

(No Model.)

3 Sheets—Sheet 1.

J. B. ODELL.

MACHINE FOR PERFORATING STRIPS FOR USE IN AUTOMATIC TYPE
SETTING APPARATUS.

No. 431,280.

Patented July 1, 1890.

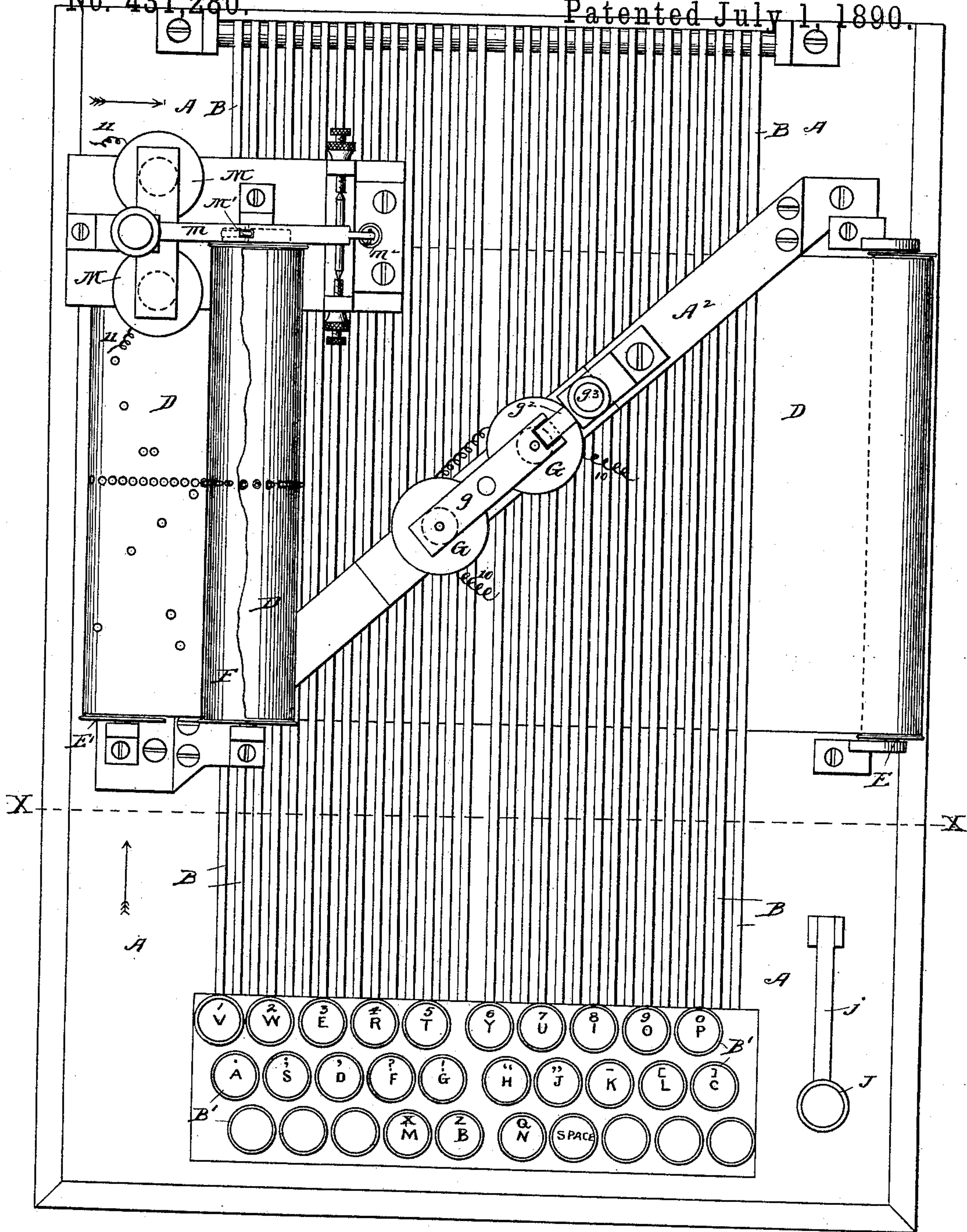


Fig. 1

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By Geo. W. LeVine.
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(No Model.)

3 Sheets—Sheet 2.

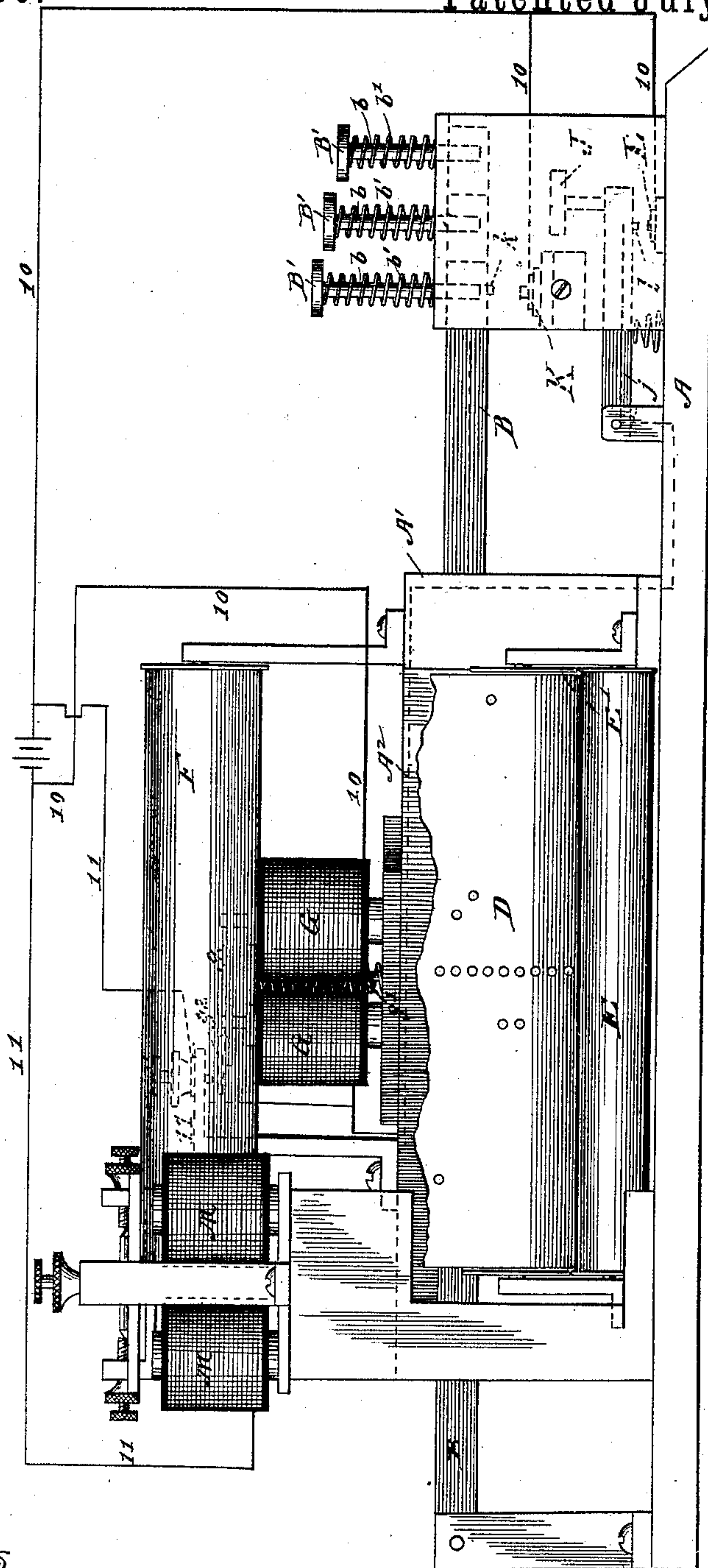
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Fig. 2.



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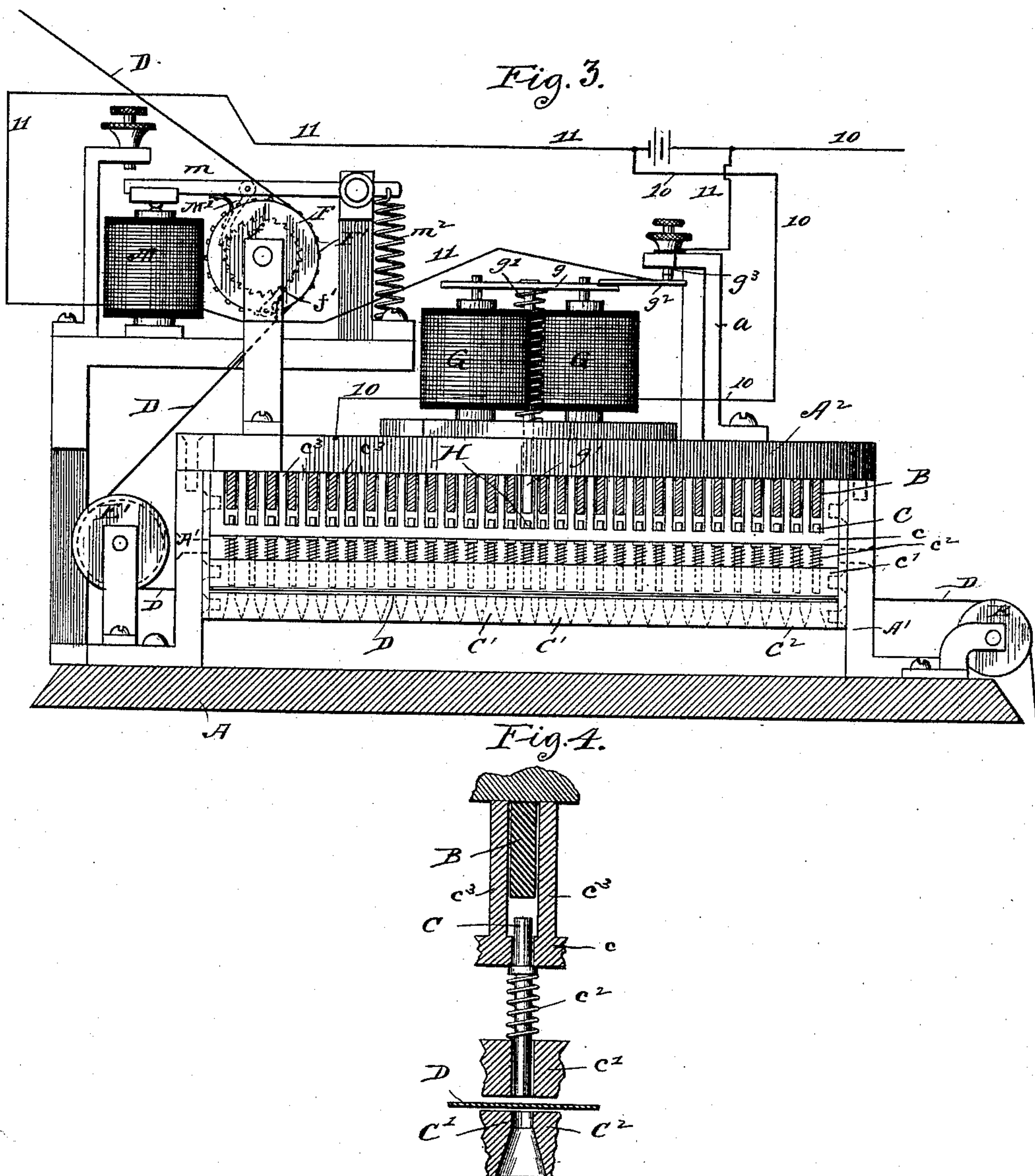
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Witnesses,

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UNITED STATES PATENT OFFICE.

JOHN B. ODELL, OF CHICAGO, ILLINOIS, ASSIGNOR OF TWO-THIRDS TO HORATIO N. MAY AND NATHANIEL S. JONES, BOTH OF SAME PLACE.

MACHINE FOR PERFORATING STRIPS FOR USE IN AUTOMATIC TYPE-SETTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 431,280, dated July 1, 1890.

Application filed February 8, 1889. Serial No. 299,175. (No model.)

To all whom it may concern:

Be it known that I, JOHN B. ODELL, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Machines for Perforating Strips for Use in Automatic Type-Setting Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

The invention has for its object to provide means whereby a strip of paper or other material suitable for the purpose may be expeditiously perforated in a manner which adapts it to employment in automatic type-setting apparatus of the class for which my certain application for Letters Patent will hereafter be filed, and to which, for the purpose of fully elucidating this invention, it is desired that reference be made.

The invention is fully shown in the accompanying drawings, in which—

Figure 1 is a top plan view thereof. Fig. 2 is a side elevation thereof, looking in the direction indicated by the horizontally-drawn arrow shown in the upper corner of said Fig. 1. Fig. 3 is a front end elevation, in part transverse section, taken on the line X X of Fig. 1, looking in the direction indicated by the arrow, drawn perpendicularly to said line. Fig. 4 is a detail, mainly in cross-section, illustrative of the operative arrangement of the perforating devices.

The construction and operative arrangement of the machine are as follows:

Male dies C, desirably to the number of thirty, are sustained in guide-bearings provided in bars c' , fixedly held by brackets A' , attached to the base A. Coincident with said male dies female dies C' are provided, formed in a bar C^2 , likewise held by said brackets A' . Levers B, corresponding in number with said dies C, pivotally held by one end and provided at the other end with a finger-button B' , respectively, indicating letters or characters and the purposes for which they are employed, are provided for operating said dies in their punching operation, the said male

dies being held in the direction of their respective levers away from the female dies each by the resistance of a spring c^2 , normally held under compression. The levers B work perpendicularly within spaces formed by lateral guide-fingers or partition-plates c^3 , projecting upwardly from the said guide-bearing bar c to a stop-bar A^2 , fixed to the said brackets A' , and are normally held away from the dies C each through the resistance of a spring b' , normally held under compression, carried by a stem b , which connects the button B' with its lever B. The bars C^2 c' are located sufficiently distant from each other so as to enable the passage through the space thereby formed of a continuous strip of paper or other suitable material, (designated herein by reference-letter D,) which, passing over idle guide-rollers E E', located, respectively, on each side horizontally of the levers B, is intermittently fed forward by a suitably-sustained electro-mechanically-actuated roller F, which is operated by either lever B following each punching operation of the machine in the manner hereinafter described.

The stop-bar A^2 sustains, at a point longitudinally central of the position occupied by the dies C, electro-magnets G, the armature-stem g' of which operates a die H, which, like the dies C, is provided with a similar coincident female die formed in the bar C^2 . The said magnets G have connection from one side thereof, by means of conductors 10, through battery, with the insulated contact-points K L, (shown in Fig. 2,) and from the other side thereof, by conductor 10, through the framework of the machine, (see broken lines, Fig. 2,) with the levers B, also with the lever j of a key J. (Shown in Figs. 1 and 2.)

Magnets M, provided for operating the feed-roller F, are connected from one side thereof, by conductor 11, with an insulated contact g^2 , carried by the armature g of magnets G, thence through contact point g^3 , carried by a bracket a , and conductor 11, to battery, and from the other side thereof, by conductor 11, to battery. The feed-roller F is provided at one end with a ratchet-wheel f , which is engaged by a pawl m' , carried by the armature-lever m of said magnets M, and carried forward thereby as

said armature-lever is vibrated downwardly, a detent f' being provided to prevent, by engagement with the ratchet, rearward movement of the roller as the armature and pawl, upon de-energization of the said magnets, are retracted by the tension-spring m^2 , connected with one end of said lever. The roll F is circumferentially provided at its longitudinal center with a series of pins F' , spaced and accurately adapted, as it describes its step-by-step forward movement, to enter the perforations formed in the strip by the die H, and to draw the same forward.

The dies C are laterally positioned with reference to each other and otherwise, so as to correspond with a similarly - arranged series of circuit opening and closing fingers forming part of my automatic type-setting apparatus above referred to, being desirably arranged upon a plane obliquely athwart the line of travel of the strip, thus enabling the forming of the perforations in the strip within a more limited transverse space than would be the case if their arrangement were upon a plane at right angles to said strip.

The operation of the machine is as follows: Depression of the lever B carries its corresponding die C through the strip D. The point k shown upon the lever, being carried to contact with the point K, closes the circuit of the magnets G through battery by way of conductors 10 through said magnets, the frame of the machine, and said lever, causing, upon energization of said magnets, the armature g thereof to be drawn downwardly, effecting through its stem g' operation of the die H to form a central perforation in the strip, the said movement of the armature g opening the normally-closed circuit of the magnets M through the points $g^2 g^3$, thus rendering the devices which operate the feed-roller F inactive, as to its forward movement, during the perforating function of the machine. The lever B being allowed to return in the direction of its original position, contact between the points k K is broken, opening the said circuit of the magnets G, upward movement of the armature g , and the return movement of the lever allowing their dies H and C to be withdrawn from the strip. The return of the said armature to its original position closes through the points $g^2 g^3$ the circuit of the magnets M by way of conductors 11, causing the armature m to be moved in the proper direction, and the roller F to be fed forward by means of the pawl m' and ratchet-wheel f for a suitable distance, at which it is held so long as the said circuit remains closed. Similar operations of either of the other key-levers of the series causes like operation of the said several described devices.

The office of the key J is to effect operation of the magnets G and the magnets M, which actuate the feed-roller F independently of the levers B. Thus, for example, it being desired to feed said strip forward for spacing

or other purposes, depression of the lever j carries the point l (shown thereon) to contact with the point L, closing the circuit of the magnets G by way of conductor 10, through point L, battery, said magnets, and the frame and base of the machine to said lever, effecting through said armature g the opening of the circuit of the magnets M and the perforating operation of the die H, in the manner above described. The lever being allowed to move in the direction of its original position opens the circuit through the points l L of the magnets G, the armature g closing on its return movement the circuit of the magnets M, and therethrough effecting feed of the roller F. Further manipulation of said key obviously enables the perforating of the strip by the die H and the carrying of the strip forward for any desired distance independently of the action of the said levers B, and therefore of the dies which they operate.

I claim as my invention and desire to secure by Letters Patent—

1. In a perforating-machine, the combination, with suitable feeding mechanism for advancing the strip of paper to be punched, of a series of male and female dies arranged obliquely athwart the path of travel of the paper strip, whereby the formation of the perforations in the strip within a limited transverse space is effected, substantially as described.

2. In a perforating-machine, the combination of a series of male and female dies, a series of key-levers for operating said dies, a feeding-roll for advancing the strip of paper to be punched, a pawl-and-ratchet mechanism for operating said feed-roll, an electro-magnet having an armature connected to said pawl, conductors connecting said key-levers with said magnet, a contact-plate against which said key-levers will strike when depressed, and a conductor connecting said contact-plate with said magnet, whereby the perforation of the paper will be effected and the feeding of the paper will thereafter be secured, substantially as described.

3. In a perforating-machine, the combination of suitable mechanism for feeding the strip of paper to be perforated, male and female dies for perforating said paper, key-levers for operating said dies, pawl-and-ratchet mechanism for operating the feed mechanism, an electro-magnet for operating said pawl-and-ratchet mechanism, electrical conductors connecting said magnet with the key-levers, a spacing-key for operating said pawl-and-ratchet mechanism, and suitable electrical conductors connecting said spacing-key to said magnet independently of the key-levers, whereby the operation of the armature of said magnet to advance the strip of paper can be effected by the spacing-key independently of the key-levers, substantially as described.

4. The combination of a die H, magnets in a normally-open circuit adapted through their armature to operate said die through its punch-

ing function, a key-board the levers of which are adapted to open and close through suitable contact-connections the circuit of said magnets, and strip-feeding magnets in a circuit which is opened and closed by the armature of the die-operating magnets, substantially as herein set forth.

5 5. The combination of the die H, magnets in a normally-open circuit for operating said
10 die through its punching function, a key J,

adapted to open and close the circuit of said magnets, and the feed-magnets M in a circuit operated by the armature of the die-operating magnets, substantially as and for the purpose described.

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