

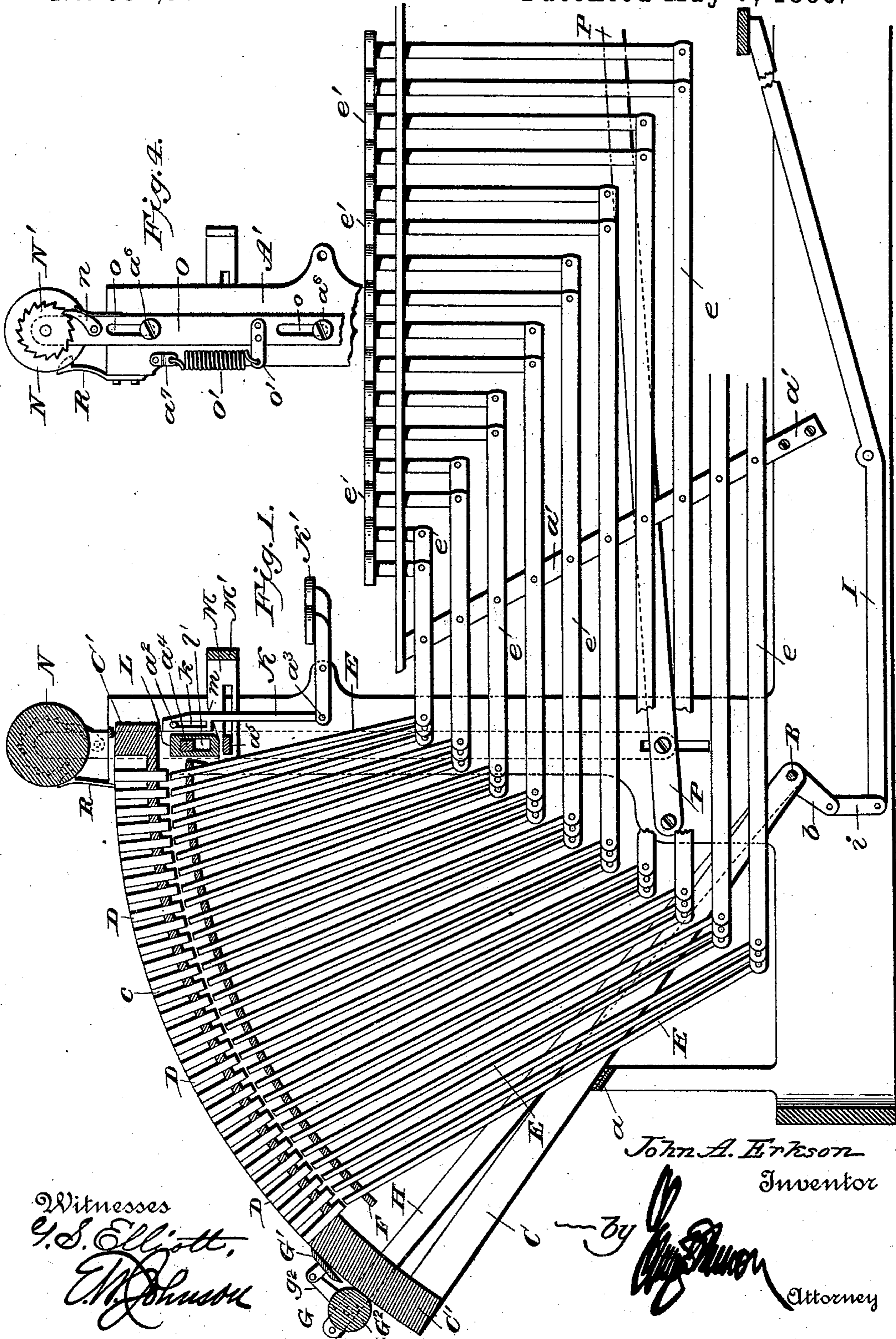
(No Model.)

2 Sheets—Sheet 1.

J. A. ERKSON.
LINOTYPE MACHINE.

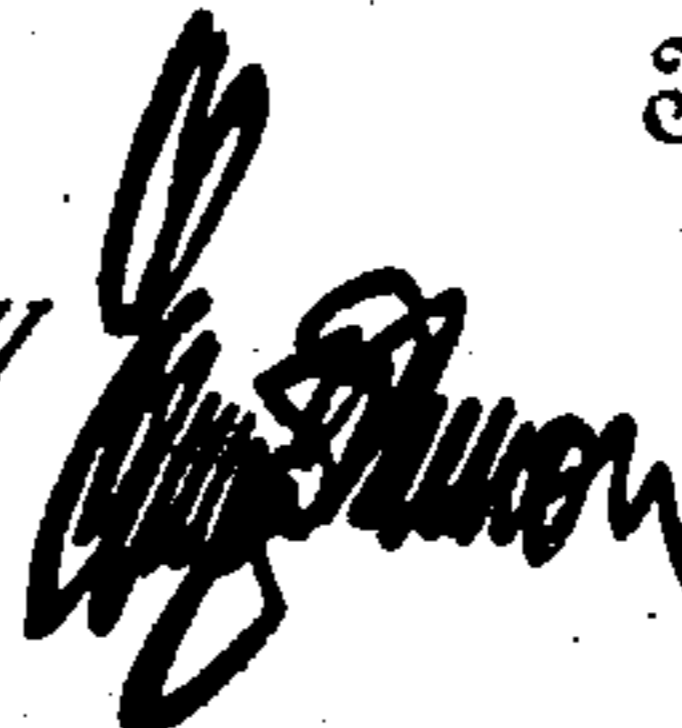
No. 538,902.

Patented May 7, 1895.



Witnesses
G. S. Elliott,
C. M. Johnson

John A. Erkson
Inventor

by 
Attorney

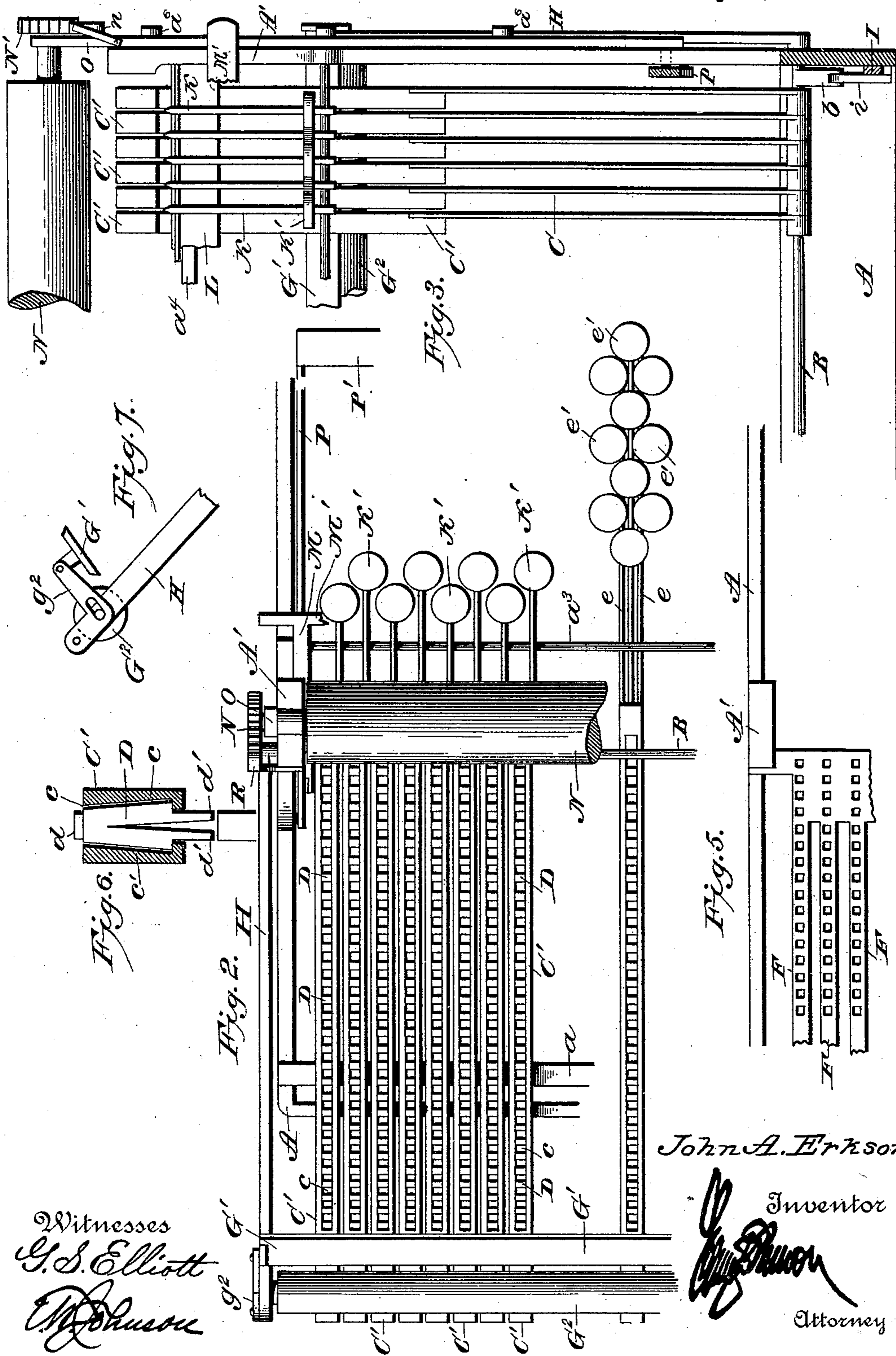
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UNITED STATES PATENT OFFICE.

JOHN A. ERKSON, OF PRATTSVILLE, NEW YORK.

LINOTYPE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 538,902, dated May 7, 1895.

Application filed July 19, 1894. Serial No. 518,005. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. ERKSON, a citizen of the United States of America, residing at Prattsville, in the county of Greene and State of New York, have invented certain new and useful Improvements in Linotype-Machines; 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, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in linotype machines, the object of the same being to provide a series of movable type-bars with adjustable types and means for adjusting the types, moving them in alignment and taking an impression from the line so formed; and the invention consists in the construction and combination of the parts, as will be hereinafter fully set forth and particularly pointed out in the claims.

In the accompanying drawings, Figure 1 is a side view of the machine, partly in section. Fig. 2 is a plan view of a part of the machine. Fig. 3 is a front view of one end of the machine, the keyboard and push-bars being removed. Fig. 4 is a side elevation of the upper part of one of the standards which support the impression-cylinder. Fig. 5 is a detail view of the apertured plates which guide the upper ends of the push-bars. Fig. 6 is a detail sectional view through one of the type-bars and types carried thereby, and Fig. 7 is an end elevation of the traveling carriage.

A designates the frame of the machine which is suitably constructed to support a keyboard at its forward end, and is provided on each side near its rear end with an upright or standard A' between which the line of type is formed and upon which are mounted the devices for taking an impression from the type.

Extending transversely across the lower part of the frame A and journaled in the side pieces thereof is a shaft B upon which is loosely pivoted a series of arms C, and to the upper ends of these arms the type-bars C' are rigidly secured at one end, the other end of said type-bars normally resting between the uprights A', the arms C being limited in their

downward movement by a bracket a extending from the frame A. The type-bars C' each consist of a curved bar having a longitudinal row of recesses c in which are located adjustable types D, the side walls c' of the recesses being inclined inwardly from bottom to top, and the types being wedge-shaped and split at their lower ends so that when they are forced upwardly in the recesses they will be wedged therein and held projected by frictional contact. The characters d are formed on the upper ends of the types and the bifurcated lower ends d' d' extend below the lower edge of the bars to provide for adjusting said types. When the type-bars are in their normal position the types therein are located immediately over push-bars E which are pivoted at the inner ends of key-levers e, said key-levers carrying the usual finger-keys e' forming a keyboard the characters of which are arranged as shown in Fig. 2—that is, a complete alphabet of keys, including punctuations, one for each type-bar, the types in the type-bars being placed in alphabetical order from one end to the other, the keyboard corresponding therewith. By this arrangement when a finger-key is depressed it will operate the push-bar connected thereto so as to push the corresponding type in its recess in the type-bar and wedge it therein, for the purpose hereinafter set forth.

The upper ends of the push-bars E are guided by flat apertured bars F (Fig. 5) through which said push-bars are passed, spaces being left between the bars to provide for the passage of the arms C which support the type-bars when said type-bars are moved as hereinafter described. The bars F are joined to each other at their upper ends and are rigidly secured to the uprights A', extending rearwardly therefrom, as shown in Fig. 1.

In order to provide a compact keyboard and a compact arrangement of key-levers each alphabet of finger-keys is arranged in a zigzag manner as shown in Fig. 2 and the corresponding key-levers are arranged in banks of three each positioned one bank above the other as shown in Fig. 1, the key-levers being pivoted upon rods secured at each end in brackets a' depending from each side of the frame which supports the keyboard.

G designates a carriage which moves over the upper edges of the type-bars C' and is provided with a shaft upon which is mounted a roller G^2 , the said shaft being connected at its ends to bell-crank levers g^2 to the ends of the forward members of which is attached a cross-bar G' while to the ends of the upper members are pivoted arms H by means of which the carriage is moved. The arms H are rigidly connected at their lower ends to the shaft B, and from this shaft extends an arm b connected to the foot-lever I by a link i , so that by depressing the foot-lever the shaft will be rocked and propel the carriage. The cross-bar G' is forced down upon the upper edges of the type-bars when the carriage is moved forward and will engage the types which have been projected beyond the upper edges of the type-bars and move them on a line between the uprights A' so that an impression can be taken therefrom as hereinafter described. To bring the types and type-bars to their normal position the foot-lever I is permitted to raise a slight distance and the backward movement of the arms H will turn the bell-crank levers which lift the cross-bar G' and permit the projected types to pass beneath the same, and said types will be depressed in passing under the roller G^2 as the type-bars fall back by gravity to their normal position.

K K designate a series of space-bars which are located between the uprights A' upon a rod a^2 which passes through slots k therein, the lower ends of said space bars being connected to finger-keys K' pivoted on a rod a^3 . These space-bars are adapted to be projected between the type bars at intervals to form spaces between the words of the line of type, and therefore there are as many space-bars as type-bars, and the operator after spelling out a word on the key-board depresses a space-bar on a line with the last letter depressed so as to move a space between that letter and the first letter in the next word.

L designates a cross-bar which is adapted to be moved up under the line of type so that said type can rest thereon while the impression is being taken. This cross-bar is provided with a longitudinal bore or rectangular recess l therein through which a rod a^4 extending between the uprights A' passes, and the ends of the cross-bar L rest upon slides M which slide upon lugs a^5 formed on the uprights. The slides M are connected by a bar M' and are provided with upwardly inclined surfaces m upon which the depending portions of the cross-bar L ride when the said slides are moved inwardly by the operator pushing upon the connecting-bar M' .

The device for taking an impression from the line of type consists of a cylinder N which is journaled in the upper ends of sliding bars O attached to the uprights A' . These bars are attached to the uprights by means of bolts a^6 which pass through slots o therein, and the lower ends of said bars are connected to foot-

levers P which are pivoted at their rear ends to the frame of the machine and are connected at their forward ends by a bar P' . Upon the cylinder N is wrapped a sheet of papier-maché and when the foot-lever P is depressed the cylinder will be brought down upon the line of type to receive an impression in the papier-maché, the depth of the impression being regulated by the length of the slots o in the sliding bars. When the impression has been taken the cylinder is returned to its normal position by a helical spring O' which is connected at one end to a projection o' extending from the sliding-bar and at its other end to an apertured bracket a^7 on the upright. Upon the shaft of the cylinder N is keyed a ratchet-wheel N' with which engages a spring-actuated dog n for preventing backward rotation of the cylinder, and to the upper end of the upright A' is secured a spring pawl R which engages the teeth of the ratchet-wheel when the cylinder is depressed and turns the cylinder one tooth when it moves up to its normal position, thus presenting a new surface to receive the impression from the next line of type formed between the uprights. The sheet of papier-maché by this means receives the impression of one line after another, and when it is filled is removed and may be used to make a stereotype plate therefrom.

In operation the operator to form a line of type between the uprights A' beneath the impression cylinder N depresses the finger-keys e' for the letters in the line commencing at the first alphabet on the left for the first letter, the second alphabet for the second letter, and so on, the push-bars being arranged with respect to the keyboard so that a push-bar in each series will project a type in the type-bar corresponding with the alphabet on the keyboard—a space-key being depressed after each word to locate a space-bar between the type-bars. When the operator has depressed the proper number of keys he moves the carriage G over the type-bars by depressing the lever I and as the carriage travels toward the uprights A' the cross-bar G' thereof engages the adjusted types and moves the type-bars to bring said adjusted types on a line beneath the cylinder N. The cross-bar L is then moved up against the under side of the types by means of the slides M and the lever P is depressed which forces the cylinder N down upon the line of type to receive an impression in the papier-maché wrapped thereon. When pressure is released from the foot-lever P' the cylinder will be returned to its normal position by the spring O' and the spring pawl R being in engagement with the ratchet-wheel N' will turn the cylinder so as to present a new surface at its lower portion. The operator now allows the lever I to rise a short distance which moves the arms H rearwardly turning the bell-crank levers of the carriage and lifting the cross-bar G' . The type-bars will then fall back to their normal

position by gravity and in doing so the adjusted types passing under the roller G² will be depressed. The carriage is now permitted to move to the lower ends of the type-bars and the parts are then in position to form another line.

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

10 1. In a linotype machine a series of curved type-bars pivoted upon a frame and having adjustable types, means for adjusting the types and a carriage traveling over the type-bars and adapted to engage the adjusted
15 types and move them in line.

2. In a linotype machine a series of movable bars having adjustable types, means for adjusting the types and a cross-bar traveling over the type-bars and adapted to engage the
20 adjusted types and move them in alignment, substantially as shown and for the purpose set forth.

3. A type-bar for linotype machines having recesses therein with inclined side walls and
25 wedge-shaped types in said recesses.

4. A type-bar for linotype machines having recesses therein and wedge-shaped types split at one end and located in said recesses.

5. In combination with a bar having recesses therein with inclined side walls, of a wedge-shaped type split at its wide end, substantially as shown and for the purpose set forth.
30

6. In combination with a bar having a longitudinal series of recesses therein with inclined side walls, of a wedge-shaped type having the character formed on its narrow end and split at its wide end, the split end extending beyond the edge of the bar, substantially as
35 shown and for the purpose set forth.

7. In a linotype machine, the combination with a series of movable type-bars having adjustable types, of push bars adapted to engage with one end of the adjustable types, apertured bars for guiding the push-bars and
45 levers pivotally connected to the lower ends of the push-bars and to finger-keys, substantially as shown and for the purpose set forth.

8. In a linotype machine, the combination

with a series of movable type-bars having adjustable types, of push-bars adapted to engage the adjustable types, said push-bars being connected to levers having finger-keys, together with a traveling carriage adapted to move over the type-bars and engage the adjusted type and move them in alignment, substantially as shown and for the purpose set forth.
50 55

9. In a linotype machine, the combination with a series of movable type-bars having type which are adjustable therein substantially as described, of a carriage for moving the adjusted type in alignment, the carriage consisting of a shaft journaled in bell-crank levers to which operating arms are connected
60 65 and a cross-bar connected to the bell-crank levers, substantially as shown and for the purpose set forth.

10. In a linotype machine, the combination with a series of movable type-bars having type which are adjustable therein substantially as described, of a carriage for moving the adjusted type in alignment, the carriage consisting of a shaft journaled in bell-crank levers to which operating arms are connected
70 75 and a cross-bar connected to the bell-crank levers, together with a rock-shaft to which the operating arms are secured and a lever for rocking the shaft, substantially as shown and for the purpose set forth.
80

11. In a linotype machine, the combination with a series of movable type-bars carrying adjustable types, means for adjusting the types and a traveling carriage for moving the adjusted types in alignment, the carriage consisting of a shaft journaled in bell-crank levers, operating arms connected to one end of the bell-crank levers and a cross-bar connected to the other end, together with a roller located on the shaft of the carriage beneath
85 90 which the adjusted types pass, substantially as shown and for the purpose set forth.

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

JOHN A. ERKSON.

Witnesses:

JAMES C. MCWILLIAMS,
FANNIE ERKSON.