

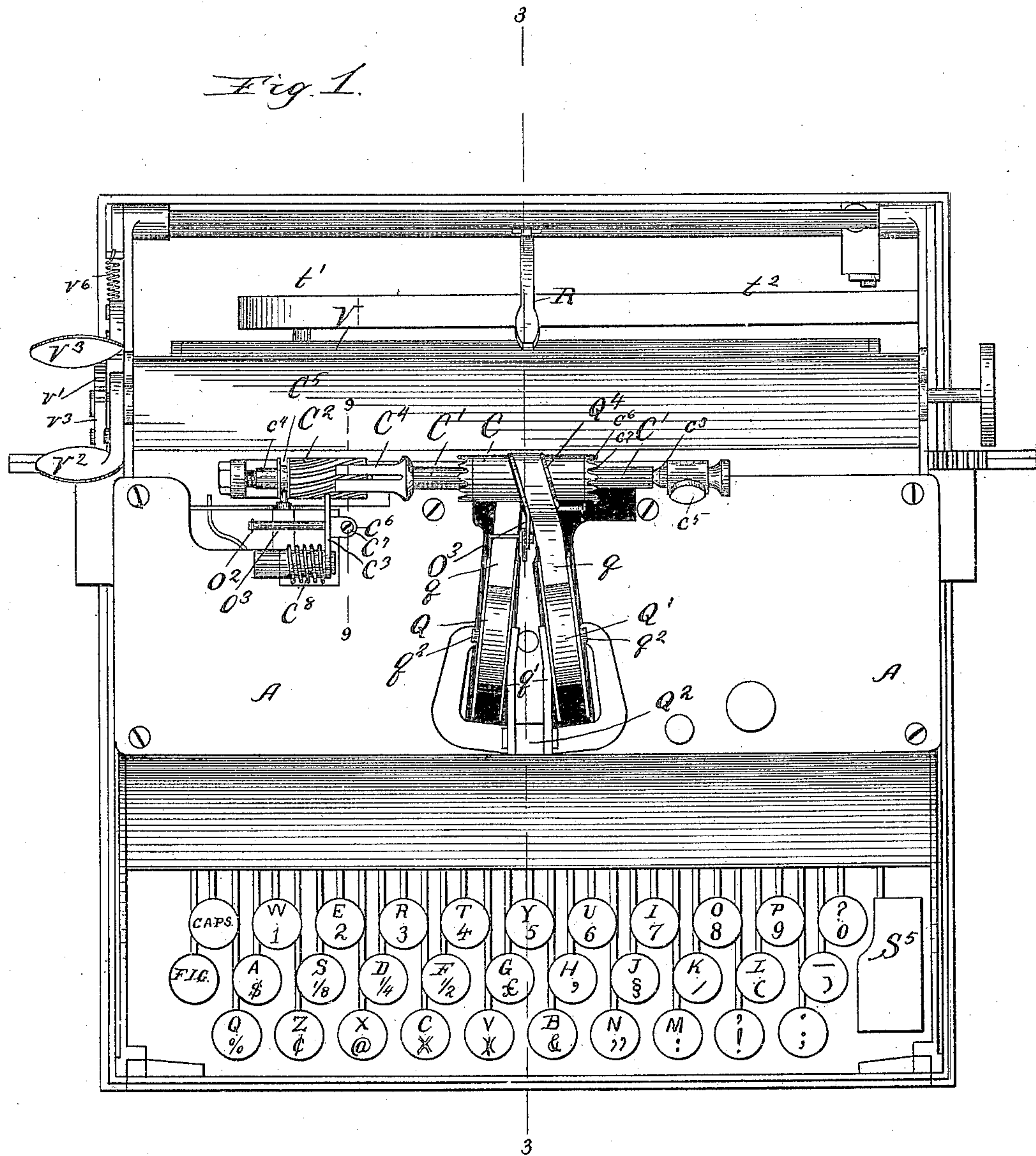
(No Model.)

6 Sheets—Sheet 1.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.



Witnesses:

Lew. C. Curtis.
Mack A. Claffin.

Inventor:

Samuel J. Seifried
By Munday, Everts & Adcock
his Attorneys:

(No Model.)

6 Sheets—Sheet 2.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.

Fig. 2.

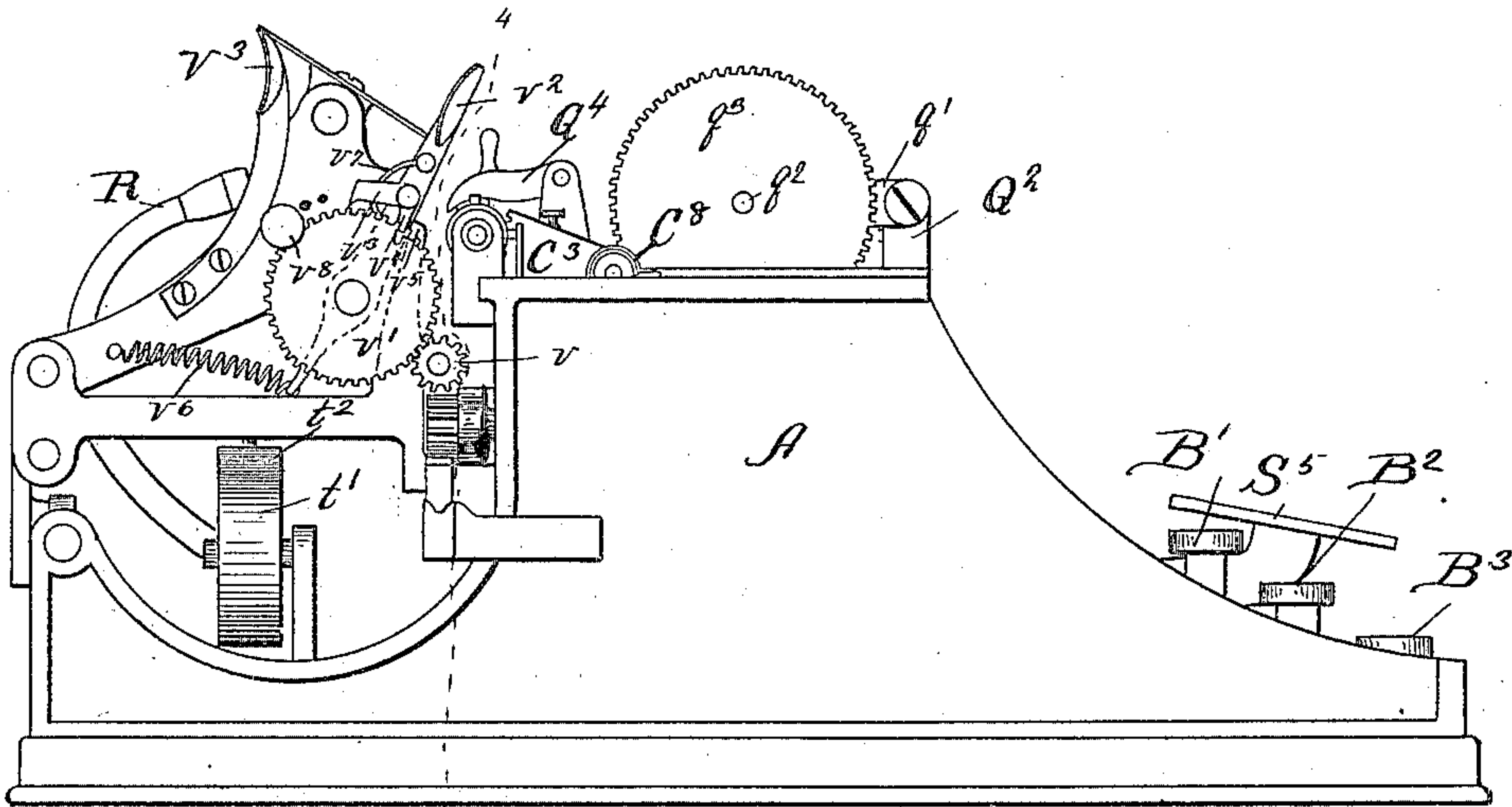
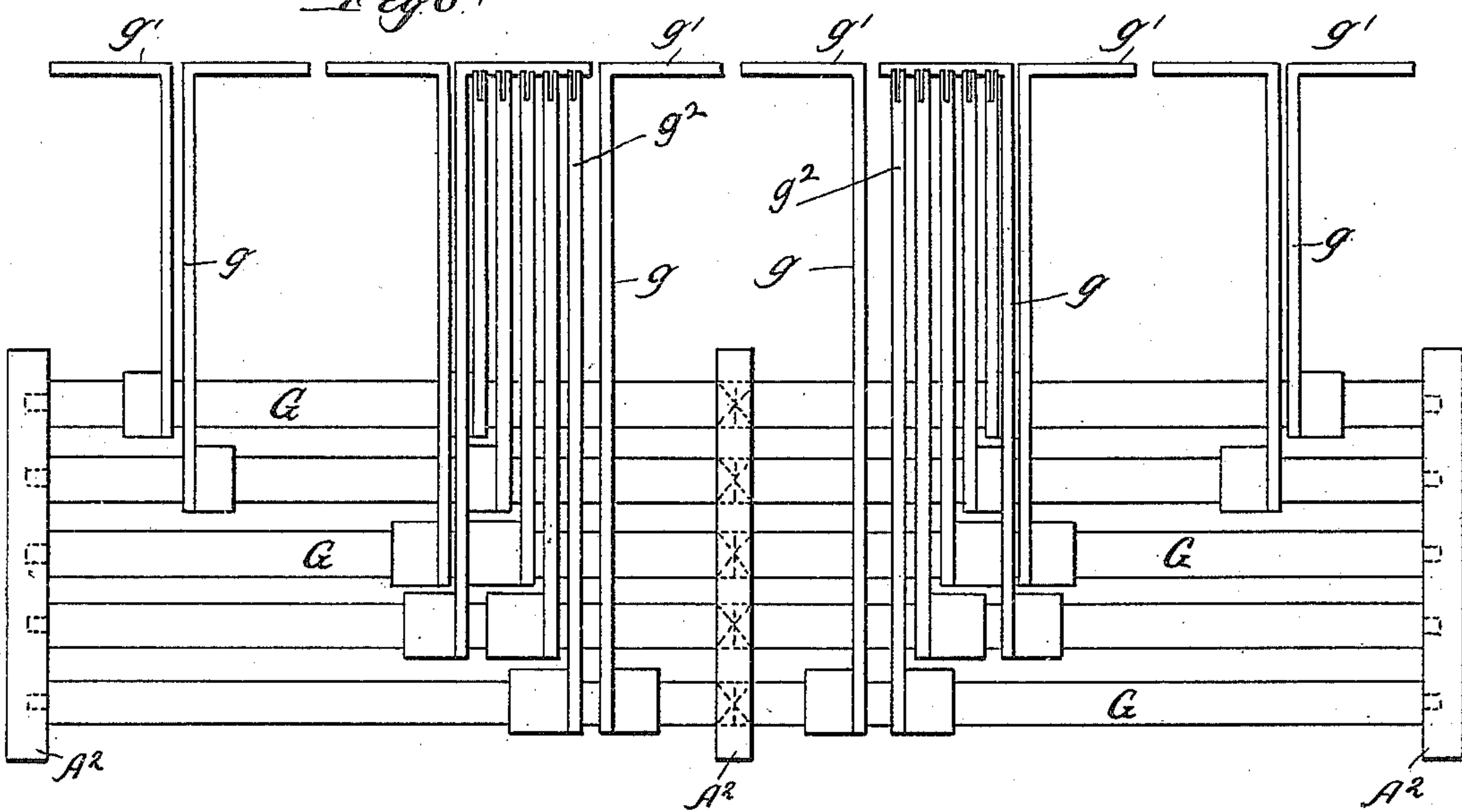


Fig. 6.



Witnesses:

Geo. E. Curtis
Mack A. Clapham.

Inventor:

Samuel J. Seifried.

By Munday, Everts & Adeock
his Attorneys:

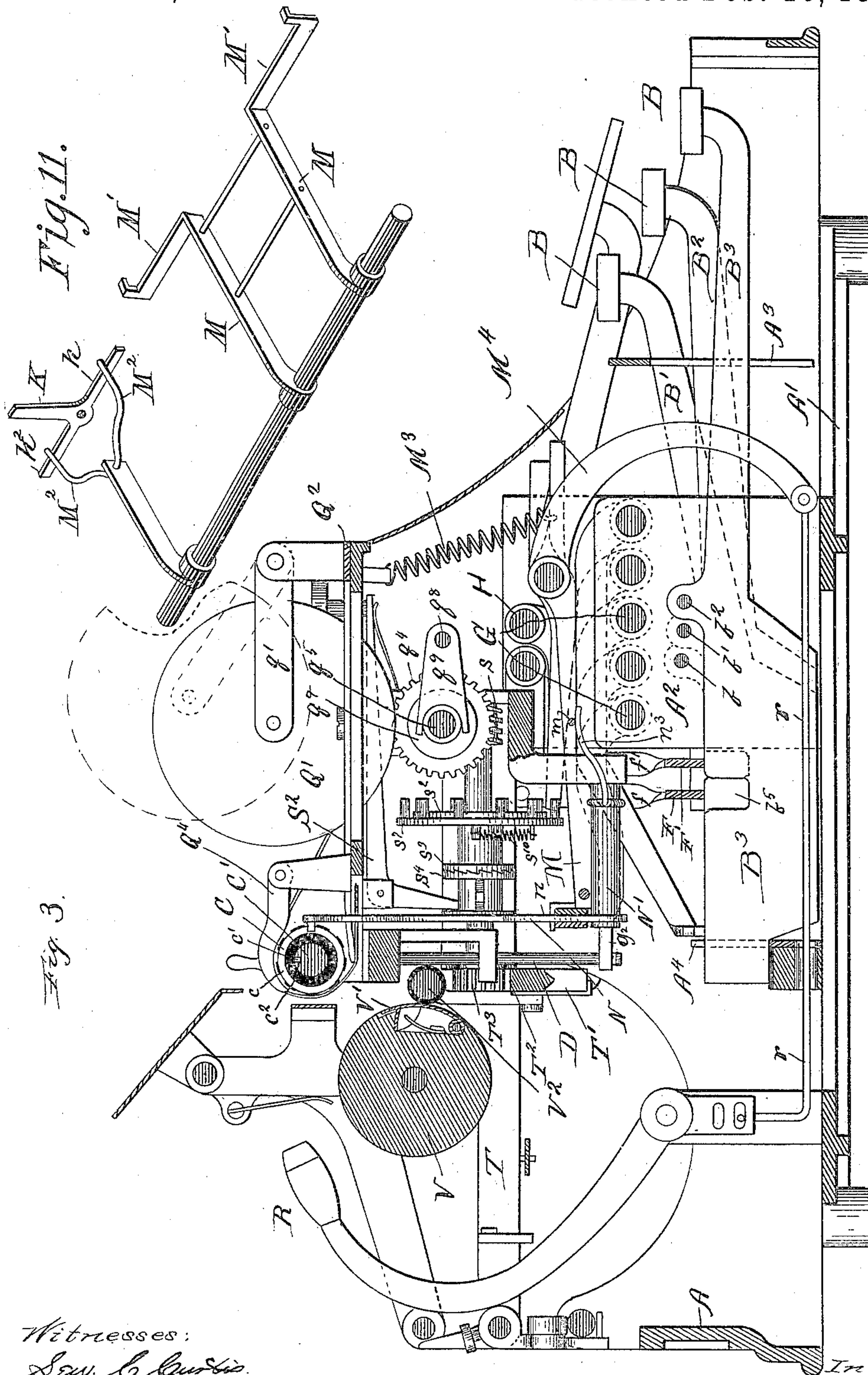
(No Model.)

6 Sheets—Sheet 3.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.



Witnesses:

Sen. C. Curtis.
 Mack A. Claplin.

Inventor:

Samuel J. Seifried

By Munday, Everts & Adcock
Samuel J. Seifried
His Att'y's.

Feis Att'y's.

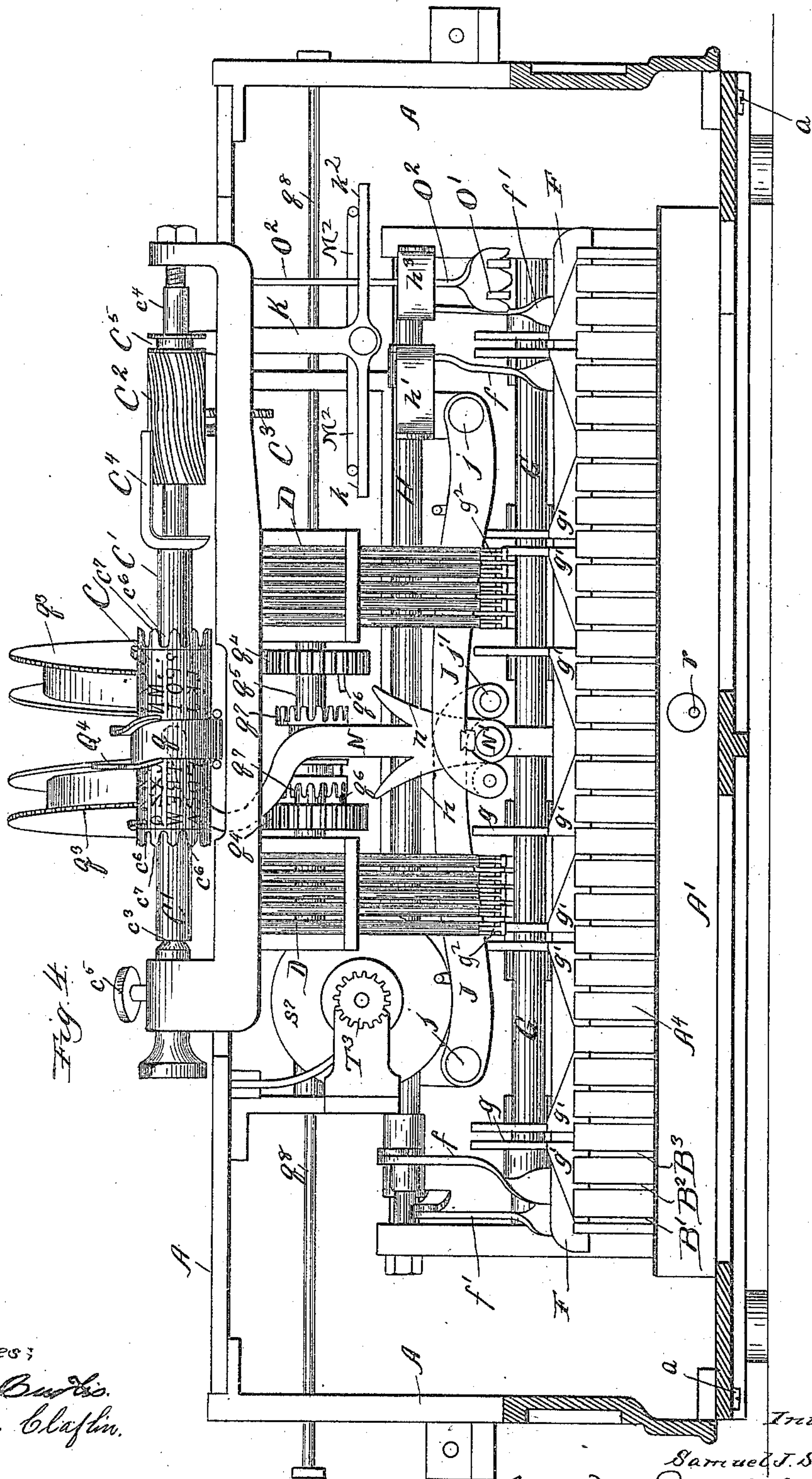
(No Model.)

6 Sheets—Sheet 4.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.



Witnesses;
Sam B. Curtis.
Mack A. Clapham.

Inventor
Samuel J. Seifried.
By Munday, Evans & Aldrich
Attys.

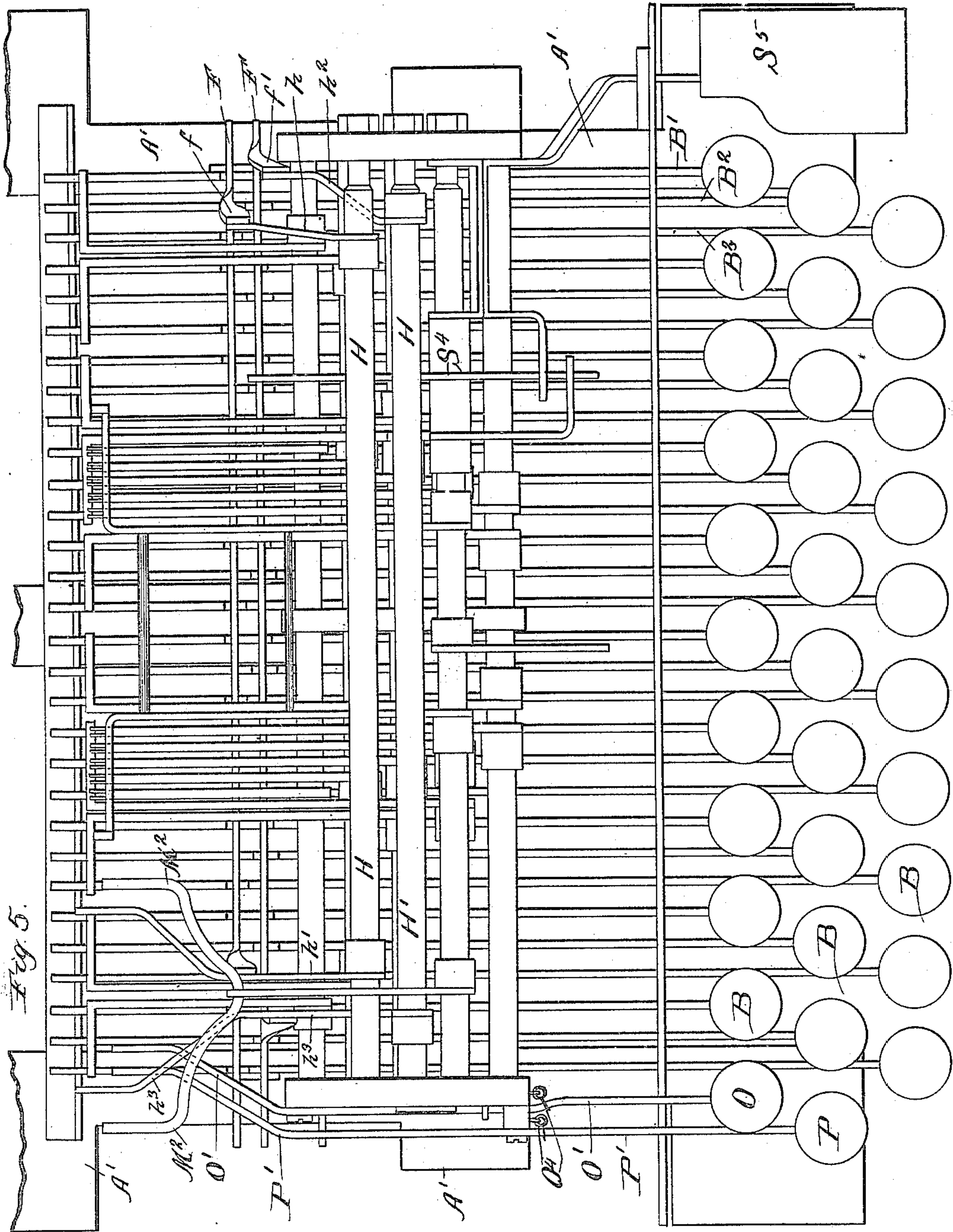
(No Model.)

6 Sheets—Sheet 5.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.



Witnesses:

Sam. C. Curtis.
Mack A. Claflin.

Inventor:

Samuel J. Seifried

By Munday, Evans & Adcock
his Attorneys.

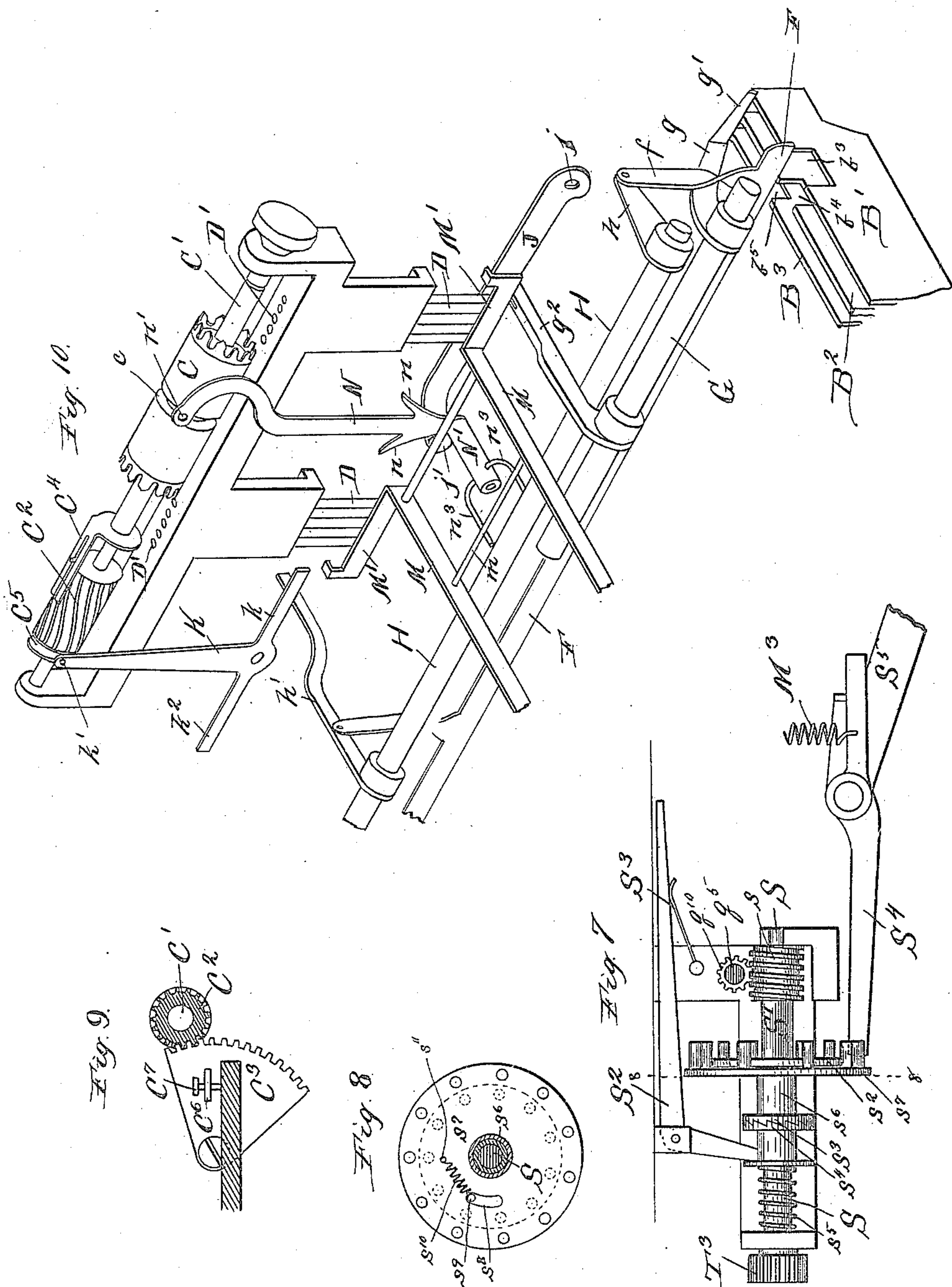
(No Model.)

6 Sheets—Sheet 6.

S. J. SEIFRIED.
TYPE WRITING MACHINE.

No. 446,394.

Patented Feb. 10, 1891.



Witnesses:
S. B. Curtis.
Mack A. Clapham.

Inventor:
Samuel J. Seifried.
By Munday, Everts & Adcock
His Attorneys:

UNITED STATES PATENT OFFICE.

SAMUEL J. SEIFRIED, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE MUNSON TYPE WRITER COMPANY, OF SAME PLACE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 446,394, dated February 10, 1891.

Application filed August 26, 1889. Serial No. 321,974. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL J. SEIFRIED, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Type-Writing Machines, of which the following is a specification.

My invention relates to improvements in type-writers of that class wherein a rotatable type-sleeve is employed, and more particularly to improvements upon the type-writer shown and described in my patent, No. 411,066, granted September 17, 1889.

In my present improvement, as in my previous invention shown and described in said patent, the type-sleeve reciprocates parallel to the line of printing in either direction from its normal position for the purpose of bringing each and all the separate type or characters on the type-sleeve into position longitudinally in front of the impression-hammer; and the rotary movement of the type-sleeve serves to bring each of the separate type or characters on the type-sleeve into position radially in front of the impression-hammer, the radial and longitudinal movements of the type-sleeve taking place simultaneously.

In my present improvement, as in my previous machine, there are thirty keys and key-levers arranged in three separate rows, the key-levers of each row having a common pivot, the key-levers of one row operating simply to slide the type-sleeve without rotating it, and the key-levers of the other two rows operating to both slide and rotate the type-sleeve, and a series of vertically-sliding stop-pins are employed for the purpose of limiting the movement of the type-sleeve.

My present improvement consists in the novel devices and novel combinations of parts and devices herein shown and described, and more particularly pointed out in the claims.

In the accompanying drawings, which form a part of this specification, and in which similar letters of reference indicate like parts, Figure 1 is a plan view of a type-writer embodying my invention. Fig. 2 is an end view. Fig. 3 is a central vertical longitudinal section on line 3 3 of Fig. 1. Fig. 4 is a rear view. Fig. 5 is a plan view of the keys and key-levers. Fig. 6 is a detail plan view of

one set of reducing-levers by which the motion of the key-levers is communicated to the stop-pins. Figs. 7 and 8 are detail views of the escapement mechanism by which the spacing movement of the paper carriage or roller is controlled. Fig. 9 is a detail view of the segment-gear by which the type-sleeve shaft is rotated to bring the faces of the type-sleeve which print the capitals or figures into operation. Fig. 10 is a detail perspective view of the mechanism by which the motion of the key-levers is communicated to the type-sleeve. Fig. 11 is a detail perspective view of parts hereinafter to be described.

In the drawings, A represents the frame of the machine. The frame A is furnished with an interior frame or portion A', attached to the outer frame A by screws *a*, and upon which frame A' the key-levers are pivoted. The keys B are arranged in three rows of ten keys in a row. The key-levers B' B² B³ of the three rows of keys are pivoted to shafts *b b'* *b*², mounted on the vertical brackets A², extending from the frame A'.

C is the type-sleeve, and D D are the stop-pins by which the radial and longitudinal movement of the type-sleeve is regulated.

The frame A is provided with front and rear combs or slotted plates A³ A⁴, which serve as vertical guides for each of the key-levers B' B² B³.

The necessary rotary movement is communicated to the shaft C' of the type-sleeve C by means of bars F F', which extend across all the key-levers B' B² B³. As the key-levers B' of the first row or rank of keys are required to communicate only a sliding movement to the type-sleeve and are not required to give it any rotary movement, the key-levers B' are furnished with notches *b*³, registering with the bars F F', so that when the key-levers B' are actuated neither of the bars F F' will be moved. The rotary movement of the type-sleeve is communicated from the second row of keys from their key-levers B² by means of the bar F, and the key-levers B² are furnished with notches *b*⁴, which register with the bar F', so that the type-sleeve rotating bar F' will not be actuated by the key-levers B²; and the key-levers B³ of the final row of keys actuate the type-sleeve-rotating bar F', these key-le-

vers being provided with notches b^5 , which register with the bar F, so that the bar F will not be moved when the key-levers B^3 are actuated. By thus simply providing the key-levers B' B^2 B^3 with notches or recesses properly registering with the bars F F', I am enabled to communicate the proper rotary movement to the shaft of the type-sleeve for each separate row or rank of keys.

10 The keys B are arranged in sets of three transversely to the rows, so that the same connecting mechanism may be employed for communicating the necessary longitudinal movement for each set of three keys. One key of
15 each set is found in each of the three rows or ranks of keys, the key-levers of each set being contiguous to each other. The necessary sliding or longitudinal movement is communicated to the type-sleeve C from each set of
20 the three contiguous key-levers B' B^2 B^3 by means of a rock-shaft G, having an arm g , furnished with a foot g' , which spans the three keys of the set. There are ten of these rock-shafts G, as there are ten sets of key-levers
25 B' B^2 B^3 . The rock-shafts G are journaled in the vertical brackets A^2 .

The type-sleeve shaft C' is furnished with a sliding rotatable spiral gear C^2 , which engages a guide C^3 , mounted on the frame of
30 the machine, and also a slotted guide C^4 , secured rigidly to the shaft C', so that by sliding the spiral gear C^2 through the frame-guide C^3 the shaft C' will be rotated and the necessary rotary movement will thus be communi-
35 cated to the type-sleeve C, as the type-sleeve C is splined to the shaft C'. The necessary sliding movement is communicated to the spiral gear C^2 from the key-lever-actuated bar F by means of a rock-shaft H, having an
40 arm h , connected to a bracket f on the bar F, which rock-shaft H is furnished with an arm h' , which engages an arm k of a lever K, the upper end of which is furnished with a pin k' , which engages an annular groove C^5
45 in the spiral gear C^2 . In like manner the other bar F' communicates the sliding movement in the opposite direction to the type-sleeve through a rock-shaft H', having arms
50 h^2 , engaging ears f' on the bar F'. The rock-shaft H' is furnished with an arm h^3 , which engages an arm k^2 on the lever K, projecting oppositely from the arm k , so that the bar F' will communicate an opposite movement to the lever K and type-sleeve C from
55 that communicated by the bar F.

The necessary longitudinal movement is communicated to the type-sleeve C from the key-lever-actuated rock-shaft G by means of
60 arms g^2 on the rock-shaft, which engage levers J, pivoted at j to the frame of the machine, and furnished at their ends with rollers or projections j' , which engage cams n n , on the vertical lever N. The lever N is pivoted at N' to the frame of the machine, and
65 at its upper end it is furnished with a pin n' which engages an annular groove c in the type-sleeve C. There are two levers J, one

located on each side of the machine, and the lever N is furnished with two cams n n , so that the key-levers on one side of the machine
70 will operate to move the type-sleeve in the opposite direction from those on the other side of the machine. The lever N is likewise provided with two projecting arms n^3 , which
75 are engaged by a bar or rod m on the spring-actuated frame or lever M, so that the forks or arms n^3 n^3 will operate to return the lever N and the type-sleeve C to their normal or central position after each impulse or movement
80 of the type-sleeve. The arms g^2 of the rock-shaft G are so rotated in respect to each other to the lever J and to the shape of the cams n n that each set of three key-levers will give the proper longitudinal movement to the type-sleeve to bring the type actuated by such key-
85 levers into proper position for printing. The type-sleeve C is furnished with a pin or projection c' , which engages the spline or longitudinal groove c^2 in the shaft C'. The shaft C' has a pivot-bearing c^3 c^4 at each end for
90 the purpose of reducing friction. The pivot c^3 is fixed in place by a set-screw c^5 , so that the shaft C' may be readily removed when desired. The type-sleeve C is furnished with
95 a series of registering notches c^6 at each end, of a semicircular form at their ends or bases, corresponding accurately to the size of the stop-pins D, with which they are to engage. The outer portion of these registering notches
100 c^6 is made curved or cam shape, as is clearly indicated at c^7 , so that as the end of the type-sleeve engages the stop-pin D the stop-pin will serve to not only limit the longitudinal movement of the type-sleeve, but also the
105 radial movement of the type-sleeve, and thus lock and register it firmly and accurately in position, both radially and longitudinally. By thus causing the stop-pin to at once and positively register the type-sleeve longitudinally and radially the printing will be done
110 in accurate line and with proper spacing.

The stop-pins D are ten in number, there being one stop-pin for each set of three key-levers B' B^2 B^3 . Motion is communicated to the stop-pins from the key-levers through
115 the same rock-shaft G and its arms g g^2 by which the longitudinal movement is communicated to the type-sleeve. Each stop-pin is pivoted or otherwise connected to one of the arms g^2 . D' represents the holes or guides
120 in the frame, through which the stop-pins reciprocate.

The returning treadle or lever M is furnished with arms or branches M', which engage the stop-pin-operating levers, and thus insures the
125 returning of the stop-pins to place. The side levers J J are also returned to place by this same returning-treadle M, the arms M' having projections which fit over the levers J. The main returning-treadle M is also provided with
130 branches or forks M², which bear against the arms k and k^2 of the type-sleeve-rotating lever K, so as to return or bring the type-sleeve C to its normal position radially. The re-

turning-treadle M is operated by a spring M³. By thus combining the type-sleeve-rotating mechanism, the type-sleeve-sliding mechanism, and the type-sleeve-registering mechanism or stop-pins with one and the same returning-lever M, I am not only enabled to materially simplify the machine, but I also secure a more positive, accurate, and rapid movement.

10 The guide C³, before mentioned, which operates to turn the spiral gear C² as it reciprocates, I make in the form of a segment-gear, as is clearly shown in Fig. 9, so that by turning or rocking this segment I may change the
15 case of characters which will be printed. The type-sleeve has nine faces. Three of these faces—ten characters in each face, or thirty characters in all—constitute the lower-case type. Three other of these faces constitute the
20 capital letters, and the remaining three faces are for figures and other characters. By simply turning the segment-gear C³, so that the spiral gear C² will make one-third or two-thirds of a revolution, the capital or figure printing
25 type will be brought into revolution. The segment-gear C³ is thus turned by means of a cap-key O and lever O', which is connected to the segment-gear C³ by means of a link O² and pin O³. The figure-key P and its key-lever P'
30 are connected with this same link O². Springs O⁴ and link O² serve to return the levers O' and P' into place, respectively. The segment-gear C³ is furnished with a lip or projection C⁶ and a set-screw C⁷ for adjusting its normal
35 position. A spring C⁸ holds the gear C³ normally in place.

Q and Q' are the inking-ribbon spools. They are journaled on a pivotal frame Q², having a ribbon-guide Q³, which partially encircles the
40 type-sleeve C, an opening being left at the back or rear side for the impression-hammer R to strike through. A portion of this guide Q³ is preferably made movable, the movable part Q⁴ being pivoted to the main portion of the ribbon-frame Q². The purpose of making
45 a portion of the ribbon-guide movable is to lift the ribbon away from the type-sleeve when it is desired to remove the type-sleeve and its shaft from the machine. An inking-ribbon
50 q passes from one of the spools Q through or over the ribbon-guide Q³ and transversely around the type-sleeve, and thence around the other pulley or spool Q'. The ribbon-guide serves not only to guide the inking-ribbon, but
55 also to hold the inking-ribbon out of contact with the type-sleeve, excepting at the instant when and at the point where the impression-hammer R strikes it. By making the ribbon-guide of a curved shape, so that it partially
60 encircles the type-sleeve, and by employing a narrow type-ribbon and arranging it so that it extends transversely around the type-sleeve, the type-ribbon is prevented from hiding the printed line; and by employing a pivotal or
65 movable frame for carrying the type-ribbon and its spools and guides, I am enabled to move the type-ribbon to one side, so as to

leave the last word or letter which has been printed open to view. To facilitate the removal of the type-spools Q Q' from the frame
70 Q², I provide the frame Q² with pivoted arms q' q', having pins q² q² for the type-spools to fit and revolve upon. The pivoted arms q' may be readily swung up into a position indicated by the dotted line in Fig. 3, when the
75 ribbon-spool may be readily removed.

Each of the spools Q Q' is furnished with a gear q³ q³. The gears q⁴ each fit loosely on the shaft q⁵, and are furnished with pins q⁶, which engage a sliding clutch q⁷, splined to
80 the shaft q⁵, so that either one of the gears q⁴ may be made to revolve with the shaft q⁵. A sliding rod q⁸, having a fork or arm q⁹, serves to push the clutch q⁷ into engagement with one of the other gears q⁴, as desired. By this
85 mechanism either one of the spools may be driven in the direction necessary to wind the ribbon thereon, and then when the ribbon is all wound upon one spool by simply shifting the clutch q⁷ the other spool will be driven in
90 the direction necessary to transfer the ribbon thereto. The shaft q⁵ is furnished with gear q¹⁰, which meshes with a worm s on the shaft S of the escapement mechanism, by which the movement of the paper-carriage is controlled.
95 The impression-hammer R is actuated from the rock-shaft of the main returning-treadle M by means of an arm M⁴ and connecting-link r, which extend under the key-levers, and is pivoted to the lower arm of the impression hammer or lever R. The paper-carriage
100 T reciprocates on suitable guides or ways T' on the frame of the machine, and is actuated by a main spring in the drum t', through the connecting-strap t². The paper-carriage T is
105 furnished with a rack T², in which meshes a gear T³ on the escapement-shaft S. The escapement-shaft S is furnished with a sleeve S', carrying the worm s, and a pin-wheel s², and a clutch s³. It is also furnished with a
110 sliding clutch s⁴, held in place by a spring s⁵, which engages the clutch s³. The shaft S is also furnished with a sleeve s⁶ and pin-wheel s⁷, having a slot s⁸, through which a pin s⁹ on the pin-wheel s² before mentioned
115 projects. A spring s¹⁰ connects the pin s⁹ to the pin s¹¹ on the back of the pin-wheel s². The sliding clutch s⁴ is actuated by a bent lever S², which is held in place by a spring S³. The pin-wheel s⁷ is engaged by a pawl S⁴,
120 which is actuated by the key-lever or by the spacing-lever S⁵, through the connecting mechanism. This escapement mechanism is of an old and well-known form, and its operation will readily be understood by those skilled in
125 the art. The sleeve S' is loose on the shaft S, and the sleeve s⁴ is splined to the shaft S. The sleeve s⁶ is on the sleeve S'. By thus combining the mechanism which operates the ribbon-spools with the escapement mechanism
130 I am enabled to continuously change the portion of the ribbon which is in use.

The paper-carriage T is provided with a paper-storage cylinder V, having an opening

or closing lip V' , adapted to receive and engage the edge of the paper. The paper-carriage is also furnished with a feed-roller V^2 , the shaft of which has the gear v , that engages the spacing-gear v' . It is also furnished with a paper-feed lever v^2 , provided with a pivoted pawl v^3 . The pawl v^3 is furnished with an arm v^4 , that engages a stop or projection v^5 on the paper-carriage frame, so as to automatically lift the pawl out of engagement with the ratchet or paper-feed gear when the paper-feed lever is in its retracted position. The paper feed lever is held in its retracted position by a spring v^6 . A light spring v^7 operates to throw the pawl into engagement with the ratchet at the first forward movement of the paper-feed lever—that is to say, as soon as the paper-feed lever is moved the spring v^7 at once throws the pawl into engagement with the ratchet the moment arm v^4 of the pawl is moved out of engagement with the stop v^5 . The distance between the lines to be printed is regulated by an adjustable or movable stop-pin v^8 , which fits in holes in the paper-carriage frame, the series of holes being provided for the purpose of making lines closer together or farther apart, as may be desired. A thumb-piece V^3 is rigidly secured to the paper-carriage frame adjacent to the paper-feed lever, so that the operator in taking hold of the paper-feed lever to feed the paper into position for printing the next line may at the same time and by the same movement of the hand push the paper-carriage to the opposite side of the machine or place of beginning.

I claim—

1. The combination, with a rotatable sliding type-sleeve, of a series of stop-pins for limiting the longitudinal and radial movement of said type-sleeve, said type-sleeve having a series of registering notches on its end for engaging said stop-pins, substantially as specified.

2. The combination of a type-sleeve shaft with a rotatable sliding type-sleeve mounted to slide on said shaft and having an annular groove, a vibrating lever for sliding the same, having a pin for engaging the groove, the key-lever and connecting mechanism for sliding and rotating said type-sleeve by the movement of one and the same key-lever, substantially as specified.

3. The combination of a rotatable sliding type-sleeve C , its rotatable shaft C' , and a ro-

tatable sliding spiral gear C^2 for rotating said shaft C' , substantially as specified.

4. The combination of a rotatable sliding type-sleeve C , its shaft C' , slotted guide C^4 , sliding spiral gear C^2 , and guide C^3 , substantially as specified.

5. The combination of a rotatable sliding type-sleeve, its shaft C' , slotted guide C^4 , spiral gear C^2 , guide C^3 , and vibrating lever K , adapted to move said spiral gear in either direction, substantially as specified.

6. The combination, with a rotatable sliding type-sleeve adapted to slide in either direction, of a vibrating lever N , having cams $n n$, and a pair of levers $J J$, connected with and operated by the key-levers, and having projections or rollers for engaging said cams $n n$ for operating said sleeve, substantially as specified.

7. The combination, with the sliding type-sleeve C , of lever N , having cams $n n$ and furnished with forks or branches $n^3 n^3$, levers $J J$, and returning treadle or lever M , having bar m , adapted to engage said arm n^3 , and thus return the type-sleeve to its normal position longitudinally, substantially as specified.

8. The combination, with a sliding and rotatable type-sleeve, of a series of stop or registering pins with which said type-sleeve is adapted to engage directly to register its radial and longitudinal position, substantially as specified.

9. The combination of type-sleeve C , having registering notches at its ends, with stop-pins D , lever N , having cams $n n$, levers $J J$, and a returning-treadle M , for simultaneously returning said lever N , stop-pins D , and levers J to position, substantially as specified.

10. The combination of type-sleeve C , its shaft C' , slotted guide C^4 , spiral gear C^2 , guide C^3 , lever K , having arms $k k^2$, and treadle M , having arms adapted to engage said arms $k k^2$ and restore the type-sleeve to its normal position radially, substantially as specified.

11. The combination, with type-sleeve C , of sliding rotatable spiral gear C^2 , segment-gear C^3 , and a key-lever connected with said segment-gear, for bringing a different case of type into position for operation, substantially as specified.

SAMUEL J. SEIFRIED.

Witnesses:

H. M. MUNDAY,
EDMUND ADCOCK.