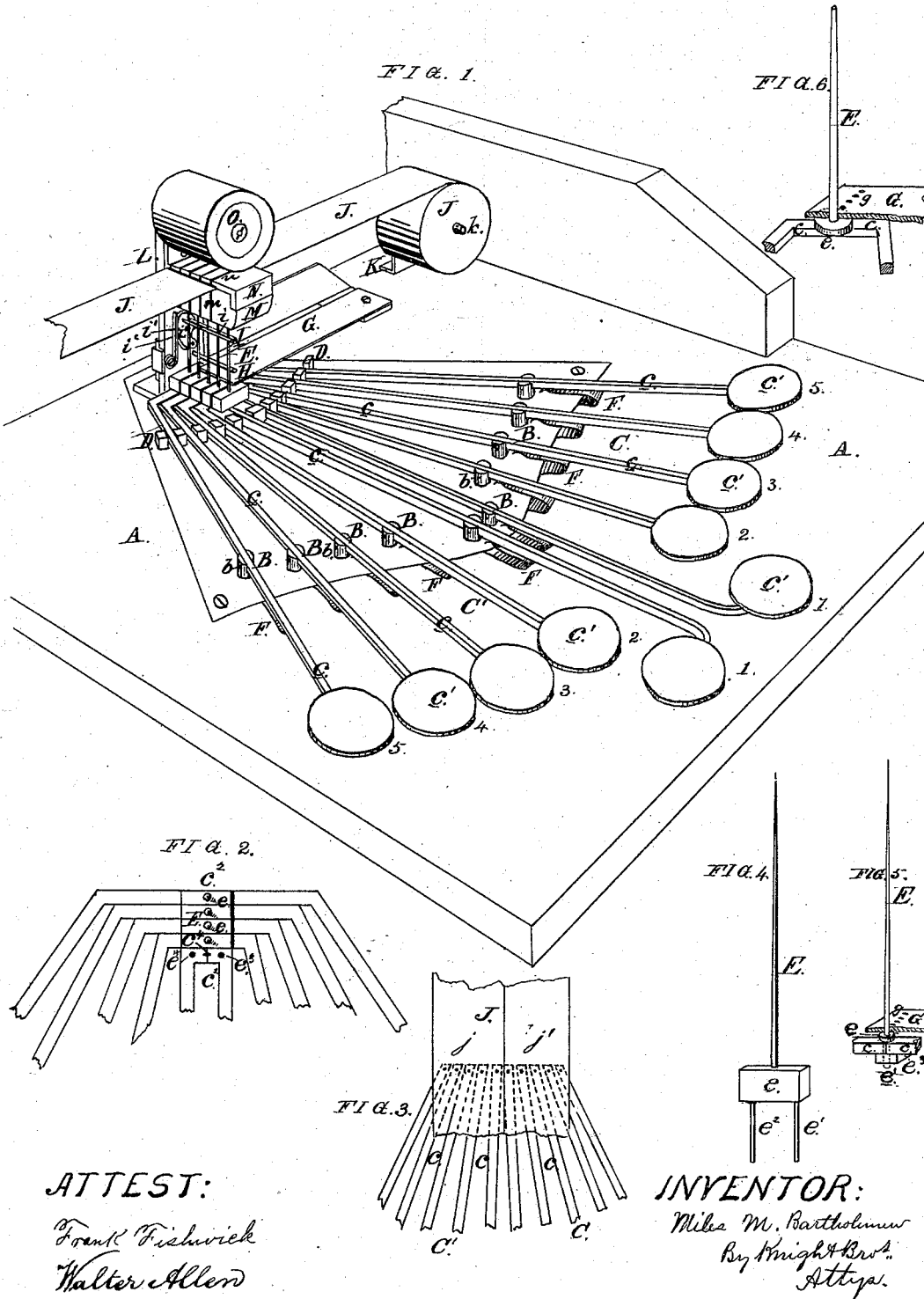


M. M BARTHOLOMEW.  
Type-Writing Machine.

**No. 215,554.**

Patented May 20, 1879.



# UNITED STATES PATENT OFFICE.

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## IMPROVEMENT IN TYPE-WRITING MACHINES.

Specification forming part of Letters Patent No. **215,554**, dated May 20, 1879; application filed September 9, 1878.

*To all whom it may concern:*

Be it known that I, MILES M. BARTHOLOMEW, of Belleville, St. Clair county, in the State of Illinois, have invented a certain new and useful Improvement in Stenographic Machines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My improvement consists in the provision, in a stenographic machine, of two sets of keys, preferably five in each set, one key for the thumb and one for each of the fingers. The two thumb-keys are in constant mechanical connection with a single perforating-needle or other marker, and the two forefinger keys are in like manner in communication with another single marker, and so on with the other keys, one key of each set being paired with one of the other set to operate the same marker. The markers may be uniform with each other in construction, so as to make a precisely similar impression on or perforation in the paper, their relative position and number alone indicating the letter, or they may have various marks.

The improvement also consists in the combination, with the keys and perforating-needles or markers, of plates slotted to receive and guide said markers during the forward movement of the ribbon.

In the drawings, Figure 1 is a perspective view, showing the novel features of the machine. Fig. 2 is a top view of the needles with the adjacent part of the keys on needle being removed. Fig. 3 is a diagram illustrative of a modification. Fig. 4 is a perspective view of a needle enlarged. Figs. 5 and 6 are detail perspective views, showing modifications of the needles.

The machine may have any suitable case, but, as this has no bearing on the points of novelty claimed, it is not shown.

A is the base; B B, &c., are a number of posts or standards forming the fulcrums of the keys. The keys are in two complete sets, C C', one set for the right hand and the other for the left hand.

The keys consist of rods or stems *c*, with finger-pieces *c'*, that may be nearly or quite cir-

cular, as shown, or shaped like the finger-pieces of a piano-key or of any suitable form.

The rods *c* are supported on the fulcrum-pins *b* passing through them and through the posts B, said posts having slots to receive the rods, and acting as guides to prevent horizontal oscillation. The rods *c* may also be guided near their inner ends by guides D.

The guides D may consist of a number of uprights or posts, as shown, or of a single plate slotted for the passage of the rods.

I prefer to bend the rods *c* near the ends, as shown in Figs. 1 and 2, so that the ends will meet at a medial line, *c''*; but they may be made to converge, as shown in Fig. 3, the rods in the latter case being straight. Over the medial line *c''* are the needles E.

The needle shown in Figs. 1, 2, and 4 has, at the lower end, a block, *e*, from which descend two pins, *e'* *e''*, one of the pins resting in a hole, *e'''*, of one of the keys of set C, and the other pin resting in the hole *e''''* of the fellow-key of the set C'. Thus the blocks *e* form the connections between the two sets of keys.

To enable a clear understanding of the construction and operation of the machine, I have marked the two thumb-keys 1 1, those for the forefingers 2 2, and so on. Each block *e* connects together the two keys of the same number.

The outer ends, *c'*, of the keys are held up by springs F beneath them. Resting on the blocks *e* is a spring, G, which assists to carry the needles down as the keys descend. The upward movement of the spring is limited by a pin, H. The pin H thus limits the upward movement of the needles.

The needles extend up through a spring-guide, I, which restores them to their upright position after they have been drawn over by the ribbon while the points are engaged with said ribbon. This guide consists of two parallel wires or a slotted plate, *i*, attached to a pivoted plate, *i'*, acted on by any suitable spring, as *i''*, to carry the needles back into the vertical position when they descend from the paper ribbon J. I have used a spiral spring to draw back the plate *i*, but any form of spring may be used.

The roll of paper ribbon is shown supported

on an arbor, *k*, and bracket or standard *K*. The other end of the ribbon may be connected with clock-work or any suitable motor to cause the movement of the ribbon. No novelty is claimed in the manner of moving the ribbon.

The spring-guide *I* is supported on a standard, *L*, to which is firmly attached a slotted block, *M*, having a slot, *m*, for each of the five needles *E*. The slots *m* are so formed as to guide the needles upon three sides, but on the other side to allow the forward movement caused by the forward movement of the ribbon. The ribbon passes over the top of the block *M* and beneath a plate, *N*, having slots *n*, similar to those *m*. The needles, in ascending, carry the ribbon up against the plate *N*, and then pass through it. Above the plate *N* is a roller, *O*, whose circumference may consist of a proper substance to carry ink or other coloring material, or which may be a mere pressure-roller with a soft surface, to press down on an inked ribbon. The purpose in either case is to put color upon the ends of the needles, which will be communicated to the paper ribbon and serve to make the perforations of the needles more noticeable.

The five keys of either set, *C* or *C'*, admit of so many changes in the perforations of the ribbon as to enable the writing of any sentence, and the two sets of keys are provided to enable the operator to work with greater speed by using the right and left hand alternately.

In the modification shown in Fig. 3 each key is provided with a separate needle and the paper ribbon made sufficiently wide; but the same system is adopted, the letters being marked alternately on the different portions *j j'* of the ribbon *J*.

In the modification of the needle shown in Fig. 5 it has a flat collar, *e*, in place of the block *e* of Fig. 4, and a single guide-pin, *e'*, which passes down through the hole *e'* be-

tween the two keys. This hole is shown in Fig. 2, where one of the needles is removed to show this hole and likewise those *e'*<sup>3</sup> *e'*<sup>4</sup>. In this modification, Fig. 5, the guide-pin *e'* may pass through the fixed guide-block *e'*<sup>3</sup>, and the needle may be also guided by passing through holes *g* in the spring *G*.

In the modification shown in Fig. 6 the guide-pin *e'* is dispensed with, and the button or collar may be extended to act as a steadier or guide. This needle, like that in Fig. 5, passes through guide-hole *g*.

I would remark, in relation to all the guide-holes, that they are large enough to allow the needles side movement as their points are carried forward with the ribbon when the points are inserted in it. The fit of the pins *e'* *e'*<sup>2</sup> is so loose in the guide-holes as to allow the independent movement of the two keys, which are arranged to act on the same needle.

The main feature of my invention, as set forth in the first part of the statement and in the first and second clauses of the claim, is applicable not only to needles, for it may be associated with other markers, such as plain-ended pins, to mark the paper ribbon *J* by means of an inked ribbon, or type-faced pins to ink or impress the ribbon *J*.

I claim as my invention—

1. The combination, in a stenographic machine, of the two sets of keys *C C'*, arranged in pairs 1 1 and 2 2, &c., and a series of needles or markers, each of which is in mechanical connection with a pair of keys, substantially as and for the purpose set forth.

2. The combination, with finger-keys *C*, of the needles *E* and slotted plates *M* and *N*, substantially as set forth.

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Witnesses:

SAML. KNIGHT,  
GEO. H. KNIGHT.