

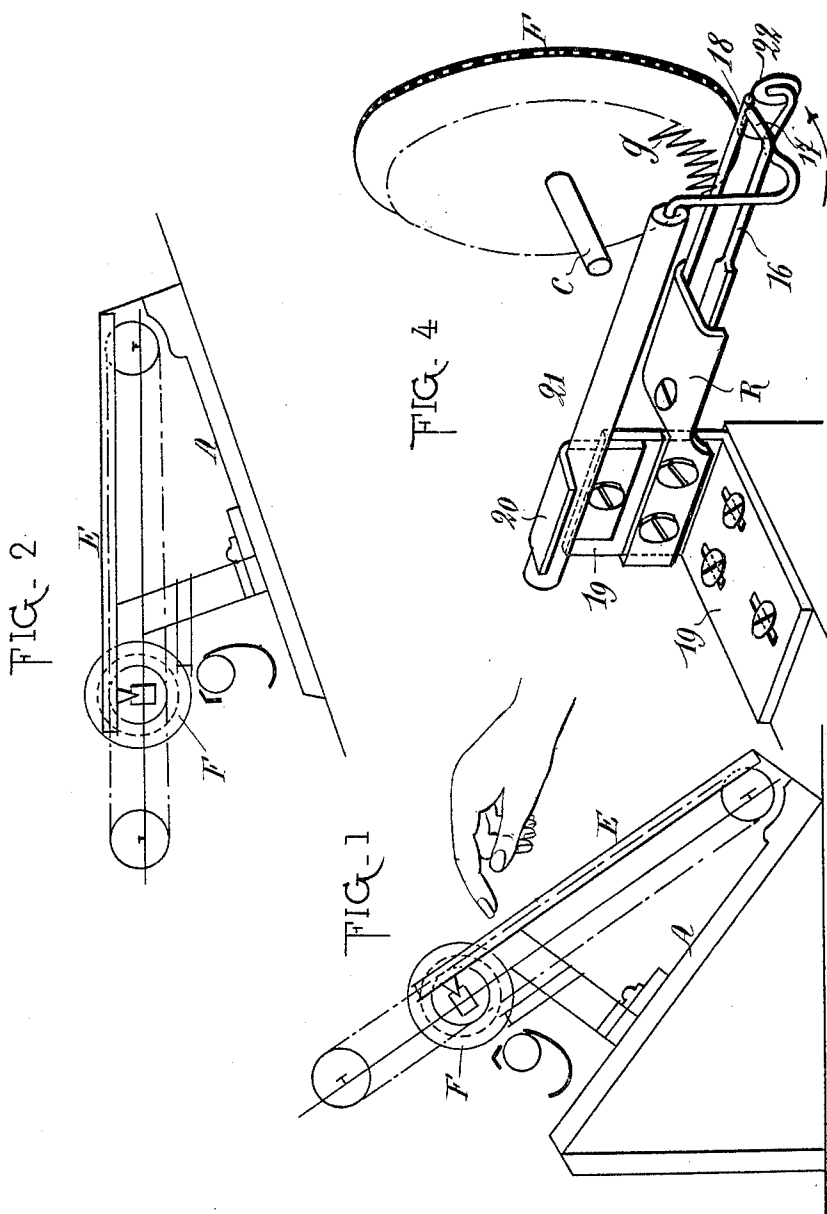
(No. Model.)

8 Sheets—Sheet 1.

E. LEVESQUE.
TYPE WRITING MACHINE.

No. 581,598.

Patented Apr. 27, 1897.



Witnesses:

G. A. Pennington
Chas. W. Parker.

Inventor:

Emile Levesque
by R. S. Bacon
Attorney.

(No Model.)

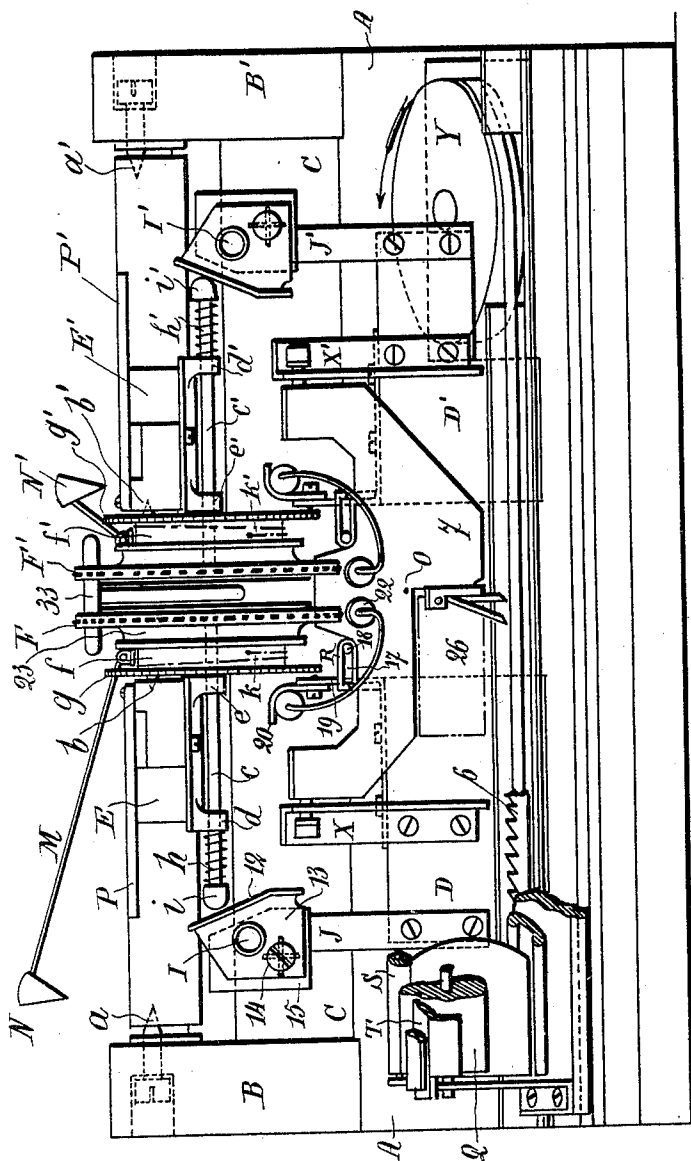
8 Sheets—Sheet 2.

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TYPE WRITING MACHINE.

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FIG. 3



Witnesses:

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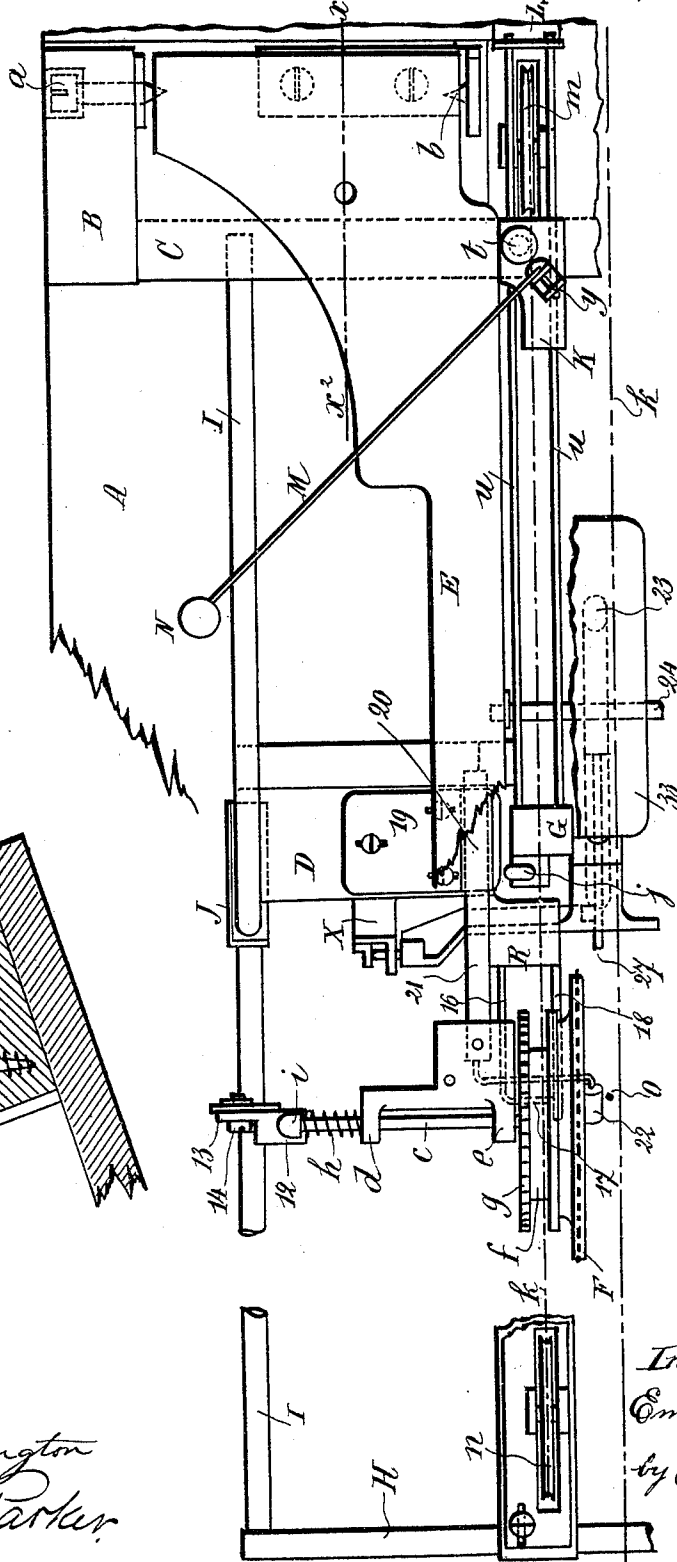
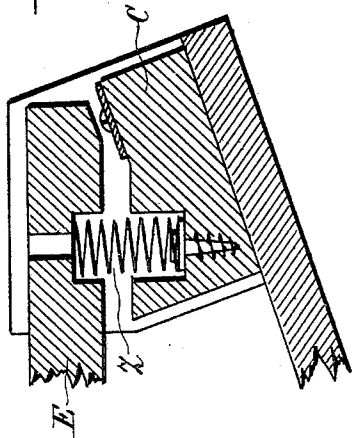
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FIG- 5-

FIG- 7



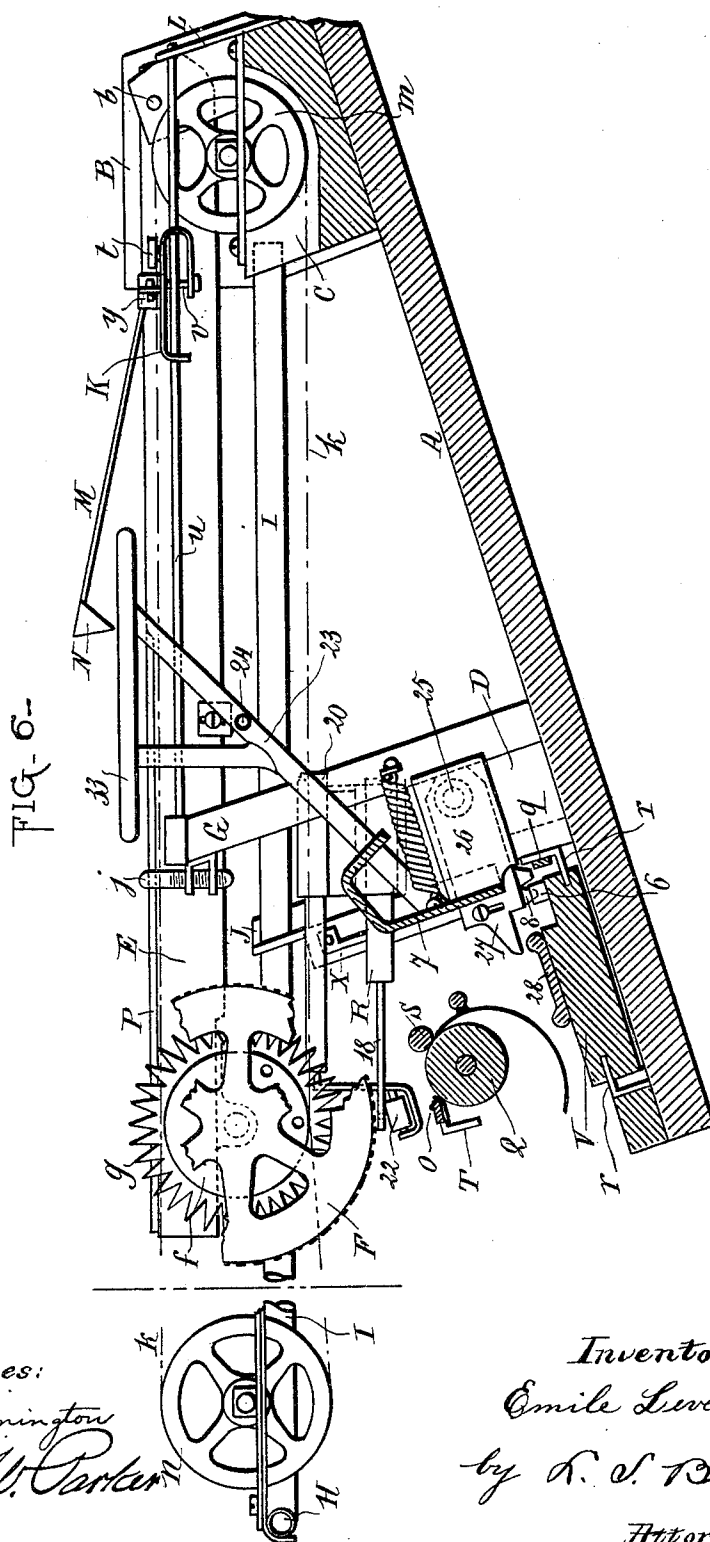
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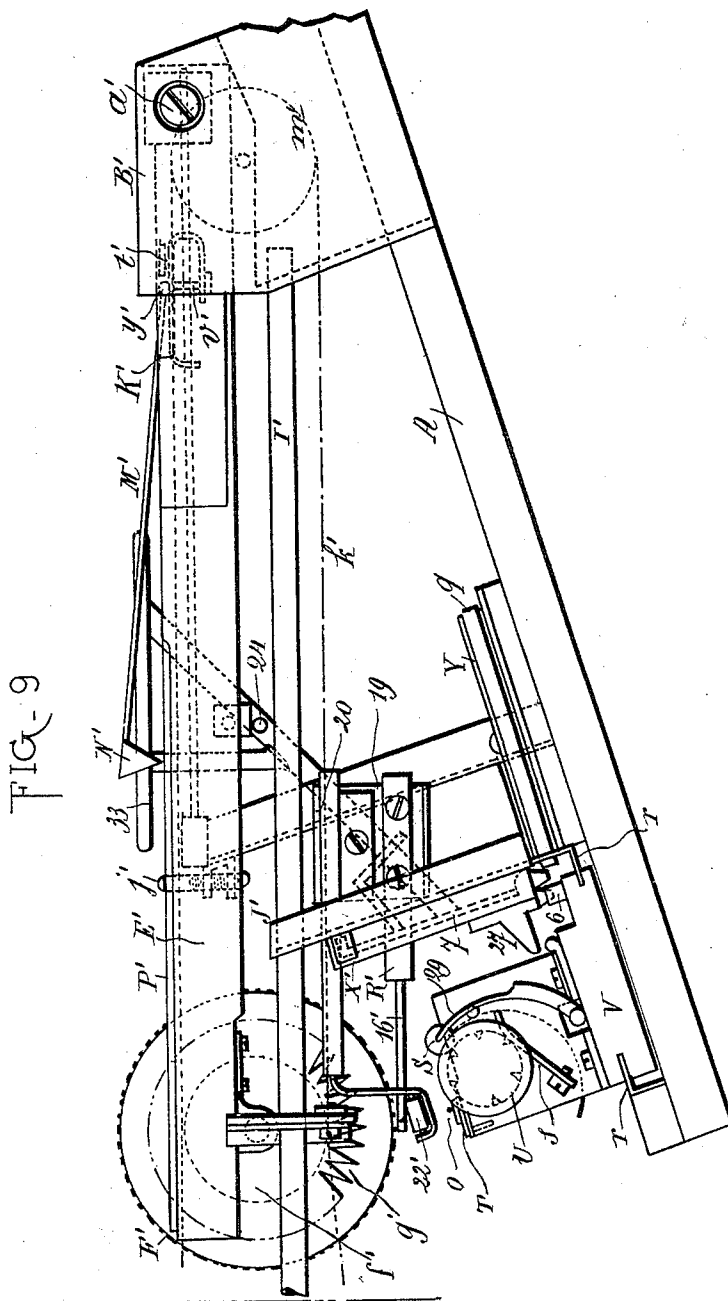
(No Model.)

8 Sheets—Sheet 6.

E. LEVESQUE.
TYPE WRITING MACHINE.

No. 581,598.

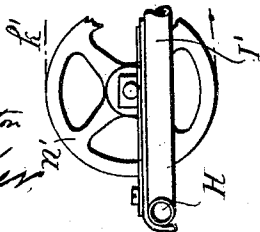
Patented Apr. 27, 1897.



159

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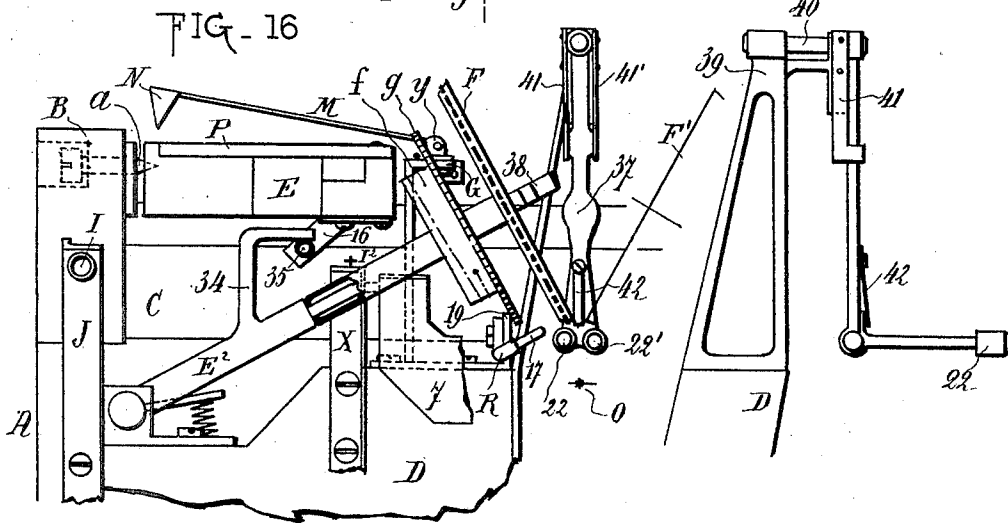
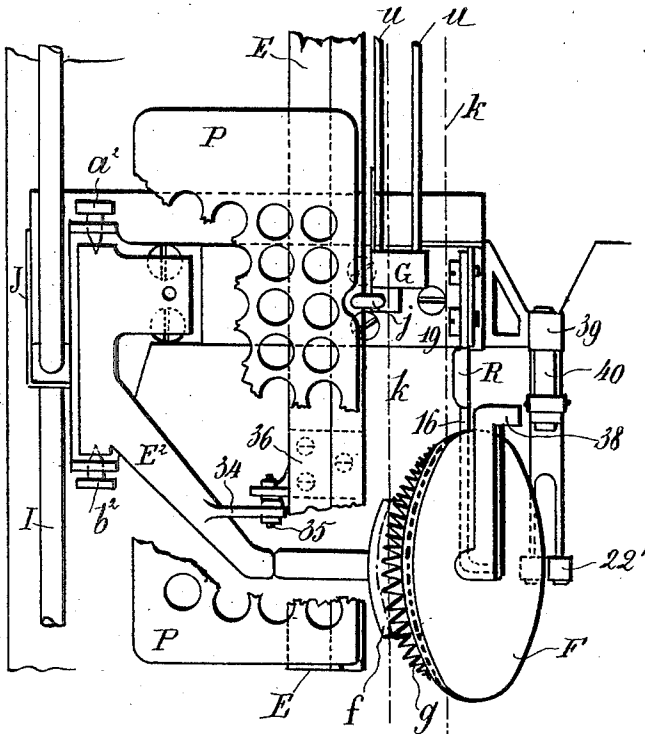
(No Model.)

8 Sheets—Sheet 8.

E. LEVESQUE.
TYPE WRITING MACHINE.

No. 581,598.

Patented Apr. 27, 1897.



Witnesses:

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Chas. W. Barker.

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UNITED STATES PATENT OFFICE.

EMILE LEVESQUE, OF PARIS, FRANCE.

TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 581,598, dated April 27, 1897.

Application filed November 30, 1895. Serial No. 570,648. (No model.)

To all whom it may concern:

Be it known that I, EMILE LEVESQUE, a citizen of the French Republic, and a resident of Paris, France, have invented certain new and useful Improvements in Type-Writers, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in type-writing machines, and more particularly to those in which a wheel or a cylinder is employed whose periphery or face is entirely or partly provided with types brought to the operative position by rotation of the said wheel or cylinder about its axis. These improvements, either conjointly or separately, are also applicable to machines in which the types are arranged on a strip or bar adapted to be displaced longitudinally.

In order to effect the rotation of the wheel or cylinder or the displacement of the strip or bar, I preferably employ a small string passing through the grooves of two pulleys. In the first case the two extremities of the string coming from the pulleys are fixed to the periphery of a drum arranged upon the axis of the wheel or cylinder and are wound upon this drum. In the second case the extremities of the string coming from the pulleys are fixed one to each end of the strip or bar which carries the type.

By means of a knob or button having a conical point and fixed to the string and a bar arranged along this string and pierced with a row of small holes previously registered I could bring any desired type to the operative position in the ordinary manner, but this would be inconvenient. With the object of perfecting this mode of operation I arrange along the string a path for guiding a small slide or traveler to which the string is fixed, and upon this string I secure, by means of a double pivot, one extremity of a long rod, the other extremity of which is provided with a cone furnished with a sleeve. This long rod enables me to arrange in the alinement of the path followed by the slide or traveler a registering-plate and to form in this plate, in lieu of a single row of small holes, four or more rows of registering holes which are large and into which I can very easily introduce the cone on the rod in order to bring any desired

type into position. By the employment of this long rod with its double pivot and the string with its two pulleys, by the arrangement of these pulleys placed at a distance from each other, and by other arrangements which will hereinafter be described, I obtain a type-writing machine of simple construction, the working of which comprises the following operations—that is to say, first, bring any desired type into approximately operative position by placing the cone on the rod in the registering hole of this type previously formed in the plate, and, second, by lowering this plate or tablet completing the exact registering of the type and also the pressure or the shock which causes it to make its impression, the whole taking place in a single action and with one hand, it being also possible to juxtapose two symmetrical apparatus, one for each hand.

The pressure upon the type or the shock producing the impression may result, as usual, from the direct action of the hand, but this gives an irregular or insufficient impression. Another improvement consists in providing for a regular and adjustable shock instead of this irregular pressure.

In order that my invention and the mode of carrying it into practice may be properly understood, I will proceed to describe the same with reference to the accompanying drawings, which represent a machine with type-wheels, this machine being constructed in two forms which embody my improvements hereinbefore set forth in a general manner.

The figures show that this machine is made in two symmetrical halves.

Figure 1 is a diagram showing how the machine, seen from the left-hand side of the operator, must be placed before him in an inclined position in order to be operated. Fig. 2 is a diagram which shows the position given to the machine in the following figures in order that these figures may be clearer. Fig. 3 shows an end elevation of the machine thus placed, with the right-hand end of the carriage as seen from the place of the operator. Fig. 4 shows, to an enlarged scale, a perspective view of the right-hand type-wheel with its accessory parts. Fig. 5 shows a plan of the right-hand half of the machine, a part of the arm being broken off so that parts below

may be seen. Fig. 6 shows a vertical section of this right-hand half. Fig. 7 is a vertical section, on the line $x^2 x^2$ of Fig. 6, of the rear part, where a spring for lifting the arm is arranged. Fig. 8 is a plan of the left-hand half of the machine and of the left-hand extremity of the carriage. Fig. 9 is an elevation of the machine seen from the left-hand side and also of the end of the carriage. Figs. 10, 11, 10 and 12 are diagrams showing the arrangement and operation of the string. Fig. 13 shows a plan of a pedal made in two parts in order to regulate the shock producing the impression. Fig. 14 is a section on the line xx of Fig. 13. 15 Fig. 15 shows a vertical section and elevation of the arrangements of the cone at the end of the rod with a sleeve or a thimble serving to hold the cone. Figs. 16, 17, and 18 represent 20 part of the same machine, showing a modification in the arrangement or mounting of the type-wheel.

In all the figures the same or similar parts are designated by the same letters or numbers without any index "1" in the case of the 25 parts forming the right-hand half and with an index "1" in the case of the parts forming the left-hand half.

The frame of the machine consists of a platform A, upon which are fixed two uprights B B', a block C between these two uprights, and two blocks D D', which serve as seats for placing and fixing different parts.

A long arm E is pivoted horizontally upon two adjustable points $a b$, so that it can be 35 moved in a vertical plane. This arm carries at its extremity a wheel F, provided at its periphery with, say, forty types, and fixed to the end of a horizontal shaft c , which can turn and slide in two brackets $d e$, forming a 40 single piece fixed below the said arm E. Upon the same shaft c are secured a drum f and a wheel g , made of steel, which has forty triangular teeth, and consequently forty intermediate spaces, each of which corresponds 45 to one of the forty types of the wheel F. A spiral spring h , bearing against the bracket d and pushing against the hemispherical nut i , screwed on the end of the shaft c , always causes the wheel to return to the right-hand 50 side. An adjustable spring Z, Fig. 7, inclosed in the block C, lifts the arm E, whose upward movement is limited by an adjustable hook j , arranged above the fixed support G. The spring Z has its point of support 55 upon a screw made with a broad head and screwed into the block C. Through a hole provided in the arm E, I may reach this screw and turn it in order to regulate the tension of the spring.

60 At O is the central point where the types on the right-hand and left-hand wheels are to make the impression.

For turning the wheel F, I employ a string k , arranged as particularly shown in Figs. 10 and 12. One end, which passes through the 65 periphery of the drum f , is stopped by a knot located in the cavity l , after which the string,

passing half-way round the drum in the direction of the arrow, is wound upon the pulley m , then upon the pulley n , passes again half-way round the drum f , extends through its 70 periphery, and is finally stopped by a knot located in the cavity p . The pulley m is fixed upon the block C, hollowed out for this purpose. The pulley n is arranged by means of 75 two pressing-screws with a sliding device upon a plate fixed to the transverse piece H, carried by two rods I I', the feet of which are secured in the block C and which are held by two supports J J'. The pulley n is a little 80 larger than the drum f in order that the upper string may not rub upon the drum. I place the two guide-pulleys at a distance from each other, so as to give the string a suitable tension. This string is fixed by the pressure 85 of a screw t upon a small slide or traveler K, whose front and rear edges are bent downward and pierced with holes, so as to slide along two steel rods $u u$, which are fixed at their extremities to the head of the fixed sup- 90 ports G and L.

The upper part of the support G forms a gibbet, so that the lower portion of the string k may freely pass underneath without rubbing. Upon the slide or traveler K is piv- 95 oted vertically by the bolt v a fork y , in which turns the horizontal extremity of a rod M. At the free extremity of this rod is fixed a small metallic cone N, provided with a sleeve, as hereinafter set forth. 100

On the arm E is fixed horizontally a plate P, of ebonite or other suitable material, which is not represented in Fig. 5. (See the plate P' in the plan, Fig. 8.) On lines which are 105 shown on this plate P', and which will be explained, this plate is perforated with forty holes, so that by inserting the cone N therein the wheel F as it turns will present a pre-determined type to the point O. A desired 110 type being thus brought to an approximate position, I cause it to descend and to make its impression exactly at the point O by the following means:

Figs. 3, 4, and 5 (particularly Fig. 3) show an inclined plane 12, made in one part with 115 a plate 13, which is secured by a pressing and adjusting bolt 14 to the plate 15, fixed to the rod I. By means of the bolt 14, which traverses crossed grooves, I may regulate the distance and inclination of the inclined plane 12 120 relatively to the nut i at the end of the shaft c . A part R (shown in perspective, Fig. 4) carries a steel rod 16, the free end 17 of which, bent horizontally at a right angle, may have the form of a knife, and another rod 18, which 125 is straight or preferably a little bulged in front of the end of the knife-shaped rod. A support 19, formed of a bent plate, is fixed upon the block D by means of screws or otherwise in such a manner that I may regulate its 130 position laterally. Upon this support is fixed the part R by means of bolts or otherwise, so that I may regulate the position of the knife-shaped rod toward the front and in height.

The part 20, with its appendices, appertains to an inking arrangement which will hereinafter be set forth.

The operation takes place in the following manner: Seizing the sleeve of the cone N with the fingers of the right hand, I insert this cone into the hole of the plate P corresponding to the type which I wish to produce, and I press so as to lower the arm E. The intermediate space between the teeth of the wheel *g* which corresponds to the desired type has passed above the knife-shaped rod and will bear upon this latter as the said arm is lowered. At the same time the nut *i* slides along the inclined plane 12, and the type-wheel is thus pushed to the left-hand side of the operator, (the right-hand side of Fig. 3.) At the moment when the type arrives at O its position is very accurately fixed rearward by the knife-shaped rod and laterally by the face of the wheel *g* bearing on the left-hand side against the rod 18 and the nut *i* at the end of the shaft *c* bearing exactly against the lower part of the inclined plane 12. Of course the respective positions of the part R and of the inclined plane 12 have been regulated so as to obtain this result with accuracy. As soon as the cone N is raised the arm E rises with the type-wheel, which returns to the right-hand side to its normal position.

The following is a method of finding practically the center of the forty holes pierced in the plate P' and also in the plate P: The slide or traveler K' being at its point of departure, as shown in Fig. 8, I lower the arm E', so that the toothed wheel will bear upon its knife-shaped rod, and while the corresponding type on the wheel F' (say, for instance, the number "2") is thus held in position I draw with the point of the cone N' an arc of a circle 2' upon the plate P'. A hole pierced at any point of this arc of a circle would be an exact register of the type 2. In like manner I draw the arcs 3' 4' 5', &c., after having successively fixed the types 3 4 5. Upon the plate P', I draw four straight longitudinal lines *z*, which all intersect the arcs of circles. I pierce holes having for their centers the points of intersection 2 3 4 5, &c. Thus I obtain holes arranged in regular order, which are each an exact registering-point and into which I have to insert the cone N' in order that the types 2 3 4 5, &c., shall be brought to the predetermined position.

The character or type which corresponds to each hole may be indicated to the operator simply by a small rectangular tablet upon white fabric fixed below the plate by its four corners by means of elastic bands, so as to yield to the point of the cone. The tablet would show in each hole the type corresponding to the same.

It may here be observed that it is necessary to use an inextensible string. Among the strings which may be suitable I mention the fishing-line, which has the stress of flax thread. Before employing this string I subject it to

strong tension in order that it may not be liable to lengthen any farther. Moreover, with a view to better insuring this result I propose the following dimensions: a drum of forty millimeters in diameter, which gives a development of 125.7 millimeters to the movement of the slide or traveler and a displacement of $\frac{125.7}{40} = 3.14$ millimeters for caus-

ing the wheel to advance through the space from one type to the following. By enlarging the drum I am obliged to lengthen the plate, which enables me to make larger registering holes, if desired. With a toothed wheel of sixty millimeters in diameter, including the teeth, I obtain between the points of two consecutive teeth an interval of 4.7 millimeters for insuring the bearing upon the knife-shaped rod.

The long rod with double pivots, which has for its object to bring the types into an approximate position in combination with the registering-plate arranged in the direction of the path traveled over by the pivot of the rod, affords the means of providing in this plate a registering-tablet with large holes in the described manner. By applying this part of my invention to a machine it is needful that the plate should not be removed too much from the direction followed by the pivot of the rod, that the registering holes should not be separated too much in the lateral direction, and that the rod should not be shortened too much for fear of increasing too much the inaccuracy in the operation and the difficulty in working too short a rod and pulling and pushing too obliquely, as is obvious. The drawings show a rod of about one hundred and thirty millimeters.

The pulley *m* might be used alone and would be sufficient for causing the drum to turn by means of a string; but by arranging the pulley *n* in front of the drum the latter is drawn by the cord in opposite directions, and by this means the friction of the shaft *c* in its brackets when sliding, as well as when turning, is almost obviated. Moreover, the variations of the string itself are almost obviated by being distributed in its two directions.

It would be expedient to arrange the pulleys *m* and *n* and the guides of the slide or traveler K on the arm E itself in order that these parts may participate in the movement of this pedal which carries the wheel. By arranging the said parts, on the contrary, in a fixed manner I relieve to that extent the said arm, which is a movable part, this being advantageous. Besides, the employment of the string with guide-pulleys *m* and *n*, which are purposely very far away from the drum *f*, enables me, owing to the flexibility of a string which is a little stretched, but long, to give to the type-wheel the small downward displacement necessary for correcting the position of the type and making its impression simultaneously with the small lateral displacement, which has the result that I may combine two

similar apparatus to make the impresssion at the same point O; but it is necessary to obviate the inconveniences which result from these arrangements. In the first place, when the type-wheel is lowered as the pulleys *m* and *n* are fixed, the lower portions of the cord will occupy the forced and false position which is shown in elevation and plan, Figs. 11 and 12. For this reason the pulleys should be at a suitable distance from the drum *f*, and the extent to which the wheel must be lowered and displaced laterally should be as small as possible. Furthermore, from the moment when the pedal is lowered the cone N, which is then in the hole of the plate, describes an arc of a circle which has virtually for its center the pivot *b* of the arm E, thus causing a small displacement of the pivot of the rod and consequently of the slide or traveler, the string, and, lastly, the wheel F. To diminish this irregularity, the arrangement is such that the pivots of the arm E and also the horizontal pivot of the rod in its fork *g* may be nearly in the same plane as the plate P. It will therefore be seen that the employment of a long rod doubly pivoted, combined with a registering-plate having large holes, is independent of the employment of a string for operating the part which carries the types. Accordingly, I may apply the first part of my invention to a type-writing machine without applying the second.

If, for example, in a machine wherein the types are on a pivoted part, the part with the types must not be removed from its axis of rotation, I may, by using the string, if necessary, diminish the distance between its pulleys. In case the types describe the arc of a circle having a long radius, with a central pivot for a guide, as also when the types are displaced in a straight line, I need not use a string, if it should not be deemed advantageous, and I then pivot the long rod directly upon the part which carries the types or upon an appendix or prolongation fixed to this part, in order to profit by the particular advantages obtained by this long rod with a double pivot, combined with a registering-plate arranged and constructed in the described manner. This plate, on being lowered, may actuate the parts of the machine which must effect the rectification of the position and the impression of the type, if the machine is provided with such parts. Lastly, this plate may be arranged in a fixed position, not pivoted, if it is not required to actuate parts producing these latter results.

For inking the types I proceed in the following manner: The tube 21, by its plate and a screw or other means, is fixed in an adjustable manner to the support 19. The small inking-roller 22 is provided at the twice-bent extremity of a rod which turns axially in the tube 21. A spring wound into this tube always returns the rod and its roller to the left-hand side of the operator. When the wheel F is lowered, the type which descends

encounters the roller, is charged with ink, and the roller being pivoted laterally with respect to the path followed by the type this roller will be pushed to the right, (the left in Figs. 1, 3, and 4.) While the type makes its impression, the roller is in contact with the circular inking device 23, arranged round the drum. When the arm E is raised, the roller, moving upon the face of the wheel F, returns to its normal position and is ready to ink again. This device may be replaced by the customary inking-ribbon, use being made of two bobbins arranged, for example, below the inclined planes 12, or a little to the outside of them upon the rods I, the ribbon moving from one to the other bobbin, passing below the type-wheels, and, if desired, a small bell-crank lever, actuated by the arms E when they are lowered, presents the ribbon below the wheels and moves it to the rear after the impression in order to uncover the writing.

The carriage V, sliding upon two rails *r*, is moved to the left-hand side by the strap *g*, fixed to the drum Y, having a spiral clock-spring. With the rack 6 engage alternately two pawls 8, which are carried by a large oscillating fork 7, pivoted horizontally to the head of two supports X X' and moved to the rear by a spring. This fork is furnished with an arm 23, carrying a transverse piece 24, which extends to the right and to the left hand side below an adjustable tappet fixed to each arm E E' in such a manner that the downward movement of each of them causes the oscillation of the pawl, and consequently the escapement of a tooth in the ordinary manner. By pressing upon the large key 33 I operate the escapement independently of the arms E E'.

The paper is carried and controlled by one of the known devices adapted for the purpose. The one represented carries a large roller Q and a small roller S, between which the sheet of paper passes, whereupon it rests upon a transverse piece T, serving as a support, which is provided with plastic material. Upon the axis of the large roller are fixed a large knob U and a wheel with six notches, into which drops the stud on a spring *s*, which regulates the spacing between the lines. The pawls are secured upon a rectangular plate. (Represented in dotted lines, Fig. 6.) This plate is secured by the pivot 25 and placed flat upon another rectangular plate 26, bent upward at a right angle after having been cut, as shown in the drawings by mixed lines, Fig. 3, from the metallic plate forming the fork. By means of this pivot the pawls may be raised in order to be disengaged from the rack. For this purpose a nose 27 projects from the plate of the pawls. A strip 28, which extends from one end to the other of the carriage, is mounted upon this carriage as a hinge by its long side and furnished with a lever 29. When I seize with the fingers of the left hand the aforesaid knob U, I press with the thumb upon the extremity of the

lever 29. The edge of the strip 28, which is below the nose of the pawls, (see section, Fig. 6,) raises this nose, and, sliding below, keeps the pawls disengaged while I push the carriage to the right-hand side. By their weight or by the action of a spring the pawls drop upon the rack as soon as the strip is allowed to fall back.

For the purpose of rendering the shock which causes the impression of the type independent of the hand of the operator, I make the pedal in two parts, Fig. 13. One part E remains under the action of the lifting-spring Z, and the other part E' rests with its weight upon the first. The latter is formed of a metallic plate pivoted at a^2 and b^2 upon the arm E, to which plate is fixed by the screws v^2 v^3 , or otherwise, the arm receiving at its end the type-wheel F. As shown in Fig. 14, the arm E is hollowed or recessed, and the plate P is fixed above at its rear part, its front part being carried by a forked piece 30, so as to leave below the plate P the space necessary for not interfering with the point of the cone N. The arm E² is hollowed or recessed below the edge of the plate P in order that the latter may descend with the arm E without pressing upon the arm E². The type-wheel, which is arranged below and at the extremity of the arm E² in the axial line c i , cannot be reached by the plate P. When, under these circumstances, the arm E is lowered, the arm E² and its wheel descend by their own weight alone; but as the arm E moves upward it raises the arm E², which, abutting against the stop j , arrests the upward movement of the arm E. The lever 29 is fixed below the pedal E and prolonged so that it will bear upon the transverse piece 24 of the arm of the pawls.

The inclined position of the machine in operation, Fig. 1, diminishes the falling weight of the arm and its wheel, which has the advantage of necessitating a weaker lifting-spring, and consequently a smaller pressure of the finger for lowering the arm; but a certain falling force being necessary I provide, if desired, an adjustable spring, which assists the action of the weight and enables the force of the shock due to the type-wheel to be regulated.

For greater convenience in the manipulation of the cone N the latter may be provided with a rod or with a thimble, as shown in Fig. 15. The rod terminates in a small ball, which is articulated in the cone in the known manner in order that this rod may be able to turn and incline in any direction, or a thimble with a spherical bottom is retained in the cone by a somewhat elastic connection.

In a somewhat modified arrangement of the machine hereinbefore described, instead of using a type-wheel turning and sliding in two brackets provided at the end of a long arm pivoted at the rear of the frame, I mount the type-wheel axially at the end of an arm E², pivoted on the side of the frame by two points

a^2 b^2 , as shown in front elevation, Fig. 16, and plan, Fig. 17.

The type-wheel F, its toothed wheel g , and its drum f are arranged upon a sleeve which turns at the end of the arm E². The inclination of this axis allows of the symmetrical arrangement of two wheels F and F', (the latter being only indicated in Fig. 16,) whose periphery with a conical surface is provided with types, so that one or the other wheel on being lowered will make the impression of its types at the same point O. The pivots a^2 b^2 being lower than the point O, (which is the upper level of the carriage,) these pivots, as shown in plan, Fig. 17, are moved to the rear of the path of the carriage in order to leave this path free. They are arranged upon the block D, which is widened and notched for this purpose. The arrangement and operation are the same as before. The plate P is provided upon the arm E, which has a lifting-spring. Along this plate are the guides u u for the slide or traveler K, Fig. 17, upon which the rod M is pivoted. The string k is wound upon the drum f and upon the pulleys m and n , (not represented,) which are fixed in an inclined position like the drum f . The knife-shaped rod 17 corrects the position of the types by the wheel g . Near the end of the arm E is fixed a part 36, carrying a roller 35, which takes below the bent end of the arm 34, which projects from the arm E². When I lower this arm, the wheel F falls by its own weight. If necessary, however, a spring is provided in order to augment or even diminish the action of the weight, the inclination of the machine in operation producing also in this case the before-mentioned effects. The flexibility of the cord is still utilized, but the parts which insure the displacement and the lateral separation of the wheel are dispensed with. In Figs. 16 and 17 the rod I is farther away from the center than before. It may also be brought near the upper part of the support X, for example at I², Fig. 16.

If for the impression I do not use the ordinary ribbon, it will be preferable to join the two inking-rollers 22 22', as shown in elevation from the left-hand side, Fig. 18, in plan, Fig. 17, and in front elevation, Fig. 16. The part which unites their rods is fixed to the lower extremity of a rod 43 either in a flexible manner or by means of an articulation with a spring 42, which assures the same result. This rod is mounted at the top of a gibbet-support 39 40, so as to oscillate like the balance of a clock. Two spring-strips 41 41' move this part back to the vertical position. A bent appendix 38 is attached to the end of the axis upon which turns the type-wheel. When this wheel F descends, the type in position encounters the rollers 22, which yields. Then the appendix 38, acting like a cam upon the side of the heart 37, pushes the rod 43 to the left of the operator, and the roller 22 is charged with ink on the left face of the wheel

F, while the type makes its impression at the point O. When the wheel F is raised, the rollers return to the normal position and are ready to ink a type on the corresponding wheel which descends.

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

1. In a type-writing machine, the combination with the platen, of a pivoted arm, a type-wheel rotatably and slidably mounted in said arm, a flexible member for rotating said type-wheel, a registering-plate carried by the arm, a movable rod connected with said flexible member and adapted in conjunction with the registering-plate to operate said type-wheel, and means for correcting the position of the type-wheel.

2. In a type-writing machine, the combination with the frame and platen, of a pivoted arm, a type-wheel mounted in said arm, a registering-plate carried by the arm, a flexible member connected with the wheel for rotating it, a rod movably mounted on the frame and connected with said flexible member for operating the same, and adapted in conjunction with the registering-plate to move the wheel to make the impression.

3. In a type-writing machine, the combination with a platen, and a registering-plate, of a rotatable type-carrier, a fixed way, or guide, a slide or traveler working on said way, a flexible member secured to said slide passing around guide-pulleys and adapted to rotate the carrier in either direction, and an operating-rod for said type-carrier movably connected to said slide, substantially as described.

4. In a type-writing machine, the combination with a platen, of a pivoted arm, a type-carrier, rotatably and slidably mounted in said arm, a fixed way or guide, a slide or traveler working on said way, a connection from said slide for rotating the type-carrier, an operating-rod for said slide movably connected therewith, a registering-plate, and means acting to correct the position of the type-carrier, substantially as described.

5. In a type-writing machine, the combination with the platen, of a movable arm, a type-carrier rotatably and slidably mounted on said arm, a registering-plate, a flexible member connected to said type-carrier, a rod connected to said flexible member, and adapted in

conjunction with the registering-plate to approximately position the type-carrier, and means for correcting the position of the carrier, comprising an inclined plane for sliding the carrier, a knife-shaped rod, and a projection on the carrier adapted to engage said rod for rotating the carrier, substantially as described.

6. In a type-writing machine, the combination with a platen, of a pivoted supporting-arm, means for lifting said arm, a second pivoted arm, a type-carrier carried by said second arm, and means on the first arm for supporting said second arm, substantially as described.

7. In a type-writing machine, the combination of a platen, a pivoted arm, a second arm pivoted to the first arm, a type-carrier mounted on said second arm, a registering-plate carried by the first arm, means adapted in conjunction with said registering-plate to position and operate said type-carrier, substantially as described.

8. In a type-writing machine, the combination with a platen, of two pivoted frames, rotatable type-wheels one carried by each frame and arranged side by side on axes substantially in alinement, means for operating said wheels, and mechanism for shifting said wheels to cause them to make impressions at the same point.

9. In a type-writing machine, the combination with a platen, of two dependent pivoted arms, a rotatable type-wheel carried by each arm, independent means for rotating said wheels, and stationary means for shifting said wheels bodily to cause them to make impressions at the same point.

10. In a type-writing machine, the combination with a platen, of two frames mounted on pivots parallel with the axis of the platen, a type-wheel carried by each of said frames, and cams for shifting said type-wheels to cause them to make impressions at the same point, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 17th day of July, A. D. 1895.

EMILE LEVESQUE.

Witnesses:

H. PETKOURKI,
CLYDE SHROPSHIRE.