

(No Model.)

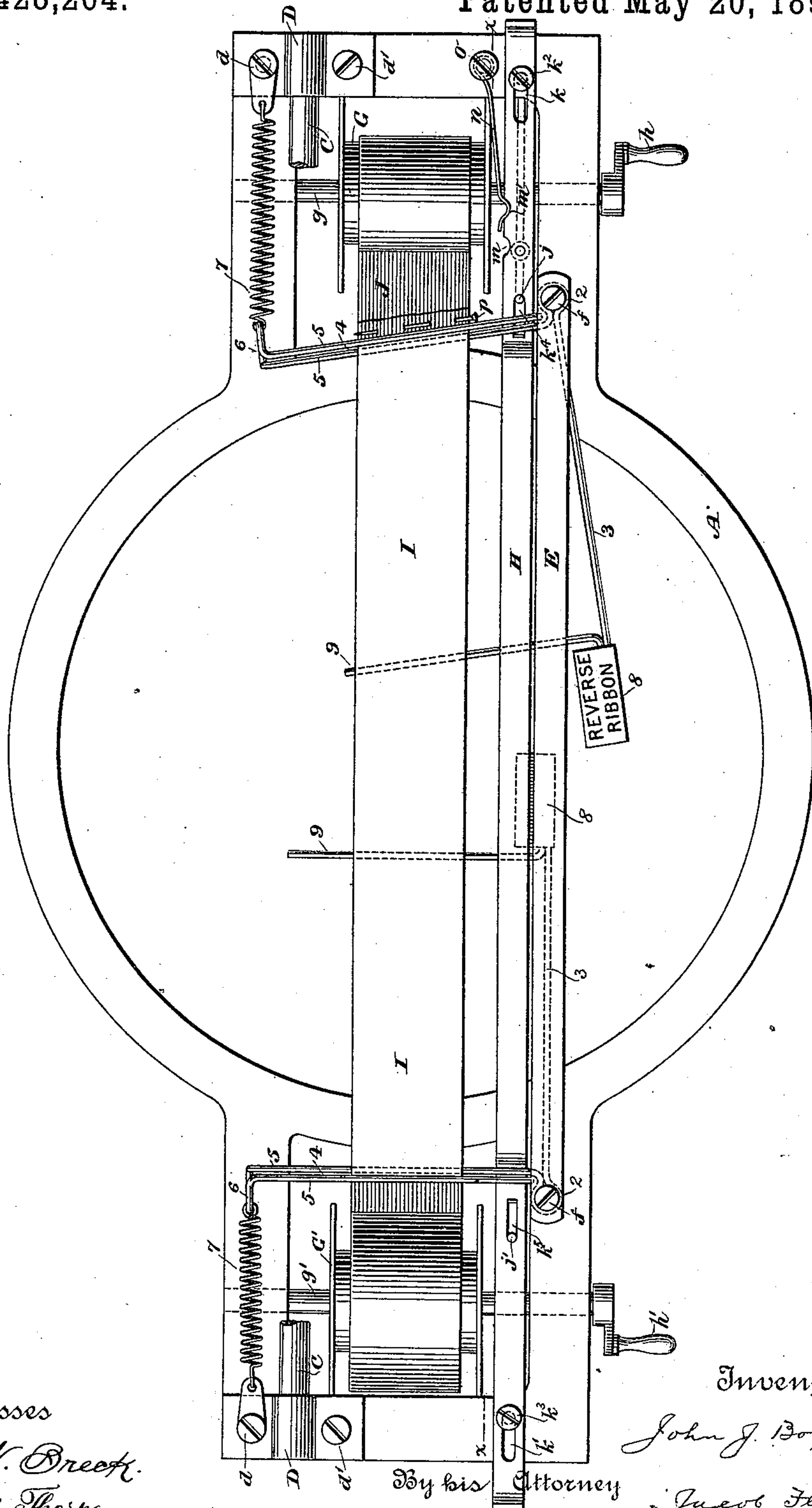
2 Sheets—Sheet 1.

J. J. BOYER.
TYPE WRITING MACHINE.

No. 428,264.

Patented May 20, 1890.

Fig. 1.



Witnesses
Geo. W. Breech.
Edward Thorpe.

By his

Inventor

John J. Boyer.

Attorney

Jacob Felbel

(No Model.)

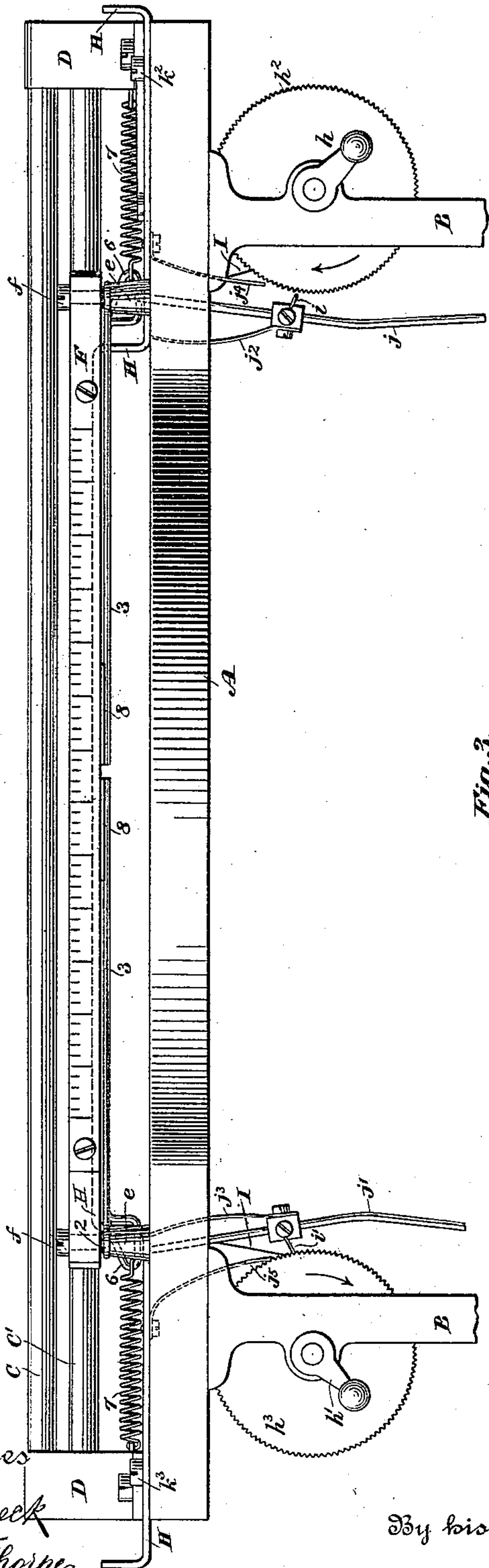
2 Sheets—Sheet 2.

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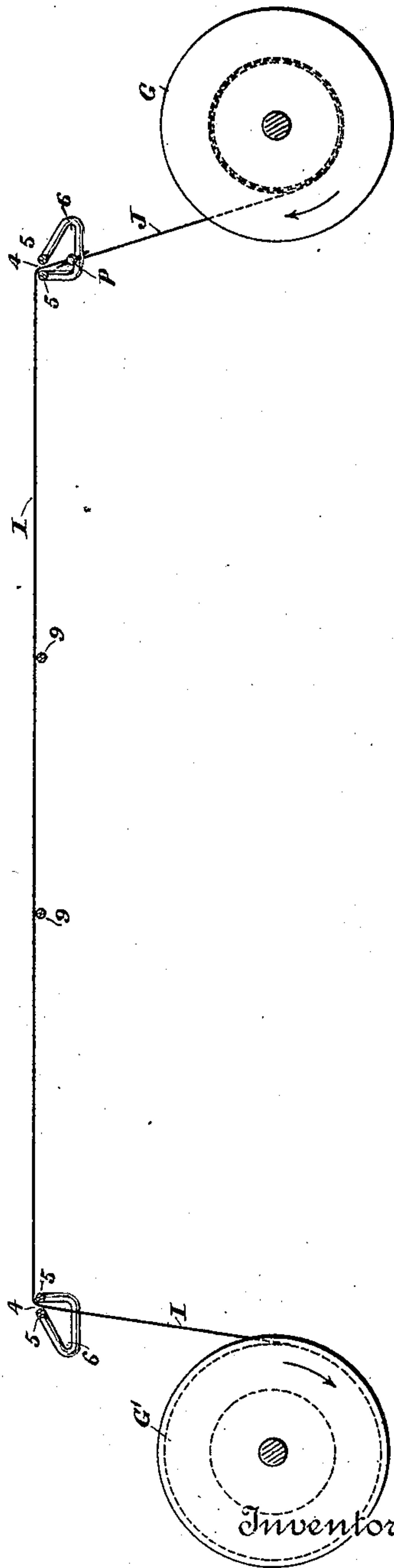
Patented May 20, 1890.

Fig. 2,



Witnesses
Geo. W. Breck
Edward Thorpe.

Fig. 3,



By his Attorney
John J. Boyer
Jacob Felbel

UNITED STATES PATENT OFFICE.

JOHN J. BOYER, OF HARTFORD, CONNECTICUT, ASSIGNOR TO THE AMERICAN WRITING MACHINE COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 428,264, dated May 20, 1890.

Application filed December 8, 1888. Serial No. 292,987. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. BOYER, a citizen of the United States, and a resident of Hartford, in the county of Hartford and State of Connecticut, have invented certain new and useful Improvements in Type-Writing Machines, of which the following is a specification.

My invention relates particularly to the ribbon movement of a type writing machine, and has for its main object to provide a signaling device whereby the operator may be visually informed when the inking-ribbon has been entirely unwound from either spool, and hence has ceased to travel or feed.

My invention consists in certain features of construction and combinations of parts, all as will be hereinafter more fully described, and particularly pointed out in the appended claims.

In the accompanying drawings, Figure 1 is a top view of a portion of a type-writing machine embodying my invention. Fig. 2 is a front elevation of the same, and Fig. 3 is a vertical section at the line $x x$ with the top plate or frame-work of the machine removed.

In the several views the same part will be found designated by the same letter or numeral of reference.

A represents the top plate of a type-writing machine, around the circular portion of which the type-levers (not shown) are pivoted or arranged as heretofore.

B B represent the side frame-work or standards of the machine, and C C' the usual rear carriage guide-rails, mounted in brackets D D, which are secured by screws $d d' d'$ to the top plate.

E designates the usually-employed front carriage rail or track, which is mounted on short pillars or posts ee at each end, and held in place by screws $f f$, passing through both the rail and the posts and entering tapped holes in the top plate. To the front side of the rail is attached a scale F, as heretofore.

G G' represent the ribbon-spools, mounted on axles $g g'$, supported by the frame-work, and provided with crank-handles $h h'$. The spools are provided with ratchet-wheels $h^2 h^3$, which are adapted to be actuated step by step by pawls or dogs $i i'$, secured to rods $j j'$, con-

necting with the universal bar (not shown) in a manner well known.

H represents a ribbon-switch, slotted, as seen at $k k'$, for the passage of screws $k^2 k^3$, and also slotted, as seen at $k^4 k^5$, for the admission of the upper ends of the rods $j j'$ and wire springs $j^2 j^3$. From the under side of the switch depend dogs $j^4 j^5$, to prevent return movement of the ribbon-spools. The switch is notched in two places, as seen at $m m'$, to receive the free bent end of a spring n , secured by a screw o to the frame-work.

The ribbon feeding and switching devices are those now universally employed on the machine known as the "Caligraph," and hence do not require an extended description.

I designates the inking-ribbon, and J a tape or band secured to each ribbon-spool. The ribbon is preferably attached to the tape at each end by means of a common pin p , as heretofore; but in lieu thereof it may be buttoned thereto or fastened by other means. Moreover, instead of connecting the ribbon to the tapes, it may be fastened directly to the spools.

The signaling device or means, made, preferably, of round wire, consists of a ring or loop portion 2, an arm 3, and an elongated eye or slotted portion 4, at right angles to the arm 3, formed by two parallel strands terminating, preferably, in a loop 6, to which is attached one end of a spring 7, whose other end is connected to the frame-work of the machine, preferably, by the screw d . The ring portion 2 is pivoted to the machine, preferably, beneath the track E and by the screw f . To the inner free end of the arm 3 is preferably attached a plate or tablet 8, bearing the words "Reverse ribbon." The machine contains two of these signaling devices, one on each side and reversely arranged to be operated by the ribbon in either direction of its movement. The normal position of the signaling means is with the arm and tablet directly beneath the track E and practically out of sight of the operator. Near the end of each arm 3 is arranged a rearwardly-projecting ribbon-support 9. The ribbon is connected at one end to either spool (preferably by the tape J and pin p) and wound thereupon. Its free end is then threaded through

the eye or slot 4 of one signal device, carried over the inner strand 5 and over the support 9, then over the support and the inner strand of the other signal device, and, passing through the slot 4 thereof, is connected to the other spool, preferably in the manner described.

The operation of the contrivance will be understood to be as follows: In the position in which the parts are drawn at Fig. 1 the ribbon is supposed to have been fed to the left from the spool G and to have actuated the signaling device at the right-hand side. When this shall have occurred in practice, the operator is then to pull the ribbon-switch H to the right and thus throw the pawl i and dog j^4 into engagement with the ratchet-wheel h^2 , by which operation the pawl i' and the dog j^5 will be disengaged from the ratchet-wheel h^3 . The writing may then be continued and the ribbon I slowly wound upon the spool G by the step-by-step ratchet feed. When the ribbon shall have been entirely unwound from the spool G', the pin p , connecting the left-hand end of the ribbon with the tape J on the spool, being too large to go through the slot 4, will, as the ribbon is continued to be fed to the right, abut against the strands 5 and vibrate the signaling device against the tension of the spring 7, thus throwing out the arm 3 and its tablet where they may be instantly seen by the operator, in the manner illustrated at the right-hand side of the machine. When the signal shall have been thus actuated at either side of the machine and the direction of feed of the ribbon has been altered and the empty spool rotated, the spring 7 will gradually and automatically return the arm 3 and its tablet to their normal position, preferably beneath the carriage-rail E; but, if desired, the spring may be dispensed with and the signal returned to first position by hand.

While I prefer to use the pin of the ribbon to directly cause the vibration of the signal, it will be understood, of course, that it is not an absolutely essential element, for any other projection on the ribbon would serve the same purpose. The ribbon itself may be doubled, bunched, or so folded as to actuate the signal without the employment of other means.

The supports 9 serve nicely to sustain the ribbon in the vicinity of the printing-point and prevent the same from buckling or curling, as is its tendency.

It will be seen that by my invention is provided a cheap and efficient means whereby

the operator may be visually informed or signaled when the feed or travel of the ribbon has ceased and should be started in the reverse direction, thus avoiding the liability of imperfect impressions in the writing and the early destruction of the ribbon.

So far as the main feature of my invention is concerned numerous changes in detail construction may be made without departing from the spirit or principle thereof, the gist of which has already been explained, and will now be particularly pointed out in the following clauses of the claim.

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

1. In a type-writing machine, the combination, with the inking-ribbon, of a vertically-pivoted vibratory frame comprising a signal-arm 3 and a slotted portion 4, through which the ribbon passes, and with which the ribbon co-operates to vibrate said frame and project the signal-arm, substantially as shown and described.

2. In a type-writing machine, the combination, with the inking-ribbon, of a vertically-pivoted vibratory frame comprising a signal-arm 3 and a slotted portion 4, arranged at right angles to the inking-ribbon and the signal-arm, substantially as shown and described.

3. In a type-writing machine, the combination of a pivoted vibratory signal, an inking-ribbon for actuating the same in one direction, and a spring for actuating it in the opposite direction, substantially as set forth.

4. In a type-writing machine, the combination of an inking-ribbon and a vibratory frame consisting of the arm 3, the ribbon-support 9, and the strands 5 5, substantially as set forth.

5. In a type-writing machine, the combination, with an inking-ribbon, of a pair of reversely-arranged pivoted signals, one of which signals is adapted to be turned by the ribbon when moving in one direction and the other by the ribbon when moving in the opposite direction, substantially as set forth.

Signed at New York city, in the county of New York and State of New York, this 3d day of October, A. D. 1888.

JOHN J. BOYER.

Witnesses:

JACOB FELBEL,
MARTIN LAYDEN.