

May 21, 1935.

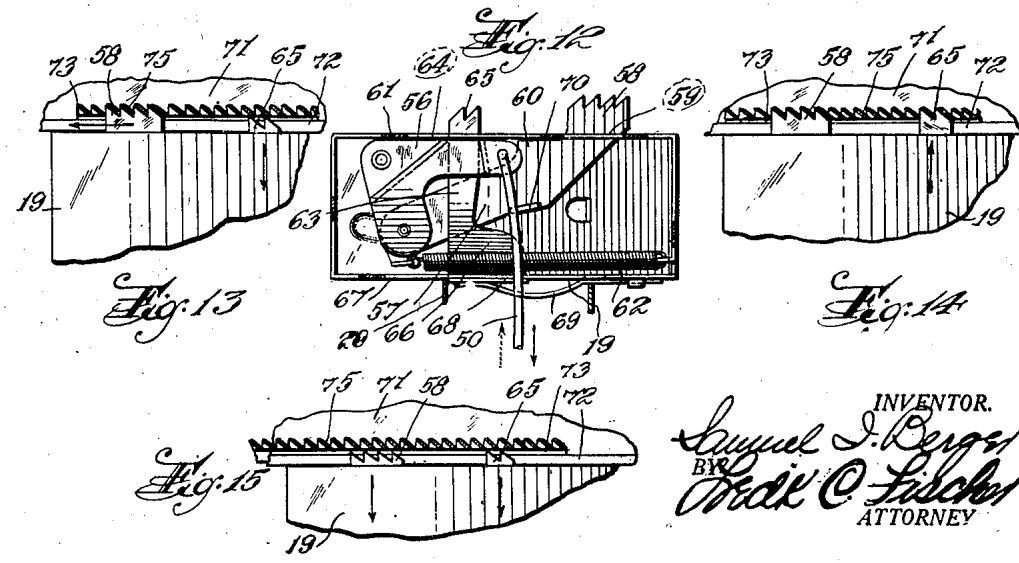
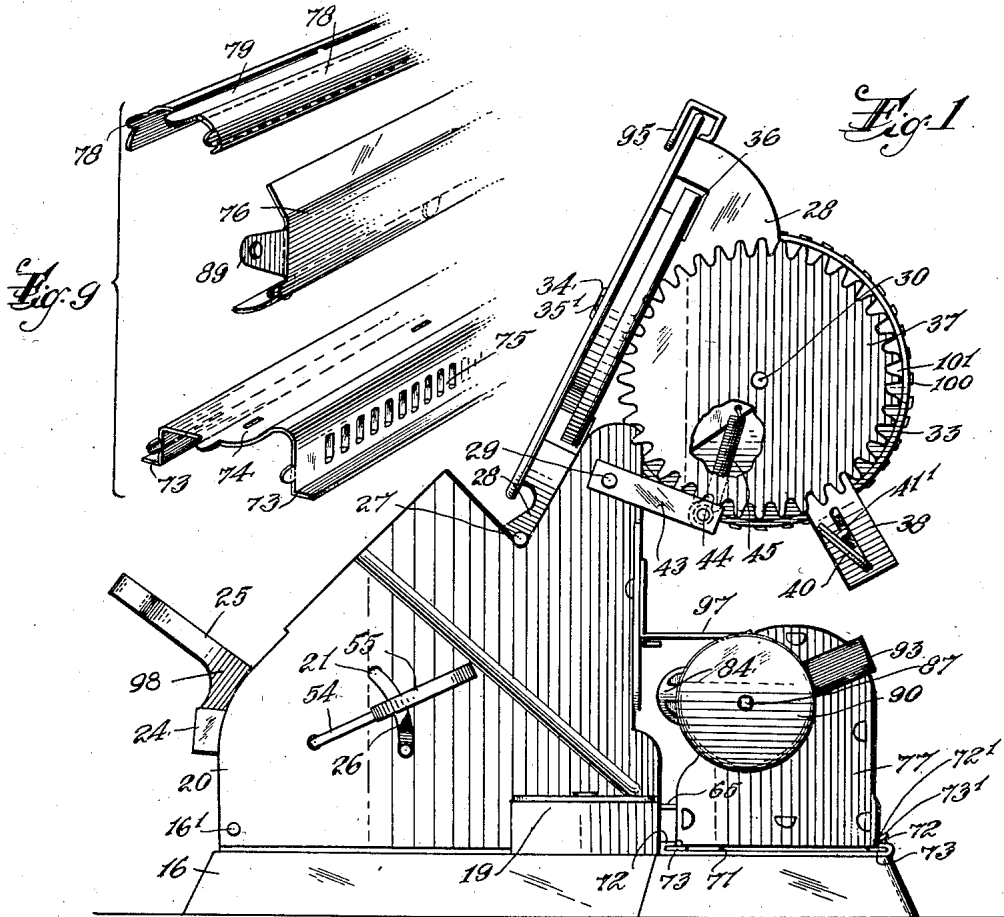
S. I. BERGER

2,002,075

TYPEWRITING MACHINE

Filed Sept. 14, 1932

4 Sheets-Sheet 1



INVENTOR.
S. I. Berger
BY
W. C. Fisher
ATTORNEY

May 21, 1935.

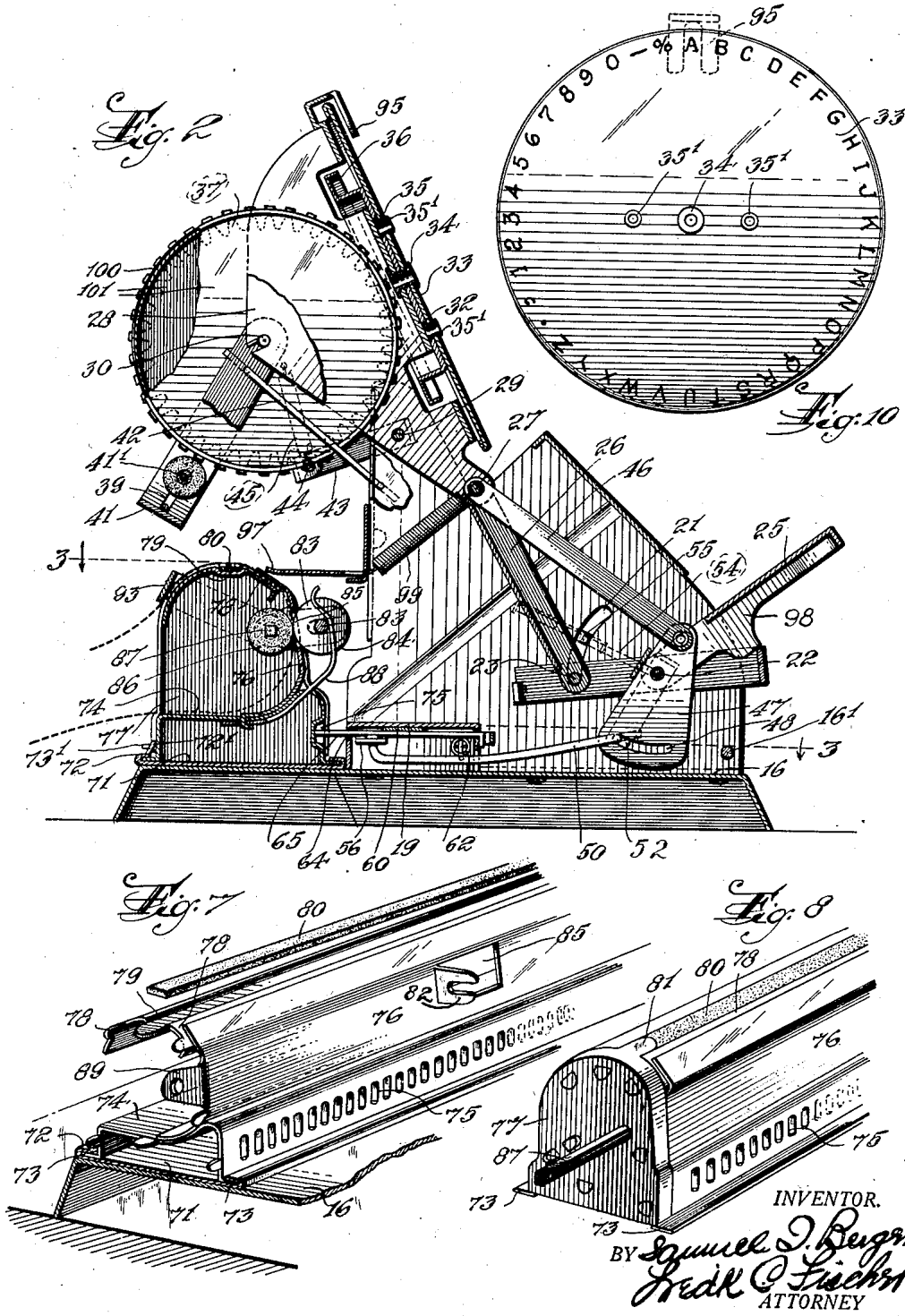
S. I. BERGER

2,002,075

TYPEWRITING MACHINE

Filed Sept. 14, 1932

4 Sheets-Sheet 2



INVENTOR.
BY *Samuel J. Berger*
Fred C. Fischer
ATTORNEY

May 21, 1935.

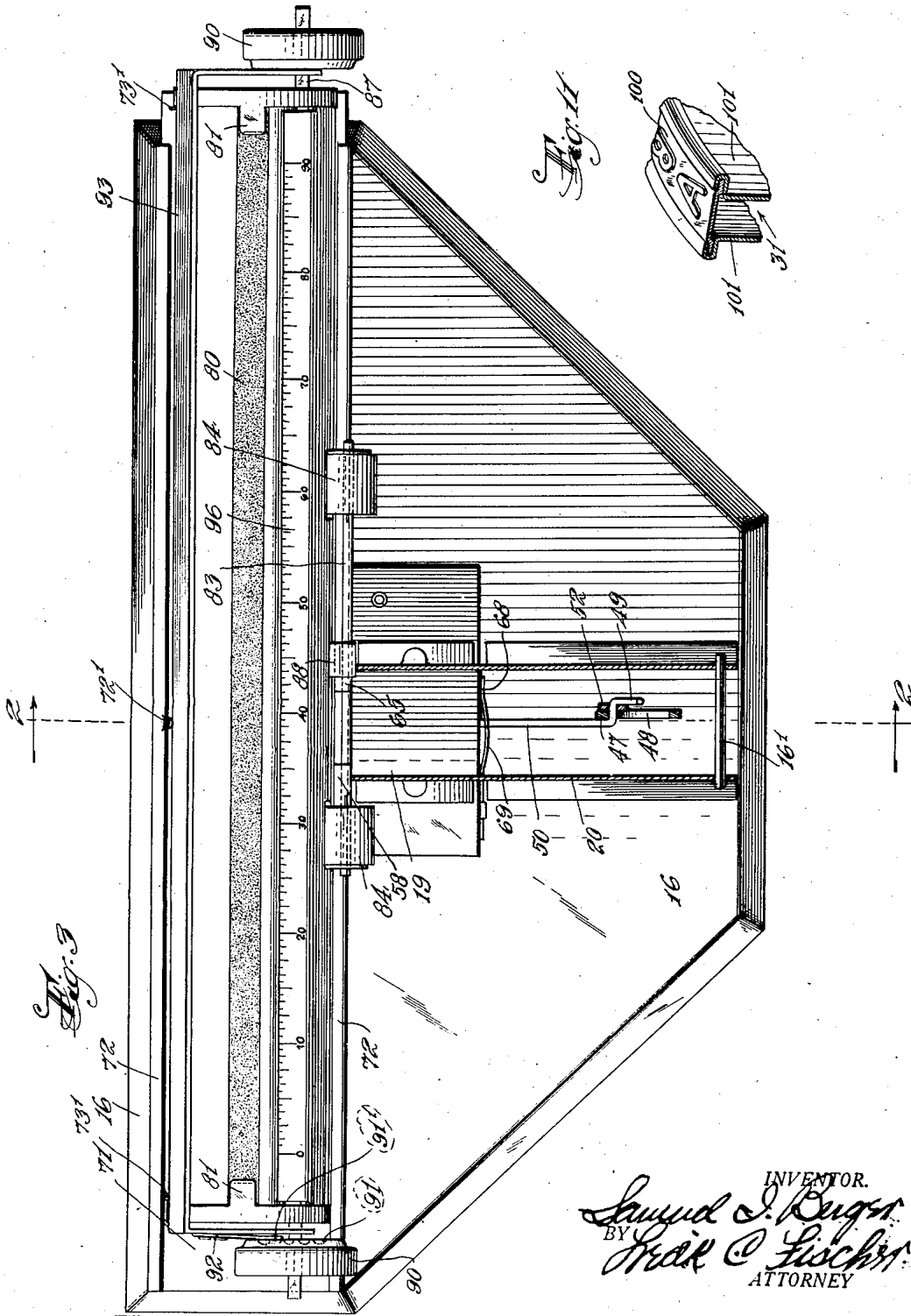
S. I. BERGER

2,002,075

TYPEWRITING MACHINE

Filed Sept. 14, 1932

4 Sheets-Sheet 3



May 21, 1935.

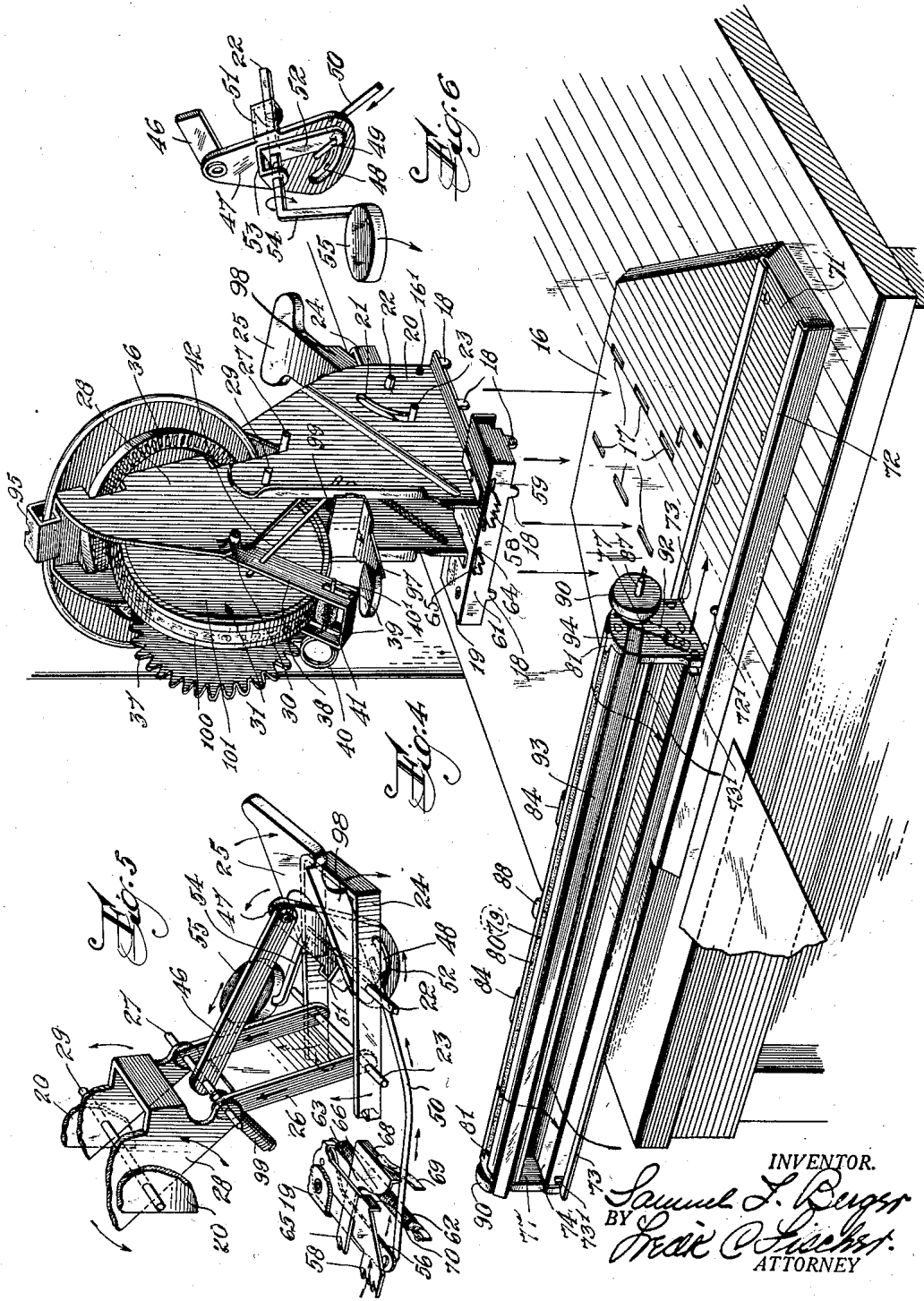
S. I. BERGER

2,002,075

TYPEWRITING MACHINE

Filed Sept. 14, 1932

4 Sheets—Sheet 4



INVENTOR.

Samuel S. Berger
BY Mark C. Licht
ATTORNEY

UNITED STATES PATENT OFFICE

2,002,075

TYPEWRITING MACHINE

Samuel I. Berger, Newark, N. J.

Application September 14, 1932, Serial No. 633,105

4 Claims. (Cl. 197—47)

This invention relates to typewriters, and more particularly to a toy typewriter which may be manufactured at a low cost.

It is an object of this invention to provide a typewriting machine of rugged structure and positive in action, which can be readily and conveniently assembled and manufactured at a low cost.

A further object is the provision of a toy typewriting machine having a novel arrangement of a platen and a type wheel in a plane perpendicular to the platen, with means for positively moving the typewheel into contact with the platen to insure a uniform impression at all times.

A further object is the provision of means for automatically and uniformly inking the type of a toy typewriting machine immediately preceding each impression.

A further object is the provision in a toy typewriting machine of improved means for accurately and positively moving a carriage step by step for letter spacing purposes.

A further object is the provision of a simple and inexpensive carriage for a typewriting machine, the carriage supporting a stationary platen and having novel line spacing and paper holding means.

These and other advantageous objects, which will later appear, are accomplished by the simple and practical construction and arrangement of parts hereinafter described and exhibited in the accompanying drawings, forming part hereof, and in which:

Fig. 1 is an elevational view of a typewriting machine embodying my invention.

Fig. 2 is a sectional view taken on line 2—2 of Fig. 3.

Fig. 3 is a plan view, partially in section, taken on line 3—3 of Fig. 2.

Fig. 4 is an exploded perspective view of the typewriting machine.

Fig. 5 is a perspective view showing details of the machine.

Fig. 6 is a perspective view of an element of the machine.

Figs. 7 and 8 are perspective views of a carriage used in the typewriting machine.

Fig. 9 is an exploded perspective view showing details of the carriage.

Fig. 10 is a plan view of a symbol indicator used in the machine.

Fig. 11 is a fragmentary view of a type wheel included in the machine.

Fig. 12 is a bottom view of a portion of the

machine showing details of a letter spacing device, and

Figs. 13, 14 and 15 are plan views showing the positions assumed by certain parts of the letter spacing device while moving the carriage one space.

Referring to the drawings the typewriting machine is shown to include a base 16 having a plurality of slots 17 arranged to receive tangs 18 on the lower edges of a small casing 19 and side supports 20.

The pair of vertical side supports 20 (Fig. 4) are spaced apart, and each has an arcuate slot 21 in which moves a pin 23. A squared shaft 22 is also rotatably mounted in the side supports 20 (see Fig. 2).

Referring to Fig. 5, it will be seen that the pin 23 pivotally connects the legs of a U-shaped member 24 to a pair of links 26, which are also pivotally connected by a pin 27 to a rockable frame 28, the latter being pivoted on a pin 29 journaled in the supports 20.

In the side walls of the frame 28 is journaled a shaft 30, having fixed thereto a type wheel 31 and a gear 37, which meshes with a gear 36. The gears 37 and 36 are at right angles to each other. The gear 36 is formed on a plate 35 which is attached by means of eyelets 35' to and moves with a plate 33. The plates 33 and 35 are rotatably mounted, by means of an eyelet 34, on a cross-bar 32, of the frame 28.

Pivotally supported by shaft 30, are the legs 38 of a U-shaped member, the legs 38 having slots 39 through which pass the ends of a coiled spring 40. Mounted rotatably on the upper end 40' of the spring is an inking roller 41, which is preferably made from an ink absorbing material and is maintained in contact with the periphery of the type wheel 31 by the action of spring 40. A rod 42 is connected to one of the legs 38 and to the side support 20.

Pivotally supported by pin 29 is an arm 43, having at its free end a pawl 44 which is maintained in engagement with gear 37 by a spring 45, which is connected to the arm 43 and to the frame 28.

Pivotally connected to the pin 27 is a link 46, which is also connected to a lever 47 rotatably supported on the squared shaft 22. The lever 47 has an arcuate slot 48 in which moves the bent end 49 of a rod 50. The end 49 of the rod is also connected to an arm 52 having a right angularly directed portion mounted on the squared shaft 22 to rotate therewith. The lever 47 has a similar right angularly directed portion

through which the shaft 22 passes freely, the lever 47 moving independently of shaft 22. Shaft 22 has an angularly directed arm 54, to the extremity of which is attached a finger-piece 55.

5 Referring to Fig. 12, the rod 50 is connected to one arm of a bell crank 56 pivotally supported by the casing 19, the other arm of the bell crank being pivotally connected to an arm 57 having a toothed extremity 58 directed at
10 right angles to the wall 61 of casing 19 and passing through a slot 59 in the casing, the slot 59 having a greater width than the extremity 58 to enable the latter to move laterally as well as in and out of the slot. The outward movement of the extremity 58 is limited by a shoulder
15 60 on the arm 57, the shoulder engaging the wall 61 of casing 19. The bell crank and arm are normally maintained in the position shown in Fig. 12, that is, with the toothed extremity 58 projecting outwardly as far as it will go, by a
20 spring 62, which is connected to the bell crank 56 and to the casing 19.

A bar 63 is positioned in the casing 19 adjacent the arm 57. The bar 63 passes through
25 a slot 64 in the wall 61 and has a toothed extremity 65. The opposite end of the bar is enlarged at 66 and passes through a slot in the wall 67 of casing 19, the enlarged portion 66 having a flange 68 which bears against a bowed spring
30 69 attached to the wall 67.

When the rod 50 is moved downwardly (see Fig. 12) the bell crank 56 is rotated clockwise to move the arm 57 laterally and downwardly, the
35 toothed extremity 58, of course, having the same movement. Continued movement of arm 57 downwardly causes a lug 70 on the arm 57 to engage the portion 68 of bar 63 to move the latter downwardly against the action of the spring
69.

40 The base 16 has attached thereto a strip 71 having its side edges bent over to provide guide channels 72, in which slide the flanges 73 of a carriage 74, which has a plurality of spaced indentations 75, to receive the toothed members
45 58 and 65. Attached to the carriage is a paper guide plate 76, having attached thereto end members 77, which support an arcuate member 78 having a groove 79, in which is positioned a stationary platen 80, the latter consisting of a
50 strip of hard rubber or similar material. The platen 80 is held in place by tabs 81 integral with the end members 77.

Struck out from the plate 76 are two spaced forked bearings 82, supporting a shaft 83 to
55 which is attached a pair of rollers 84, which project through the apertures 85 in plate 76 to engage rollers 86 fixed to a squared shaft 87, the latter being supported by and passing through the end members 77. The rollers 84
60 and 86 are maintained in engagement by the action of a bowed spring 88 which bears against the shaft 83 and is attached to the carriage 74. The plate 76 is provided at its ends with ears 89 which also support the shaft 87 and increase
65 the rigidity of the structure.

Fixed to the ends of shaft 87 are knobs 90, one of which has about its periphery a plurality of spaced indentations 91 which cooperate with
70 a rounded lug 91' on a flat spring 92 to normally prevent free rotation of the shaft 87. Also mounted on the shaft 87 is a U-shaped member having a longitudinal bar 93 extending the length of the carriage, and legs 94 which normally bear against the knobs 90, the member having
75 a certain amount of resiliency.

Paper is inserted in the device as shown in dotted lines in Fig. 2, the paper passing between the rollers 86 and 84, over the platen 80, and under the bar 93. The paper may be advanced,
5 line by line, by rotating the knobs 90 to produce a step by step movement due to the engagement of the lug 91' on the spring 92 with the indentations 91.

In operation, a sheet of paper is inserted as above described. The plate 33, which has the
10 letters of the alphabet, numerals and other symbols printed thereon as shown in Fig. 10, is rotated until the symbol desired to be typed lies between the forks of the indicator 95, which is integral with the frame 28. The carriage has a scale 96
15 printed thereon, and the point of printing of the letter is indicated by a pointer 97 attached to the side supports 20. In the example shown in Fig. 10, the letter A will be typed. To make an impression of the symbol on the paper, a finger
20 piece 25 is depressed, the finger piece being rotatably mounted on the shaft 22, having a lug 98 which bears on the member 24 to cause the latter to move downward, which movement, through the links 26, causes counter-clockwise
25 rotation of the frame 28, to bring the type wheel 31 in contact with the paper directly above the platen 80. The downward movement of member 24 is limited by contact with a rod 16' mounted on the side supports 20. As the frame rotates
30 counter-clockwise (see Fig. 4), the rod 42 prevents similar rotation of the U-shaped member 38, and the latter moves in a clockwise direction and causes the inking roller to pass over the type and ink the symbols before each impression. This
35 arrangement insures uniform and positive inking at all times, it only being necessary to moisten the roller 41 with ink from time to time.

During the downward movement above described, the link 46 rotates lever 47 counter clockwise to draw the rod 50 to the right (Fig. 5) or
40 downward (Fig. 12) to move the toothed extremity 58 from engagement with the indentations 75, and laterally. When pressure is relieved on the finger piece 25, a spring 99, connected to the member 97 and to the pin 27, returns the parts
45 to their normal position, as shown in Fig. 2. During the return to the normal position, the toothed member 58 moves upward (Fig. 2) to engage the indentations 75 and laterally to the left to move
50 the carriage to the left the space of one letter, (see Figs. 13, and 14). Slipping of the carriage is prevented by the toothed member 65 which ratchets over the indentations during the movement of the carriage by member 58.
55

When it is desired to move the carriage space by space without printing a symbol, the finger-piece 55 is depressed to rotate shaft 22 to rotate
60 arm 52 clockwise (see Fig. 6) to pull on rod 50, the lever 47 not being affected due to the lost motion connection enabled by the arcuate slot 48. Depressing of finger-piece 55 will cause the toothed extremity 58 to move the carriage step by step as above described. Should it be desired to freely move the carriage without the step by
65 step movement, the finger-piece 55 is depressed as far as possible to cause the lug 70 to engage enlarged portion 66 of bar 63 to withdraw both toothed members 58 and 65 from engagement with the indentations 75 as shown in Fig. 15.
70

The type wheel 31 comprises a metal band 100 having the desired symbols embossed thereon, the edges of the band being crimped between the edges of the side plate 10, as shown in Fig. 11. The gears 37 and 36 have a number of teeth equal
75

to the number of symbols on plate 33, and the plate 33 and type wheel 31 are so arranged that the symbol appearing between the forks of member 95 will be the symbol on the type wheel in position to be printed. Any desired symbol may be brought into printing position by rotating the plate 33 to rotate gears 36, 37 and the wheel 31.

The bar 93 normally holds the paper in a smooth condition to enable the making of a clear impression. When the knobs 90 are rotated the legs 94 are pressed toward each other to cause the bar 93 to bow outwardly to release the paper so that it may freely move.

At each end of one of the flanges 73 on the carriage are lugs 73' arranged to engage a stop 72' on one of the channels 72, to limit the movement of the carriage in both directions. In assembling the carriage and base 16, the stop 72' is bent outwardly from the path of lugs 73' until the carriage has been slid into position on the base, after which the stop 72' is bent into the path of lugs 73' to limit the movement of the carriage.

The parts are preferably of thin sheet metal, which can be easily bent, and the arrangement of tabs and slots as shown in the drawings enables convenient and ready assembling.

From the above description it will be seen that there has been presented a simple and inexpensive typewriting machine which is accurate and positive in operation, having a rugged structure with practically no parts to get out of order. While the machine herein described is intended primarily for use as a toy, it is obvious that the features embodied therein can effectively be applied to other typewriting machines without departing from the spirit of the invention.

The foregoing disclosure is to be regarded as descriptive and illustrative only, and not as restrictive or limitative of the invention, of which obviously an embodiment may be constructed including many modifications without departing from the general scope herein indicated and denoted in the appended claims.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a typewriting machine, a wheel having type arranged about its periphery, a shaft to which the wheel is fixed, a frame in which the shaft is journaled, supports upon which the frame is pivotally mounted, a U-shaped member having its legs rotatably mounted on the shaft, a rod connected to the member and to a fixed support, an inking roller carried by the member, resilient means to maintain the inking roller in engagement with the type, and means to rotate the frame in one direction, said member being

caused to rotate automatically in an opposite direction.

2. In a typewriting machine, a rockable frame having a pair of spaced parallel side walls, a shaft journaled in the side walls of the frame, a type wheel mounted on the shaft, a U-shaped member having its legs pivotally mounted on the shaft, an inking roller carried by the member, resilient means to maintain the inking roller in engagement with the wheel, a rod pivotally connected to one of the legs of the member and to a fixed point, and means to rock the frame, in one direction, said member being caused to rotate in an opposite direction.

3. In a typewriting machine, a wheel having type arranged about its periphery, a plate rotatably mounted at right angles to the plate of the wheel and having symbols arranged thereon corresponding to the symbols of type on the wheel, gear means connecting the wheel and plate so that a movement of the plate will be transmitted to the wheel, a carriage, an arcuate strip mounted on the carriage and having spaced apertures therein, bearings on one side of said member, a shaft journaled in said bearings, rollers fixed to the shaft and projecting partially through the apertures, a second shaft supported on the other side of the strip, rollers mounted on the second shaft and engaging the first mentioned rollers, resilient means urging said rollers into engagement, a platen mounted on the carriage and positioned in a plane at right angles to the plane of the wheel, and means to move the type wheel into contact with the platen.

4. In a typewriting machine, a wheel having type arranged about its periphery, a plate rotatably mounted at right angles to the plate of the wheel and having symbols arranged thereon corresponding to the symbols of type on the wheel, gear means connecting the wheel and plate so that a movement of the plate will be transmitted to the wheel, a carriage, an arcuate strip mounted on the carriage and having portions struck out to provide apertures and bearings on one side of said strip, a shaft journaled in the bearings, rollers on the shaft and projecting partially through the apertures, a second shaft supported on the other side of the strip, rollers on the second shaft engaging the first mentioned rollers, knobs attached to the second shaft, one of said knobs having equally spaced indentations about its periphery, resilient detent means engaging said indentations, a platen mounted on the carriage and positioned in a plane at right angles to the plane of the wheel, and means to move the type wheel into contact with the platen.

SAMUEL I. BERGER.