

J. C. HEATER.  
TYPE WRITER FOR THE BLIND.  
APPLICATION FILED MAR. 28, 1910.

980,778.

Patented Jan. 3, 1911.

2 SHEETS—SHEET 1.

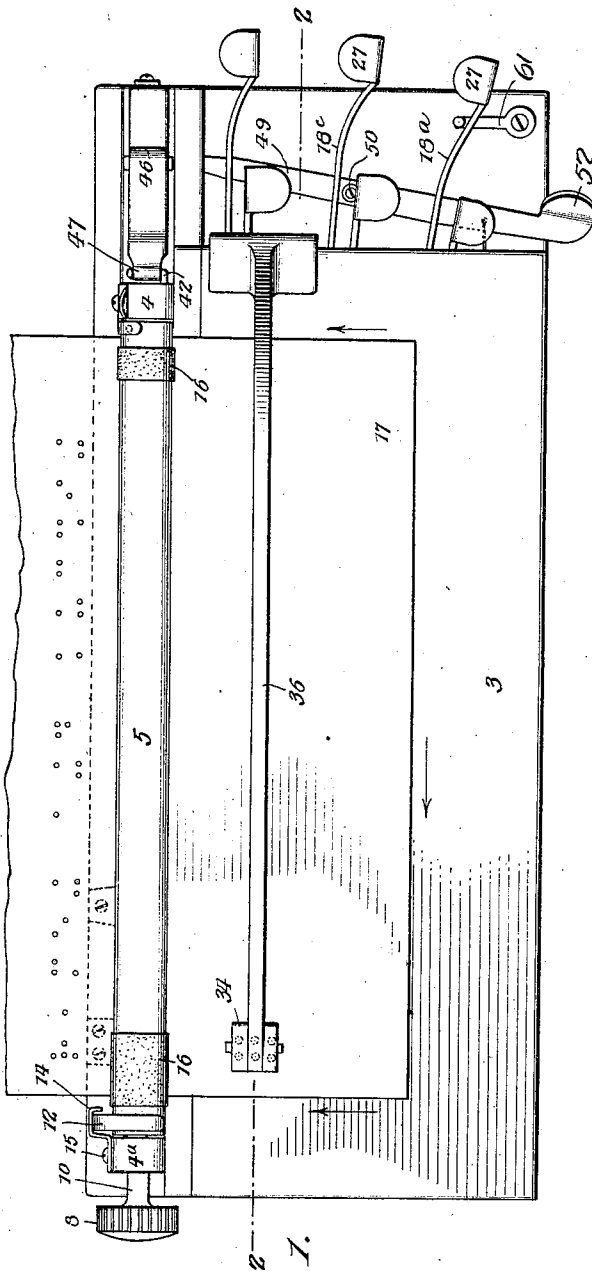


Fig. 1.

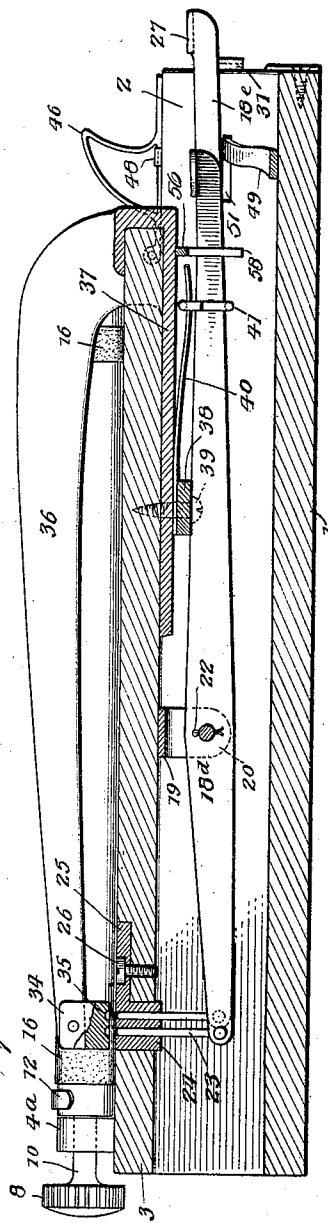


Fig. 2.

WITNESSES:

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C. E. P. minor

INVENTOR  
JOHN C. HEATER,  
BY *Munn & Co.*

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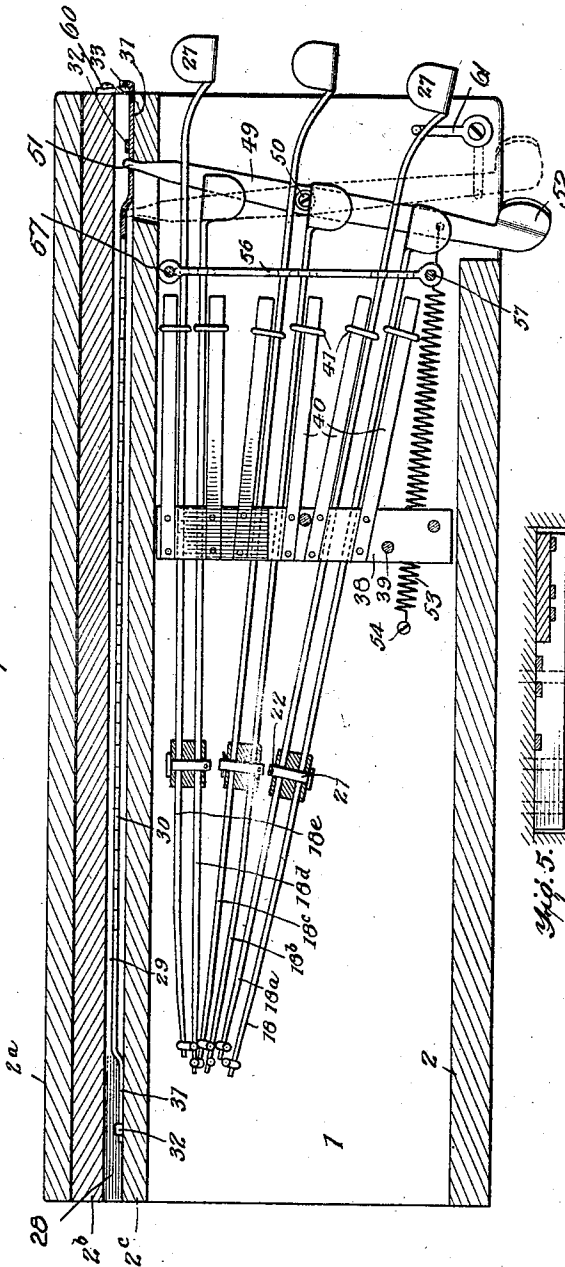
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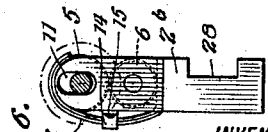
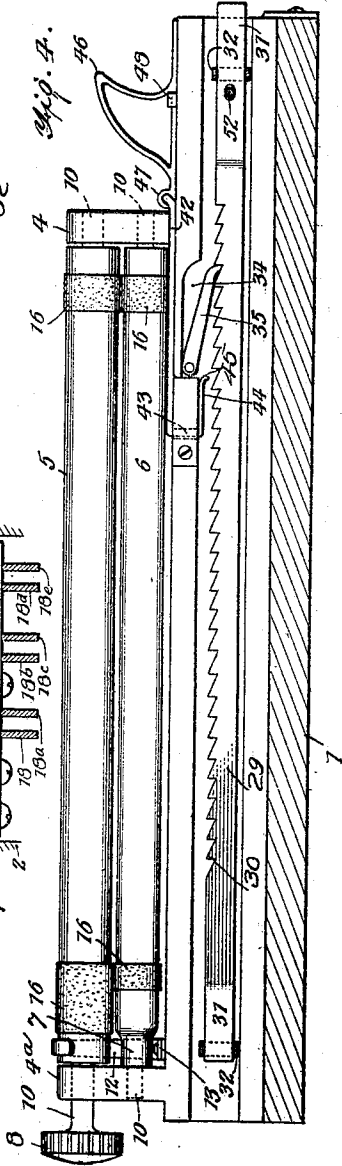
Fig. 3.



WITNESSES:

L. H. Schmidt  
 C. E. Trainor

Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOHN CALVIN HEATER, OF JOLIET, ILLINOIS, ASSIGNOR OF ONE-HALF TO ARTHUR B. COWING, OF JOLIET, ILLINOIS.

TYPE-WRITER FOR THE BLIND.

980,778.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed March 28, 1910. Serial No. 551,853.

*To all whom it may concern:*

Be it known that I, JOHN CALVIN HEATER, a citizen of the United States, and a resident of Joliet, in the county of Will and State of Illinois, have made certain new and useful Improvements in Type-Writers for the Blind, of which the following is a specification.

My invention is an improvement in typewriters, and consists in certain novel constructions, and combinations of parts hereinafter described and claimed.

The object of the invention is to provide a typewriter especially designed for the use of the blind, and wherein the printed matter will be in the Braille characters and will read in the usual direction.

Referring to the drawings forming a part hereof, Figure 1 is a plan view of the improvement, Fig. 2 is a section on the line 2-2 of Fig. 1, Fig. 3 is a longitudinal section, Fig. 4 is a rear view, Fig. 5 is a partial transverse section, and Fig. 6 is an end view of the carriage.

As is known the characters of the Braille alphabet, the numerals, and the punctuation marks are formed by different arrangements of six points, and the writing is read by passing the fingers over the points. The ordinary method of writing is by means of a folding ruler, composed of two sections, one section having four rows of square openings notched on two sides to form a guide for a stylus, and the openings register with depressions on the other section, when the sections are folded.

In use, the sheet of paper is placed between the sections of the ruler, and the stylus is forced against the paper through the openings, from right to left, each character being formed by the proper grouping of the points. When completed the paper is reversed, and the writing may be read by passing the fingers over the embossed points from left to right. The printing however, that is, the formation of the characters must be from right to left, the reverse of the natural method, which is from left to right, and the many disadvantages of the method will be obvious.

The embodiment of the invention shown in the drawing which is designed to overcome the difficulty, consists of a base 1, of wood or other suitable material, having at

each side edge an upwardly extending flange 2 and 2<sup>a</sup> which are connected by a top plate 3, a species of case being thus formed, in which a portion of the mechanism is mounted. A bar 2<sup>c</sup> is arranged inside of the flange 2<sup>a</sup> and in spaced relation and substantially parallel therewith, and a third bar 2<sup>b</sup> is arranged in the space between the bar 2<sup>c</sup> and the flange 2<sup>a</sup>, the said bar 2<sup>b</sup> being slidable and acting as the carriage.

A pair of brackets 4 and 4<sup>a</sup> is secured to the top of the bar 2<sup>b</sup>, one near each end, the bracket 4 being near the right end of the case, and the bracket 4<sup>a</sup> at the left end, and each bracket is provided with a plurality of openings or bearings, in which are journaled upper and lower rollers 5 and 6, the said rollers having trunnions 10 engaging the bearings. The lower roller 6 is provided with a reduced portion 7 adjacent to the bracket 4<sup>a</sup>, and the trunnion 10 of the upper roller is extended beyond the said bracket, and provided with a corrugated or knurled knob or head 8. The upper bearing 11 of the bracket 4<sup>a</sup> for the trunnion of the upper roller is elongated vertically in the form of a slot, and a spring 12, consisting of a plurality of leaves is secured at one end to the top of the case by a screw 13, and the other end hooks over the upper roller adjacent to the bracket 4<sup>a</sup>. A brace 14 engages the spring at approximately its center and is secured to the bracket 4<sup>a</sup> by a screw 15.

Each roller 5 and 6 is provided near its ends with annular strips or bands 16 of material having a high coefficient of friction, and the sheet 17 of paper or other material to be impressed passes between the rollers. The upper roller may be lifted slightly to permit the insertion of the sheet, and the sheet may be moved by turning the rollers, both operations being performed with the knob 8. The characters are impressed on the sheet, by means of six levers 18, 18<sup>a</sup>, 18<sup>b</sup>, 18<sup>c</sup>, 18<sup>d</sup> and 18<sup>e</sup>, the levers being arranged in pairs, the members of each pair being pivoted on a common support. Each support consists of a base 19, secured to the under face of the top in any suitable manner, and having three depending lugs 20. The lugs are provided with registering transverse openings, and the levers with similar openings and are arranged between the lugs and a pin 21 passes through the

openings, the opposite end of the pin from the head having a transverse opening, through which passes a cotter pin 22. A link, rod, or pin 23 is pivoted to the rear end of each lever, and the free end of the rod extends upwardly through an opening in a block 24, which is set in an opening in the top, and is provided with a lateral flange 25, countersunk into the upper face of the top, and secured to the top by a screw 26. When the front end of a lever is depressed, the pin or rod is moved upwardly, and the extremity thereof is shaped to form the point on the sheet. The opposite ends of the levers extend beyond the top, which as shown in Fig. 1 is of lesser length than the base. One member of each pair of levers is of greater length than the other member, and the front end of each is provided with a lateral flange 27 forming a key. Owing to the arrangement of the bars just described, the keys are arranged in two transverse rows of three each, one row just beyond the edge of the top and the other row just beyond the edge of the base at the right of the case.

The rods or pins are so arranged with respect to each other in the block that when a key is operated, the pin will make an impression at the correct relative point. When all of the keys are depressed at once, six points are made on the paper, appearing in two vertical rows of three each or three horizontal rows of two each, and the arrangement of the keys corresponds to the arrangement of the points, as will be evident from an inspection of Fig. 3.

To correctly place the points of the pins or rods, some of them are necessarily offset as will be evident from an inspection of Fig. 3. In forming for instance, the first character at the left of Fig. 1, the upper left, middle left, middle right, and lower left keys are depressed. Thus the selection of the proper keys offers no difficulty.

To make a clear impression, some counter-pressure is necessary, and for this purpose, a block 34 is arranged above the block 24, having in its lower face, recesses 35 registering with the points of the pins or rods and receiving them when they are moved upwardly. The block is pivoted to the end of an arm 36, which overhangs the top of the case longitudinally, the opposite end of the arm being secured to a bracket plate 37, which engages the under face and edge of the top. The lower face of the block is spaced sufficiently above the upper face of the block 24, to permit the free movement of the paper. A bar 38 is arranged transversely of the under face of the top, being secured thereto by screws 39, and a plurality of leaf springs 40 each have one end inserted beneath the bar, are held fixed against the under face of the top. The free ends of the springs pass through stir-

ruprs 41 on the levers 18, 18<sup>a</sup>, etc., the springs acting normally to retain the pins or rods in depressed position.

The bar 2<sup>b</sup> as shown in Fig. 6 is provided in one side with a longitudinal recess 28, and a ratchet bar 29 is arranged in the recess, the teeth 30 of the bar pointing to the left, and the ends 31 being offset laterally, and slidably secured to the bar 2<sup>c</sup> by bearings 32. The end of the bar at the right of the case extends slightly beyond the end of the same, and is provided with a lateral or angular portion 33. Near one end the bar 2<sup>b</sup> is provided on its under face with a recess 34, in which is pivoted a pawl 35, which engages the teeth of the ratchet bar, and the pawl is operated by means of a slide 42 on the top, having an angular portion 43 passing through a slot in the top, and provided with a return portion 44, which when the slide moves to the left engages and lifts the pawl out of contact with the teeth. The free end of the return portion is inclined downwardly as shown at 45, and the slide is operated by a finger piece or trigger 46, pivoted to the end of the slide at 47, and moving in a bearing 48 in the top. When the pawl is lifted the carriage may be returned to the right, and it is moved to the left in a stepwise manner by the following mechanism. A lever 49 is pivoted by its center to the base by a screw 50, and the rear end of the lever engages an opening 51, in the ratchet bar. The front end is provided with a key 52, and the lever is normally retained in the full line position of Fig. 3, by the spring 53, connected with the lever at one end, and with a screw 54 on the base at the other end. When the bar is swung to the right, as shown in dotted lines in Fig. 3, the ratchet bar is moved to the left, and since the pawl is in engagement with the bar, the carriage is also moved. A full movement of the lever moves the carriage a single space, as between characters, while two movements is required for a space between words. A guide bar 56 is arranged transversely of the top near the free ends of the key levers, being secured to the under face of the top by screws 57 and the bar is provided with a plurality of depending lugs 58, each engaging the sides of a lever. When the carriage is at the end of its movement to the left, the angular portion 33 of the bar 29 engages a lug 60 on the bar 2<sup>b</sup>, and stops the carriage, after which it is returned by the finger piece 46. The lever 49 may be locked in the dotted line position by a catch 61 if desired.

I claim:

1. A typewriter, comprising a case, a carriage movable longitudinally of the case, means for moving the carriage, pair of superposed rollers journaled on the carriage longitudinally of the case, a block set in the top of the case adjacent to the rollers and at the left end of the case, said block

having a plurality of vertical openings, pins movable through the openings, keys at the right end of the table for moving said pins, said pins and keys being arranged in two transverse rows, and the position of each key with respect to the other keys corresponding to the position of the pin operated thereby with respect to the other pins, means for normally retaining the pins depressed, and a block supported above the first named block and having recesses corresponding in number and position to the number and position of the pins.

2. A typewriter, comprising a case, a carriage movable longitudinally of the case, means for moving the carriage, a pair of superposed rollers journaled on the carriage longitudinally of the case, a block set in the top of the case adjacent to the rollers and at the left end of the case, said block having a plurality of vertical openings, pins movable through the openings, keys at the right end of the table for moving said pins, said pins and keys being arranged in two transverse rows, and the position of each key with respect to the other keys corresponding to the position of the pin operated thereby with respect to the other pins, means for normally retaining the pins depressed, and means for making counter-pressure against the pins.

3. A typewriter, comprising a case, a car-

riage movable longitudinally of the case, means for moving the carriage, a pair of superposed rollers journaled on the carriage longitudinally of the case, a plurality of pins movable vertically through the top of the case at the left end thereof, said pins being arranged in regular order, keys at the right end of the case for operating the pins, and means for normally retaining the pins depressed, the position of each key with relation to the other keys corresponding to the position of the pin operated thereby with respect to the other pins.

4. A typewriter comprising a case, a plurality of vertical movable pins at the left end of the case, said pins being arranged in regular order, a key at the right of the case for operating each pin, means for normally retaining the pins depressed, means for making counter-pressure against the pins, means for supporting a sheet of paper between the pins and the said means for making counter-pressure, means in connection with the supporting means for moving the paper transversely to the case, and means for moving the supporting means intermittently from the keys toward the pins.

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Witnesses:

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