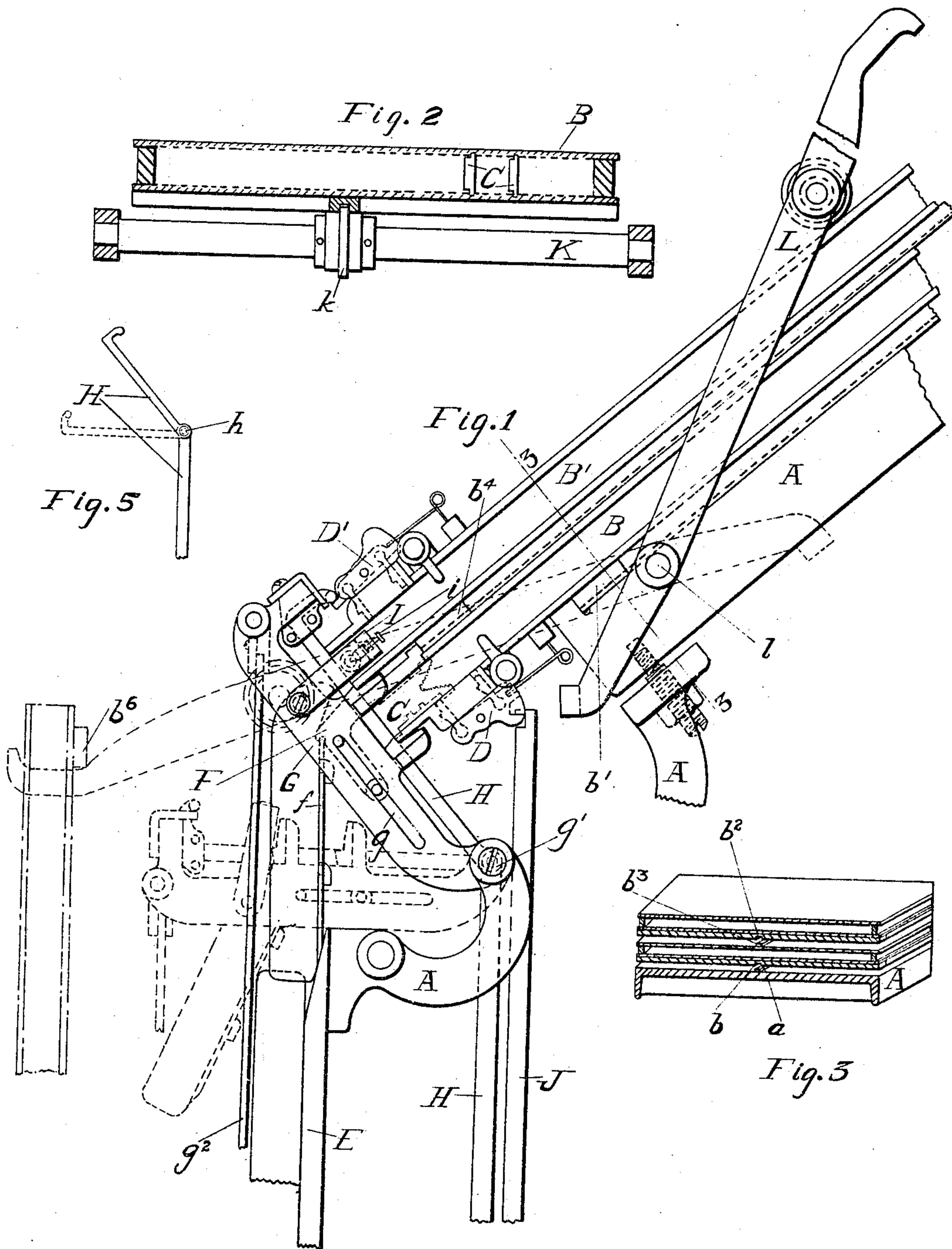


G. D. HARTLEY.
 LINOTYPE MACHINE.
 APPLICATION FILED OCT. 21, 1908.

945,719.

Patented Jan. 4, 1910.

3 SHEETS—SHEET 1.



Witnesses:
 F. M. Eggleston.
 Walter Moblard.

Inventor
 George D. Hartley
 By his Attorney
 Paul T. Dorell

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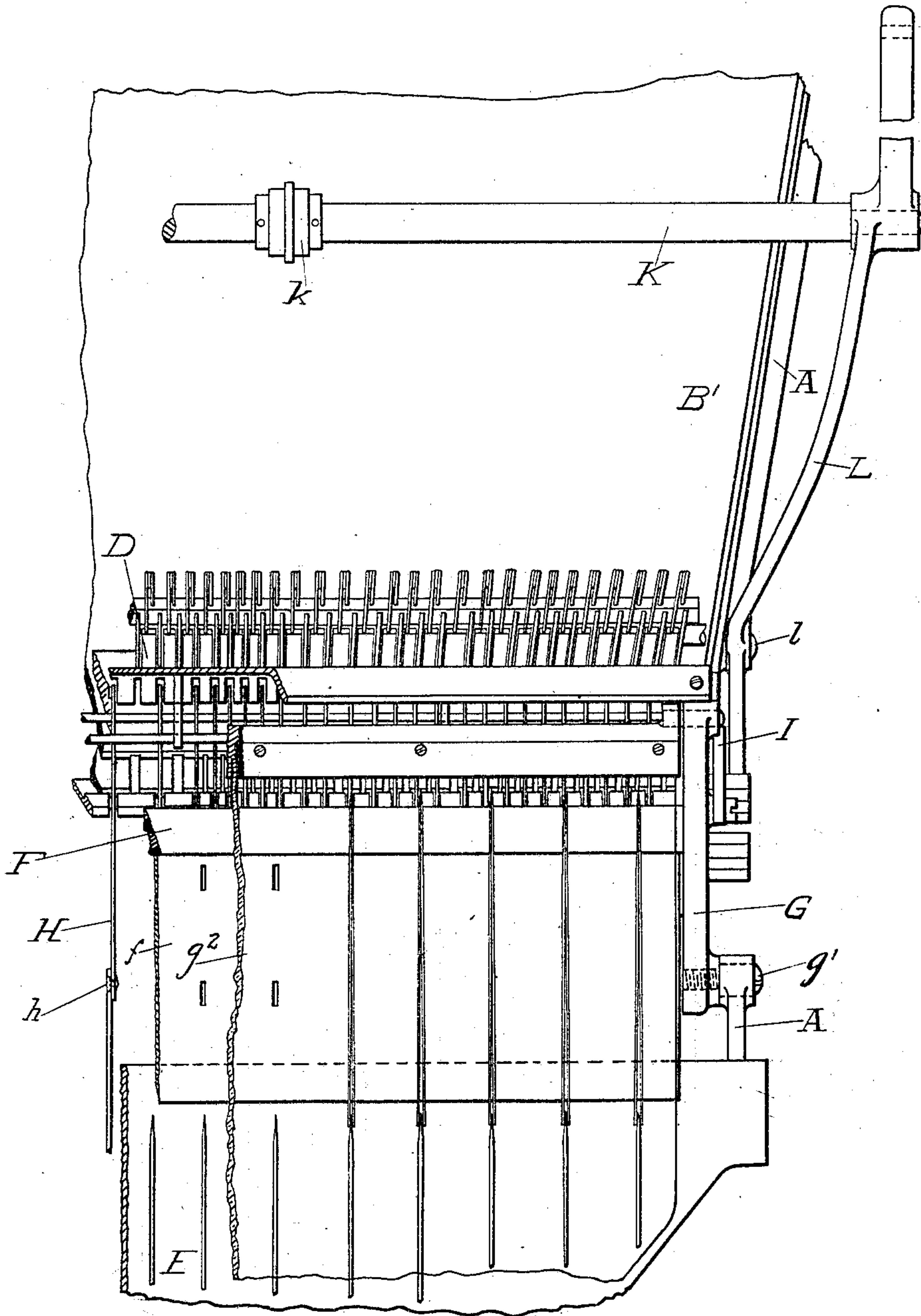


Fig. 4

WITNESSES:

F. M. Eggleston.
Walter Moblard

INVENTOR

George D. Hartley
 BY
Philip T. Doxall
 ATTORNEY

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3 SHEETS—SHEET 3.

Fig. 8.

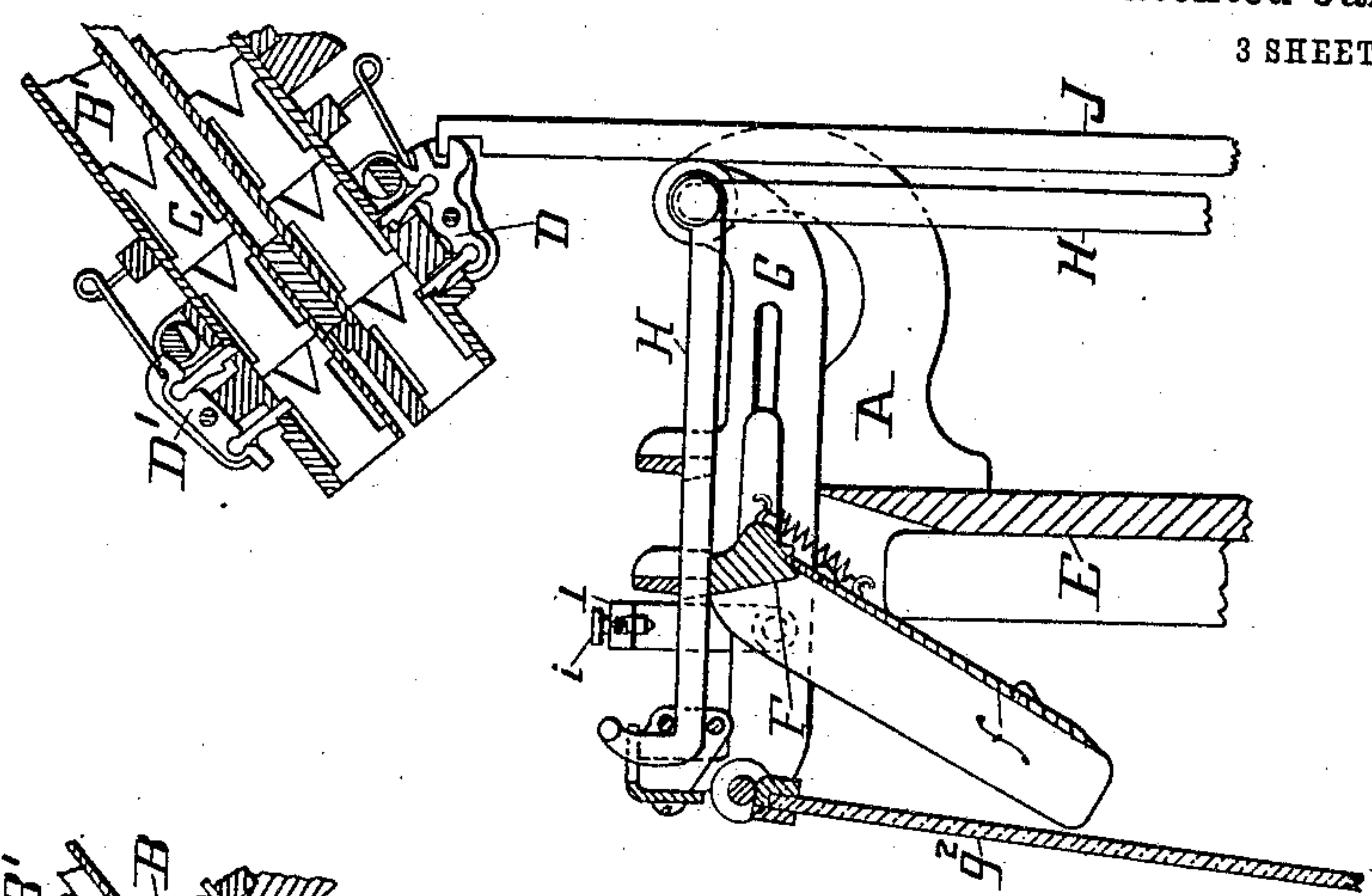


Fig. 7.

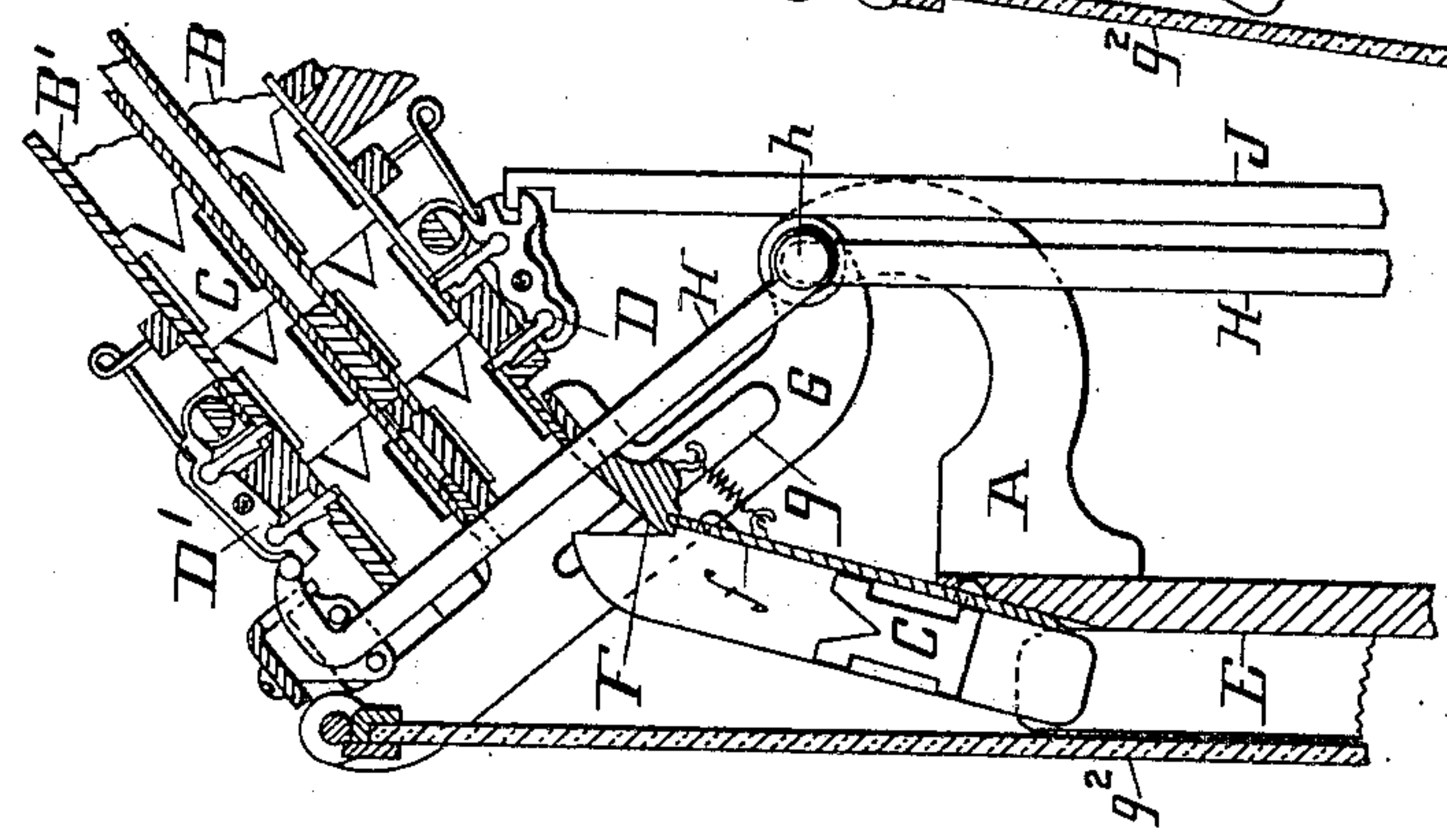
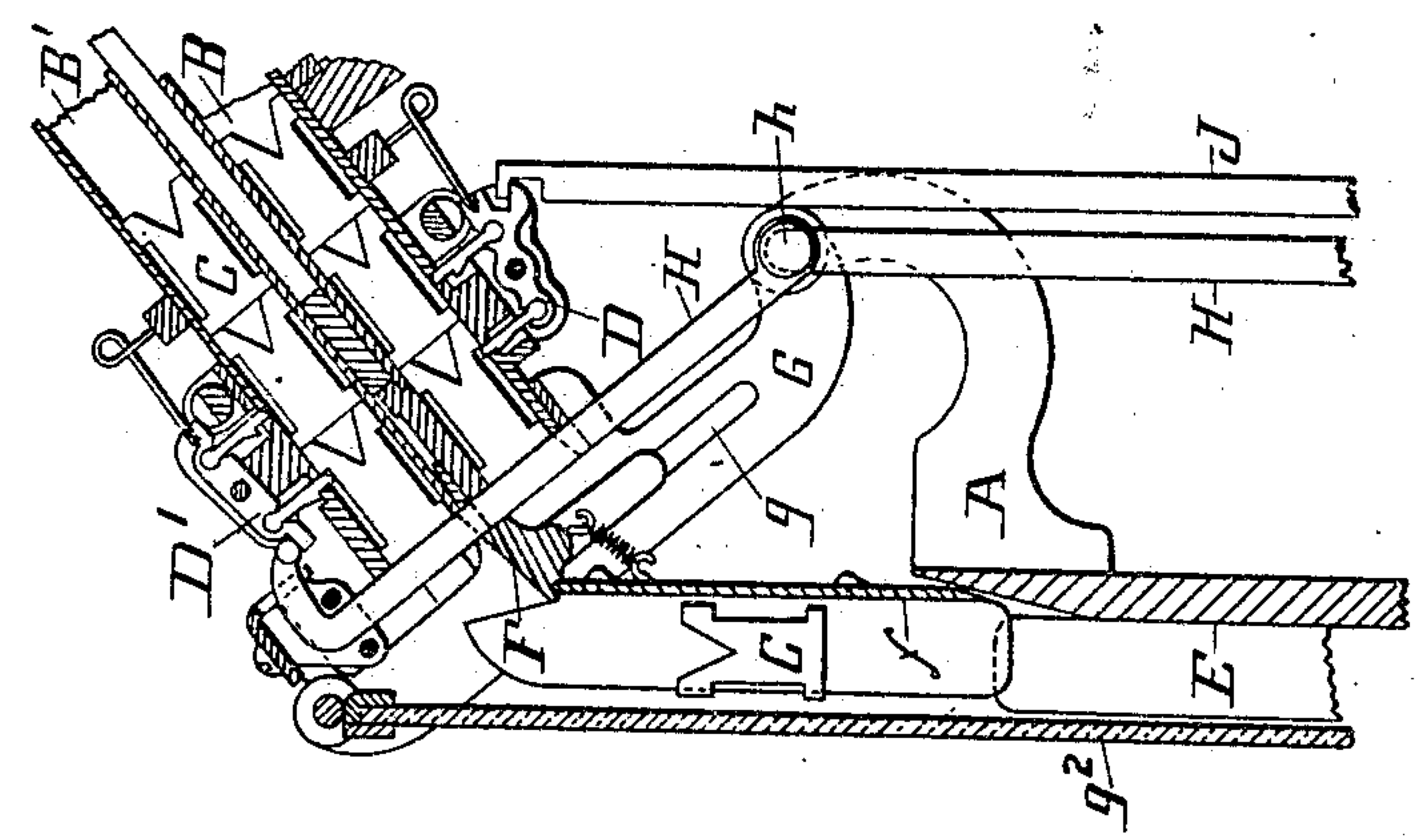


Fig. 6.



WITNESSES:
A. King
E. J. Lamb

INVENTOR
Geo. D. Hartley
BY *R. D. Dora*
ATTORNEY

UNITED STATES PATENT OFFICE.

GEORGE DOWNING HARTLEY, OF BROOKLYN, NEW YORK, ASSIGNOR TO MERGENTHALER LINOTYPE COMPANY, A CORPORATION OF NEW YORK.

LINOTYPE-MACHINE.

945,719.

Specification of Letters Patent.

Patented Jan. 4, 1910.

Application filed October 21, 1908. Serial No. 458,846.

To all whom it may concern:

Be it known that I, GEORGE D. HARTLEY, a citizen of the Dominion of Canada, and a resident of Brooklyn, county of Kings, and State of New York, have invented a new and useful Improvement in Linotype-Machines, of which the following is a specification.

This invention has reference to that class of linotype machines represented, for example, in Letters Patent of the United States #865,846, in which two magazines, located one above the other, are arranged to deliver the released matrices from their lower ends directly into the front channel plate, through which they descend to the mechanism by which they are assembled or composed in lines. In these machines, the delivery of the matrices from the upper magazine is controlled by a series of overlying escapements actuated from a keyboard mechanism by reeds or slides which extend upward past the lower ends of the magazines to engage the escapements,—the arrangement being such that the outgoing matrices must pass between the reeds in their course to the channel plate. As heretofore constructed, the guides or supports for the reeds and the adjacent parts were built into the machine as rigid members of the structure, and it was found exceedingly difficult to properly align the reeds and to gain access to the internal parts.

The object of my invention is to overcome these difficulties and to this end it consists, broadly speaking, in so constructing and mounting the reeds and their supports that they may be readily moved at will away from the operative position to such position as will admit of free access to them.

Specifically, the invention consists also in hinging the reed supports or guides to the main-frame in such manner that they may be swung downward and forward away from the operative position to a position which will give free access to the reeds, etc.

The invention also consists in jointing the escapement-actuating reeds and so arranging them that the upper portions may be swung away from the operative position at will without destroying their connection with the lower portion.

The invention also consists in a combination of the magazines removable from the

machine at the front, with the feed guides and adjacent parts movable at will beyond the path of the outgoing magazines.

It also consists in combining with the above parts means for supporting and guiding the magazines in the course of their removal.

With the exception of the parts specifically described as my invention, any suitable construction and arrangement of the other parts of the machine may be employed.

Figure 1 is a side elevation of a portion of the machine having my improvement included therein, the view including the two magazines, the channel plates and the adjacent parts. Fig. 2 is an elevation showing the manner in which the magazines are supported and guided in being withdrawn from the machine. Fig. 3 is a vertical cross-section on the line 3—3, Fig. 1. Fig. 4 is a front elevation of the parts shown in Fig. 1. Fig. 5 is a side elevation of one of the jointed reeds for actuating the upper escapements. Figs. 6, 7 and 8 are vertical sections in outline showing the lower ends of the magazine, together with the reeds and the face plate in their different positions.

Referring to the drawings, A, A, represent various parts of the main-frame, which may be of any form and construction adapted to sustain the other parts.

B and B' represent two inclined longitudinally channeled magazines, each adapted to contain a font or set of matrices C. Each magazine consists of two parallel plates secured to intermediate spacing pieces and grooved in their inner faces to receive and guide the upper and lower edges of the matrices, as usual in this class of machines. These magazines receive the matrices at their upper ends from the distributing mechanism, and deliver them one at a time at the lower end to the assembling mechanism.

D represents a series of escapements secured to the under side of the magazine B, near its lower end, for the purpose of releasing the matrices one at a time from its respective channels.

D' represents a corresponding series of escapements secured to the upper side of the upper magazine B'. These escapements are of the well-known form, consisting each of a centrally pivoted lever carrying at opposite

ends pawls or dogs which are projected alternately into the magazine to control the delivery of the matrices, which descend by gravity.

5 E is a channel plate or face plate, so-called, located in front of the frame and having vertical channels with their upper ends in position to receive the matrices delivered from the respective channels of the
10 magazine.

F represents a transverse shelf or plate arranged to slide upward and downward in a supporting frame, so that it may be set in line with the under side of the upper or the
15 lower magazine for the purpose of carrying the discharged matrices over into the channel plate E.

G is a skeleton frame or plate extending across the front of the machine beyond the
20 lower ends of the magazines, and connected to the main-frame by horizontal pivots g' , so that it may be turned up to an operative position against the ends of the magazines, as shown in full lines in Fig. 1, or turned
25 downward away from the magazines to the position indicated by dotted lines. Means of any suitable form will be provided for securing the frame G in its operative position. In the drawings I have represented for this
30 purpose a link I, pivoted to the frame G, and arranged to engage over a stud on the upper magazine or on the side of the main-frame, a spring-actuated pin i being provided to maintain the connection. When
35 these links are disconnected at their upper ends, the frame G is free to fall downward and backward. The plate or shelf F is guided at its ends in the frame G by slots g , or equivalent guides, which will admit of
40 its being moved upward or downward at will. To the shelf F, I hinge the upper edge of a plate f , which hangs downward within the channel plate E, serving as the rear wall to guide the descending matrices.
45 To the front end of the frame G, I hinge a depending plate g^2 of glass or metal, which serves as a front wall to guide the descending matrices into the channel plate E. It will be observed that this plate in no wise
50 interferes with the downward motion of the frame G.

H, H, represent upright reeds for actuating the upper escapements D' . Each of these reeds consists, as shown in Fig. 5, of
55 two sections hinged or jointed together at h . When the parts are at rest, these pivots stand in line with the pivots of the frame G, or approximately so. The upper section of the reeds is supported and guided in
60 grooves or seats in the frame G, the arrangement being such that the reeds, which are curved forward at their upper ends to engage the escapements, may slide freely upward and downward in the frame. The
65 lower portions of the reeds will be guided

in the main-frame as usual, or in any other suitable manner.

The position of the parts when matrices are being delivered from the upper magazine is shown in Fig. 6; the position of the parts when matrices are to be delivered from the lower magazine is shown in Fig. 7; the reeds, their supporting frame, the shelf F and the plates f and g^2 , when swung away from the magazines to give access to the latter, are shown in Fig. 8.

Owing to the fact that the reeds are jointed and supported at their upper ends in the frame G, it follows that the downward motion of the latter about its pivot will have the effect of swinging all the reeds away from the escapements and from the magazines, the shelf F being also carried by the frame G, so that the lower ends of the magazines and the escapements are uncovered and left free for inspection, while at the same time an unobstructed path is afforded for the passage of the magazines out of and into the machine at the front, as will be presently described. The construction is also advantageous in that it permits the various reeds and escapements to be conveniently inspected and adjusted when the parts of the machine are being assembled. The lower escapements D are actuated directly by reeds J, as usual.

The essence of the invention so far as described, lies in the jointing of the reeds, and in the mounting of the upper ends of the reeds in a movable frame or support so that they may be withdrawn at will from their operative positions and instantly restored thereto.

It is manifest that the frame G and its supports may be varied in form at will, provided only it is free to move to and from the operative position.

The magazines B are removable at will in order that they may be replaced by others containing matrices for different faces. The construction to this end is as follows: The lower magazine B is provided with a longitudinal groove or guide b in its under side in position to receive a longitudinal rib or guide a on the top of the main-frame, these
10 devices serving to guide the magazine and prevent its lateral movement as it is carried to and from the machine. The magazine in operative position is held from sliding forward by a cross-bar b' on its under side, en-
15 gaging against a shoulder on the top of the main-frame A. In order to effect the removal of the magazine after the frame G and the parts therein have been turned out of the way, it is only necessary to lift the forward
20 end of the magazine sufficiently to disengage the rib b' , and then permit it to slide downward and forward from the machine. The upper magazine B' is provided on its under
25 side with a longitudinal groove or guide b^2 13

adapted to receive a longitudinal rib b^3 formed on the upper side of the lower magazine. The upper magazine is held from sliding forward by a transverse bar b^4 on its under side, seated against a transverse shoulder on the upper side of the lower magazine. The removal of the upper magazine, which must occur before the lower magazine is removed, is effected by raising its lower end until the bar b^4 is disengaged, and then permitting it to slide forward.

In order to assist in supporting and guiding the magazines as they are withdrawn from or applied to the machine, I provide, as shown in Figs. 1 and 2, a cross-bar or shaft K seated at its ends in parallel bars L, which are pivoted to the sides of the main-frame at L. The shaft K is provided at the middle with a roller or collar k . When the machine is in use, the arms are permitted to remain in the position shown in Fig. 1, with the shaft K resting on top of the upper magazine. Preparatory to the removal of the magazines, the arms are turned forward and downward to the position shown in dotted lines, their rear ends being formed to engage the main-frame and arrest them in this position. As each magazine is drawn forward, it is rested upon and supported by the roller k , while its upper or rear end rides upon the main-frame. This roller engages the longitudinal guides of the magazines and prevents them from shifting laterally. Near its upper end each magazine is provided with a transverse bar b^6 projecting at the ends in such manner as to ride upon the arms L, until finally it reaches their upturned forward ends, by which the movement is arrested, so that the magazine may be permitted to assume a pendent position, as shown in dotted lines. Thus supported, the magazine may be grasped at its vertical edges and readily removed.

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

1. In a machine of the class described, the combination of the magazine escapements for releasing matrices therefrom, and escapement actuating reeds, each consisting of two parts jointed together, the lower part mounted on fixed guides, and the upper part mounted on a movable guide and arranged to be swung away from the escapements and from the magazine, to expose the open end of the latter.

2. In a machine of the class described, a magazine, overlying escapements to control the delivery of matrices therefrom, escapement-actuating reeds guided in the fixed frame and jointed near their upper ends, and a support for said ends mounted for movement away from the magazine at will, to expose the open end of the latter; whereby the operative ends of the reeds may be car-

ried from and returned to their operative positions.

3. In a machine of the class described, the combination of a main-frame, a magazine mounted thereon and removable endwise therefrom in a forward direction, escapements for controlling the discharge of matrices from said magazine, escapement-actuating reeds, and a support for said reeds movable at will, substantially as described; whereby the reeds may be moved from their operative positions beyond the path of the magazine as it is removed from the machine.

4. In combination with the main-frame and the two magazines, one overlying the other, the stationary channel-plate at the front to receive the matrices from the magazines, the vertically movable shelf F to guide the matrices from the respective magazines to the channel-plate, and the hinged frame supporting said shelf, whereby the removal of the shelf from the magazines at will is permitted, to give access to their lower ends.

5. In combination with the main-frame and the two magazines, one overlying the other, the hinged frame G, the shelf F and reeds H sustained thereby; whereby the reeds and the shelf may be removed from their operative positions to permit the removal of the magazines.

6. In a machine of the class described, a magazine provided with escapements, escapement actuating reeds, jointed midway of their length and mounted at their lower ends in fixed guides, and a frame to support the upper ends of the reeds and guide the outgoing matrices, said frame hinged to swing backward away from the ends of the magazines and expose the latter, substantially as described.

7. In a machine of the class described, escapements and longitudinally sliding reeds to actuate said escapements, each reed composed of two members jointed together, in combination with the movable frame guiding the operative ends of the reeds and adapted to swing from its operative position and carry the reeds away from the escapements, substantially as described.

8. In a machine of the class described, a main-frame, an inclined magazine mounted thereon and removable endwise therefrom, said magazine provided with a longitudinal guide, in combination with swinging supports L, and a guide k carried thereby to sustain and guide the outgoing magazine.

9. In combination with the magazine B, its escapements, and the hinged frame G, the channel-plate E and the plates f and g^2 jointed to the frame.

10. A stationary magazine provided with escapement actuating reeds, jointed midway of their length and mounted at their lower ends in stationary guides, and a hinged frame guiding the upper ends of the reeds

and provided with means for guiding the
outgoing matrices, substantially as de-
scribed; whereby the escapement actuating
devices and the matrix guiding devices may
5 be swung clear of the delivery end of the
magazine at will.

In testimony whereof I hereunto set my

hand this twentieth day of October, 1908, in
the presence of two attesting witnesses.

GEORGE DOWNING HARTLEY.

Witnesses:

F. M. EGGLESTON,
WALTER MOBLARD.