

No. 711,109.

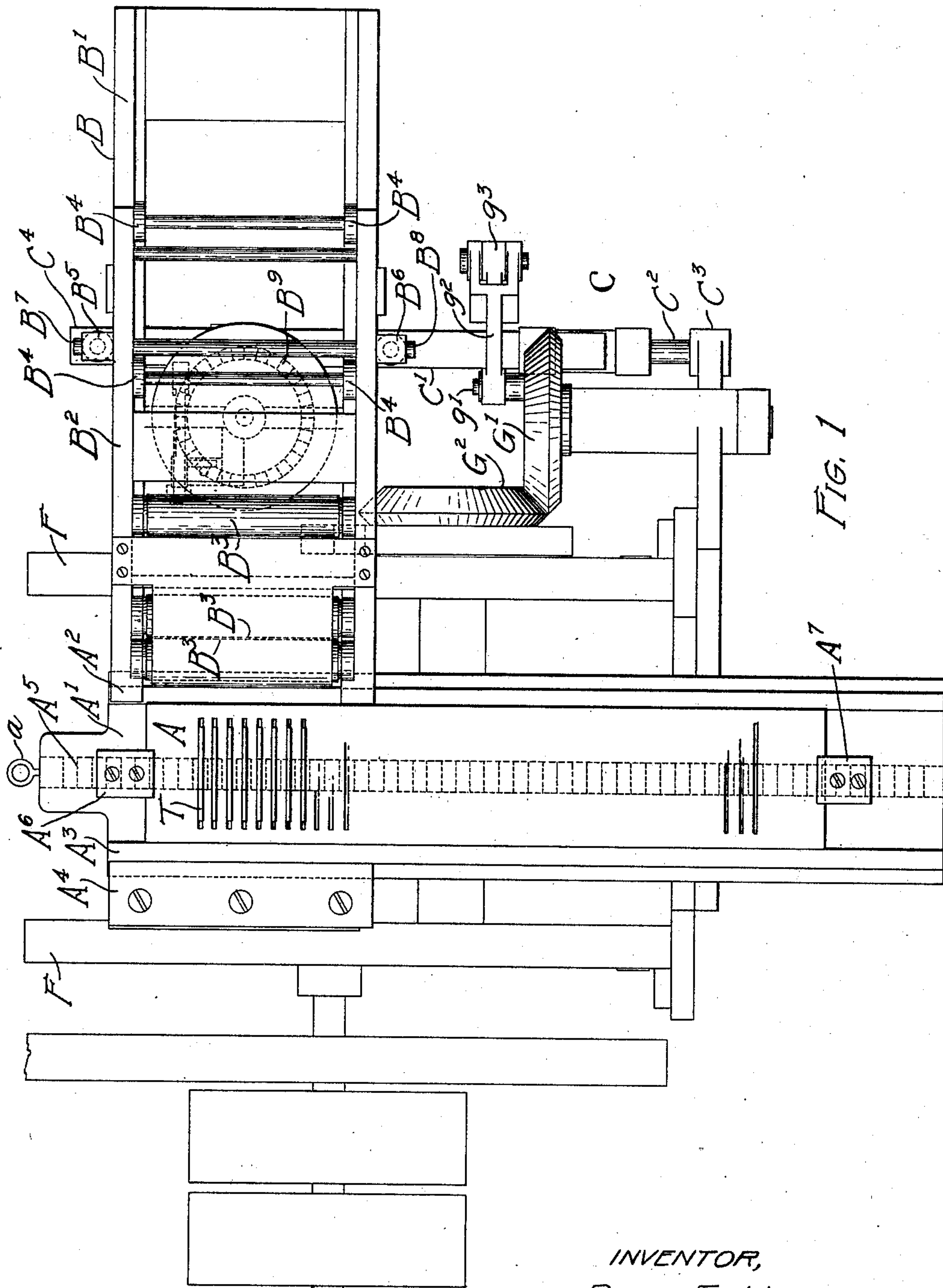
Patented Oct. 14, 1902.

D. E. HUNTER.
MOVABLE CHASE PRINTING PRESS.

(Application filed Jan. 2, 1902.)

(No Model.)

4 Sheets—Sheet 1.



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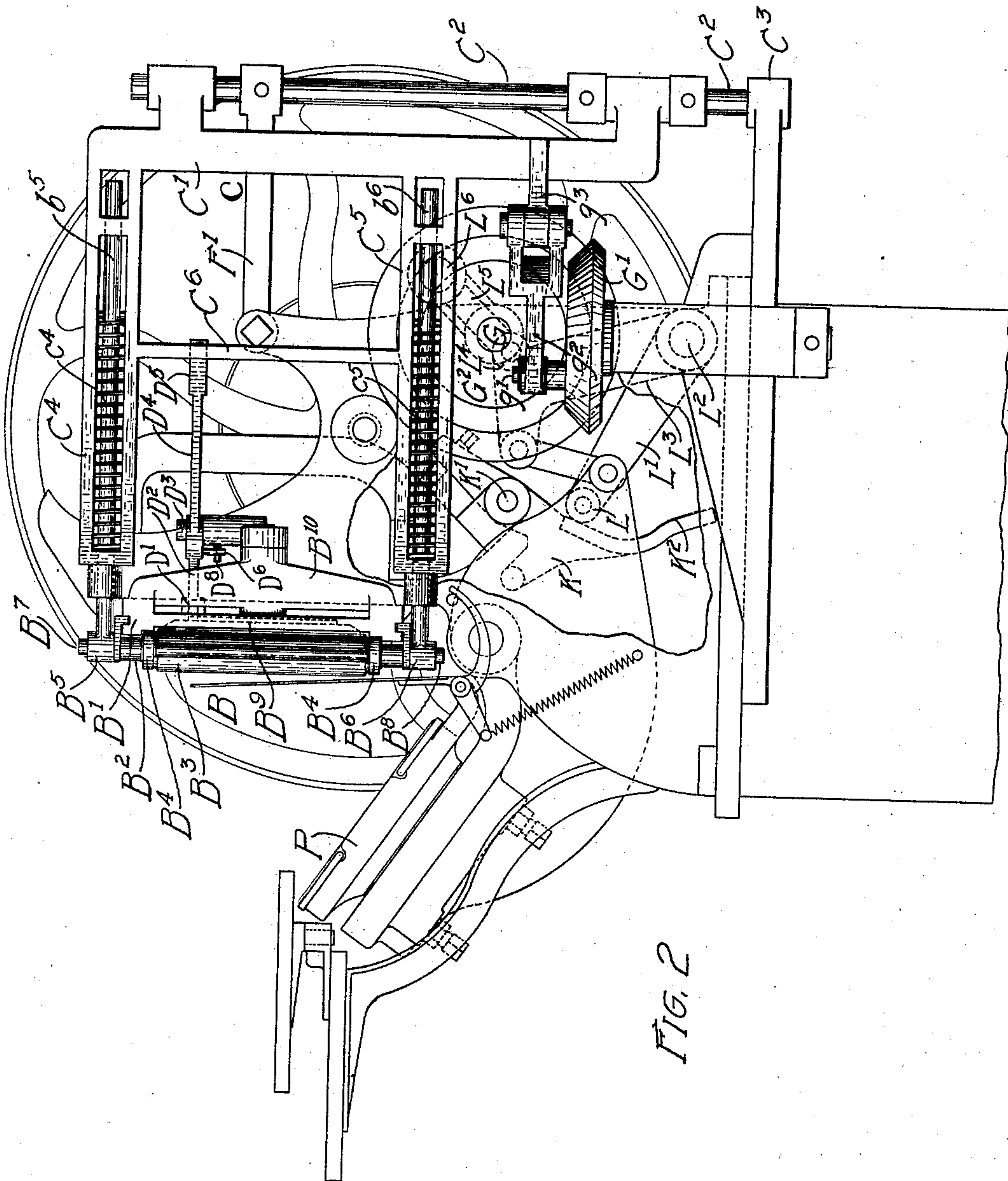


FIG. 2

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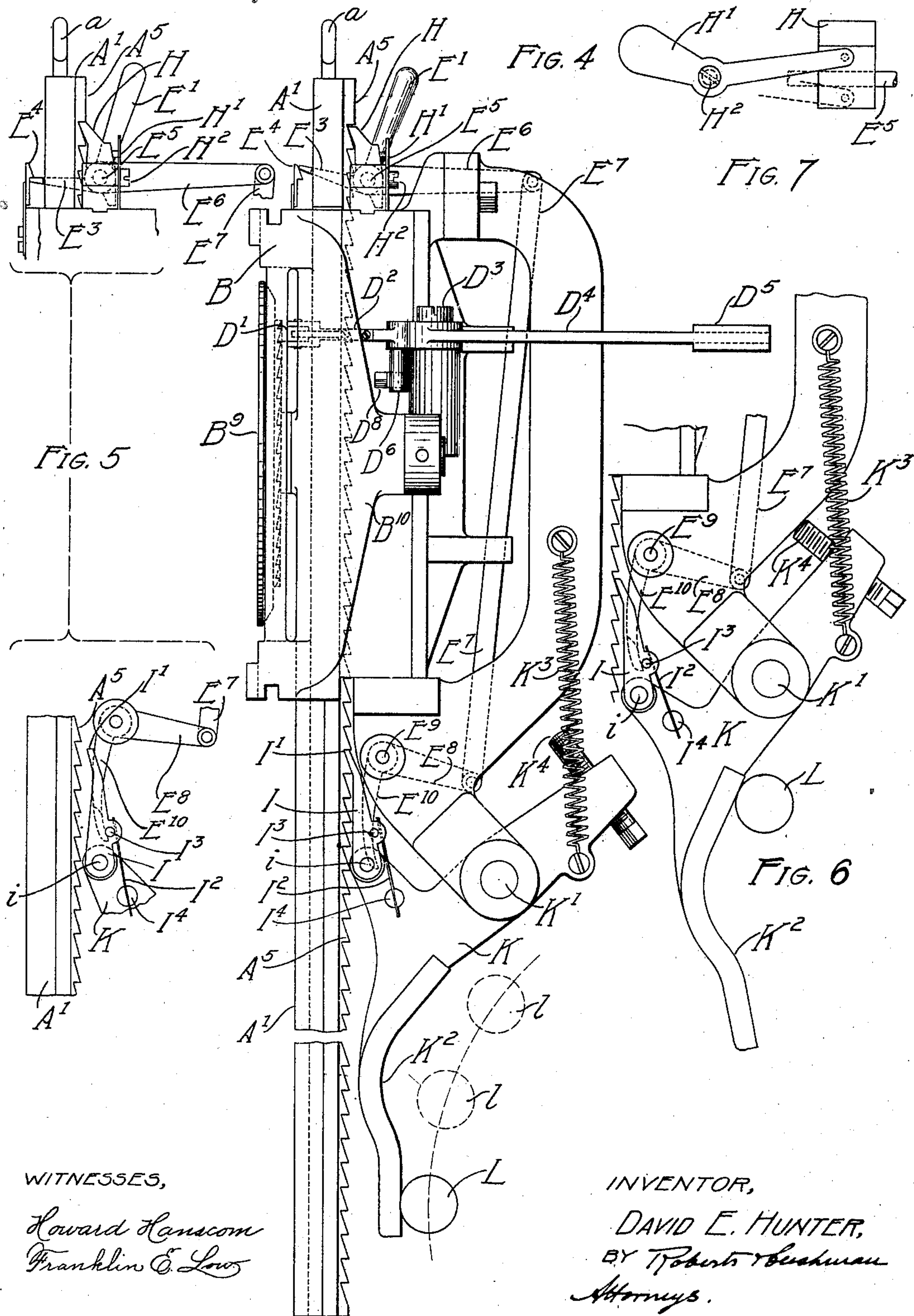
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4 Sheets—Sheet 4.



UNITED STATES PATENT OFFICE.

DAVID E. HUNTER, OF CAMBRIDGE, MASSACHUSETTS, ASSIGNOR TO
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OF MASSACHUSETTS.

MOVABLE-CHASE PRINTING-PRESS.

SPECIFICATION forming part of Letters Patent No. 711,109, dated October 14, 1902.

Application filed January 2, 1902. Serial No. 88,064. (No model.)

To all whom it may concern:

Be it known that I, DAVID E. HUNTER, a citizen of the United States, and a resident of Cambridge, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Movable-Chase Printing-Presses, of which the following is a specification.

My invention relates to printing-presses; and it consists in sundry mechanical improvements whereby a type-bearing chase is made movable in the press between the intermittent printing operations.

My movable-chase printing-press is especially convenient and useful for printing large orders of index-cards wherein the printed indexes or head-lines vary from card to card, as in card-indexes for libraries. My invention enables the printer to set up at once the type for a large number of such index-lines and print them in series, repeating the series as often as the order requires, or if he chooses he may print the full required number of each impression and then proceed to the next impression.

In the drawings hereto annexed, which illustrate an embodiment of my invention, Figure 1 is a front elevation of a press embodying my improvements, the movable platen and usual brackets adjoining the platen being removed. Fig. 2 is a side elevation of the press as viewed from the right in Fig. 1. Fig. 3 is a top plan view of the press. Fig. 4 is a side view of the movable chase and the parts associated therewith, shown as removed from the main press-frame. Fig. 5 is a detail illustrating the controlling devices for the chase-moving mechanism, and Fig. 6 is a detail which shows part of the mechanism of Fig. 4 in a position different from that of Fig. 4. Fig. 7 is a detail showing the detent-spring.

The press-frame is generally indicated by the letter F, the movable platen by the letter P, the movable chase and its immediately associated parts by the letter A, the inking mechanism by the letter B, the ink-roll-actuating mechanism by the letter C, the ink-plate by the letter B³, the controlling mechanism by the letter E, driving-gears and shafts by the letter G, the suspending-detent

by the letter H, the lifting or progressive feed mechanism for the chase by the letter I, the mechanism by which the feed I is carried by the letter K, and the actuating devices therefor by the letter L. Coefficients with the above letters are used to designate various associated parts.

The frame, driving mechanism, and movable platen in the press shown in the drawings are of usual construction and need not be described in detail.

In Fig. 1 the front of the press is shown, the movable platen and brackets usually adjacent thereto being removed for the purpose of showing clearly the arrangement of the movable chase and inking device. The chase A is a rectangular metal plate provided with transverse apertures or slots, wherein the types T are secured in the usual manner, the chase A providing a large number of such apertures for the reception of lines of type. The chase A is thus multilinear, in that it provides for a large number of lines of type. The chase A is clamped in the frame A' by means of clips A⁶ A⁷, the side ribs A⁸ serving to confine the chase A laterally. The frame A' slides in the guides A⁴ and is provided on its rear side with a rack A⁵. (Shown in dotted lines in Fig. 1 and illustrated more in detail in Figs. 4, 5, and 6.) A ring or eyebolt a, secured to the top of the frame A', offers means for attaching the cord of a counterweight, which may conveniently be used to balance the larger portion of the weight of the chase A and its carriage A'. By means of the rack A⁵ and the automatic spacing mechanism, to be described hereinbelow, the chase-carriage A', carrying the chase A, is made to progress step by step. Obviously the ordinary mechanism for actuating the inking-rollers would be interfered with by the projection of the chase-carriage A' from the frame of the press, and therefore in order to meet the requirements of a machine embodying a movable chase I provide the arrangement shown in elevation in Figs. 1 and 2 and in plan in Fig. 3. The movable chase traverses the press in one direction, and the inking-rolls, with their carriage, reciprocate in a direction across the line of travel of the movable chase, so that

whatever may be the position of the chase in the press the operation of the inking-rolls remains the same and is unhindered by change of position of the chase. In Fig. 1 there is shown the wing-frame B, upon which slides a roller-carriage B², tracks B' being provided for the purpose. Inking-rolls B³ are carried in the carriage B², which is guided in its movement by the guide-rolls B⁴. The roller-carriage B² reciprocates from right to left, and vice versa, carrying the ink-rolls B³ over the surface of the ink-plate B⁹, which is mounted upon a suitable journal in the rear of the wing-frame B. The roller-carriage is reciprocally moved by mechanism shown most clearly in Figs. 2 and 3. To the frame F are secured outriggers F', which project diagonally from the rear of the main frame and support the ink-roller-reciprocating mechanism.

In Fig. 2 are seen the studs B⁷ B⁸, which are embraced, respectively, by the heads B⁵ B⁶ of the rods b⁵ b⁶. These rods are fitted to slide in the arms C⁴ C⁵, which extend horizontally from a vertical oscillating bracket C', which in turn is pivoted upon the standard C². This bracket swings or oscillates like a gate on the standard C², which is stepped in the stop C³ and journaled at the end of the frame-arm F'. Spring c⁴ c⁵, mounted in the arms C⁴ C⁵, exert a constant stress upon the rods b⁵ b⁶, thus holding the inking-roller carriage B² always firmly in contact with the wing-frame B. The reciprocating movement is imparted to the inking-roller carriage and its actuating mechanism from the shaft G, whose beveled gear G² actuates the beveled pinion G', upon which the crank-pin g' imparts motion to the connecting-rod g², and thus to the spur g³, which is secured to or integral with the upright bracket C'. The shaft G is actuated in the usual manner by the driving mechanism of the press and moves synchronously with the reciprocatory movement of the platen P, so that all the movements of the inking-roller carriage are properly timed with those of the other parts of the press. The inking-plate B⁹ has been alluded to and is mounted upon the yoke B¹⁰, (see Figs. 2 and 3,) which is secured to and forms part of the main frame and supports the guides B' of the wing-frame B. The inking-plate B⁹ is provided on its rear side with a circular rack of the usual construction, which is operated intermittently by the pawl D', this pawl being mounted upon the arm D², which, with the arm D⁴, is so located in the press that at each excursion of the inking-roller carriage the cross-brace C⁶ comes in contact with the shoe D⁵ and rocks the lever D² D⁴ upon the stud D³. The spring D⁷, Fig. 3, returns the pawl-lever D² D⁴ to its normal position, the stud D⁶ bringing up against the stop D⁸. In Fig. 3 the letter c^x indicates the position of the inking-roller-carriage actuating mechanism at the outer limit of its lateral throw.

In Figs. 4, 5, and 6 the chase-moving mech-

anism is shown in detail with such portions of the press-frame as are immediately associated with the chase and its actuating mechanism. The chase-carriage A' is sustained in position by means of a dog H, which engages with the teeth of the rack A⁵, and the chase-carriage is moved from point to point by means of the pawl I, which also engages with the rack A⁵, lifting the carriage, which is sustained by the dog H, engaging with the rack-teeth in succession. The pawl I is provided with a rack-engaging point I' and is pivoted at i upon the lever K. A spring I², secured to the lever K at I⁴, bears upon the pin I³ and constantly urges the pawl I into the position of engagement with the rack A⁵. The lever K is provided with a cam-surface K² at its lower end, is pivoted at K' upon the press-frame, and is joined to a spring K³, which is anchored upon the press-frame and constantly exerts tension upon the lever K, drawing the stop K⁴ toward its position of contact with the press-frame, the normal position of parts under the stress of the spring K³ being shown in Fig. 6. The lever K is moved from the normal position at each rotation of the main shaft of the press, and consequently in synchronism with the movement of the printing-platen P, by the wiper L. In Fig. 2 the arrangement of the wiper L and its connection with the main shaft of the press are indicated in dotted lines. The wiper L is a roller on the end of the arm L', which is joined to the rock-shaft L², which also carries the rocker-arm L³. The rocker-arm L³ is jointed at L⁴ to the connecting-rod L⁵, which at its other end is journaled upon a crank-pin L⁶. This oscillating system L² L³ L⁴ L⁵ L⁶ constitutes the ordinary platen-operating mechanism of the press and will be understood without further description.

Returning to Figs. 4 and 6, the wiper L is shown in solid lines in Fig. 4 in position wherein the lever K has been made to lift the pawl I to its uppermost position and is shown in Fig. 6 in position where the lever K by means of its spring K³ is permitted to return the pawl I to its normal lower positions. The dotted-line positions l, Fig. 4, show the path of movement of the wiper L.

The dog H determines the exact position of the movable-chase carriage A' at the moment when the platen P, Fig. 2, rises to make the printing impression. The actuating mechanism for the chase-carriage A' is therefore proportioned in such manner that at each upward excursion of the pawl I the tooth of the rack A⁵ which is next to engage with the dog H is lifted a trifle above the point of the dog. Then when the pawl I is withdrawn the chase-carriage settles back until the tooth engages with the dog H. The dog H is held in position for engagement with the rack A⁵ by means of the flat spring H', secured to the rear side of the guide-frame A⁴. The teeth of the rack A⁵ are spaced to correspond with the space between centers of the type seats

or apertures T, Fig. 1. If each type-seat is provided with a line of type and the chase-moving mechanism is permitted to operate as above described, a new line of type will be presented to the printing-point of the platen each time the roller rises to make an impression and the entire series of type-lines will be presented in succession as the movable chase rises step by step in the press. It may be, however, that the printer desires to repeat the impressions of each type-line a stated number of times and wishes, therefore, to throw the chase-moving mechanism out of operation while such repeated impressions are made, and for this purpose I provide a shipper mechanism, as indicated in Fig. 3, which shows its position and relationship with the movable chase, and in Figs. 4, 5, and 6, wherein this device is illustrated in detail. On the top of the stationary guide-frame there is mounted a short shaft E⁵, on which are secured the handle E' and finger E³, and on the front of the guide-frame the catch E⁴ is yieldingly mounted and adapted to engage with the finger E³ when the handle E' is pulled forward or is lifted, as viewed in Figs. 4 and 5. A spring E², Fig. 3, coiled around the short shaft E⁵, constantly urges the handle E' and finger E² away from the catch E⁴. An arm E⁶, also secured to the short shaft E⁵, extends to the rear, and the rod E⁷ is pivotally joined thereto at its upper end and at its lower end to the arm E⁸ of the bell-crank lever E⁸ E¹⁰, which is pivoted at E⁹. The lower end of the arm E¹⁰ projects past the pin I³ on the pawl I. When the printer desires to throw the lifting mechanism of the chase-carriage out of engagement, he draws the handle E' to the left as viewed in Fig. 4, and thus by means of the mechanism E⁶ E⁷ E⁸ E¹⁰ draws the pawl I backward against the force of the pawl-spring I² and holds the rack-engaging point I' out of operative contact with the rack A⁵. Consequently while the handle E' is in its forward position, as shown in Fig. 5, where it is retained by the catch E⁴ engaging the finger E³, the excursions of the lever K are idle and the chase-carriage remains in the position desired by the printer. When the printer wishes to move the chase-carriage to another type-line space, he disengages the catch E⁴ and permits the lever E' and its connected shipper mechanism to remain in the rearward position shown in Fig. 4 during as many rotations of the main shaft of the press as he chooses, perhaps only permitting the pawl to lift the movable chase one rack-tooth, when he can again pull forward the lever E' and arrest the normal progress of the movable chase. If the printer wishes to lower the chase-carriage, he shifts the detent-spring H', Fig. 7, from its full-line active position to the dotted-line inactive position, whereby the dog H is released.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, in a printing-press, of

a movable chase, mounted in guides on the press-frame, step-by-step mechanism for moving the chase, inking-rollers and their carriage, mounted to reciprocate transversely to the line of movement of the chase, and automatic actuating mechanism for the inking-rollers.

2. The combination, in a printing-press, of a chase, mounted to slide in straight guides, mechanism whereby the chase is intermittently advanced in the guides in alternation with the printing impacts, inking-rollers and a carriage therefor, mounted to slide on ways reciprocally transversely to the line of movement of the chase, and automatic vibrating mechanism for the inking-roller carriage.

3. The combination in a printing-press, of a multilinear chase, mounted to slide in guides, mechanism whereby the chase is intermittently advanced in the guides a line-space at a time in alternation with the printing impacts, inking-rollers and a carriage therefor mounted to slide on ways reciprocally and transversely to the line of movement of the chase, and automatic vibrating mechanism for the inking-roller carriage.

4. The combination, in a printing-press, of a multilinear chase, mounted to slide in guides, mechanism, including a ratchet, advancing-pawl, and a supporting-dog, whereby the chase is intermittently advanced a line-space at a time in alternation with the printing impacts, inking-rollers and a carriage therefor mounted to slide on ways reciprocally and transversely to the line of movement of the chase, and vibrating mechanism for the inking-roller carriage.

5. The combination, in a printing-press, of a multilinear chase, mounted to slide in guides, mechanism including a ratchet, an advancing-pawl, a supporting-dog, and actuating devices for the advancing-pawl, whereby the chase is intermittently advanced a line-space at a time in alternation with the printing impacts, shipper mechanism whereby the advancing - pawl - actuating mechanism is thrown in or out of action at will, inking-rollers and a carriage therefor mounted to slide on ways reciprocally and transversely to the line of movement of the chase, and vibrating mechanism for the inking-roller carriage.

6. In a printing-press the combination with a reciprocating platen, a multilinear chase, mechanism including a ratchet, an advancing-pawl, and a supporting-dog constructed to sustain the chase in exact printing alignment, actuating mechanism for the advancing-pawl constructed to advance the chase intermittently a line-space at a time in alternation with the printing impacts, and shipper mechanism, whereby the advancing-pawl-actuating mechanism is thrown in or out of action at will.

7. The combination, in a printing-press, of a movable chase, mounted in vertical guides on the press-frame, inking-rollers, a carriage therefor, sliding on ways transversely to the

line of movement of the chase, an oscillating
bracket provided with spring-controlled ex-
tensible rods, the said rods secured to the
inking-roller carriage, the bracket mounted
5 to turn pivotally on frame-arms, laterally ex-
tending from the press-frame, and automatic
actuating mechanism for the said bracket.

Signed by me at Boston, Massachusetts,
this 10th day of December, 1901.

DAVID E. HUNTER.

Witnesses:

ROBERT CUSHMAN,
FRANK S. HARTNETT.