Nov. 23, 1943. H. BASTOW 2,334,693

MACHINE FOR RECORDING CHARACTERS

Filed Nov. 1, 1941 3 Sheets-Sheet 1

Fig. 1.

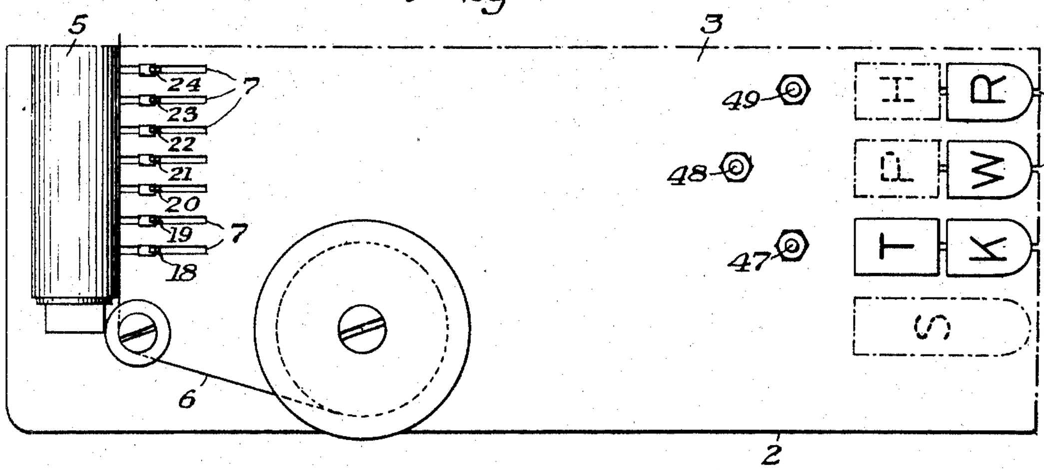


Fig. 2.

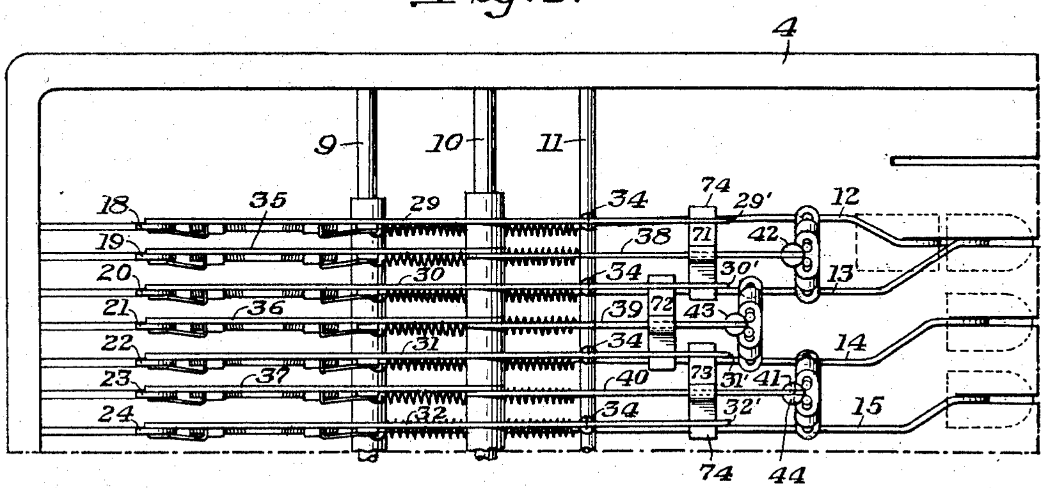
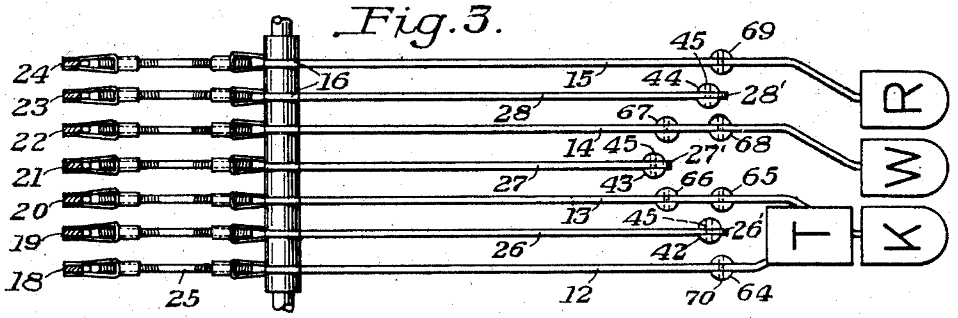


Fig. 3.



INVENTOR

Harry Bastow

by Gibbins and Stevens (?)

his attorneys

Nov. 23, 1943. H. BASTOW 2,334,693

MACHINE FOR RECORDING CHARACTERS

Filed Nov. 1, 1941 3 Sheets-Sheet 2

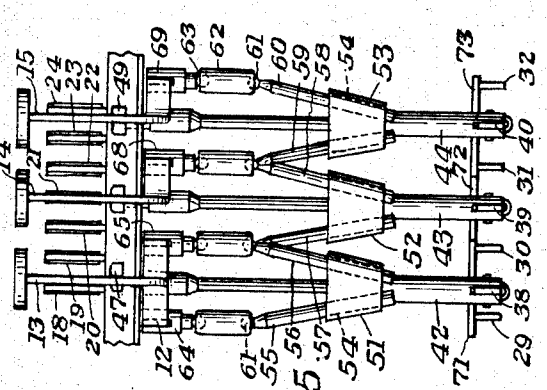


Fig. 5

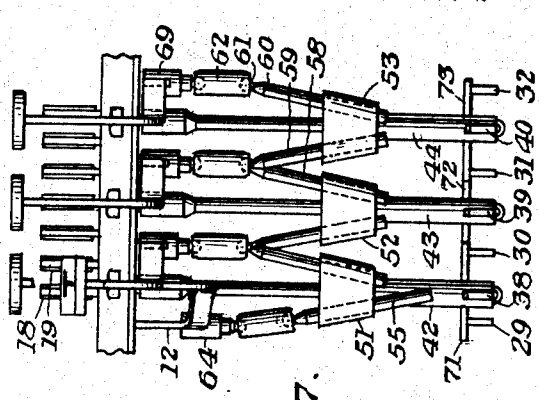


Fig. 7.

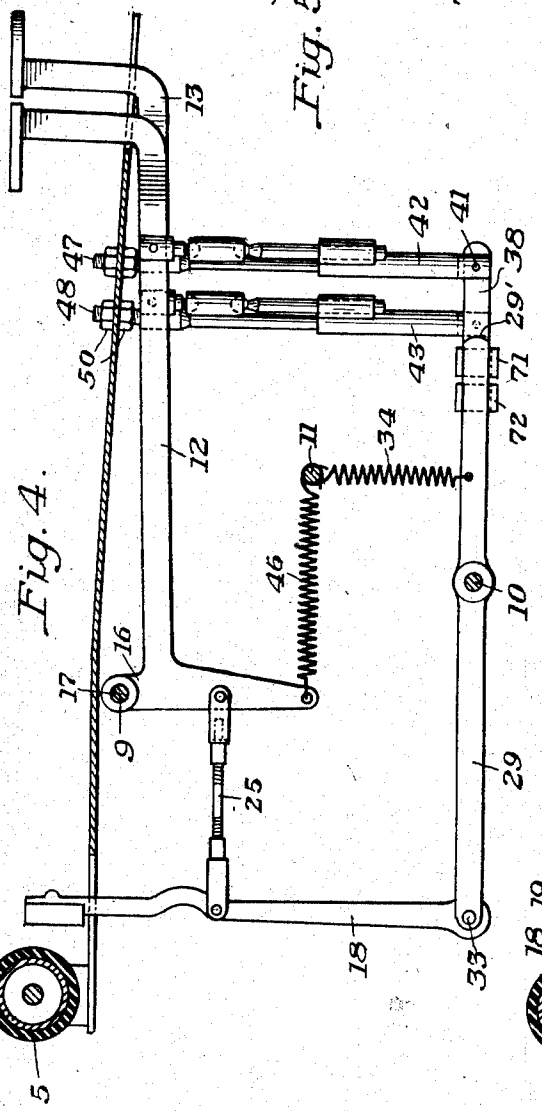


Fig. 4.

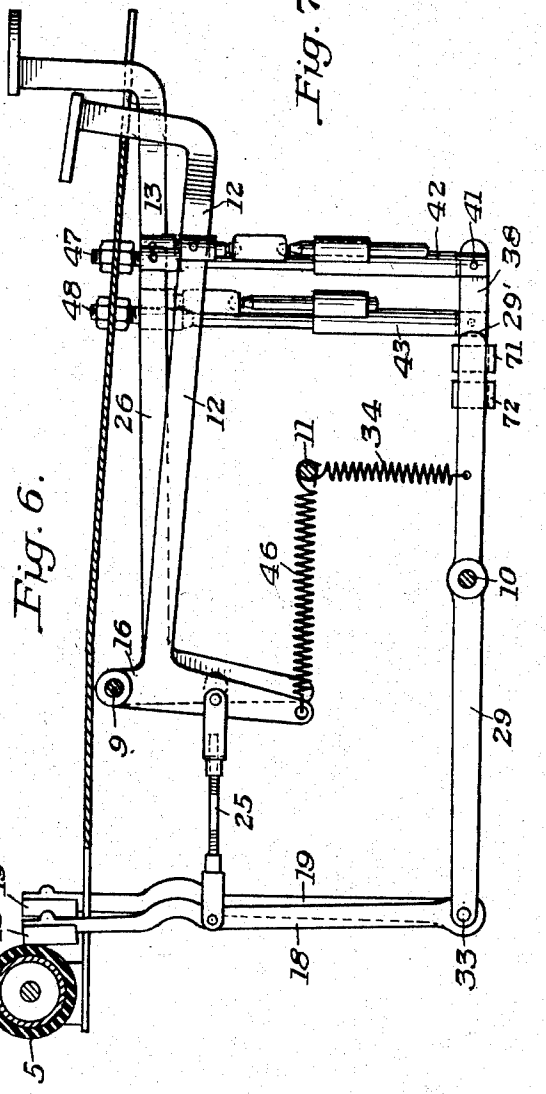


Fig. 6.

INVENTOR

Harry Bastow

by Stubbings and Banks

his attorneys

Nov. 23, 1943. H. BASTOW 2,334,693

MACHINE FOR RECORDING CHARACTERS

Filed Nov. 1, 1941 3 Sheets-Sheet 3

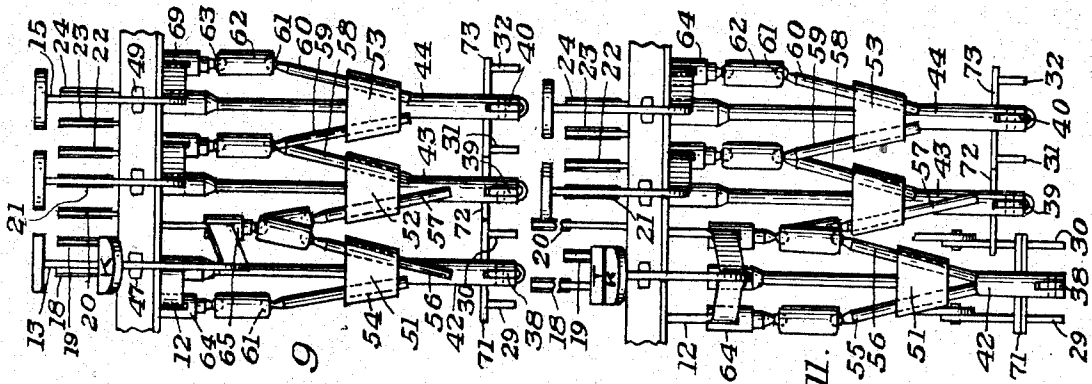


Fig. 9

Fig. 11.

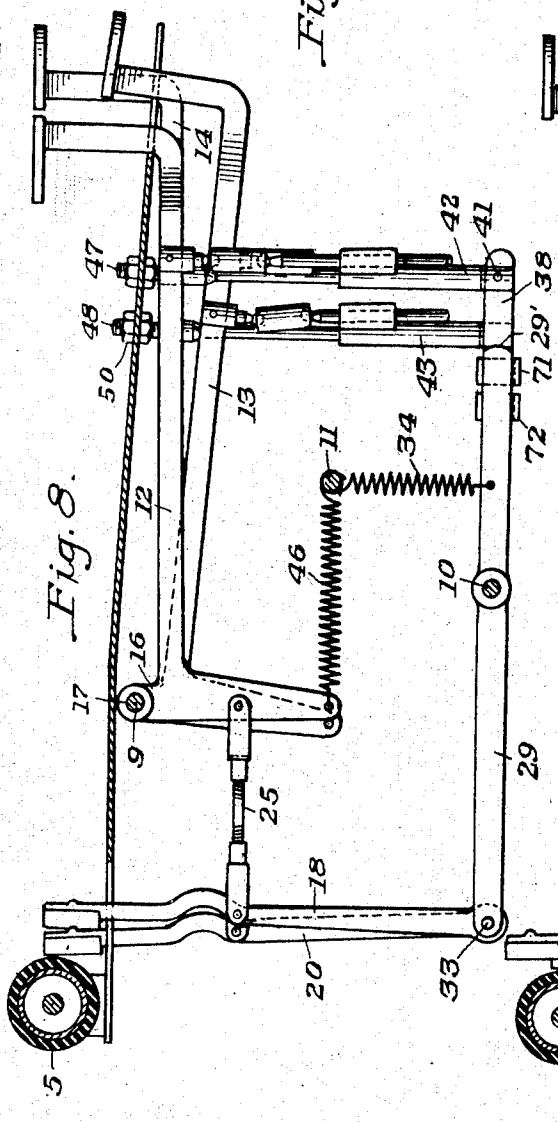


Fig. 8.

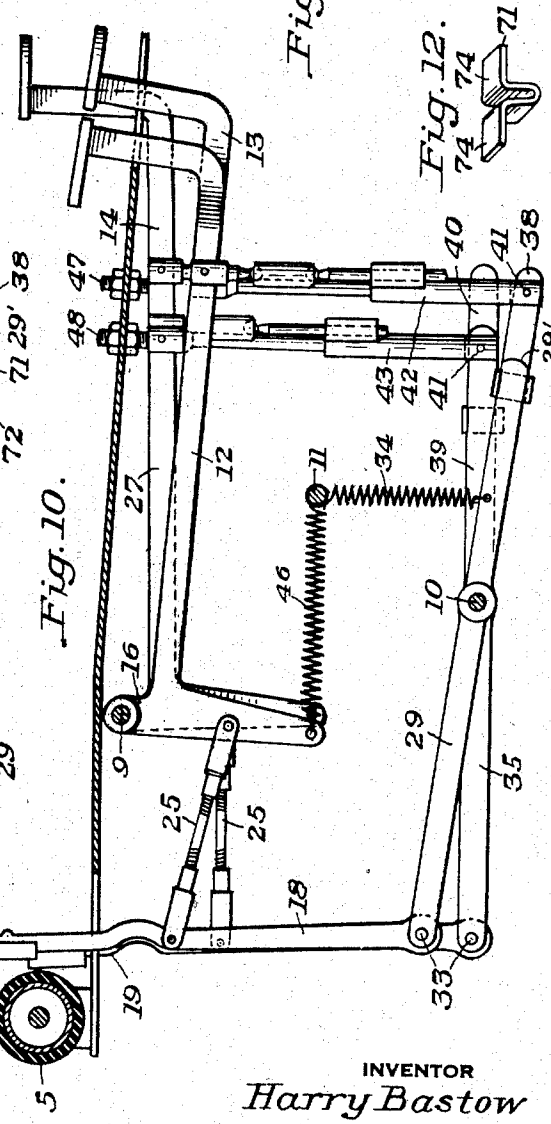


Fig. 10.

Fig. 12.

INVENTOR

Harry Bastow

by Stebbins and Blum

his attorneys

Patented Nov. 23, 1943

2,334,693

UNITED STATES PATENT OFFICE

2,334,693

MACHINE FOR RECORDING CHARACTERS

Harry Bastow, Pittsburgh, Pa.

Application November 1, 1941, Serial No. 417,489

16 Claims. (Cl. 197—9)

This invention relates to machines for recording characters. It relates more particularly to machines for recording characters such as are commonly used for mechanical stenography. The invention has to do with the simplification of records made by machines of the type in question so as to facilitate their transcription.

While the invention is of broad application to machines for recording characters it is especially adapted for employment in machines of the type above mentioned which will hereinafter be referred to as stenographic machines. Stenographic machines are now in wide use and consist of means for feeding a long narrow strip of paper through the machine and means for recording characters upon such strip of paper by printing, somewhat in the nature of a typewriter. However, in normal operation of a stenographic machine only one or two words or syllables is or are printed upon a single line. Each line on the strip of paper serving as the initial record ordinarily is made by one recording operation. Modern stenographic machines have keys arranged in standard fashion which are operated by the fingers similarly to typewriter keys but instead of operating only one key at a time the stenographer may operate several keys at a time, this constituting a recording operation. Upon each recording operation the paper moves forward one line. In stenographic machines as heretofore used each key prints its own character on the record.

The keyboard of a standard stenographic machine contains less than all of the letters of the alphabet. Consequently it is customary to designate certain letters which do not appear upon the keyboard by two or more letters which do appear, printed in combination. It is also customary, as well known by those skilled in the art, to designate certain letters by combinations of other letters even when the letters designated do appear at some point on the keyboard. For example, the letters Q and J are among the letters of the alphabet which do not appear at all on the standard stenographic machine keyboard, while the letter D does appear on the keyboard at the right-hand edge thereof. The letters T, K, W and R, among others, appear on the keyboard at the left-hand side thereof. It is standard procedure for a stenographer to designate the letter D by the letters T and K struck together, to designate the letter Q by the letters K and W struck together and to designate the letter J by the letters W and R struck together. This same system of designating single letters by combinations of two or more other letters obtains throughout and greatly increases the difficulty of transcribing the record, as the operator who transcribes the record from the printed strip made by the reporting machine must know all the combinations of letters which designate other letters and must mentally interpret the combinations while transcribing.

Operation of a stenographic machine requires considerable skill. Consequently stenographers who operate such machines are ordinarily highly skilled and confine their work to the use of stenographic machines. The transcription of the record from the strip printed in the stenographic machine is ordinarily done by a typist who is relatively unskilled in the use of the stenographic machine and whose time, therefore, is of considerably less value than the time of the stenographer. However, it has heretofore been necessary for the typist or transcriber to acquire a substantial degree of skill in interpretation of the record printed by the stenographic machine, particularly with respect to the designation of certain letters by combinations of other letters. This has raised the qualifications for the transcriber and as a result has increased the cost of transcription. Also the designation of certain letters by combinations of other letters introduces much greater opportunity for error in transcription than if interpretation of such combinations by the transcriber were unnecessary.

I provide a machine for recording characters which I have embodied as a stenographic machine which does away, at least largely, with the necessity of interpretation by the transcriber of combinations of letters which designate other letters. I provide mechanism in the stenographic machine itself whereby when certain letters are struck on the keyboard simultaneously to represent another letter by their combination the letter to be represented is itself printed on the strip and the two letters whose keys are struck are not printed. For example, I provide a machine of the character in question which when the keys T and K are struck prints D, when the keys K and W are struck prints Q and when the keys W and R are struck prints J. For purposes of explanation and illustration I have shown in the drawings only part of a stenographic machine—that part containing the keys T, K, W and R and the mechanism operated thereby—but it is to be understood that the principle of operation thus exemplified is employed throughout the machine and that I provide for doing away very largely with interpretation upon tran-

scription by actually printing upon the strip the letter represented by combinations of letters on the keyboard. As a result the degree of skill required by the transcriber is greatly reduced, making it possible to employ less experienced transcribers than have heretofore been required. Also the danger of error in transcription is minimized.

I provide, in a machine for recording characters, a first character recording means, means including a selector for operating the first character recording means to record its character, a second character recording means, means including a selector for operating the second character recording means to record its character, a third character recording means and means including said selectors operable upon simultaneous operation of said selectors for operating the third character recording means to record its character. While the selectors may be of any desired kind they are desirably keys which collectively make up a keyboard, the keys being adapted for operation by the fingers of the operator. While the character recording means may likewise be of any desired kind they are desirably type bars which are adapted to print characters or symbols upon the strip which moves through the machine during its operation. Any characters or symbols may be employed, capital letters of the English alphabet being employed in the standard stenographic machine and being employed for purposes of illustration in the present specification.

Other details, objects and advantages of the invention will become apparent as the following description of a present preferred embodiment thereof proceeds.

In the accompanying drawings I have shown a present preferred embodiment of the invention, in which

Figure 1 is a top plan view of a portion of a stenographic machine, the drawing being largely diagrammatic and parts forming no part of the present invention being omitted;

Figure 2 is a bottom plan view of the portion of the stenographic machine shown in top plan view in Figure 1;

Figure 3 is a fragmentary view, partly in top plan with the case removed and partly in horizontal cross section, of part of the mechanism of the portion of the stenographic machine shown in Figures 1 and 2;

Figure 4 is a side elevational view of a portion of the mechanism with the parts in a first position;

Figure 5 is a front elevational view of the mechanism as shown in Figure 4;

Figure 6 is a side elevational view of the same portion of the mechanism as shown in Figure 4 but with the parts in a second position;

Figure 7 is a front elevational view of the mechanism as shown in Figure 6;

Figure 8 is a side elevational view of the same portion of the mechanism as shown in Figure 4 but with the parts in a third position;

Figure 9 is a front elevational view of the mechanism as shown in Figure 8;

Figure 10 is a side elevational view of the same portion of the mechanism as shown in Figure 4 but with the parts in a fourth position;

Figure 11 is a front elevational view of the mechanism as shown in Figure 10; and

Figure 12 is a perspective view of an operating member forming a portion of the mechanism.

Referring now more particularly to the drawings, there is shown largely diagrammatically only enough of a stenographic machine to make clear the structure and operation of one form of the invention. The keyboards of stenographic machines are standard. In the drawings my invention is shown as applied to a stenographic machine having a standard keyboard. I make no change whatever in the keyboard and the stenographer operates my machine precisely as he would operate a standard stenographic machine as heretofore known.

I have shown a portion of a stenographic machine including the keys marked T, K, W and R and the mechanism operated thereby. While the invention may be and preferably is used throughout the entire stenographic machine the portion shown is sufficient to explain the invention and its application to a standard stenographic machine, and the omission of other portions of the machine conduces to clarity because the portions omitted either have no relation to the invention or are substantial duplications of portions shown.

In a standard stenographic machine each key when operated simply prints its own letter. One or more keys is or are operated at a time. The strip of paper upon which the record is printed is advanced through the machine step by step, moving forward one step upon each operation of a key or keys. In a standard machine the letters of all the keys operated simultaneously are printed simultaneously upon the strip. An ink laden ribbon is used for supplying the ink for printing, the ribbon being applied and operated in well known manner.

The structure shown in the drawings is contained within a case 2 having a top 3 and a skirt 4 projecting downwardly therefrom and flanged at the bottom to form a base. The case carries in well known manner a roller 5 against which the strip of paper upon which the record is to be printed is advanced, the means for advancing and guiding the strip being of known construction and forming no part of the present invention. An ink laden ribbon 6 is provided which passes transversely in front of the strip where the latter lies against the roller 5 and type levers are provided for cooperation with the ribbon to print their respective characters upon the strip in standard fashion. The top 3 of the case has a series of parallel slots 7 through which the tops of the type levers project and has a series of parallel slots 8 through which the key levers project. In Figures 2 to 11, inclusive, only the keys T, K, W and R and the mechanism operated thereby are shown, although in Figure 1 adjacent keys S, P and H are indicated by dotted lines simply to show the adaptability of the invention to a stenographic machine having a standard keyboard. The mechanism operated by the keys including the key levers and associated means are shown in the drawings as spaced substantially apart for the sake of clarity. In an actual stenographic machine the parts will ordinarily be spaced closer together than shown in the drawings and, of course, the mechanism operated by the keys P and H will also be included within approximately the same space transversely of the stenographic machine as is shown in the drawings.

Extending transversely within the case are three rods 9, 10 and 11, respectively. The rod 9 serves as a pivot for the key levers. The rod 10 serves as a pivot for links and levers forming part of the mechanism as will presently appear. The rod 11 constitutes simply an anchorage for springs.

There are shown four key levers 12, 13, 14 and 15 which respectively carry the keys T, K, W and R. These levers are of modified bell crank shape as shown in Figures 4, 6, 8 and 10. Each of them has an upward projection 16 containing a bore 17 through which the rod 9 passes. Thus each of the key levers is operable generally in a vertical plane about the axis of the rod 9.

There are provided seven identical type levers 18, 19, 20, 21, 22, 23 and 24 which respectively carry the type for printing the letters T, D, K, Q, W, J and R. The key levers 12, 13, 14 and 15 are connected, respectively, with the type levers 18, 20, 22 and 24 by links 25. There are also provided operating levers 26, 27 and 28 which are identical in shape with the key levers 12, 13, 14 and 15 except that they do not have the upwardly extending key receiving portions of the key levers. The forward extremities of the operating levers 26, 27 and 28 are shown, respectively, at 26', 27' and 28' in Figure 3. The operating lever 26 lies between the key levers 12 and 13, the operating lever 27 lies between the key levers 13 and 14 and the operating lever 28 lies between the key levers 14 and 15, as shown in Figure 3. All of the operating levers 26, 27 and 28, like the key levers 12, 13, 14 and 15, have upward projections 16 containing bores 17 through which the rod 9 passes. The operating levers 26, 27 and 28 are connected respectively wtih the type levers 19, 21 and 23 by links 25.

Thus there is shown a series of seven parallel similar key and operating levers each linked to a type lever, but only the four key levers have keys for operation by the stenographer, the operating levers having no keys. Nevertheless, provision is made, as will presently be described, for operating the operating levers by the key levers under certain circumstances. When the key levers 12 and 13 are operated simultaneously they will operate the operating lever 26, when the key levers 13 and 14 are operated simultaneously they will operate the operating lever 27 and when the key levers 14 and 15 are operated simultaneously they will operate the operating lever 28. Moreover, means is provided, as will also presently be described, whereby when the key levers 12 and 13 are operated simultaneously their respective type levers are rendered inoperative while the type lever linked to the intermediate operating lever 26 is rendered operative to print its letter D, when the key levers 13 and 14 are operated simultaneously their respective type levers are rendered inoperative while the type lever linked to the intermediate operating lever 27 is rendered operative to print its letter Q and when the key levers 14 and 15 are operated simultaneously their respective type levers are rendered inoperative while the type lever linked to the intermediate operating lever 28 is rendered operative to print its letter J. The result is that simultaneous depression by the stenographer of the keys T and K prints D but does not print either T or K, simultaneous depression of the keys K and W prints Q but does not print either K or W, and simultaneous depression of the keys W and R prints J but does not print either W or R. This result is brought about entirely through my novel mechanism contained within the stenographic machine and the stenographer need not in operation of the machine be conscious of it. In other words, the stenographer may operate the machine exactly as he would operate a stenographic machine as heretofore available, the improved results being brought about entirely by the machine itself and not by and difference in manipulation by the stenographer.

There are provided four connecting levers 29, 30, 31 and 32 all pivoted on the rod 10 and extending in opposite directions therefrom. The rearward end of each of these connecting levers is pivoted by a pivot 33 to one of the type levers. The connecting lever 29 is pivoted to the type lever 18, the connecting lever 30 is pivoted to the type lever 20, the connecting lever 31 is pivoted to the type lever 22 and the connecting lever 32 is pivoted to the type lever 24. The forward portions of the connecting levers 29, 30, 31 and 32 extend freely from the pivot rod 10, the forward extremities of these levers being shown at 29', 30', 31' and 32', respectively, in Figure 2. A coil tension spring 34 is connected with the forward portion of each of the connecting levers and extends upwardly therefrom to the rod 11.

Positioning links 35, 36 and 37 are pivoted respectively to the type levers 19, 21 and 23 and to the rod 10. Also pivoted to the rod 10 immediately adjacent the respective positioning links 35, 36 and 37 are forwardly extending connecting links 38, 39 and 40, respectively. Pivoted to the respective connecting links 38, 39 and 40 by pivots 41 are upwardly extending operating links 42, 43 and 44, respectively. At their upper ends the operating links 42, 43 and 44 are respectively pivoted by pivots 45 to the respective operating levers 26, 27 and 28.

Connected between the downward extension of each key lever 12, 13, 14 and 15 and each operating lever 26, 27 and 28 and the rod 11 is a tension coil spring 46. Applied to the top 3 of the case 2 are three stop members 47, 48 and 49, respectively, shown as being in the form of screws which are maintained in vertically adjusted positions by nuts 50 engaging the upper and lower surfaces of the top 3. The respective stop members 47, 48 and 49 are positioned directly above and are adapted to be contacted by the respective operating links 42, 43 and 44 when the latter rise to their uppermost positions. Thus the stop members serve adjustably to limit upward movement of the operating links and the mechanism connected therewith. Upward movement of the forward portions of the key levers 12, 13, 14 and 15 is limited by their engagement with the under surface of the top 3. The key levers 12, 13, 14 and 15 and the operating levers 26, 27 and 28 are urged to turn in the counter-clockwise direction about the axis of the rod 9 viewing, for example, Figure 4, by the springs 46, and the connecting levers 29, 30, 31 and 32 are urged to turn in the counter-clockwise direction about the axis of the rod 10 by the springs 34.

Fastened to the respective operating links 42, 43 and 44, as, for example, by welding, so as in effect to form integral parts thereof are guide members 51, 52 and 53, respectively. Each of such guide members has two bores 54 extending generally downwardly but the bores of each guide member are inclined downwardly and laterally toward each other as clearly shown in Figures 5, 7, 9 and 11. Received within each of the bores 54 is a pin, the number of such pins shown being equal to the number of bores, namely, six. The pins are designated respectively by reference numerals 55, 56, 57, 58, 59 and 60. Connected with the upper end of each pin by a ball and socket universal joint 61 is a connector 62, and each connector is in turn connected through a ball and socket universal joint 63 with a downward

projection on one of the key levers 12, 13, 14 and 15. Such projections are respectively connected with the key levers as by pins 70 and are designated respectively by reference numerals 64, 65, 66, 67, 68 and 69.

The operating link 43 is offset rearwardly with respect to the operating links 42 and 44 as clearly shown in the drawings. The pin 55 is connected with the key lever 12 through the projection 64. The pins 56 and 57 are connected with the key lever 13 through the projections 65 and 66, respectively. The pins 58 and 59 are connected with the key lever 14 through the projections 67 and 68, respectively. The pin 60 is connected with the key lever 15 through the projection 69. The pins 55 and 56 enter the bores 54 of the guide member 51. The pins 57 and 58 enter the bores 54 of the guide member 52. The pins 59 and 60 enter the bores 54 of the guide member 53. The arrangement of the bores 54 of each guide member is such that when one of the pins guided thereby is moved downwardly alone it moves freely within its bore and has no function while when both pins guided thereby move downwardly simultaneously both of such pins move freely within their respective bores for a short distance only, whereafter the lower ends of the pins engage each other. This is due to the inclination of the bores toward each other at their bottoms. When the pins engage each other continued downward movement of the pins causes downward movement therewith of the guide member in which the pins are guided. But since the guide member is in effect integral with one of the operating links such operating link is thereby also caused to move downwardly.

Connected with each of the connecting links 38, 39 and 40 is an operating member of the form shown in Figure 12. There are three such operating members designated, respectively, by reference numerals 71, 72 and 73. The operating member 71 is connected with the connecting link 38, the operating member 72 is connected with the connecting link 39 and the operating member 73 is connected with the connecting link 40. The operating members may be connected with the respective connecting links by welding or otherwise so as in effect to constitute integral portions of such links. Each of the operating members has laterally projecting wings 74 overlying the forward portions of certain of the connecting levers 29, 30, 31 and 32. As will be seen from Figure 2, the upper wing (viewing that figure) of the operating member 71 overlies the connecting lever 29, the lower wing of the operating member 71 overlies the connecting lever 30, the upper wing of the operating member 72 overlies the connecting lever 30, the lower wing of the operating member 72 overlies the connecting lever 31, the upper wing of the operating member 73 overlies the connecting lever 31 and the lower wing of the operating member 73 overlies the connecting lever 32.

When the key lever 12 is depressed the pin 55 moves downwardly, when the key lever 13 is depressed the pins 56 and 57 move downwardly, when the key lever 14 is depressed the pins 58 and 59 move downwardly and when the key lever 15 is depressed the pin 60 moves downwardly. Since the depression of any single key lever alone does not cause simultaneous downward movement of the two pins guided by any single guide member the depresson of any single key lever alone simply results in swinging the corresponding type lever in the counterclockwise direction about its pivot 33, viewing, for example, Figure 4, to print its letter and does no cause depression of any of the operating links 42, 43 and 44. Consequently the operation of my stenographic machine when only a single key lever is depressed at a time and, indeed, in the structure shown when any combination of keys except T and K, K and W or W and R are pressed simultaneously, is the same as the operation under like circumstances of a standard stenographic machine as heretofore employed.

I shall now describe the operation of my stenographic machine upon simultaneous depression of the predetermined combinations of key levers heretofore mentioned and for the purpose of illustration the operation upon simultaneous depression of the key levers 12 (T) and 13 (K) will now be described. Preliminarily attention is directed to Figures 4 and 5 which show the parts in the position they assume when no key lever is depressed, Figures 6 and 7 which show the parts in the position they assume when the key lever 12 (T) only is depressed and Figures 8 and 9 which show the parts in the position they assume when the key lever 13 (K) only is depressed. In Figure 4 all of the type levers are in retracted position. In Figure 6 the type lever 18 (T) has been moved to operative position to print its letter. In Figure 8 the type lever 20 (K) has been moved to operative position to print its letter.

Figures 10 and 11 show the positions of the parts upon simultaneous depression of the key levers 12 (T) and 13 (K). Such simultaneous depression is accompanied by simultaneous downward movement of the pins 55, 56 and 57 since the pin 55 is connected with the key lever 12 and the pins 56 and 57 are connected with the key lever 13. As the key levers 12 and 13 are depressed simultaneously the lower ends of the pins 55 and 56 engage each other and upon continued depression of the key levers the guide member 51 is caused to move downwardly and carry with it the operating link 42. This causes operation of the operating lever 26 to impart an operative movement to the type lever 19 to print its letter D. At the same time, however, the connecting link 38 which is pivoted by the pivot 41 to the lower extremity of the operating link 42 is caused to partake of clockwise pivotal movement about the axis of the rod 10 viewing Figure 10. But such movement of the connecting link 38 causes downward movement therewith of the operating member 71 which is in effect an integral part of the connecting link 38 and downward movement of the operating member 71 in turn causes clockwise pivotal movement about the axis of the rod 10 of the connecting levers 29 and 30 as shown in Figure 10. This causes upward movement of the type levers 18 (T) and 20 (K) to inoperative position as shown in Figure 10. Due to such upward movement of the type levers 18 and 20 they will not print their letters despite the fact that the key levers 12 and 13 have been depressed since upward movement of the type levers causes the links 25 connecting them with their respective key levers to assume angular positions as shown in Figure 10, this in turn resulting in insufficient movement of the type levers toward the roller 5 to bring the type carried thereby into printing position. Consequently simultaneous operation of the key levers 12 (T) and 13 (K) causes through the mechanism explained operative movement of the type lever 19 (D) to print its letter and movement of the type levers 18

(T) and 20 (K) to the upper inoperative position shown in Figure 10 so that they do not print their letters despite the tendency to move them to printing position brought about by depression of the key levers 12 (T) and 13 (K).

The same result as above explained with respect to simultaneous operation of the keys T and K obtains upon simultaneous operation of the keys K and W except that in such case the letter Q is printed and upon simultaneous operation of the keys W and R except that in such case the letter J is printed. When the keys K and W are operated simultaneously the pins 57 and 58 are operated to depress the operating link 43 which causes operation of the operating lever 27 and the type lever 21 and moves the type levers 20 and 22 to their upper inoperative positions and when the keys W and R are operated simultaneously the pins 59 and 60 are operated to depress the operating link 44 which causes operation of the operating lever 28 and the type lever 23 and moves the type levers 22 and 24 to their upper incperative positions.

While I have shown and described a present preferred embodiment of the invention it is to be distinctly understood that the invention is not limited thereto but may be otherwise variously embodied within the scope of the following claims.

I claim:

1. In a machine for recording characters, a first character recording means, means including a selector for operating the first character recording means to record its character, a second character recording means, means including a selector for operating the second character recording means to record its character, a third character recording means mounted separately from the first and second character recording means and a single train of mechanism including said selectors operable upon simultaneous operation of said selectors for operating the third character recording means to record its character.

2. In a machine for recording characters, a first character recording means, a selector therefor, a second character recording means, a selector therefor, an operating connection consisting of link and lever means between each of the first and second character recording means and the selector therefor, a third character recording means mounted separately from the first and second character recording means and means operated by said selectors when they are operated simultaneously for operating the third character recording means to record its character.

3. In a machine for recording characters, a first character recording means, a selector therefor, means operable upon operation of said selector singly for operating the first character recording means to record its character, a second character recording means, a selector therefor, means operable upon operation of said second mentioned selector singly for operating the second character recording means to record its character, a third character recording means and means operated by said selectors when they are operated simultaneously and including a link pivoted to the third character recording means for operating the third character recording means to record its character.

4. In a machine for recording characters, a first character recording means, a selector therefor, a second character recording means, a selector therefor, operating connections between the first and second character recording means and their respective selectors, a third character recording means and a single train of mechanism separate from said operating connections and operated by said selectors when they are operated simultaneously for operating the third character recording means to record its character.

5. In a machine for recording characters, a first character recording means, a selector therefor, means operable upon operation of said selector singly for operating the first character recording means to record its character, a second character recording means, a selector therefor, means operable upon operation of said second mentioned selector singly for operating the second character recording means to record its character, a third character recording means and a single train of mechanism including a motion transmitting link pivoted to the third character recording means and operable upon simultaneous operation of said selectors for operating the third character recording means to record its character, said train of mechanism including portions of the means for operating the first character recording means and the means for operating the second character recording means.

6. In a machine for recording characters, a first character recording means, a selector therefor, means operable upon operation of said selector singly for operating the first character recording means through a predetermined path to record its character, a second character recording means, a selector therefor, means operable upon operation of said second mentioned selector singly for operating the second character recording means through a predetermined path to record its character, a third character recording means mounted separately from the first and second character recording means and means operable upon simultaneous operation of said selectors for operating the third character recording means only to record its character and operating the first and second character recording means in paths different from the aforesaid predetermined paths thereof so as to prevent said first and second character recording means from recording their characters.

7. In a machine for recording characters, a plurality of character recording means, operating means consisting of link and lever means and including a selector for each thereof and means operable upon simultaneous operation of said selectors for preventing each of said character recording means from being operated by its operating means in such manner as to record its character.

8. In a machine for recording characters, a plurality of character recording means, operating means consisting of link and lever means and including a selector for each thereof and means operable upon simultaneous operation of said selectors whereby said character recording means are moved to non-recording position.

9. In a machine for recording characters, a plurality of character recording means, operating means including a selector for each of said character recording means for causing the same to partake of movements toward their respective recording positions, and means including a separate train of mechanism for each of said character recording means operable upon simultaneous operation of said selectors for additionally imparting to said character recording means transverse movements to positions spaced from their said recording positions.

10. In a machine for recording characters, three separately mounted character recording means, two selectors and operating means whereby upon operation of one selector one of

the character recording means will be operated to record its character, upon operation of the other selector another of the character recording means will be operated to record its character and upon operation of both selectors the third character recording means will be operated to record its character, said operating means for operating each of the character recording means consisting of a single train of mechanism.

11. In a machine for recording characters, three separately mounted character recording means, two selectors and means whereby upon operation of one selector one of the character recording means will be operated through a predetermined path to record its character, upon operation of the other selector another of the character recording means will be operated through a predetermined path to record its character and upon operation of both selectors the third character recording means only will be operated to record its character and the other two character recording means will be moved in paths different from the aforesaid predetermined paths thereof to inoperative position.

12. In a machine for recording characters, character recording means, a plurality of selectors, an operating member, a part operated by each of said selectors normally slidable within a portion of and movable relatively to said operating member, said parts when said selectors are operated simultaneously being effective to operate said operating member, and connections between said operating member and said character recording means whereby upon operation of said operating member said character recording means is operated to record its character.

13. In a machine for recording characters, character recording means, a plurality of selectors, an operating member, means operated by each of said selectors adapted to engage each other and said operating member upon simultaneous operation of said selectors to operate said operating member and connections between said operating member and said character recording means whereby upon operation of the operating member the character recording means is operated to record its character.

14. In a machine for recording characters, a plurality of character recording means, a plurality of selectors, means operable by each selector when operated alone for operating one of the character recording means to record its character, an operating member, means operable by each selector adapted to engage said operating member, said last mentioned means operating said operating member upon operation of said plurality of selectors, and connections separate from said first mentioned operating means between said operating member and character recording means other than the character recording means which are operable upon operation of said respective selectors alone whereby upon operation of the operating member such character recording means is operated to record its character.

15. In a machine for recording characters, a plurality of character recording means, a plurality of selectors, means operable by each selector when operated alone for operating one of the character recording means to record its character, an operating member, means operable by each selector adapted to cooperate with said operating member, said last mentioned means operating said operating member upon operation of said plurality of selectors, and connections between said operating member and said character recording means which are operable upon operation of said respective selectors alone to move such character recording means generally toward character recording position but differentially to non-recording position and between said operating member and a character recording means other than the character recording means which are operable upon operation of said respective selectors alone to operate such character recording means to record its character upon operation of the operating member.

16. In a machine for recording characters, a plurality of character recording means, a plurality of selectors, means operable by each selector when operated alone for operating one of the character recording means to record its character, an operating member, means operable by each selector normally in engagement with and movable relatively to said operating member, said last mentioned means also being adapted to engage each other whereby to operate said operating member upon simultaneous operation of said plurality of selectors, and connections between said operating member and said character recording means which are operable upon operation of said respective selectors alone to move such character recording means to non-recording position and between said operating member and a character recording means other than the character recording means which are operable upon operation of said respective selectors alone to operate such character recording means to record its character upon operation of the operating member.

HARRY BASTOW.

CERTIFICATE OF CORRECTION.

Patent No. 2,334,693. November 23, 1943.

HARRY BASTOW.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, first column, line 31, for "with" read --with--; and second column, line 2, for "and" second occurrence, read --any--; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of January, A. D. 1944.

Henry Van Arsdale,
Acting Commissioner of Patents.

(Seal)