

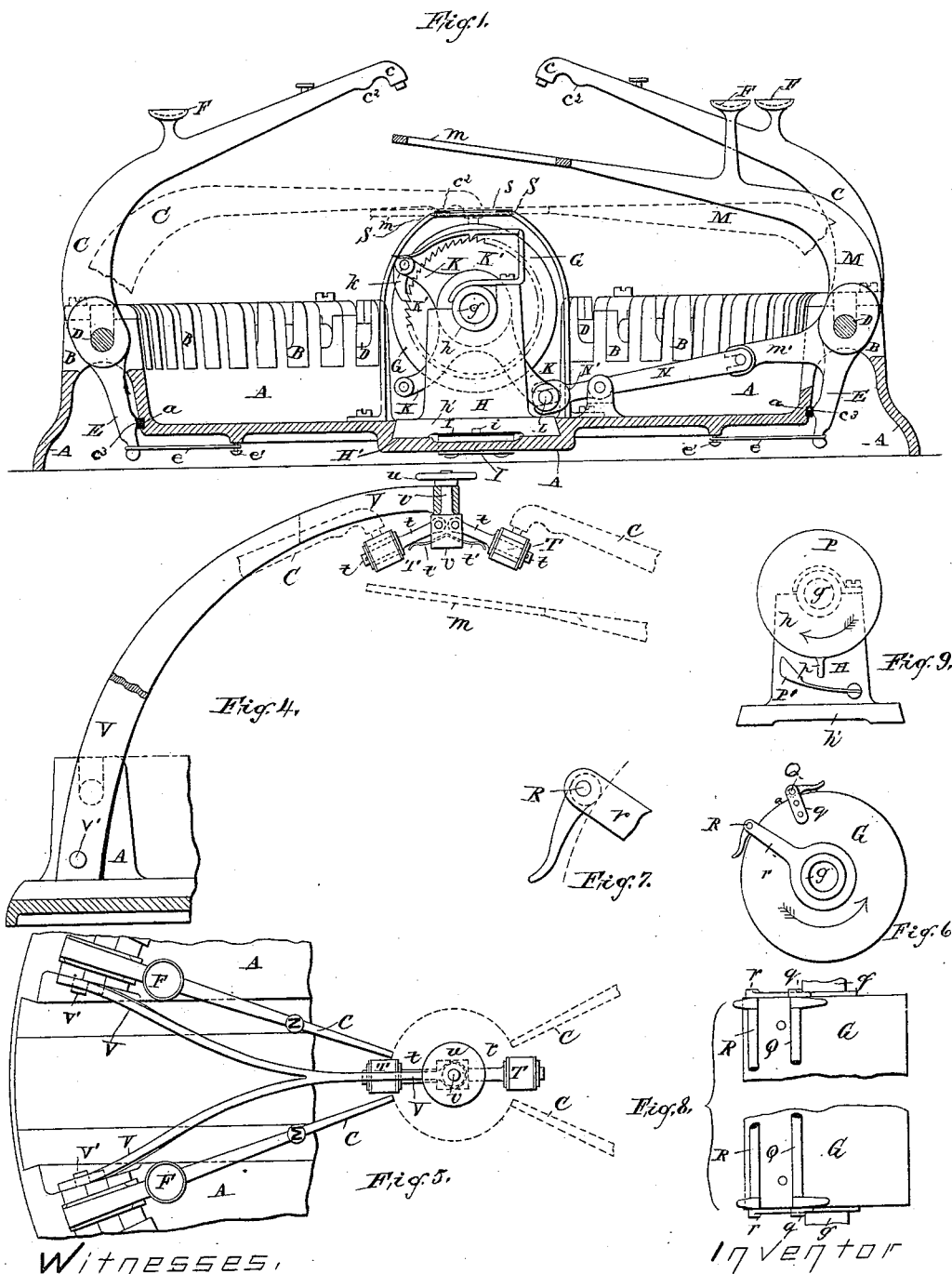
(No Model.)

2 Sheets—Sheet 1.

F. MYERS.  
TYPE WRITING MACHINE.

No. 419,278.

Patented Jan. 14, 1890.



WITNESSES,

*W. J. Morgan*  
*W. J. Morgan*

*Fred K. Myers*  
*By A. P. Shayer*  
*att'y*

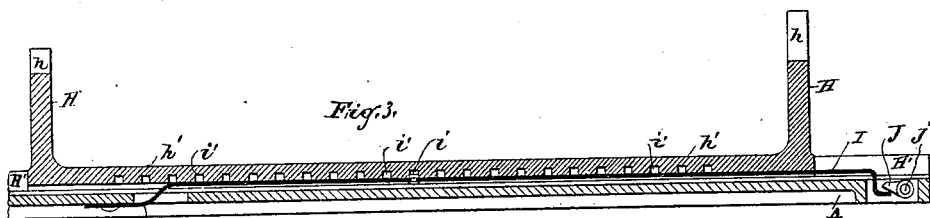
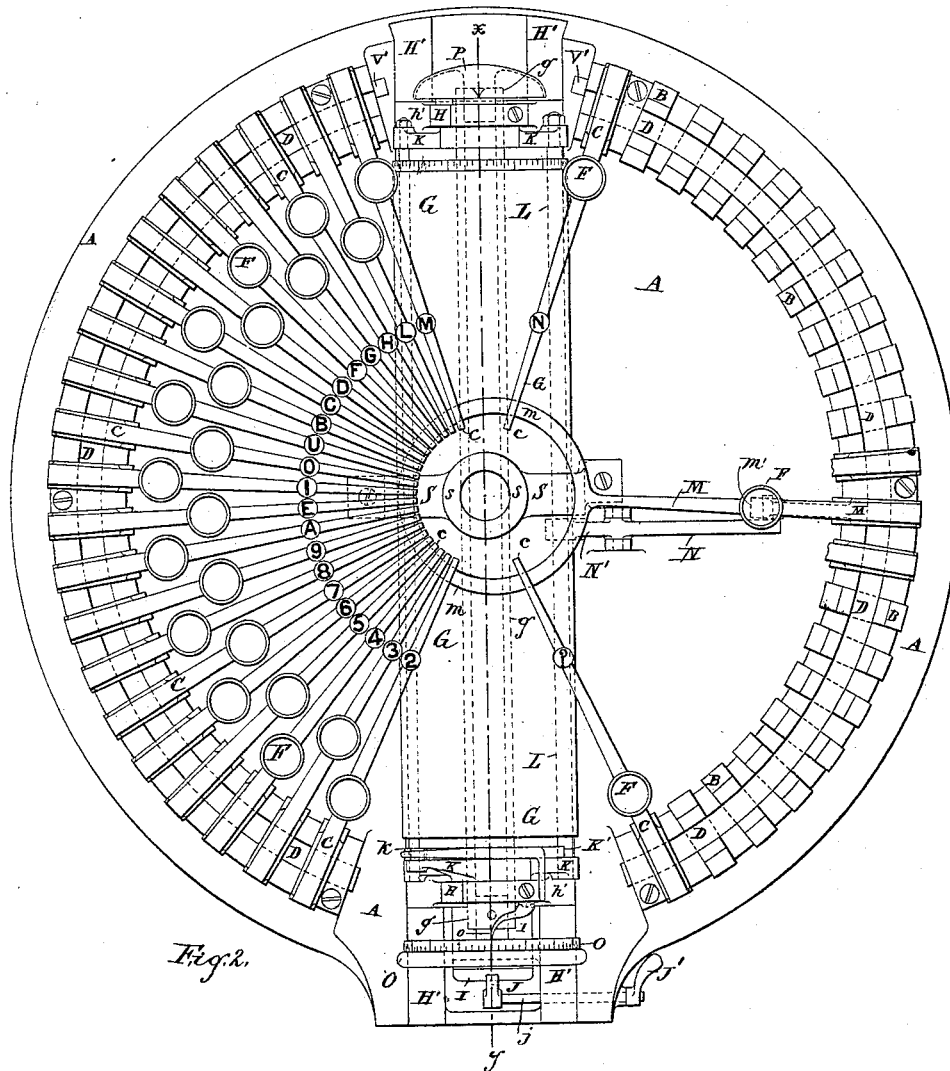
(No Model.)

F. MYERS.  
TYPE WRITING MACHINE.

2 Sheets—Sheet 2.

No. 419,278.

Patented Jan. 14, 1890.



Witnesses,

*W. H. Morgan*  
*S. H. Morgan*

Inventor

*Fred. Myers*  
*By A. P. Thayer*  
*att'y.*

# UNITED STATES PATENT OFFICE.

FREDERICK MYERS, OF NEW YORK, N. Y., ASSIGNOR TO THE MERCURY TYPE WRITING MACHINE COMPANY, (LIMITED,) OF LONDON, ENGLAND.

## TYPE-WRITING MACHINE.

SPECIFICATION forming part of Letters Patent No. 419,278, dated January 14, 1890.

Application filed January 4, 1887. Serial No. 223,407. (No model.) Patented in England June 21, 1886, No. 8,198; in Austria-Hungary, No. 47,574 and No. 8,247; in France December 7, 1886, No. 180,125; in Belgium December 7, 1886, No. 75,515, and in Germany December 7, 1886, No. 41,405.

*To all whom it may concern:*

Be it known that I, FREDERICK MYERS, a citizen of the United States, and a resident of New York city, county and State of New York, but temporarily residing at Liverpool, England, have invented new and useful Improvements in Type-Writing Machines, (which invention has been patented to me in England, No. 8,198, June 21, 1886; Austria-Hungary, No. 47,574 and No. 8,247; France, No. 180,125, December 7, 1886; Belgium, No. 75,515, December 7, 1886, and Germany, No. 41,405, December 7, 1886,) of which the following is a specification.

This invention relates chiefly to that class of type-writers in which the type are carried or actuated by levers arranged radially round a common center, and is designed with the object of producing a machine in which the operator will act or press directly upon the type-carrying lever without the intervention of any secondary or connecting lever, and also with the object of producing a strong, simple, efficient, and reliable machine of that kind. It will be best described by reference to the accompanying drawings, in which—

Figure 1 is a sectional elevation of the machine with parts removed; Fig. 2, plan of same; Fig. 3, sectional elevation of the frame and paper-carriage on line *x y*; Fig. 4, side elevation of inking device, with the bracket for carrying same; Fig. 5, plan of the part represented in Fig. 4; Fig. 6, an end elevation of the paper-carrying roll, showing paper-gripping devices; Fig. 7, enlarged detail of paper-gripping device; Fig. 8, plan of paper-gripping device and roller; Fig. 9, an elevation of the bell at back of the paper-carrying roller, with pin for actuating the striking-hammer.

A is a frame-work or base, preferably made of cast-iron, which carries the movable and working parts of the apparatus. It is circular, or approximately so, and has formed in its marginal rim a number of pivot recesses or bearings B, wherein the pivots of the type-carrying levers C are supported. Each lever

C carries a separate type, letter, figure, symbol, or other character to be printed.

The type-levers C are elbowed or curved, as shown, so that while the lower arms E extend down through the base-plate the type-carrying end shall project up over so as to swing down on the paper-carrying roller, hereinafter described. They are arranged radially in the base or frame A, and pivoted on a circular bar or wire D, or it may be on a number of pivots or pins, so that the type-end *c* of each shall, when pressed down, cover one common center, and are preferably pivoted at or near the lower end. Below the pivot and to the short arm E of each is attached any suitable spring—such as an india-rubber ring *e*—for the purpose of raising the lever after it has been depressed. The spring is attached to a pin *e'* or similar projection fitted to the frame A. F is a key or finger-plate carried by each type-lever, by pressing on which with the finger the operator depresses the lever. The letter or character carried by the lever may be represented on the finger-plate; but I prefer to place the representation of the letters and characters nearer the ends of the levers, as shown, so as to lie closer together, as in that position they will be more easily seen by the operator, and should the operator strike a wrong key or be uncertain as to the one struck the letter can be read without raising the hand or finger from the key. The type is affixed to the end of the lever at *c*, and the letter or character may be cast or engraved thereon. It may be cast in india-rubber or type-metal, or formed in any other suitable way and affixed to the end of the lever C.

In Fig. 1 two only of the type-levers C are shown in order to show more distinctly their position.

G is a roller by which the paper to be written or printed upon is carried. It is preferably made of cork or other stiff, yielding, or elastic substance, so that the constant striking upon it will not injure the type carried by the levers C. *g* is a rod or spindle through

the center of the roll G, to which it is attached, and forming at the ends pivots upon which the roller revolves. The bearings *h*, in which the pivots *g* revolve, are carried by brackets 5 *H*, one at either end of the roller G. The brackets *H*, in combination with the connecting-plate *h'*, form a carriage which carries the roller G and the paper thereon, which carriage is fitted into a slideway *H'*, running from 10 back to front of the base A. The carriage is free to move in this slideway, and to it, with the roller G, may be imparted a motion in either direction parallel to the longitudinal axis of the roller. Below the roller-frame is 15 placed a flat steel spring I, carrying a pin *i*, and in the under side of the carriage-plate *h'* are drilled a number of holes *i'*, with which the pin *i* engages, holding the roller-carriage and the roller G in any desired position. By 20 depressing the spring I the pin *i* is released from the hole *i'* to allow the roller to be moved in either direction.

J is a cam or finger on spindle *j*, by which the spring I is depressed when the operator 25 presses down the thumb-lever J'. The distance between each of the holes *i'* is equal to the distance required between the lines of the writing or printing.

The roller G is moved the distance between 30 one hole and the next at the completion of every line. When in operation, the roller G turns axially for each letter written and is moved longitudinally for each line. Graduations may be marked on the spring I or on 35 the frame-plate *h'* to indicate to the operator the number of the line from the top of the page at which the machine is writing. On the spindle at one end (preferably the front end) of the roller G is loosely placed a pawl- 40 carrying device or bracket K. This bracket carries pawl *k*, which meshes with the teeth or circular rack K', attached to end of roller G.

L is a rod fixed to the bracket K and to a similar bracket at the other end of the roller- 45 carrying frame, so that at any point along the length of the roller this rod may be operated upon to actuate the pawl *k* and turn the roller G.

M is a lever somewhat similar in shape to 50 the type-carrying levers C and pivoted with them to the base-frame A. At its upper or top end it is formed in the shape of a ring or hoop *m* and at its lower end *m'* projects inward to engage with a pivoted lever N. This lever 55 has a forked end N', which engages with the rod L, and through which the rod is free to move longitudinally, so that any motion of the lever N is felt on the rod L and pawl *k* irrespective of the position of the roller G 60 longitudinally. The depression of the lever M actuates the pivoted lever N and its forked end N', thus conveying motion to the pawl *k* and turning the roller G about its axis a certain distance. The lever M is fitted with a 65 key similar to those on the type-levers, and may thereby be depressed at will by the operator, and in addition it is depressed by each

type-lever C through the medium of ring *m* as the lever is pressed down to touch the paper. The type end of the lever passes through 70 the ring *m*, the lever comes in contact with the edge of the ring, and the two are carried down together. By this motion at each stroke of the type-levers the paper-roll G is carried round by the pawl *k* the space of one letter. 75 To space between the words, the lever M is depressed by the finger of the operator.

The dotted lines in Fig. 1 show the position of levers C and M when depressed. The spacing-lever M is returned to position of 80 rest by a spring in same manner as the type-levers C. If preferred, the pawl-carrying device may be actuated in the direction opposite to the direction in which the paper travels—that is to say, retracted by the lever and 85 be thrust forward to shift the roller by a spring, the pawl coming into action and the paper-carrier being moved during the return of the type-levers C or spacing-lever M to their position of rest. 90

O is a small hand-wheel on the end of the spindle *g* of the roller G, by means of which the paper-roller G may be turned into any position. It is preferably graduated or 95 marked, so that any mark coming opposite the index-pointer *o* will indicate the number or position in the line of the last letter written.

P is a warning-bell fixed to the spindle *g* and revolving with it. The projecting pin or 100 tappet *p* actuates the hammer P' each time the bell revolves, and indicates when the end of the line is nearly reached. The bell may be shifted circumferentially on spindle *g*. By altering the position of the bell on the 105 spindle *g* it can be made to indicate the approach of the end of a line of any given length.

The sheet of paper is held in position on the roller by means of two eccentric clips Q 110 R. The edge of the sheet of paper is slipped under the rod or holder Q, which is set eccentrically in the brackets *q*, fixed to the ends of the roller and clamped by it. The clip R, which is carried by the movable arms *r*, is 115 then brought over the other edge of the paper, which is secured thereby. A sheet of paper of larger or smaller size may thus be used on the same roller.

S is a plate or shield on which the projections *c*<sup>2</sup> on the levers C rest when the levers 120 have been depressed the required distance, so that the type may not be brought with too great force or pressure on the roller.

*s* is a ring or buffer, of india-rubber or elastic material, on top of S, against which the 125 levers strike.

*a* is a rubber or other soft or elastic buffer, against which the projecting parts *c*<sup>3</sup> of the 130 levers C strike when returning to the normal position. These buffers prevent noise and jar.

The ink is preferably carried on two small rollers T, mounted on spindles *t*, hinged or

pivoted to a vertical stem or spindle of a button *u*, which is carried in a bearing on the end of a bracket *V*. By turning the button *u* on the top of the spindle with the hand the rollers *T* are brought in contact successively with each of the letters. The springs *t'* keep them up to the face of the letters. The bracket *V* is shown only in Figs. 4 and 5. It is held in position by the stud-pins *V'*, on which the holes in the forks *v* near the ends of the bracket are fitted. The spring of the fork keeps it steady by frictional contact with the base-frame lugs holding the stud-pins. Instead of this device the ink may be carried on a band or ribbon coiled upon a reel or roller at one side of the paper-carrying roller and passed from it over one or more carrying or guide rollers to a second reel, upon which it will be slowly wound a little at each stroke of the type-levers. As such inking ribbons are commonly arranged, it will pass in close proximity to the paper without actually touching it, the type forcing it against the paper, and will be wound onto the second reel by means of a pawl connected to the spacing-lever working into teeth on the end of the reel.

The operation of the apparatus is very simple. The sheet of paper having been secured in position on the paper-carrying roller *G*, the type-lever *C*, carrying the particular letter or character required, is depressed until it reaches the guard *s* and the letter strikes the paper. The depressing of the lever *C* also presses down the spacing-lever *M*, which, acting on the pawl and roller, carries the paper forward the space of one letter. At the end of each word the spacing-lever *M* is depressed alone. When the end

of the line is reached, the bell *P* rings. The roller *G* is then turned back by the hand-wheel *O*, the spring *I* depressed, and the roller moved longitudinally until the pin *i* engages in the next hole. The paper is then in position to begin a fresh line, and so on.

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

1. The combination, with the system of type-carrying elbow-levers pivoted in the circular marginal rim of the base and having the type on the long arms, which are convergent downward to the printing-point, and also having the rigid finger-plate on the back between the type and the pivot, of the feed-lever also pivoted in the circle of the type-levers and having the ring subject to action of the type-carrying arms of the type-levers, substantially as described.

2. The combination, with the paper-roller carriage arranged in the slideway of the base-plate and having the stop-sockets in its lower side, of the stop-spring and stop located in the carriage-way below the carriage, and the tripper and trip-lever arranged at the end of the carriage-way and with the free end of the stop-spring, substantially as described.

3. The combination, with the paper-roller, of the eccentric grip-roller fixed in stationary arms of the roller, and the eccentric grip-roller fixed in arms that are movable about the axis of said roller, substantially as described.

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

FREDERICK MYERS.

Witnesses:

WM. P. THOMPSON,  
J. OWDEN O'BRIEN.