(No Model.) 8 Sheets—Sheet 1.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

Fig. 2.

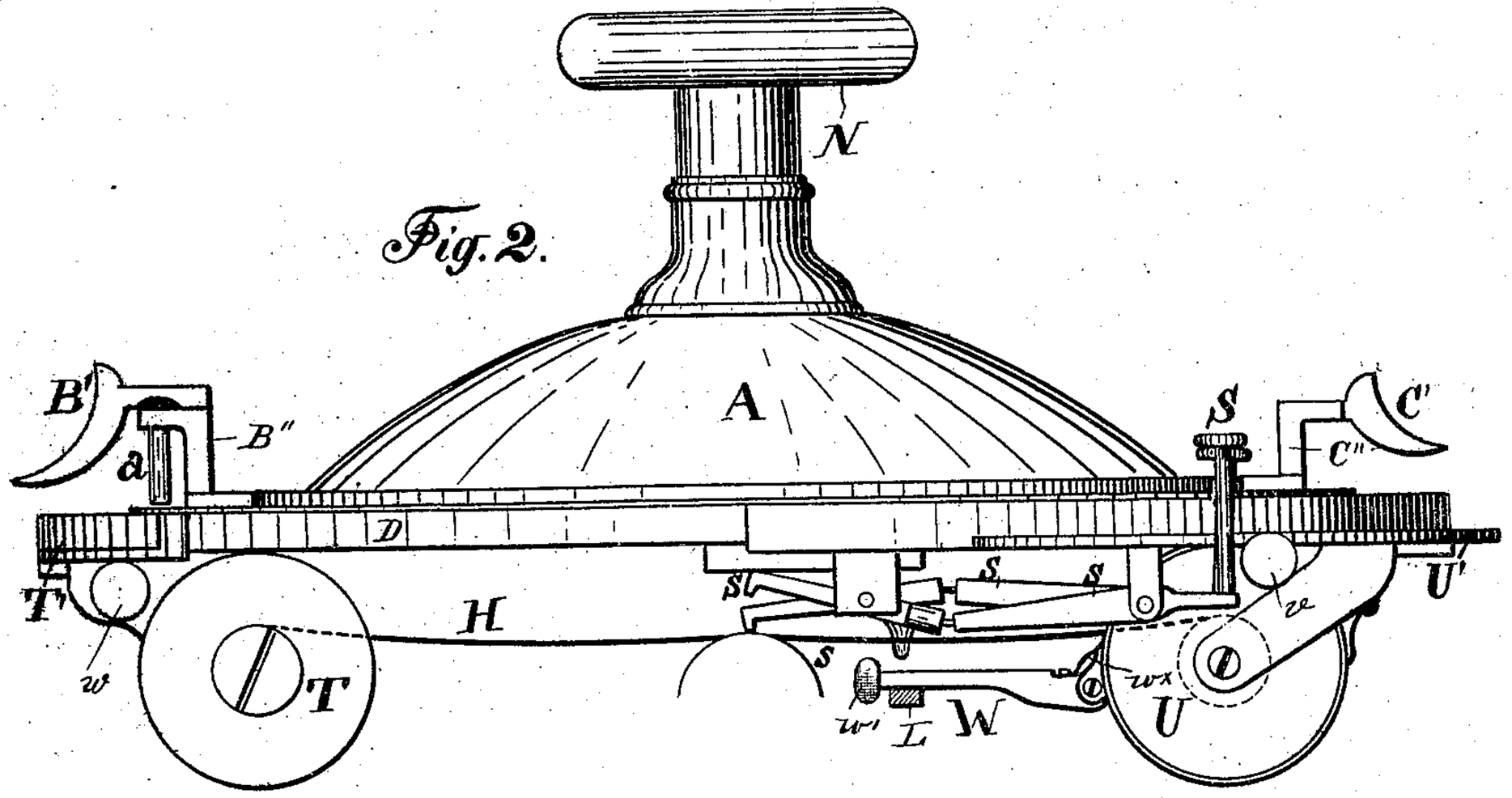
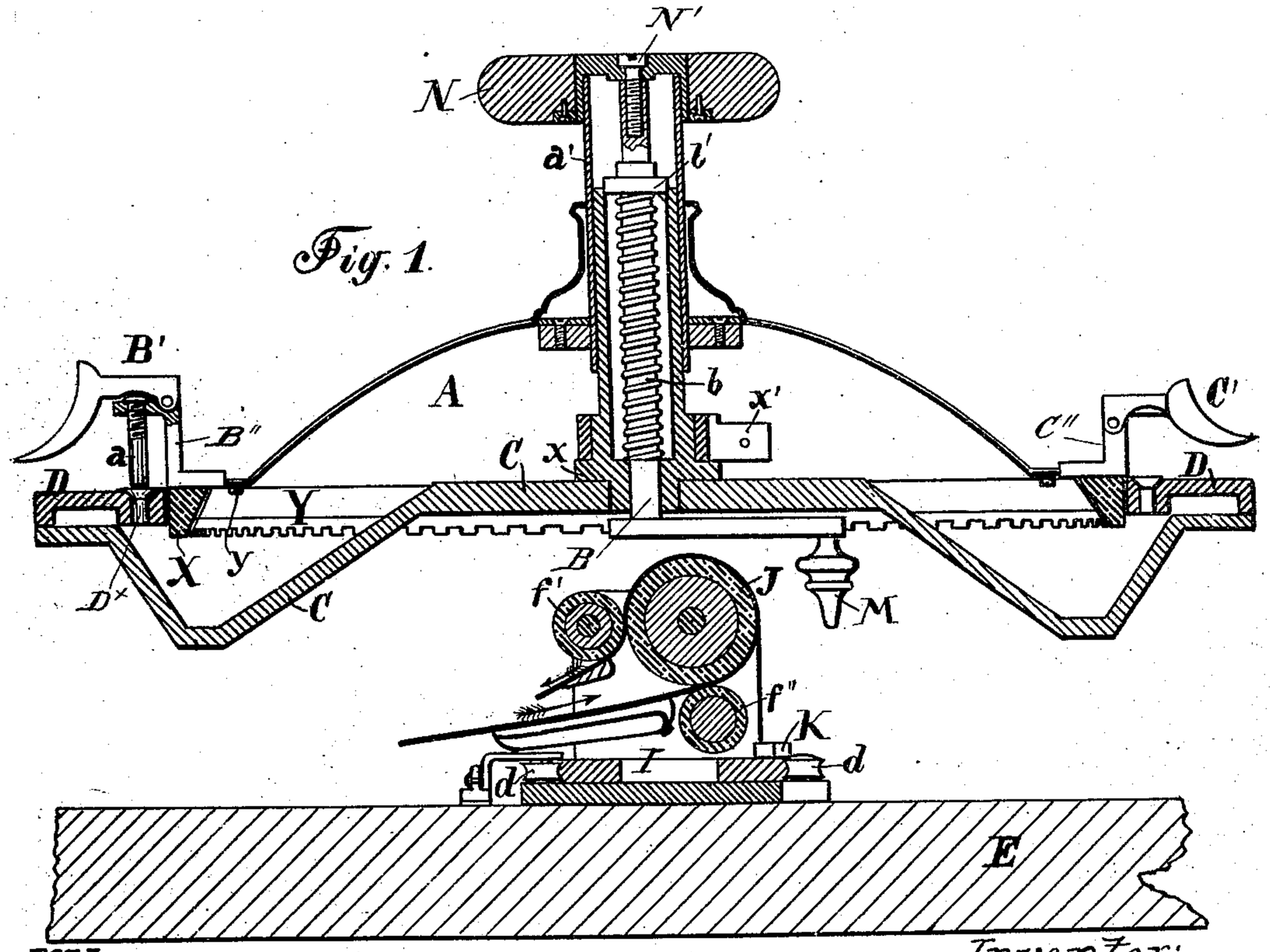


Fig. 1.



Witnesses:
M. C. Richards
E. L. Richards

Inventor:
Adolphe P. Eggis,
By Richards & R. Attorneys.

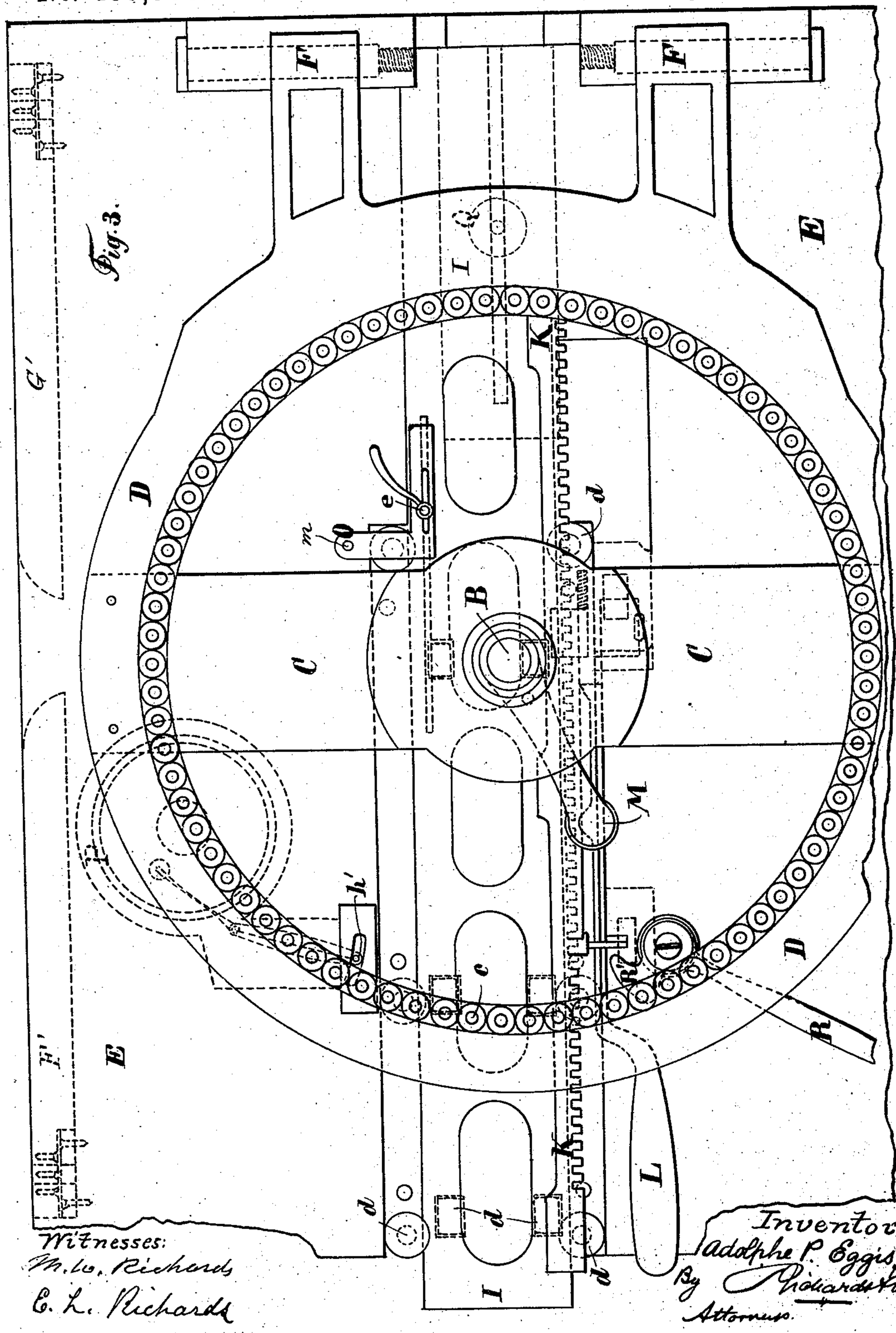
(No Model.) 8 Sheets—Sheet 2.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

Fig. 3.



Witnesses:
Wm. Wo. Richards
C. L. Richards

Inventor:
Adolphe P. Eggis
By Richards & Co.
Attorneys.

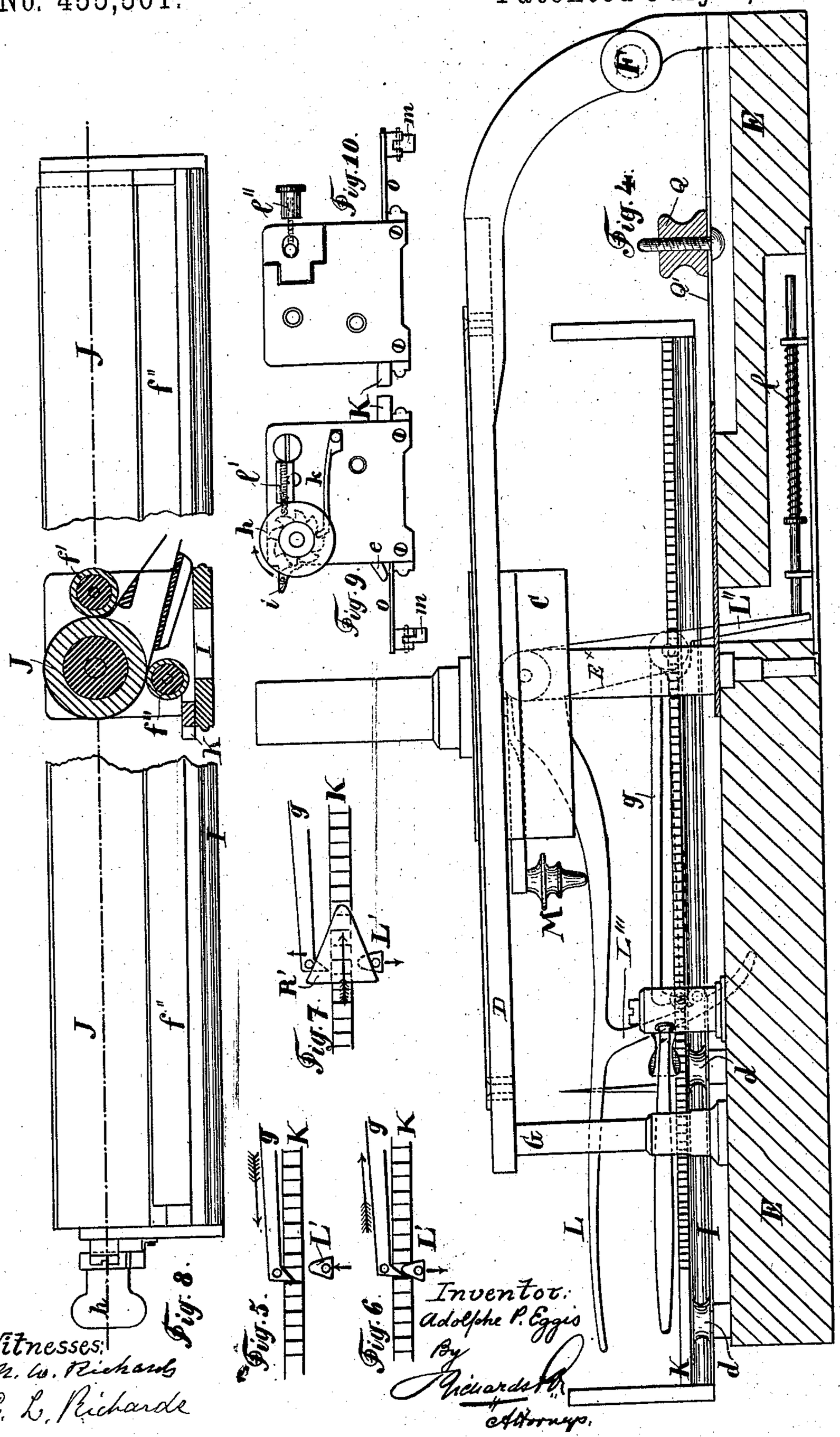
(No Model.)

8 Sheets—Sheet 3.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.



Witnesses:
M. W. Richards
E. L. Richards

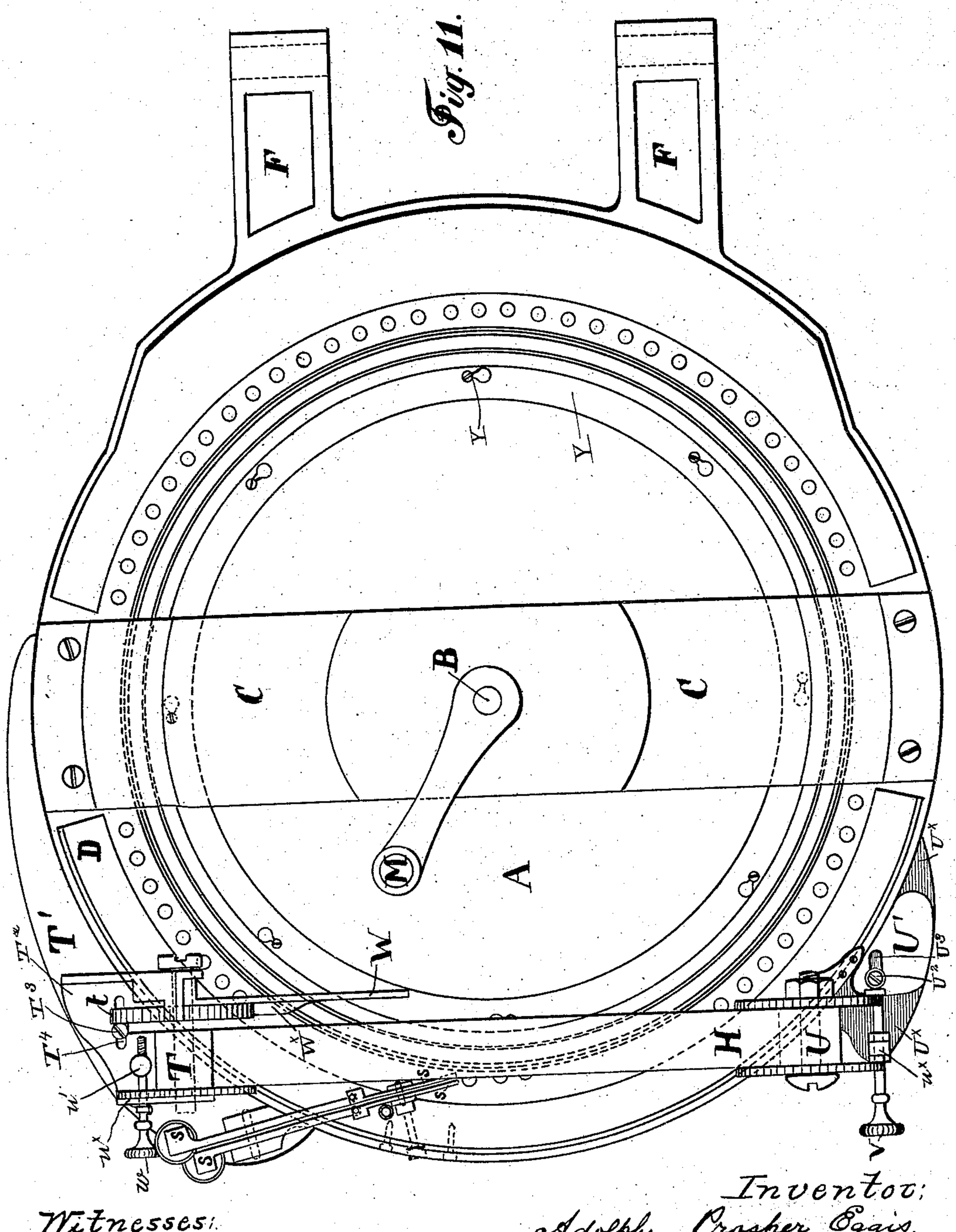
Inventor:
Adolphe P. Eggis
By Richards & R.
Attorneys.

(No Model.) 8 Sheets—Sheet 4.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.



Witnesses:
M. W. Richards
E. L. Richards

Inventor:
Adolphe Prosper Eggis,
By Richards & R.
Attorneys.

(No Model.) 8 Sheets—Sheet 5.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

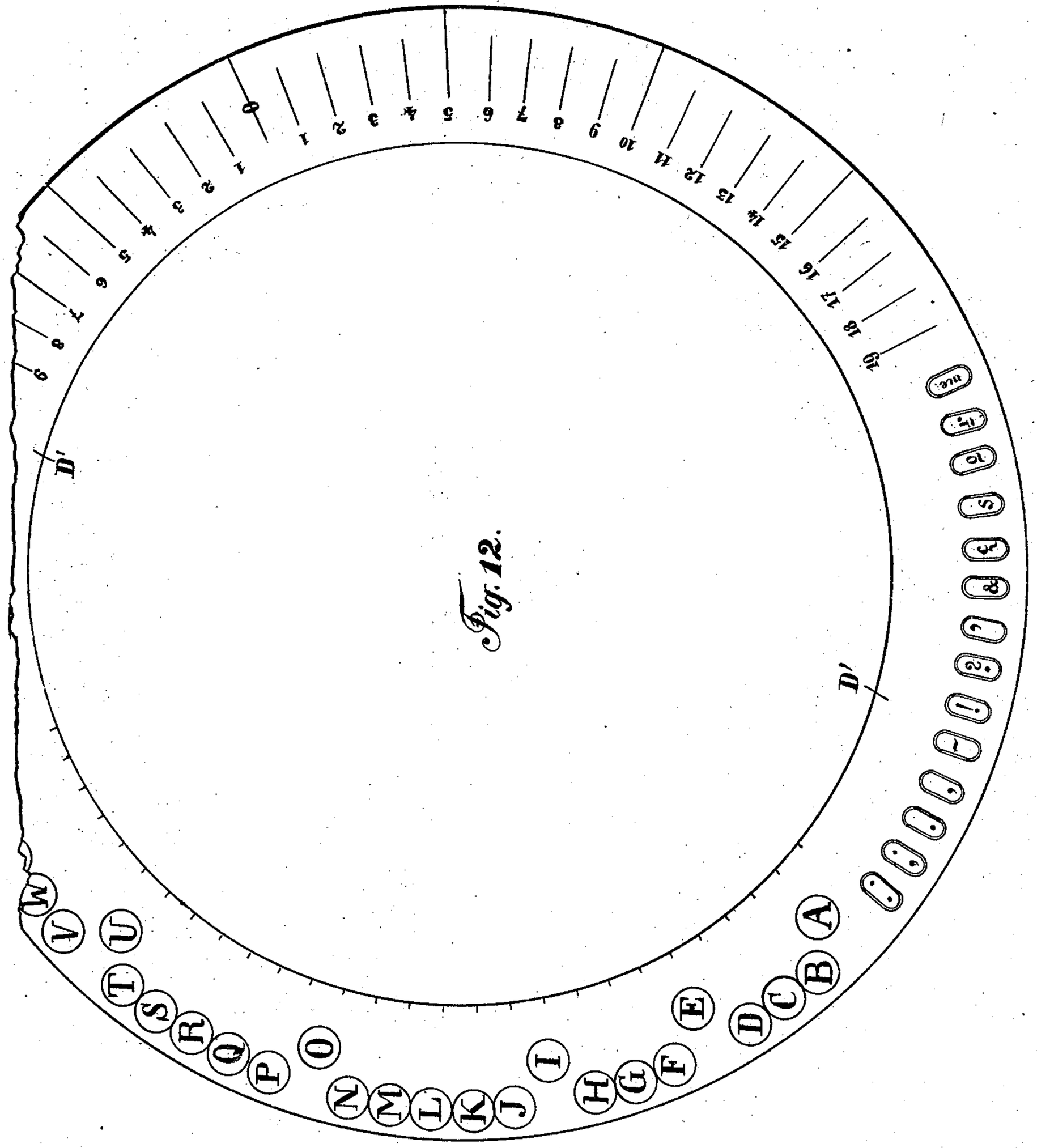


Fig. 12.

Witnesses:
M. W. Richards
C. L. Richards

Inventor:
Adolphe Prosper Eggis
By Richards & Co
Attorneys

(No Model.) 8 Sheets—Sheet 6.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

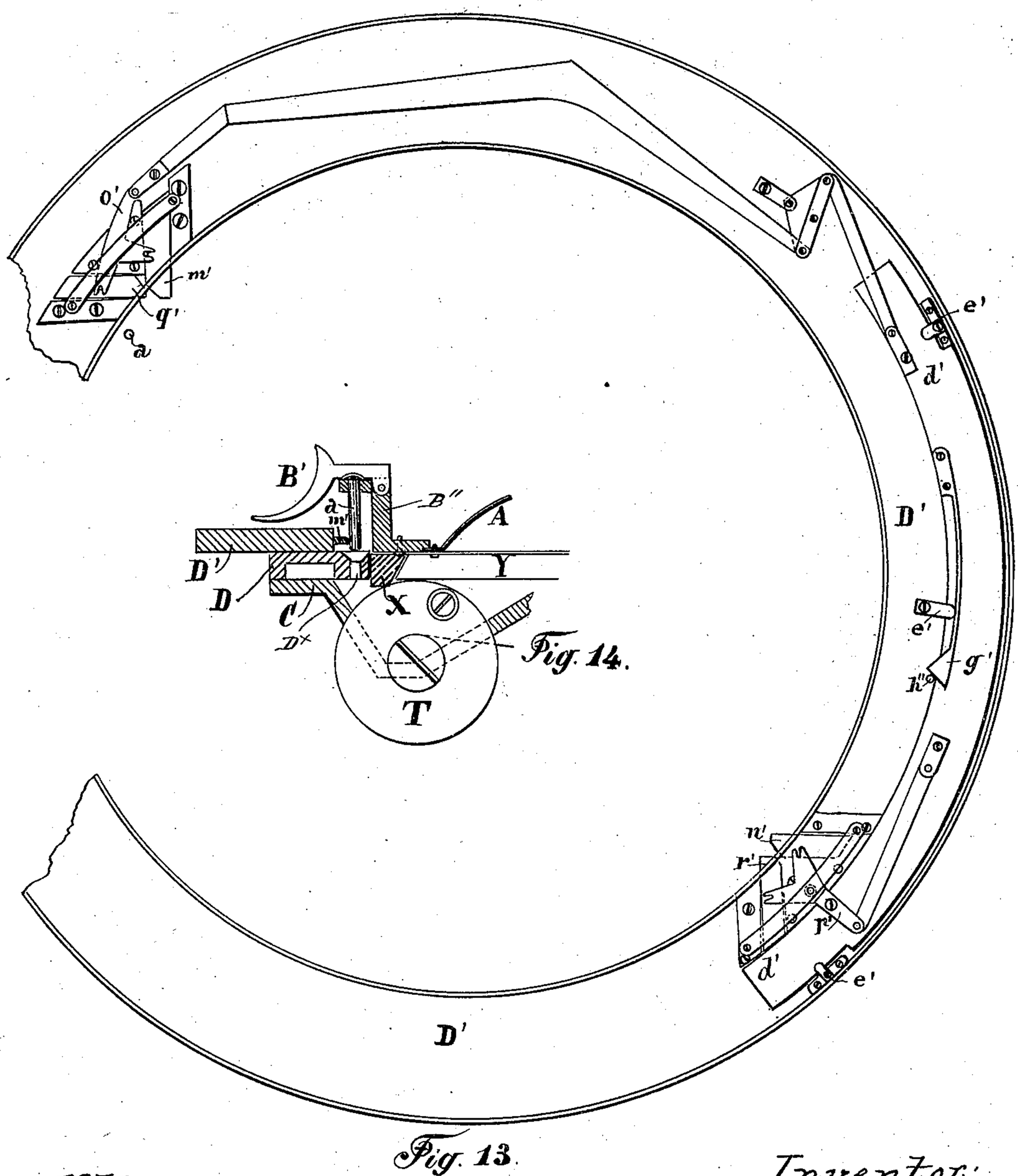


Fig. 14.

Fig. 13.

Witnesses:
M. W. Richards.
E. L. Richards

Inventor:
Adolphe Prosper Eggis
By Richards & G
Attorneys.

(No Model.) 8 Sheets—Sheet 7.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

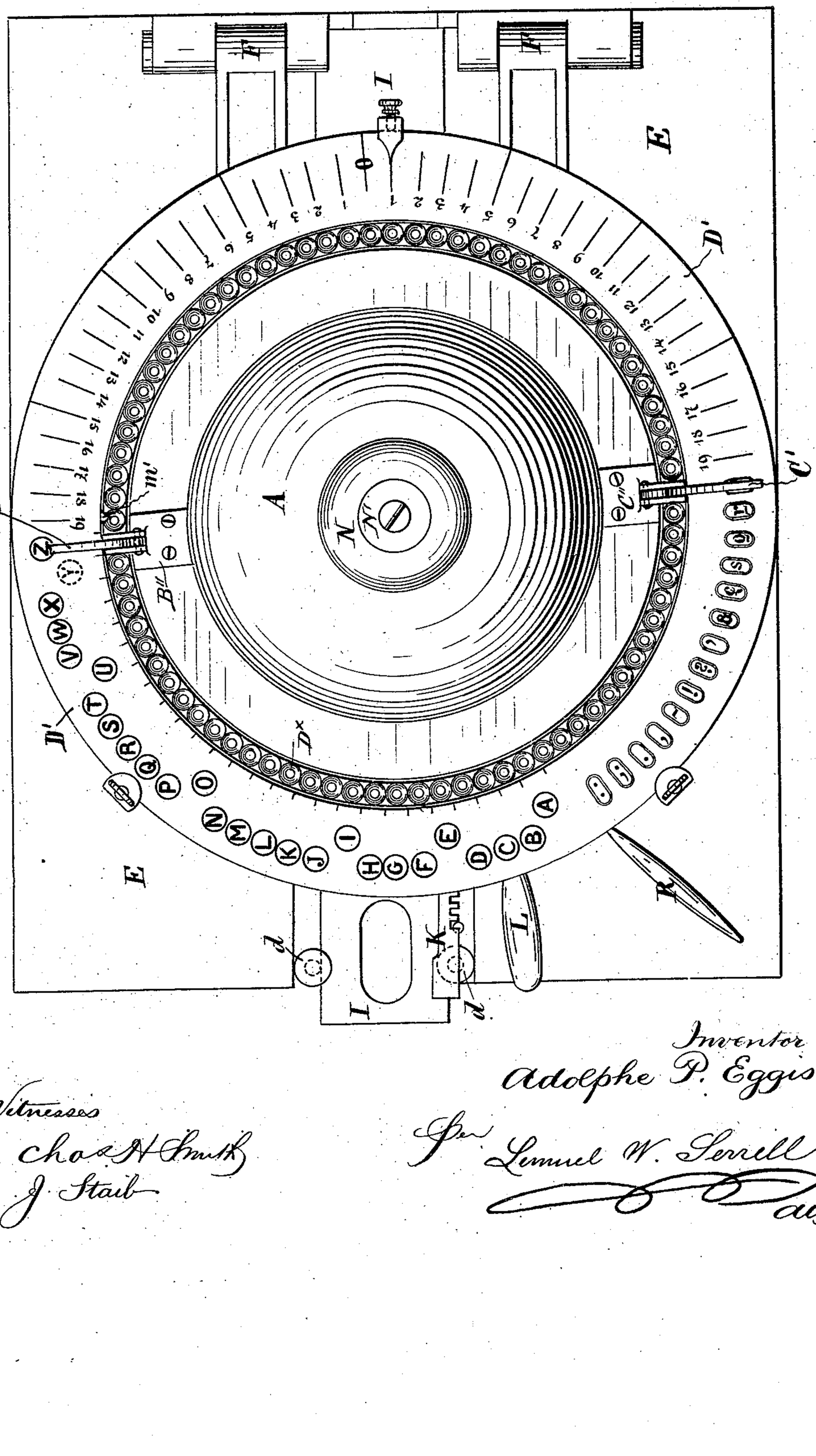


Fig. 15.

Witnesses
Chas. H. Smith
J. Stair

Inventor
Adolphe P. Eggis
Per Samuel W. Serrell
Atty

(No Model.) 8 Sheets—Sheet 8.

A. P. EGGIS.

TYPE WRITING MACHINE.

No. 455,561. Patented July 7, 1891.

Fig. 17.

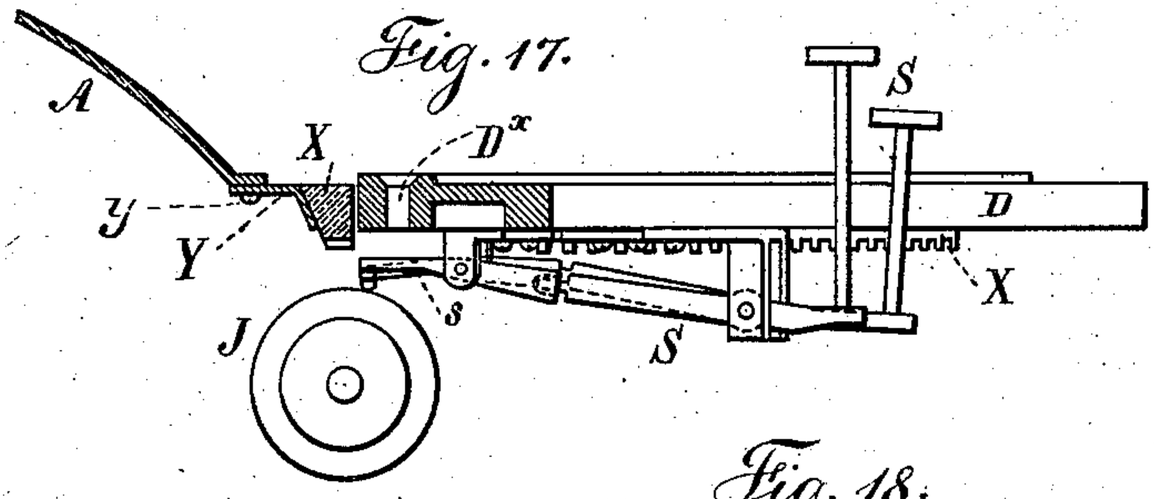


Fig. 18.

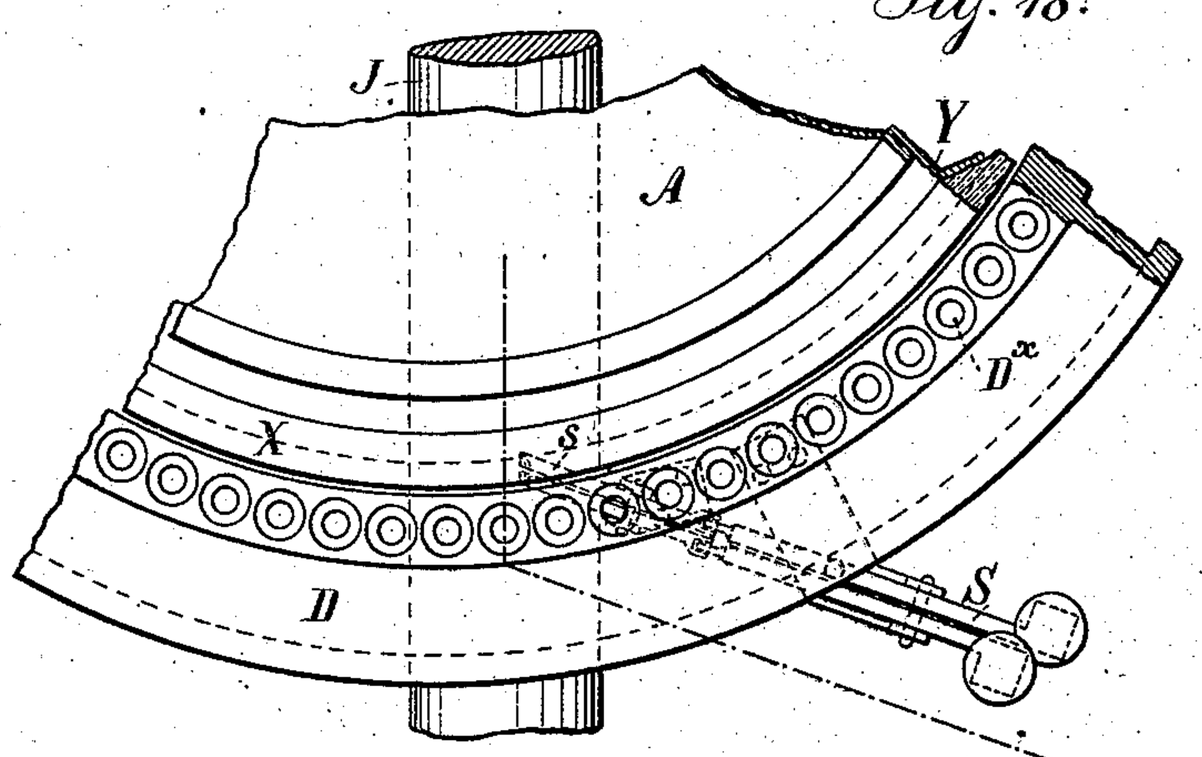


Fig. 16.

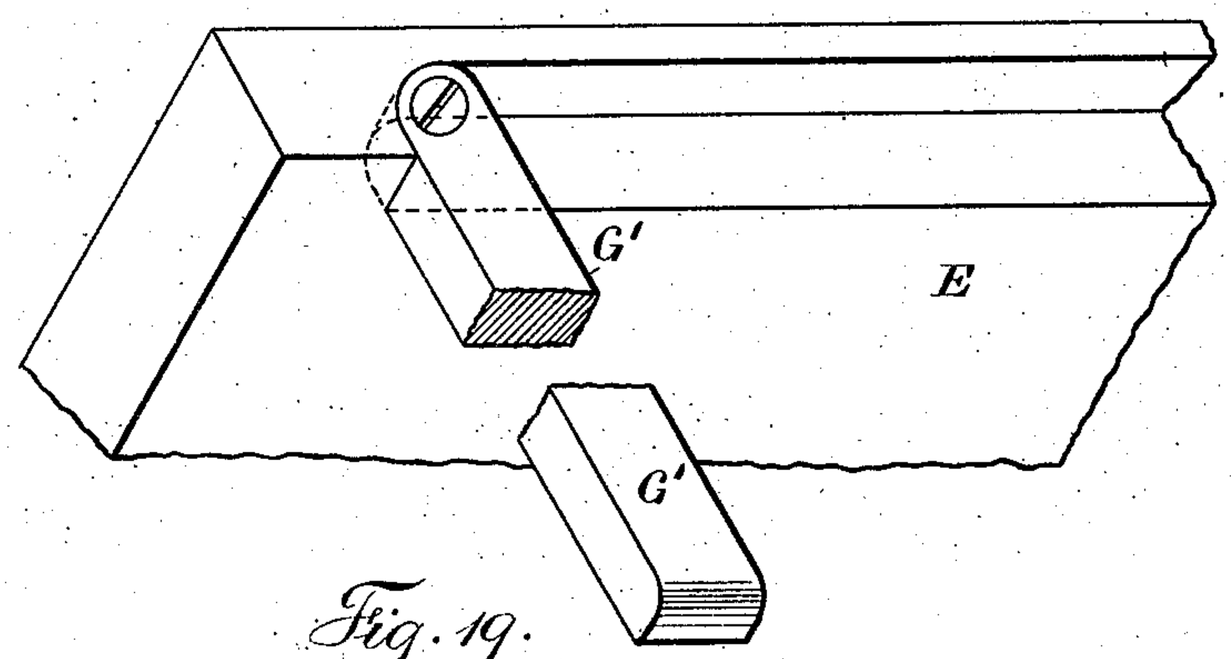
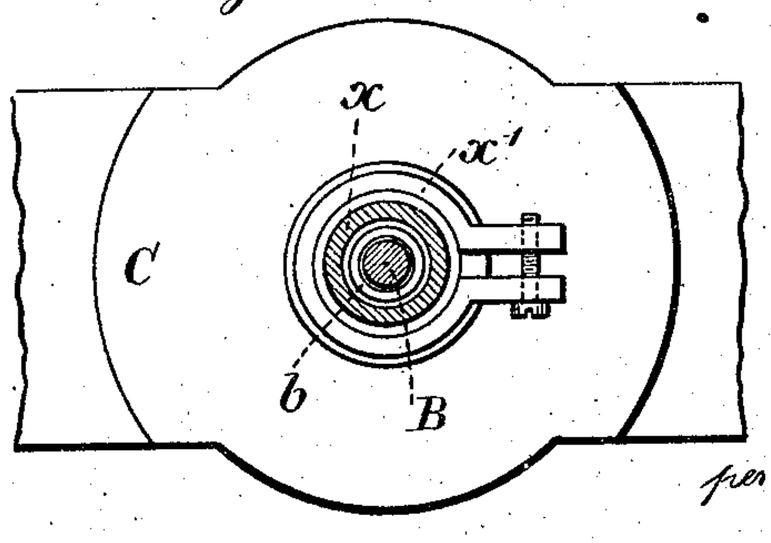


Fig. 19.



Witnesses:
J. Staib
Chas. H. Smith

Inventor:
Adolphe Prosper Eggis
per Lemuel W. Serrell atty.

UNITED STATES PATENT OFFICE.

ADOLPHE PROSPER EGGIS, OF FREYBURG, SWITZERLAND, ASSIGNOR TO THE EGGIS PATENT TYPEWRITING SYNDICATE, LIMITED, OF LONDON, ENGLAND.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 455,561, dated July 7, 1891.

Application filed March 21, 1890. Serial No. 344,845. (No model.) Patented in Belgium May 31, 1889, No. 86,282, and in Austria-Hungary September 25, 1889, No. 22,271 and No. 43,194.

To all whom it may concern:

Be it known that I, ADOLPHE PROSPER EGGIS, of Freyburg, in Switzerland, have invented an Improvement in Type-Writing Machines, (for which I have obtained Letters Patent in Belgium, No. 86,282, dated May 31, 1889, and in Austria-Hungary, No. 22,271 and No. 43,194, dated September 25, 1889,) of which the following is a specification.

In the accompanying drawings, illustrating my invention, Figure 1 is a transverse section of the machine. Fig. 2 is a side elevation of the rotary bell and inking mechanism and the accenting devices. Fig. 3 is a top plan view with the rotary bell removed. Fig. 4 is a front elevation with the rotary bell removed and showing the bed in longitudinal section; Figs. 5, 6, and 7, details showing the carriage-feed action in part. Fig. 8 shows in front view and cross-section the paper-carriage. Figs. 9 and 10 show opposite ends of the paper-carriage. Fig. 11 is a bottom plan view omitting the paper-carriage and bed. Fig. 12 is a top plan view, and Fig. 13 a bottom plan view, of the indicator. Fig. 14 is a sectional elevation similar to that shown in Fig. 1, showing the indicator in position; and Fig. 15 is a plan view. Fig. 16 is a perspective view of a fragment of the machine, illustrating either foot F′ or G′ in adjusted position, they being shown as folded flat to the base in Fig. 3. Fig. 17 is a sectional elevation illustrating the levers S S and *s s*. Fig. 18 is a partial plan illustrating the position of the levers S S, and Fig. 19 is a sectional plan of the spindle below the bell.

In all the figures like marks denote corresponding parts.

The invention will be described first by reference to the accompanying drawings, and then particularly pointed out in the claims.

A is a rotary bell provided at its lower edge with a rubber ring X, bearing the printing-characters or type. This bell is mounted upon a piston or spindle B, which is arranged to move longitudinally and rotarily in a tubular standard *x*, fixed to a cross-bar C, and this cross-bar is supported on a circle D, which is connected to a base E by means of hinges F at one end and supported at its other end by a post G, Fig. 4, so that the said circle and its superposed parts may be raised and lowered at pleasure. The circle D is provided with a series of holes D×, corresponding in number with the series of characters on the bell A. The bell A has a knob N, containing a screw N′, tapped into the upper end of the spindle B, to connect the bell and spindle for movement together. The knob also has a sleeve *a′* encircling the standard *x* and serving to guide the rotary and longitudinal movements of the bell. The spindle B has a collar *b′* near one end and around the spindle, and between its collar *b′* and the bottom of the standard *x* is arranged a spring *b* to effect the automatic return of the bell after it has been lowered to make an impression. The clamp-catch *x′*, Fig. 1, is adjustable and forms a stop that permits of the descent of the bell A being regulated at will.

The bell A carries a plunger *a*, which drops into one of the holes D× to arrest and hold the bell at the character desired to be printed until the bell has been caused to descend and make the impression. The position of the character to be printed and the hole containing the plunger is indicated at *c* in Fig. 3.

The type-ring X may be of india-rubber, metal, or other material or combination of materials of suitable kind upon which the printing-characters stand out, as shown in Fig. 1. This ring is of conical cross-section and is held to the belt by means of a flange Y, affixed to said bell. (See Fig. 14.)

The paper holder or carriage is arranged lengthwise of the machine and comprises a plate I, supported above the bed E and traveling longitudinally between rollers *d d*, arranged upon the bed E, the plate I and the rollers having, respectively, convex and concave engaging edges. This plate I is provided with an impression-cylinder J and the guide-rollers *f′* and *f²*, the course of the paper about these devices being shown by the heavy black line and arrow in Fig. 1, and also in Fig. 8. The roller *f′* is arranged in movable bearings, having any suitable springs acting to impart a yielding pressure of said roller *f′* against the impression-cylinder. The roller *f′* is provided with a ratchet-wheel *h*, a

finger or pawl *i*, to rotate it by hand, and a dog *k*, engaging the ratchet-wheel to permit the line-spacing and feeding of the paper line by line.

The plate I is provided with a toothed rack K, which is engaged by a pawl *g*, pivoted to an arm L^2 of a lever L, pivoted to a post $E^\times$, rising from the bed E. As the lever L is depressed by hand or by the tappet M of the spindle B upon the descent of the bell, the pawl *g* is moved, and engaging the rack in conjunction with a tooth L′ on the lever-arm L^3 feeds along the plate I and the paper. When the lever L is released, the spring-rod *l*, acting upon the arm L^2, returns the lever and pawl to normal position to be again acted upon, and the pawl *g* and tooth L′ are disengaged from the rack by means of a wedge-shaped separator R′ on a lever R. (See details illustrated in Figs. 5, 6, 7 and the lever R in Fig. 3.) The plate I carries an arm O, adjustably secured thereto by a clamp-nut and bolt *e*. (See Fig. 3.) This arm O has a finger *m*, which engages a pin *h′* on the arm *n* of the striking mechanism of a gong P, and the warning given by the sounding of the gong is to arrange for the width of the right-hand margin on the paper. The width of the left-hand margin is determined by the stop Q, made as a thumb-nut and adjustable in a slot Q′ in the bed. (See Figs. 3 and 4.)

The inking mechanism (see Figs. 2 and 11) comprises two drums T and U, on which the inking-ribbon H alternately is wound and unwound. The drums are supported in suitable brackets T′ and U′ depending from the circle D. The ribbon H passes between the ring X and the impression-cylinder J, and is advanced co-ordinately with the printing or writing by means of a ratchet-wheel *t* and a pawl-lever W, the latter being struck by the lever L as it rises. The weight *w′* causes the lever W to bear upon the lever L, (see Fig. 4,) and when the lever L is depressed the lever W follows its movement downward under the action of the weight *w′*, and when lever L rises again under the action of spring *l* it raises also the lever W and the click $w^\times$ of the latter and causes the click-wheel *t* to be turned more or less, according to the number of teeth taken by the click. By these means the ribbon H is advanced. The ribbon H, being wider than the type, may be shifted to present fresh surfaces to the type, and this may be effected by arranging the bearings of the drums on the brackets T′ and U′ in such manner that the ribbon-drums may be shifted readily. The plate T^2, supporting the drum, is adapted to slide upon the plate T′. A bearing-post *u′* is fixed to the plate T^2 and a bearing-post $u^\times$ is fixed upon the plate T′, and in these posts is the screw *u*. Obviously by turning the screw *u* the plate T^2 is moved upon the plate T′. A screw T, arranged in a slot T^4, unites the two plates. Similarly plate U′ slides on the plate $U^\times$, and is secured to it by a screw U^2 in a slot U^3. The screw *v* is supported in bearing-posts $u^\times$ and *v′* on plates $U^\times$ and U′, respectively.

In order to mark accents or sundry signs over letters or characters, I employ the coupled levers S S and *s s*, Figs. 2 and 11. One of the levers S may bear the acute accent and the other the grave, and these two are so arranged that they may in addition form the circumflex accent. In Fig. 2 one of these levers or keys is lowered, as in the act of printing, while the other is at rest. This provision of accenting-keys has the great advantage of diminishing the number of characters both upon the bell-ring X and upon the indicator, about to be described, and of facilitating correspondingly the working of the machine, because the more characters there are on the indicator out of which the eye has to select rapidly the right one the greater the difficulty.

It is necessary to provide the machine with an indicator by means of which one can ascertain what is the character one prints when the bell is lowered. This amounts to determining into which of the holes of the guide-circle D the plunger *a* must be sunk in order to print a given letter. This is done on the one hand by means of the fingers B′ and C′, pivoted to the brackets B^2 and C^2, secured to the bell, and on the other hand by means of a series of characters arranged in a semicircle around the holes of the front half of the circle D, and these characters may be engraved, painted, or gummed onto the circle D itself or on an independent circle D′, fixed in any manner upon the circle D, as shown in Fig. 14. The characters standing out from the ring X will be so disposed thereon that one half of this ring X will contain, for example, the capital letters and the numerals and the other half the lower-case letters and punctuation-marks, or vice versa. By this arrangement the indicator need bear only one alphabet, and this will serve for both capitals and lower case, according as the finger B′ or C′ is manipulated. The indicator will have on the same radius a numeral and a punctuation-mark, and either one or the other will be printed, according as finger B′ or finger C′ is manipulated.

In order to avoid mistakes arising from using the wrong finger in printing a numeral for a punctuation-mark, and vice versa, I may use a shifting cover-plate *d′*, which is placed over a series of slots or openings in the circle D′, and this cover-plate contains the punctuation-marks and numerals, either of which are exposed as the cover-plate is moved. The cover-plate is secured to the circle by means of clips *e′*, (see Fig. 13,) and is held in adjusted position by a spring-finger *g′*, engaging one or the other side of a pin h^2, the latter being made fast to the circle. The cover-plate is shifted by the plunger *a*, that may be operated by the finger B′ or finger C′ through the following means: *m′* and *q′* and *n′* and *r′* are sliding cams arranged in ways on the un-

der side of the circle G′ and adapted to be projected into the path of movement of the plungers *a*. These cams are connected by rocking levers *o′* and *p′*, and these levers in turn are connected by suitable rods and the like with opposite ends of the cover-plate *d′* to shift the said plate back and forth as numerals or punctuation-marks are desired. The indicator D′ may also be combined with a double row of figures corresponding to the number of letters adopted, (see Fig. 12,) by means of which one can by a single shifting of the circle D′ write a cipher letter, the key of which will be given, simply by knowledge of the figure indicating the shifting of the guide in relation to a fixed indicator of the circle D′ of the machine and corresponding to the line *o* of the circle D′ for ordinary writing. If this indicator be placed, for example, at 1 and indicate to the person to whom the cipher letter is addressed that the key is 1 he will know that it means B, and so on, and if such person has a similar machine he may with the greatest facility write out the cipher letter in decipher by utilizing in an inverse way the power of movement of the circle D′.

The base of the machine is provided with two feet F′ and G′, (see Figs. 3 and 16,) which fold upon hinges when it is desired to place the machine flat, Fig. 3, and which may be turned out, Fig. 16, to support it at an incline.

What I claim is—

1. In a writing-machine, a bell and a type-ring affixed thereto, a piston and a spring thereon, and a standard upon which the bell is rotatable and adapted to be lowered and raised, combined with a perforated circle and a plunger carried by the bell and adapted to engage the perforated circle, substantially as described.

2. In a type-writer, a central fixed tubular standard, a bell having a depending piston arranged in and working through such standard, a knob on said bell and a sleeve fixed to said knob and surrounding said standard, and a spring acting upon the piston to return the bell after it has been depressed, substantially as specified.

3. In a type-writer, the combination, with the paper-holder, of a toothed rack, a pawl and a detent to engage the same, and a lever provided with a wedge to separate the said pawl and detent from one another and from engagement with the rack, substantially as specified.

4. In a type-writer, the supplementary or auxiliary keys S S *s s* for printing the accent-marks, substantially as specified.

5. The combination, with the rotary bell and type-ring thereon, having the type or characters arranged in fixed order, of a fixed indicator and a movable indicator on the said fixed indicator, and means, substantially such as described, interposed between the bell and indicator to actuate said movable indicator correspondingly with the movement of the bell to bring one or another set or kind of character into operation, substantially as specified.

6. In a writing-machine, the indicator D′, provided with suitable openings, a sliding cover-plate *d′*, bearing certain characters which are to be shown alternately in the openings in the indicator, cams *m′ q′* and *n′ r′*, rocking levers *o′ p′*, and connecting-rods between said levers and opposite ends of the sliding cover-plate, combined with a rotatable and rising and falling type-bell, a perforated ring, and plunger *a* on said bell, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ADOLPHE PROSPER EGGIS.

Witnesses:

JOHANN WÄBER,

TH. MURZ.