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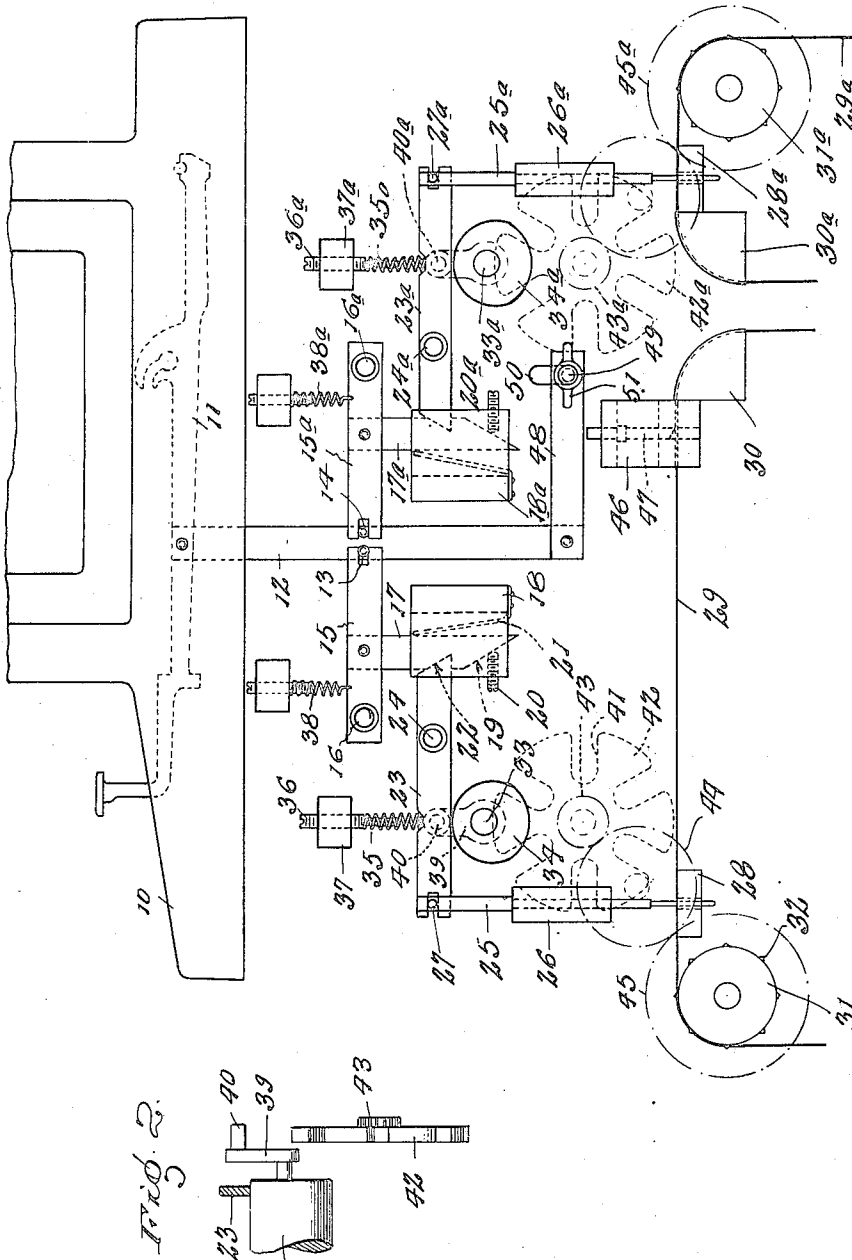
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T. D. METROPOLE ET AL

AUTOMATIC TYPEWRITER

Filed Oct. 25, 1921

2 Sheets-Sheet 1



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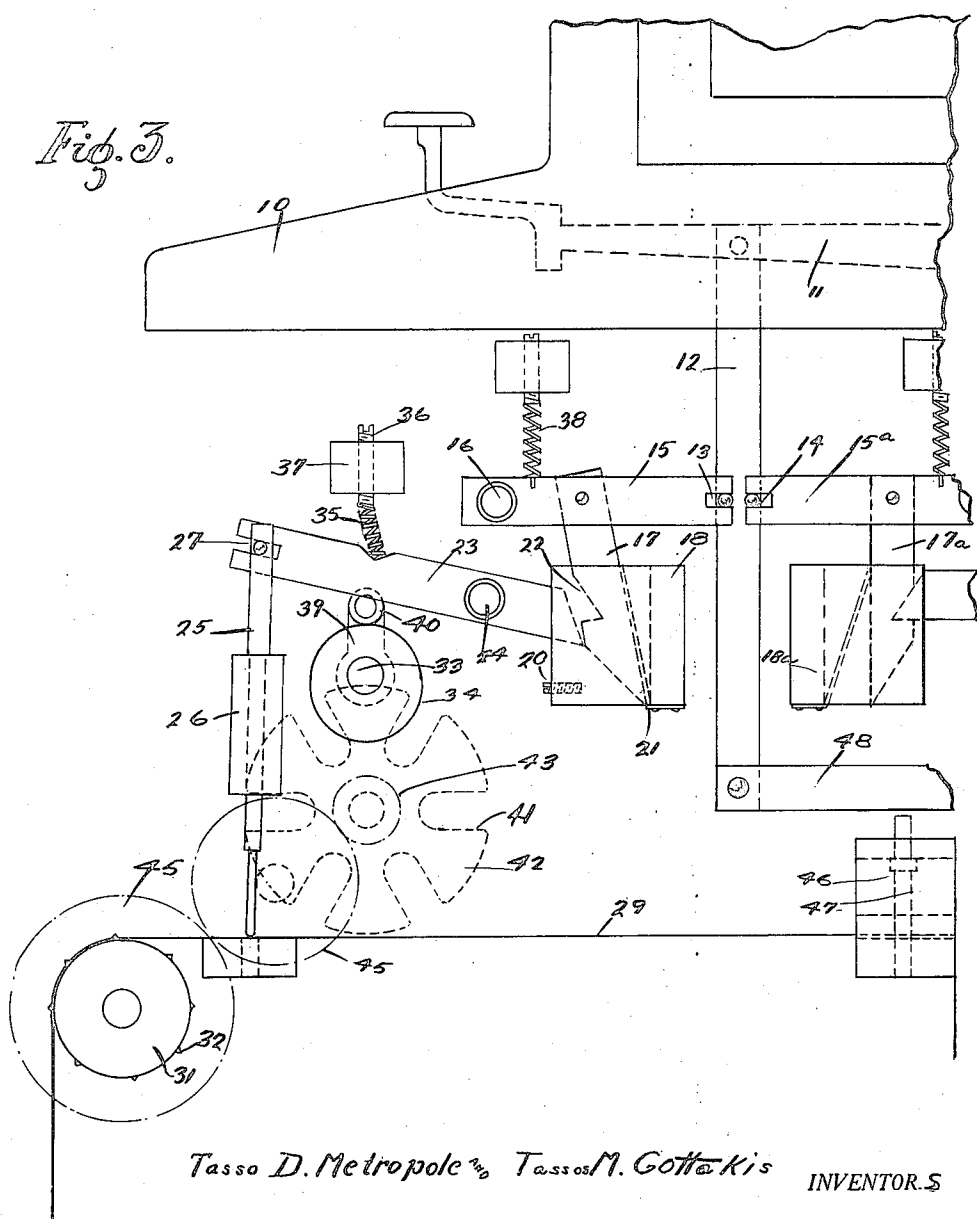
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2 Sheets-Sheet 2



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AUTOMATIC TYPEWRITER.

Application filed October 25, 1921. Serial No. 510,210.

To all whom it may concern:

Be it known that we, TASSO D. METROPOLE and TASSOS M. COTTAKIS, citizens of the United States, residing at 2136 La Fontaine Street, New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Typewriters, of which the following is a specification.

10 This invention has relation to automatic typewriting machines, and has for an object to provide in combination with a typewriter, a new and novel means for actuating the keys or typebars through the medium of a record consisting of a strip of paper, perforated so as to cause the writing machine to automatically type any desired characters, predetermined by perforating the record strip in the proper manner.

20 Another object of the invention is to provide a typewriter actuating mechanism of the character above described which also embodies within its mechanism and constituting a component part of itself a means to perforate a record strip by striking the keys of the writing machine as in writing, whereby the record strip may be subsequently run through the actuating mechanism and obviously actuate the keys of the writing machine as each perforation is brought in juxtaposition to a responding mechanism, so that the same keys which were struck by the operator in perforating the strip will be re-actuated by the automatic mechanism, thus duplicating the subject matter previously typed by the operator.

30 A still further object of the invention is to provide in an automatic writing machine actuator, an auxiliary actuating mechanism employing a separate record strip for the purpose of causing the writing machine to type the name, address and salutation of a letter in an automatic manner, thus obviating the necessity of typing the names and address by hand, as in similar machines heretofore provided.

40 A still further object of the invention is to provide in an automatic writing machine actuator, a novel means to feed the record strip in proper step with the actuating mechanism, so that all of the parts of the machine may operate in perfect unison.

50 A still further object of the invention is to provide a means to automatically actuate a typewriting machine which is extremely

simple in construction and principle of operation and in which most of the parts are duplicates in form and dimensions, thus enabling the machine to be manufactured 60 in a very economical manner and ensuring it against interruption in its operation due to complexity of construction, as in machines of this kind heretofore provided.

In addition to the foregoing this invention comprehends improvements in the details of construction and arrangement of parts to be hereinafter described and particularly set forth in the appended claims.

In the accompanying drawings in which 70 similar and corresponding parts are designated by the same characters of reference throughout the several views in which they appear:

Figure 1 is a diagrammatic view in side 75 elevation of one unit of a typewriting machine actuator constructed in accordance with our invention.

Figure 2 is a detail view in edge elevation of a portion of the recording feeding mechanism.

Figure 3 is a diagrammatic view in side elevation of a portion of the typewriting machine actuator shown in Figure 1, the parts being illustrated in a different position. 85

With reference to the drawings, 10 indicates the frame of a typewriting machine and 11 a key bar. A link 12 is pivoted at one end to said bar and extends downward in a vertical position. A pair of pins 13 and 14 extend laterally from the link. A lever 15 of the second class is provided, and is pivoted at one end as at 16 to any stationary point, while its other end is bifurcated 90 to receive the pin 13. An arm 17 depends from an intermediate point of the lever and operates in a guide block 18. The lower end of the arm 17 is cut away to form a cam face 19 which extends at an angle to the linear dimension of the arm and a set screw 20 threaded into the guide block engages said cam face. A leaf spring 21 fixed to the block urges said arm against the set screw. A notch 22 is formed in one edge of the arm 105 17 to receive one end of a lever 23 of the first class, said lever being fulcrumed at 24 to any relatively stationary point. A vertical rod 25 is provided to operate in a vertical direction in a guide 26. The upper end 110 of said rod carries a lateral pin 27 which enters the bifurcated end of the lever 23.

The lower end of the rod 25 is reduced and operates in an opening in a support 28. In Figure 1 rod 25 is shown penetrating a perforation of the record strip 29 while in Figure 3, the rod 25 is shown resting on the record strip 29. The record strip 29, consisting of a strip of paper or other flexible material, previously perforated travels over a guide 30 to change the direction of travel from a vertical to a horizontal path, and the horizontal stretch then passes over the support 28 and then over a roller 31 having radial pins 32 to enter marginal perforations in the record strip to prevent slipping of the latter during its travel. A shaft 33 is located beneath the lever 23 and carries a cam 34. The operating face of the cam is designed so that its eccentric portion extends through an angular distance of one third of a circle, while the balance of two thirds of its surface is concentric relative to the center of rotation of the shaft 33. The cam engages the lower edge of the lever 23 at one end to elevate said end against the tension of a spring 35 which is interposed between said lever and a set screw 36, the latter being threaded into a block 37 to afford a means to vary the tension of the spring. In a similar manner a spring 38 is connected to the lever 15 to urge the latter upward. An arm 39 is fixed to the shaft 33 and carries a laterally extending pin 40 to enter the radial slots 41 of a star wheel 42, said wheel and arm constituting the elements of a Geneva movement. A pinion 43 is fixed to the star wheel for rotation therewith, and meshes with an idler 44, the latter meshing with a large gear 45 fixed to the roller 31. The parts 12, 15, 17, 23 and 25 constitute a unit, and one of such units is provided for each key bar or character of the writing machine. Only one cam 34 and record feeding mechanism is necessary as will be presently obvious.

Power is applied to the shaft 33, rotating the same continuously in a uniform manner. Rotation of said shaft is transmitted through the Geneva movement and the chain of gearing to the roller 31, rotating the latter intermittently. The rods 25 are all located in transverse alignment, and when a perforation in the record strip is brought beneath any one of said rods, the rod selected will fall through the perforation, thus permitting the lever 23 to fall so that it may be engaged by the eccentric portion of the cam 34, thus raising the lever so that its other end will be lowered so as to draw down upon the arm 17 and lever 15, pulling down the link 12 and key bar 11, the latter actuating the type bar in the usual manner to strike the character upon the paper. Continued rotation of the cam will again raise the depressed rod 25 and at this instant the star wheel will be rotated a fraction of a

revolution to feed the record strip to bring the next perforation beneath the bank of rods 25. During the raising of the rod 25 the cam face 19 of the arm 17 will ride along the set screw 20 and said arm will be moved away from the lever 23 until the latter leaves the notch 22. The spring 38 will then return the lever 15 and key bar 11 to initial position.

As stated above one of the objects of the invention is to provide a mechanism in a machine of this character whereby the name, address and salutation of a letter may be typed automatically instead of by hand. To this end, the parts described above, with the exception of the writing machine are duplicated exactly and located at the opposite side of the bank of links 12. These duplicated parts are designated in the drawing by the same characters of reference with the addition of the letter "a" to each reference character designating a part in the addressing mechanism corresponding to the same part in the main actuating mechanism. The record strip 29^a will be perforated so as to contain the record of the addresses of all the letters to be written. In writing a letter the addressing mechanism is operated by applying power to the shaft 33^a with the result that the writing machine is actuated in the same manner as described above. When an address has been typed the application of power to said shaft 33^a is discontinued either manually or automatically and the power transferred to the shaft 33 so as to cause the body of the letter to be written from the record 29.

Another object of the invention is to provide a mechanism in a machine of this character for perforating the record strip when preparing a record in the first instance. This is accomplished in a very simple manner by providing a guide block 46 and locating the same over the horizontal stretch of the record strip 29. A plurality of vertical punches 47 are mounted in said block and held so that their lower or cutting ends are normally above the surface of the record strip. A bar 48 is provided for each link 12, one end of the bar is pivoted to the lower end of the link and then extended in a horizontal direction over one of the punches 47. The other end of each bar 48 is strung on a traverse horizontal bar 49, guided at its ends for slight vertical movement in a pair of slots 50 formed in any suitable support. A thumb nut 51 applied to the end of the bar 49 is designed to retain said bar in any adjusted position.

To operate this mechanism a record strip, unperforated is run over the guide 30 through the block 46 and over the roller 31. The key bar 11 corresponding to the desired character to form a word is struck, and its motion is transmitted through the

link 12 depressing the bar 48 and causing the latter to strike the punch therebeneath, thus cutting a perforation in the strip. The shaft 33 is now given one revolution, the motion of which will feed the strip along its length to a very small distance. The next character is struck and the above performance repeated. Where the complete record strip is made and said strip again run through the machine the rod 25 corresponding to the punch 47 used to make a perforation will fall in said perforation and cause the writing machine to type the same character which was written when the record strip was made, since each corresponding rod 25 and punch 47 are located in alignment. Also the rods 25^a are in alignment with the punches 47. When the punching mechanism is not in use the rod 49 is elevated so that the bars 48 will not engage the punches during the writing operation of the machine.

While we have illustrated and described our invention with some degree of particularity, we realize that in practice various alterations therein may be made. We therefore reserve the right and privilege of changing the form of the details of construction or otherwise altering the arrangement of the correlated parts without departing from the spirit of the invention or the scope of the appended claims.

Having thus described our invention, what we claim as new, and desire to secure by United States Letters Patent is:—

1. In combination with a writing machine including the key bar, means to feed a perforated record strip, a rod to enter a perforation thereof, a continuously operating cam, a connection between the rod and key bar including a releasable portion, whereby the cam may be engaged by said connection when the rod enters a perforation and said connection moved to actuate the key bar, and means operable upon continued movement of the connection to operate the releasable portion to permit the key bar to return to normal position in advance of the return of the connection and rod to normal position.

2. In combination with a writing machine including a key bar, means for feeding a perforated record strip, a second means for feeding a second perforated record strip, a pair of means, one for each strip to enter a perforation, a connection between each of said means and each key bar including a lever, a continuously rotating cam for each lever engaged by its lever when either of said first mentioned means falls through a perforation, a pair of notched arms, each engageable by its corresponding lever and forming part of the connection to the key bar to depress the same when said cams engage their levers, each arm having a cam face, and a projection engaging said cam face to throw either arm out of engagement with its lever to permit the key bar to return to initial position, and to permit one actuating mechanism to operate without causing operation of the other actuating mechanism.

3. In combination with a writing machine including a key bar and a perforated strip, means for feeding the strip intermittently, a rod to enter a perforation in the strip, means cooperating with the strip feeding means for moving the rod clear of the strip and permitting it to again drop into a perforation when the strip comes to rest, and actuating means operable by and when said rod enters a perforation to actuate the key bar, and means to disconnect said actuating means from the key bar after a completion of a cycle of operation of the mechanism to rest the same on the next cycle.

4. In combination with a writing machine including a key bar, a link depending therefrom, a punch operating bar pivoted to said link, slidable means pivotally supporting another portion of said punch operating bar, means for feeding a record strip, and a punch engageable by said punch operating bar only when the said slidable means is lowered to the proper place and the key is depressed to perforate the strip.

In testimony whereof we affix our signatures.

TASSO D. METROPOLE. [L. s.]
TASSOS M. COTTAKIS.