

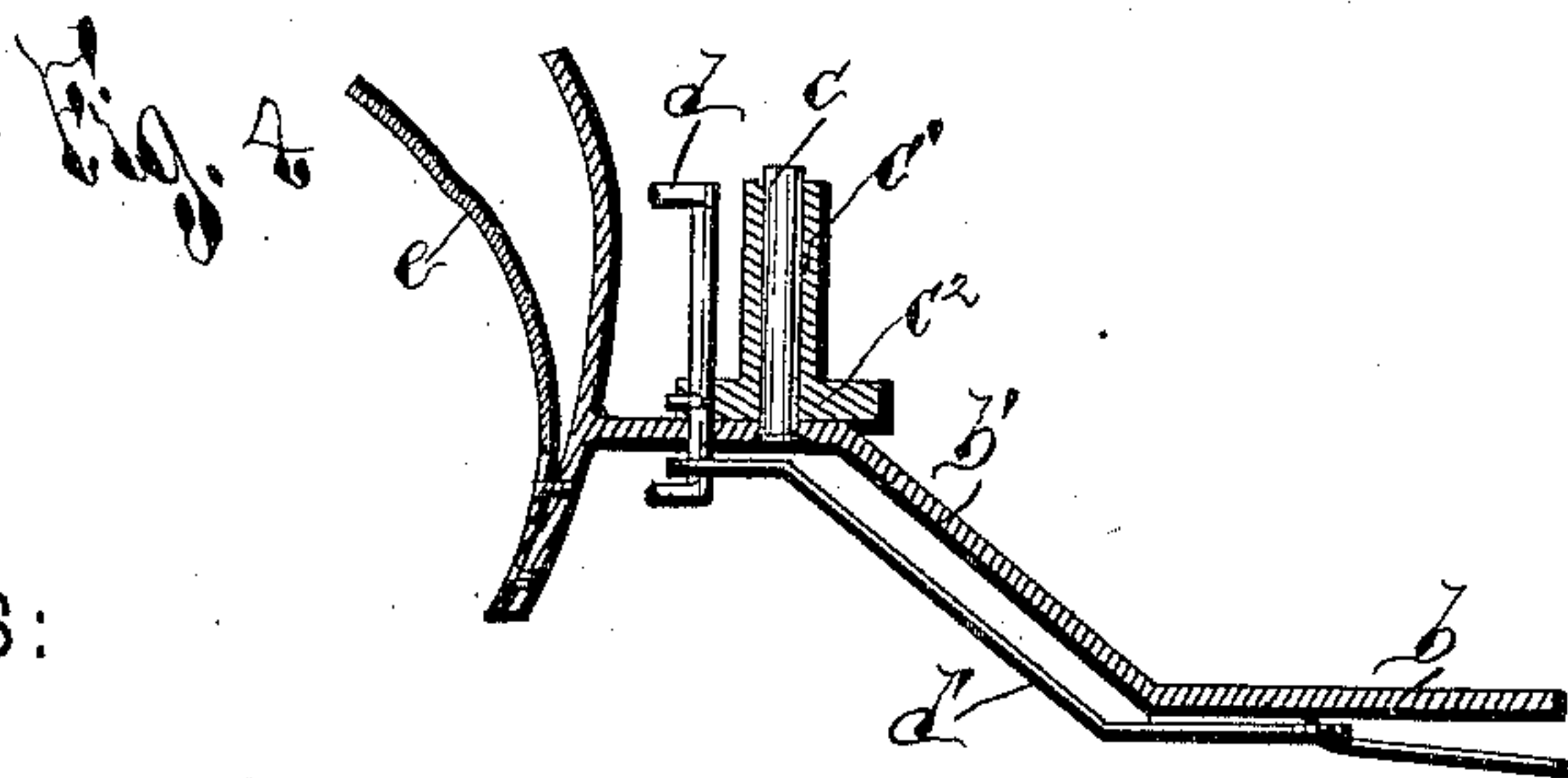
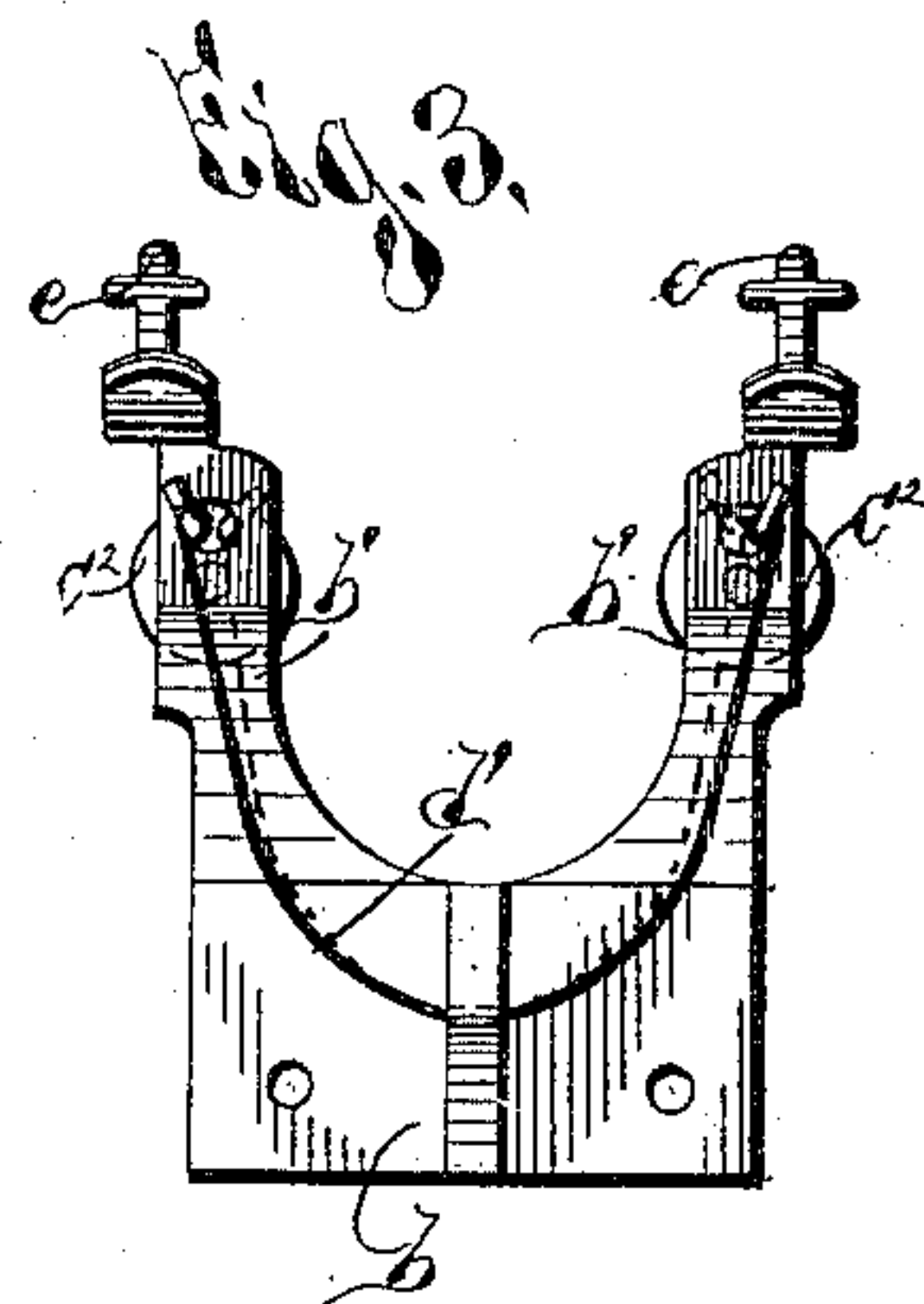
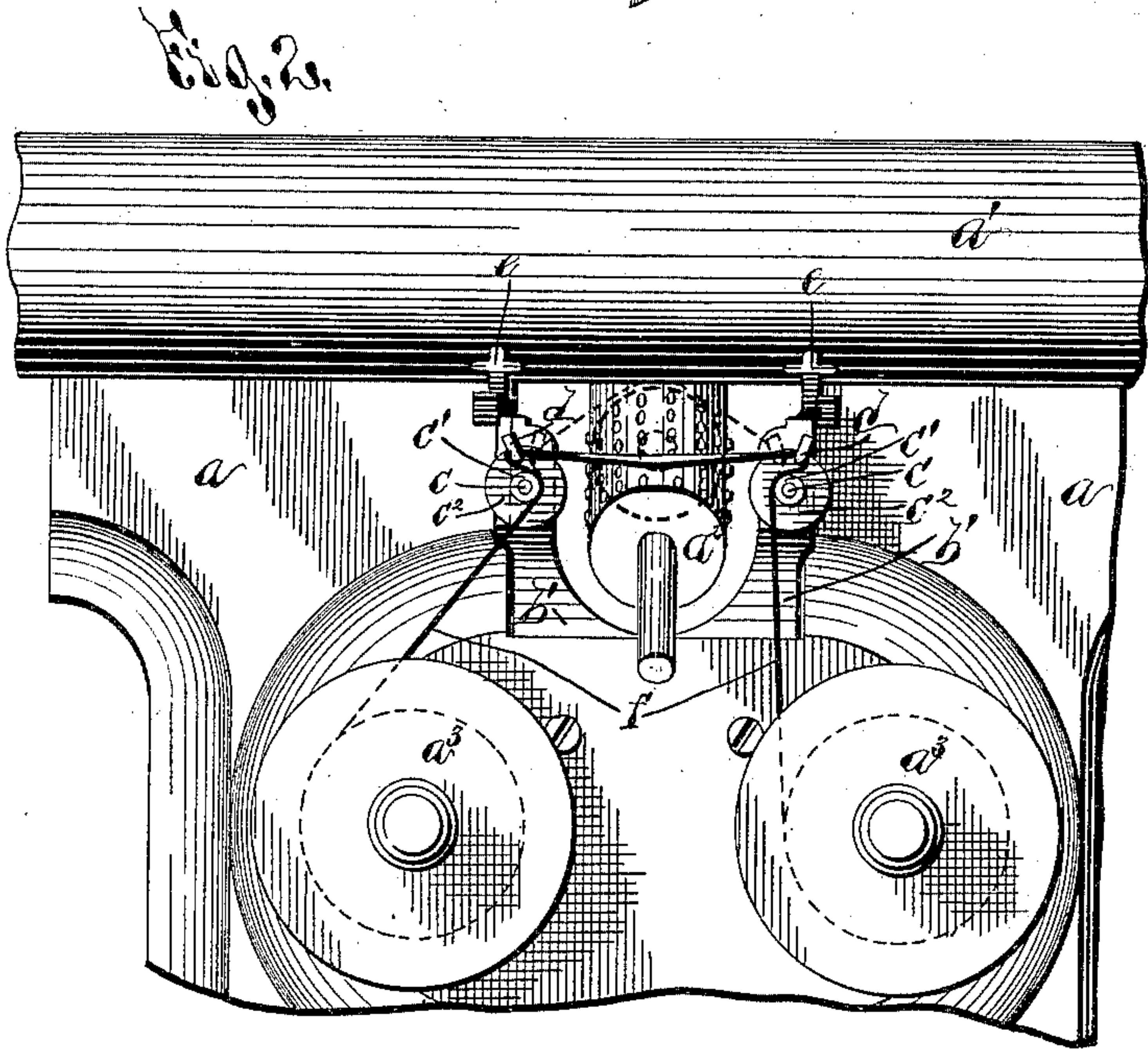
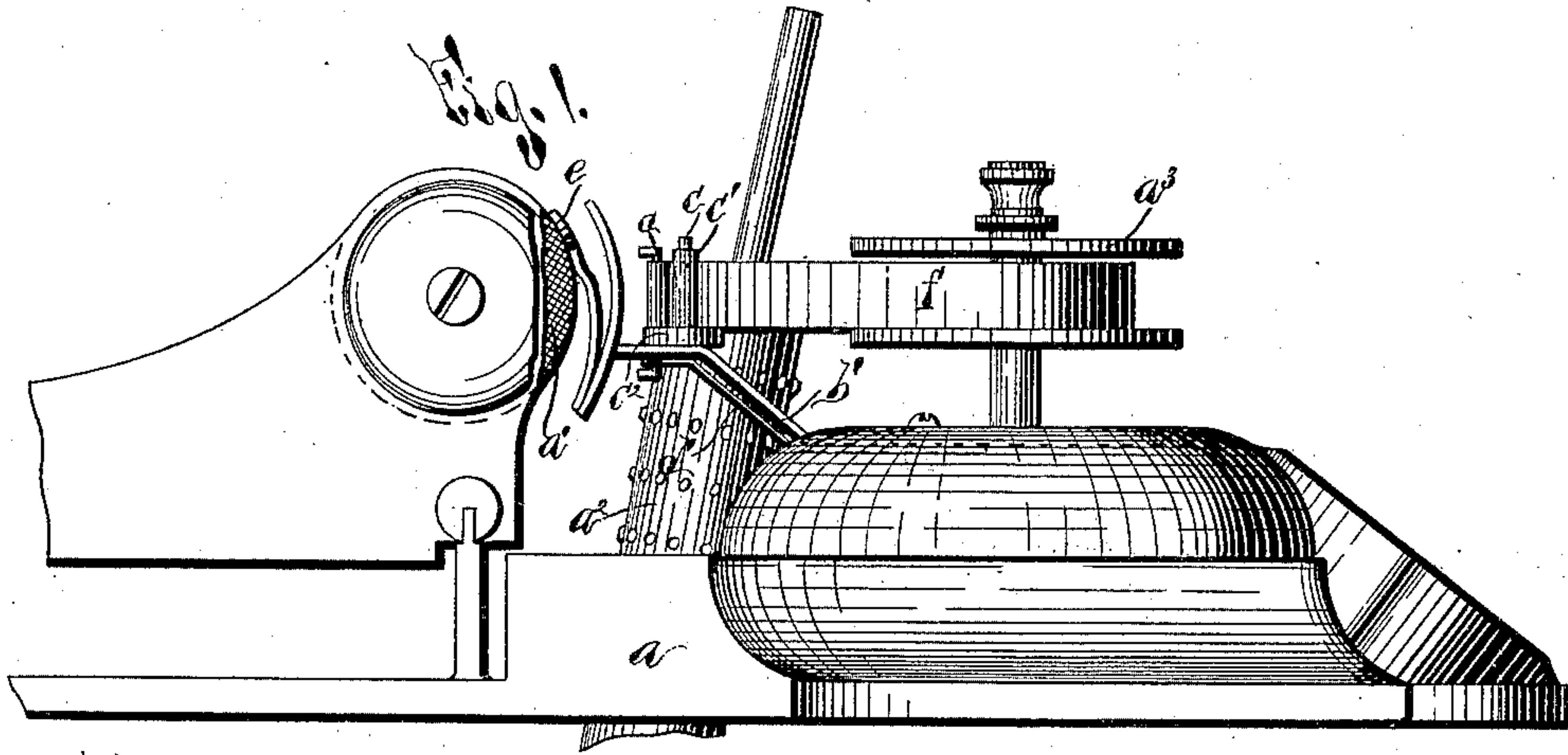
(No Model.)

L. A. BROTT.

RIBBON MOVEMENT FOR TYPE WRITING MACHINES.

No. 408,289.

Patented Aug. 6, 1889.



WITNESSES:

*H. C. Parsons,*  
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# UNITED STATES PATENT OFFICE.

LUCIEN A. BROTT, OF GROTON, NEW YORK, ASSIGNOR TO THE CRANDALL TYPE-WRITER COMPANY, OF SAME PLACE.

## RIBBON MOVEMENT FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 408,289, dated August 6, 1889.

Application filed January 9, 1888. Serial No. 260,171. (No model.)

*To all whom it may concern:*

Be it known that I, LUCIEN A. BROTT, of Groton, in the county of Tompkins, in the State of New York, have invented new and useful Improvements in Ribbon Movements for Type-Writing Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to an improvement in ribbon movements for type-writers; and it consists in certain peculiarities of the construction and arrangement of the same, substantially as will be hereinafter more fully set forth and claimed.

In order to enable others skilled in the art to which my invention pertains to make and use the same, I will now proceed to describe its construction and operation, referring to the accompanying drawings, in which—

Figure 1 is a side elevation of the ribbon-holder and connecting parts of a type-writer showing my invention. Fig. 2 is a top plan view of the same. Fig. 3 is a bottom view of the ribbon take-up, and Fig. 4 is a sectional view through one arm of the same.

$a$  represents the main frame of a type-writer, and  $a'$  the impression-roller,  $a^2$  the type-cylinder, and  $a^3$  the two ribbon-spools, all of which are of any construction suitable to this class of machines.

Heretofore the ribbon has, in passing from spool to spool, been led so near the impression-cylinder and the paper passing around the same that there was great danger of blurring or smearing the paper as the carriage was moved along, as also the ribbon was not bent around the type-cylinder enough to give a clearly-defined and well-cut edge to the letter as it was printed. In addition to this, it was not possible to see the last word or letter printed without the use of a movable carrier for the ribbon, which was provided with a special key for its operation, and this added expense and complication, both of which it is desirable to avoid.

The object of my present invention is to so hold the ribbon at a distance from the impression-cylinder as to clearly reveal at all times the matter last printed, and at the same time to effectually prevent any possi-

bility of any smearing or blurring of the paper as the carriage makes its forward movement, and also to retain the ribbon taut, but yieldingly, in the path of the type-cylinder, so that as the latter makes its forward stroke the ribbon is readily carried with it, yet is wrapped so tautly around the face of the type-cylinder as to insure a clean and clear-cut impression, with no portion of the ribbon in contact with the paper except that immediately pressed down by the raised type, and which will also be drawn back to its normal position as the type-cylinder falls back ready for a fresh impression.

In my invention I secure in front of the spools a spreader and holder  $b$ , provided with two forwardly-projecting arms  $b'$ , between which the type-cylinder normally lies. On each arm  $b'$  is secured a stud  $c$ , on which are placed the oscillating take-ups, each of which consists of a hub  $c'$ , surrounding the stud  $c$ , and formed with a flange or disk  $c^2$  on its lower end. In this flange, at one side of the hub, I secure a small pin  $d$ , the lower end of which is extended to pass through the arm  $b'$ , which is slotted to permit of a slight oscillation of the take-up on its stud. Beneath the arm  $b'$  is a spring  $d'$ , connected to the projecting end of the pin  $d$ , and acting to hold it normally at one end of the slot in which it moves. The forward ends of the arms  $b'$  are provided with spring-arms  $e$ , which bear upon the paper and hold it down upon the impression-rollers on each side of the printing-point or point of contact between the impression and type cylinders.

The arrangement of the ribbon  $f$  is as follows, as will be best seen in Fig. 2 in plan: From one spool upon which the ribbon is wound its end is carried around the inside of the hub of the adjacent take-up, thence around the outside of the pin  $d$ , and across to and around the opposite take-up pin and hub, and thence to the second spool. This leaves a strip of ribbon extending across between the two take-ups and in front of the type-cylinder, but far enough away from the impression-cylinder to enable the operator to at all times clearly see the words that are being written. When a key is struck, the type-cylinder is thrown forward to make the im-



pression, the ribbon being carried forward with it. It will be seen that, as appears in dotted lines in Fig. 2, this movement of the ribbon is accomplished without unnecessarily drawing it off the spools, as when strain is applied to the ribbon it pulls upon the take-up pins *d*, and they turn partially upon their pivots sufficiently to allow the forward motion of the ribbon, and as soon as the impression is made and the type-cylinder falls back the spring-actuated take-ups move back to their original position, drawing back the ribbon and keeping it taut, taking up all the slack, as will be at once evident. Should any slackness occur, however, it is always taken up by the forward feed of the ribbon, which occurs in this, as is usual in all machines, and needs no particular description herein.

The ribbon, as I have shown and described it, is always held taut in proper position away from the impression-cylinder, yet in perfect form to be seized and carried forward by the type-cylinder whenever a key is struck; and it will be particularly noted that when the ribbon

is carried forward by the type-cylinder it is partially wrapped around this cylinder, giving a very clear-cut impression, and at the same time being held away from the paper, except at the impression-point, and thus no possible blurring can occur.

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

In a type-writer, the combination, with the spools *a*<sup>3</sup> and inking-ribbon *f*, of the forked holder *b*, provided with the studs *c*, the oscillating hubs *c'*, pins *d*, extended through slots in the holder *b*, and the spring *d'*, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name, in the presence of two attesting witnesses, at Groton, in the county of Tompkins, in the State of New York, this 24th day of December, 1887.

LUCIEN A. BROTT.

Witnesses:

FLORA RHODES,  
D. H. MARSH.