

April 14, 1931.

J. W. BRYCE

1,800,596

PRINTING AND PERFORATING MACHINE

Filed April 8, 1927.

5 Sheets-Sheet 1

Fig. 1.

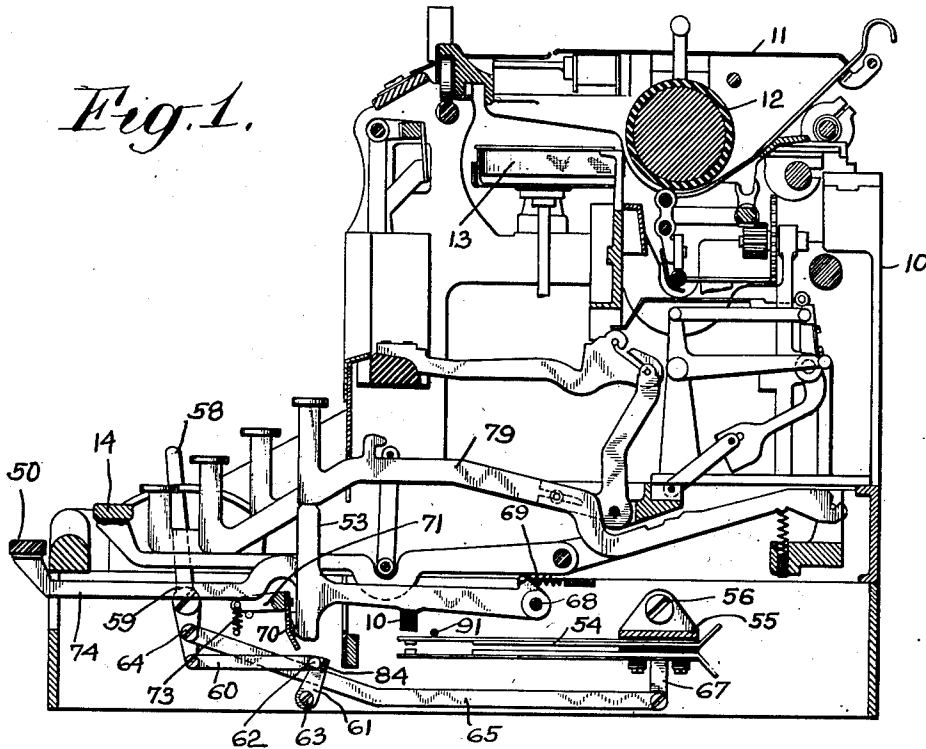


Fig. 2.

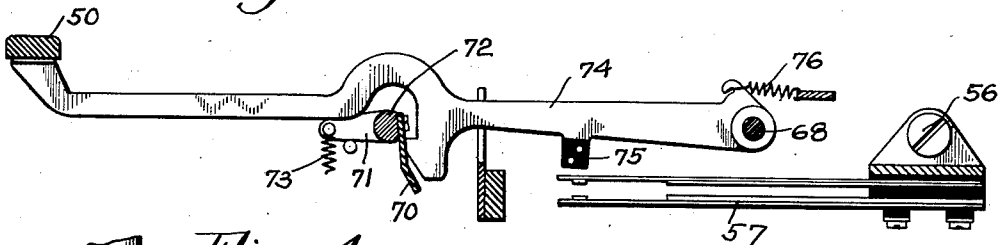


Fig. 4.

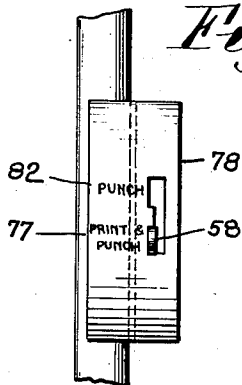
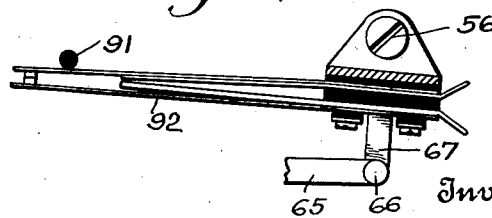


Fig. 3.



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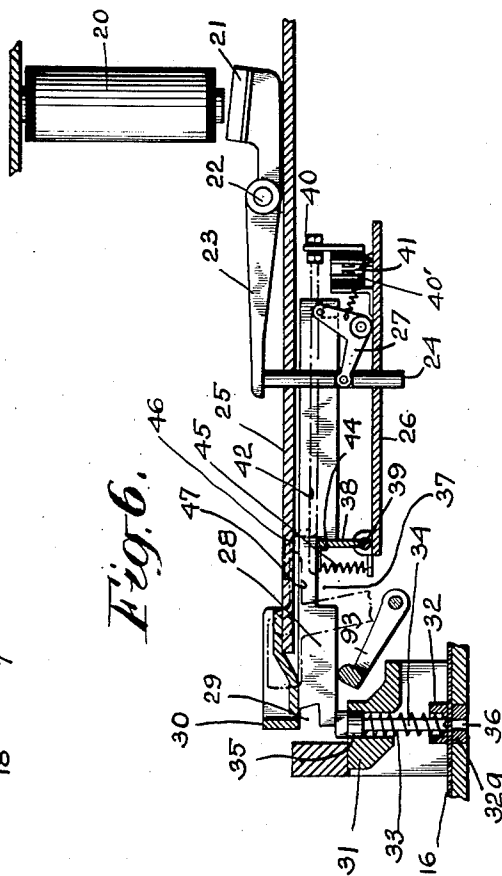
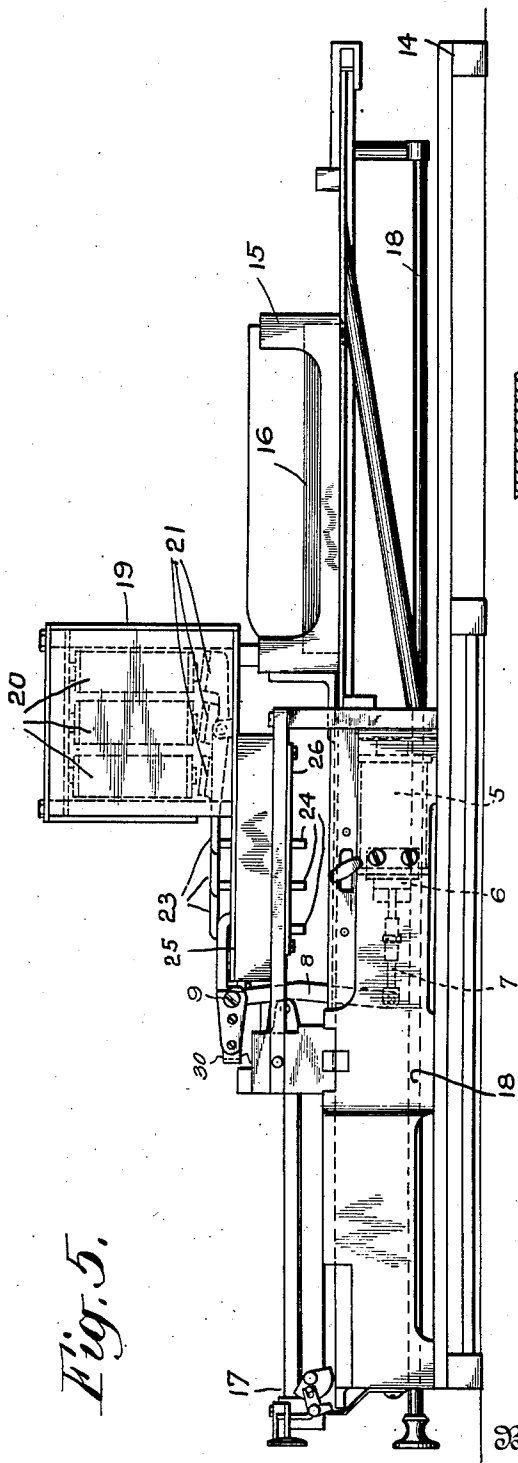
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5 Sheets-Sheet 3

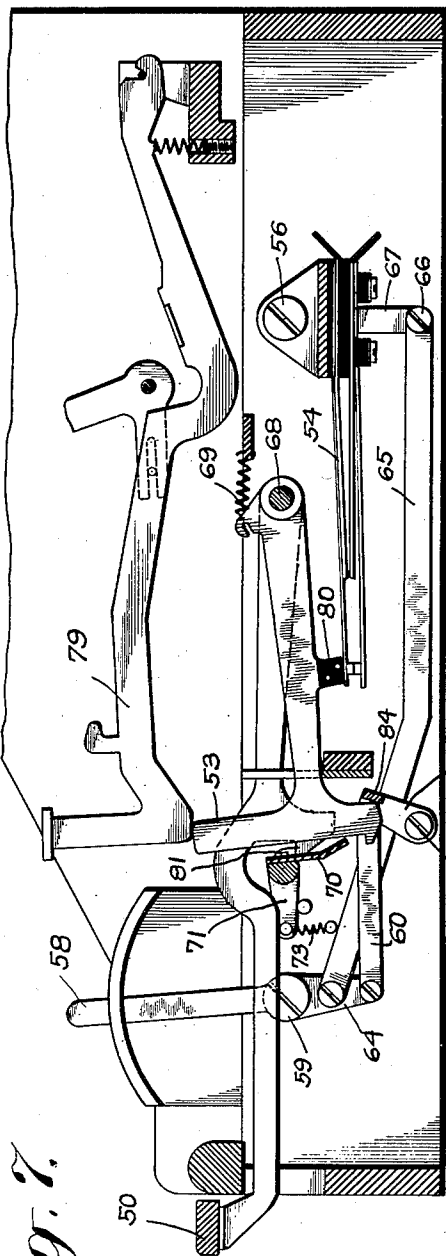


Fig. 7.

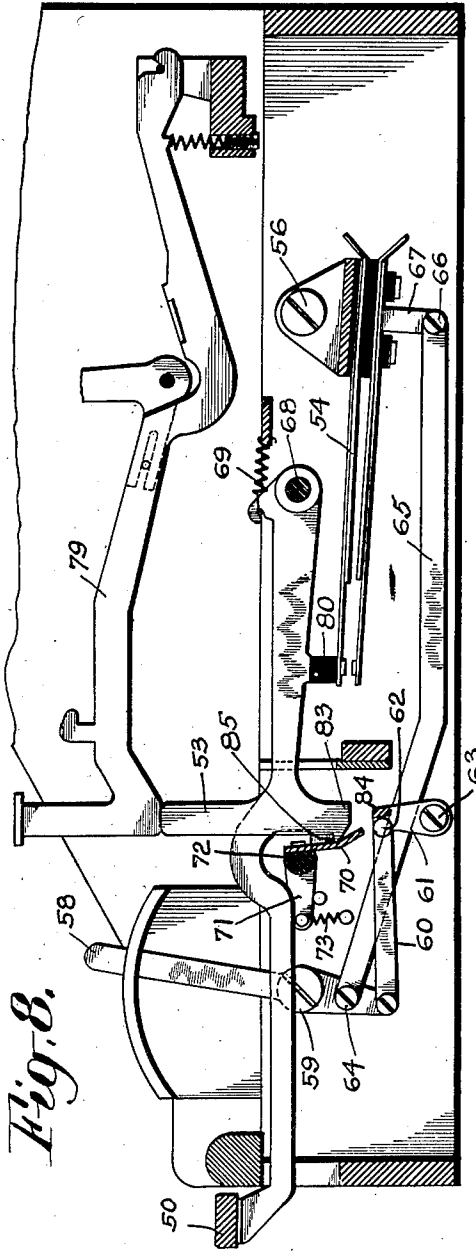


Fig. 8.

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Fig. 9.

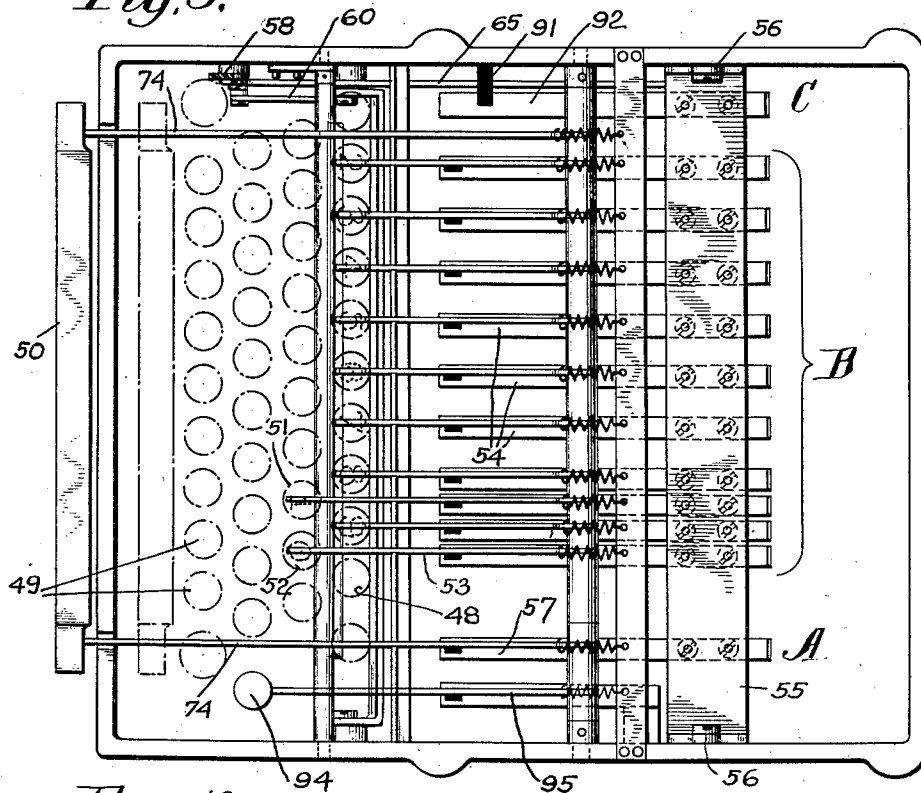
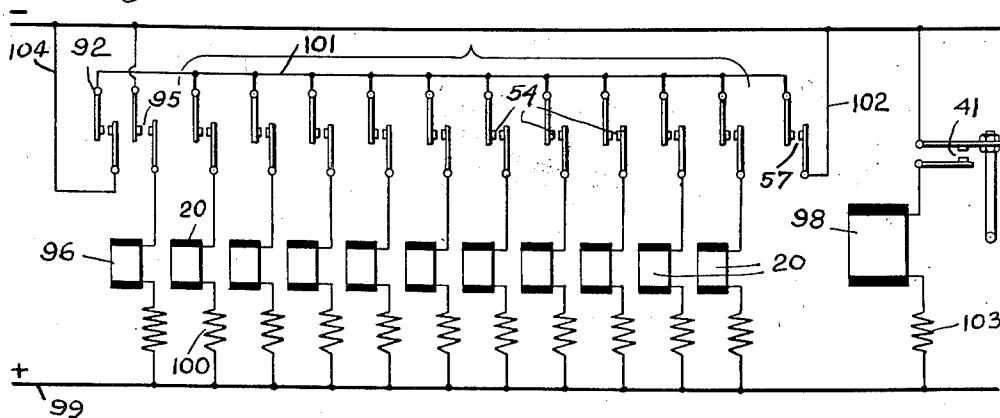


Fig. 10.



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5 Sheets-Sheet 5

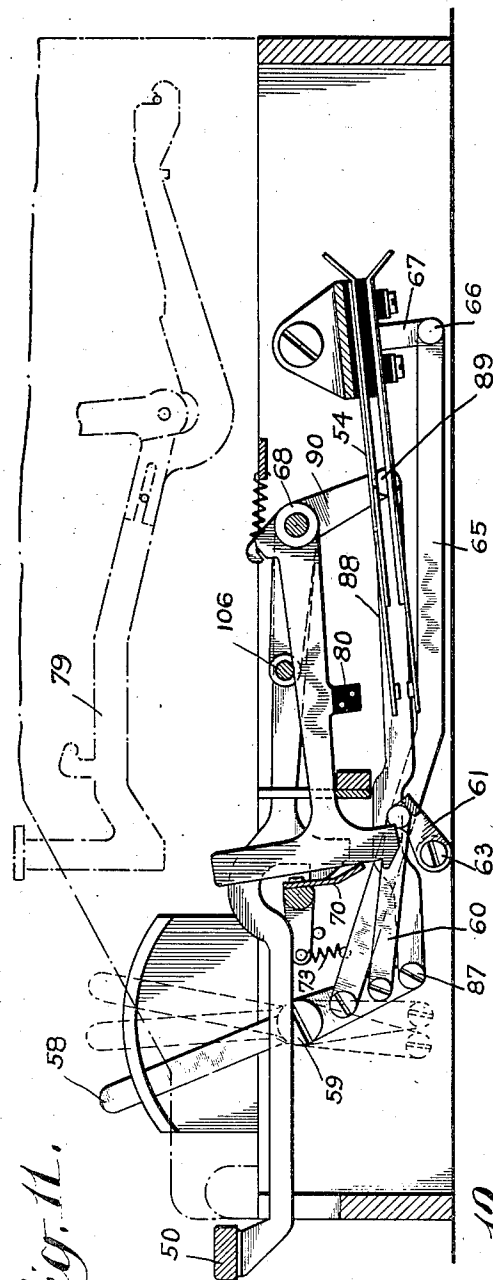
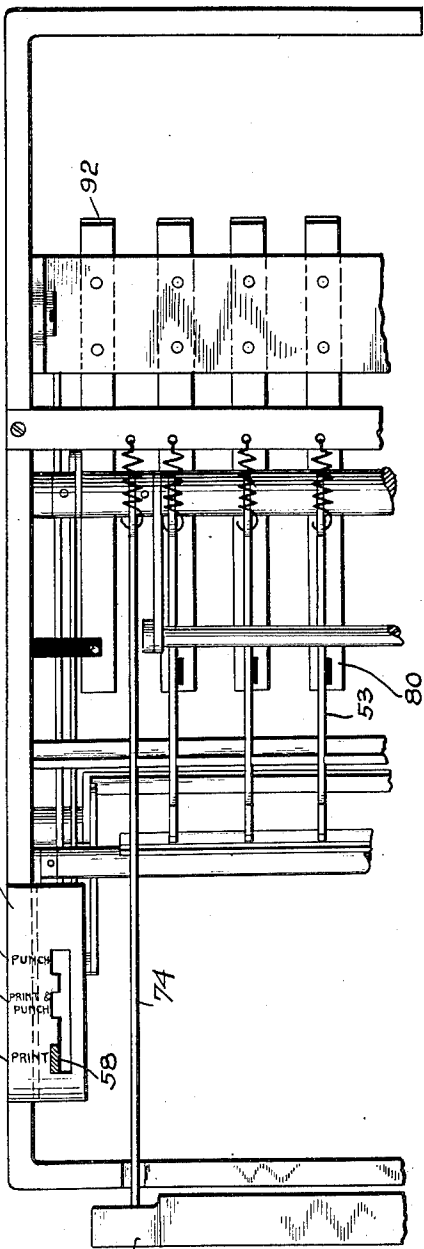


Fig. 11.

Fig. 12.



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UNITED STATES PATENT OFFICE

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PRINTING AND PERFORATING MACHINE

Application filed April 8, 1927. Serial No. 181,960.

This invention relates to perforating machines and more particularly to a combined printing and perforating machine.

It has been known in the prior art to actuate printing and perforating elements, simultaneously by a common operating means. In such devices, the printing and perforating operations were so linked up that upon the printing operation, the perforating operation automatically occurred without further control of the operator. As a result, in case the operator actuated the wrong printing element, the corresponding wrong perforating element would automatically be actuated and incorrectly punch a record. Consequently, said record would be spoiled and would have to be discarded, and a new record would have to be perforated all over again. The disadvantages of such a procedure are obvious. It has also been known in the prior art to simultaneously select a printing element and a corresponding perforating element by a single selecting device. In such cases, the complete selection of punches, to perforate a record, was first made, and then all the punches operated simultaneously to perforate the record in the manner of a gang punch. If an error was detected by the operator, he was compelled to cancel or void the entire prior selection of the punches and to start anew the same printing and punch selecting operation. The disadvantage of this system is the waste of time and inconvenience and lack of economy of operation.

The object of the present invention is to overcome the disadvantages of the previous systems by devising a combined typewriter and perforating machine wherein the printing elements and the corresponding punching elements are individually selected by a common selecting means and wherein a separate punch operating means is provided to operate the punches one at a time subsequent to the selecting operations of the punches. In this machine therefor, if an error be detected, it is merely necessary to avoid actuation of the punch operating means and to cancel selection of a single selected wrong punch, without interfering with the previous printing and punch selecting operations.

A further object of this invention is to provide an improved electrically operated perforating device controlled by the selection of corresponding printing elements.

A still further object of this invention is to provide a single selecting means adapted to either control printing and perforating elements for connected operation, printing elements alone without the punching elements, or punching elements alone without the printing.

Various other objects and advantages of the invention will be obvious from the following particular description of one form of mechanism embodying the invention or from an inspection of the accompanying drawings; and the invention also constitutes certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the accompanying drawings I have shown for the purpose of illustration one form of mechanism embodying the invention in which:

Fig. 1 is a side elevational view of a typewriter; parts being shown in section and showing my mechanism attached for controlling the perforating of a record card.

Fig. 2 is a detail view of the contact closing bar cooperating with one of the contacts of the punching mechanism.

Fig. 3 is a detail view of a special contact in one of its several positions.

Fig. 4 is a plan view of a control device for controlling the operations of the machine.

Fig. 5 is a front elevational view of the perforating machine used in conjunction with my invention.

Fig. 6 is a detail of the punch showing one of the selector magnets and associated parts including one of the punches, parts being shown in section.

Figs. 7 and 8 are detail views of one of the numeral keys and associated parts in different positions.

Fig. 9 is a plan view of the typewriter showing the contacts for controlling the punch.

Fig. 10 is a circuit diagram.

Fig. 11 is a detail similar to the views in

Figs 7 and 8 showing a modification of my invention.

Fig. 12 is an enlarged detail of the mechanism shown in Fig. 9 and also includes the modification shown in Fig. 11.

Referring to Fig 1, an embodiment of the invention selected for the purposes of the present disclosure to illustrate the principles involved and a preferred, practical application of the same is shown in conjunction with a striking bar typewriting machine having a main frame indicated generally at 10 which may be of the usual or any suitable variety; adjacent the rear of which is supported a carriage 11 including a platen roll 12. At 13 is a suitable ribbon supporting and feeding mechanism. The carriage is moved longitudinally by suitable motive means and its movement is controlled or spaced by a spacing bar 14. The typewriter also comprises the usual numeral and letter keys 48, 49, 51 and 52, respectively, see Fig. 9. In the typewriter used in conjunction with my invention the "I" key 51 is used for the numeral "one" and the "O" key 52 for the zero but it is to be understood that all the keys could be placed side by side or in other suitable operable positions. A contact closing bar 50 (see Fig. 9) is also provided to close a circuit when either of the numeral keys 48, 51 or 52 is depressed. Upon the depression of one of the above keys it in turn causes an intermediate actuating member 53 to close contacts 54 through which the magnets 20 of the perforating machine are energized causing the perforating machine to function.

The invention has been shown as applied to a perforating mechanism disclosed in greater detail in the copending application of J. T. Schaaff, Serial No. 731,980, filed August 14, 1924.

Reference will now be had to Fig. 5, in which is disclosed the perforating mechanism above referred to used in conjunction with my invention. The perforating mechanism comprises a base 14 and a card hopper 15 in which is placed a plurality of cards 16. These cards are held down in the hopper by a removable weight. The cards are adapted to be fed forwardly over the table one at a time by a card feeding knife slidably mounted within a longitudinal slot formed in the table of the punch, the lowermost card of the stack being carried forwardly into position for punching by the card carriage 17. In order that the cards may be fed forwardly one at a time from beneath the stack in the hopper a pull rod 18 is connected to the rear end of the feeding knife, previously mentioned. This rod 18 extends longitudinally beneath the table of the punch. Above the punch table arranged in a box or container 19 are all of the selector magnets 20. Each selector magnet is provided with an armature 21 (see Fig. 6) pivoted at 22. The armature

21 is provided with a forwardly extending lever 23.

The levers 23 overlie vertically movable plungers 24 slidably mounted in the plates 25 and 26 as shown in Figs. 5 and 6. Each plunger has one leg of a bell crank lever 27 slidably connected thereto, the opposite ends of said levers being connected to separate controlling slides which hereinafter will be called interposers and are indicated at 28. These interposers are each provided with a notch 29 in the upper portion of its forward end so as to permit the ready downward movement of the punch actuator 30 without encountering the interposer 28. When any one of the selector magnets has been energized the armature of said magnet will be attracted and the outer end of the levers 23 will be depressed, thus forcing down its respective plunger and operating the bell crank 27 attached thereto to shift the corresponding interposers so that notch 29 is carried out of the path of the punch actuator 30 which, if then operated, would be brought directly into contact with the upper surface of the interposer and depress the same.

Each one of the interposers 28 has its forward end arranged over a punch 34 which is slidably mounted in a bridge piece 31 extended across parallel with the table of the punch located beneath the bridge piece 31 but spaced therefrom is a stripper plate 32 which forms an abutment for the lower end of compression spring 33 which normally acts to elevate the punch 34. Each punch is provided with a shoulder 35 adjacent its upper end and against which the upper end of the spring 33 abuts.

As will be seen from an inspection of Fig. 6, the card 16 passes between the stripper plate 32 and a die 32a fitted in the table of the punch. This die is provided with a plurality of openings 36 one for each punch which receive and pass the discs punched out of the card.

The interposers 28 are provided with notches 37 on their under surfaces which are alined with each other when all the interposers are in idle position. These notches are arranged to receive a common switch operating bar 38 pivoted to a lug 39. The switching bar is normally held in retracted position by a spring (not shown) which is connected to the machine frame. Contacts 41 are provided which when closed energize operating magnet 5 (Fig. 5) which thereupon attracts its armature 6. The latter, through link 7 rocks the bail 8 on its pivot 9. The bail upon rocking depresses the forward end of the punch actuating bar 30 rigid with the upper arm of the bail. The bar 30 then operates the punches through the interposer bars as above explained. Contacts 41 are closed when the rod 24 is depressed to ad-

vance the interposer. Thus the movable contact element 40 is fixed to a member 42 having its forward end provided with a shoulder 44 engaged by the bar 38. The member 42 is held seated by a spring 45 in a notch in the bar 38. A hook 46 extends from the upper surface of the member which hook is in the path of upward movement of a finger 47 rigidly connected to the actuating bar 30 on the side of the pivot 9 opposite the interposer engaging side. When the interposer is advanced to cause punching, it rocks the bar 38 forwardly on its pivot. The bar being in contact with the shoulder 44 of member 42 thereupon moves the member to the left (as viewed in Fig. 6). The movable contact 40 is thus moved into engagement with the fixed cooperating contact 40' of contacts 41 to effect energization of magnet 5. When the actuating bar 30 is rocked counterclockwise to cause punching, as above described, the finger 47 moves upward and engages hook 46 to move the shoulder 44 out of the way of bar 38, permitting the member 42 and its associated contact element 40 to be retracted by a spring (not shown) thereby deenergizing magnet 5. As the operation of this perforating machine is fully described in the copending application of J. T. Schaaff above referred to, it is, therefore, unnecessary for me to go into further detail.

As previously mentioned a typewriting key punch according to the invention is illustrated in Fig. 1 and by way of example shows a device which may be used as an accessory in connection with perforating machines for simultaneously perforating a record with the printing of a record. The typewriter key punch, however, need not be a separate unit as it is quite feasible to physically attach it to a perforating machine or assemble it as an integral part thereof when the perforating machine is constructed. Referring now to Fig. 9 the contacts 54, 57 and 92 as disclosed are mounted in the well known manner on a U-shaped plate 55. This plate is in turn pivotally mounted in the frame of the machine by screws 56 in order that the contacts may be moved in an arcuate path. Each of the contacts 54 is mounted directly beneath an actuating member 53 (see Fig. 1), it being understood that there is an actuating member for each numeral key. The contacts 57 are closed directly by a contact closing bar 50; the contacts 92 being closed automatically when the handle 58 is adjusted to the punching position shown in Fig. 8. The closing of contacts 92 will be hereinafter described.

As previously mentioned the contacts 54, 57 and 92 are mounted on a U-shaped plate so that they may be moved in an arcuate path. To control this movement I provide a handle 58 which is pivoted at 59 to the frame of the typewriter. Fixed to the lower end of the

handle 58 is a link 60 which is connected to a bail 61 pivoted to the link at 62 and to the frame of the typewriter at 63. This bail 61 governs the downward movement of the actuating member 53 when depressed by the numeral keys 48, 51 and 52 for the "punch and no print" set up disclosed in Fig. 8 which will be hereinafter described. It is, of course, to be understood that the bail 61 extends beneath the actuating members 53. Pivoted at 64 to the handle 58 is another link 65 connected at 66 to an arm 67 which arm is fixed to the U-shaped plate 55 (see Fig. 8).

The actuating member 53 is mounted on a shaft 68 and biased by a spring 69. This springs pulls the member 53 back into normal position when released by the shutter latch 70.

The shutter latch 70 reaches across the base of the machine and is mounted on a shaft 72 which is pivoted at its opposite ends in the frame of the machine. Fixed with respect to the shutter latch and shaft is the arm 71. A spring 73 is provided to rotate the shaft in a counterclockwise direction tending to hold the shutter latch in locking position.

Referring now to Figs. 2 and 12 the contact bar 50, previously referred to, is connected to arms 74 at its opposite ends. These arms are pivotally mounted on the shaft 68 and biased by a spring 76 to normal or upper position.

Reference will now be had to Figs. 1, 7 and 8 for a detail description of the operation of my device. Fig. 1 as previously stated, discloses an ordinary typewriter with my invention applied thereto. Assuming that an operator is making out invoices on the typewriter and wishes to simultaneously control the making of a perforated record. The bill or sheet of paper is inserted in the well known manner on the platen roll 12, the position of the paper and movement of the typewriter carriage being well known and therefore unnecessary for me to go into detail. The operator before starting the typing operation will adjust the handle 58 to the position shown in Fig. 7 or in other words to the "print and punch" position 77 shown on the indicating plate 78 (see Fig. 4) which is fixed to the frame of the typewriter in a convenient manner. The movement of handle 58 through link 65 and arm 67 rocks the contacts 54 slightly downward from the position shown in Fig. 8. The typewriter is now ready for the operator to manipulate the keys for the printing of the invoice and simultaneously perforating the record card for tabulating purposes.

It is to be understood that code numbers, as is well known in tabulating systems, are used in connection with punching information on the record cards pertaining to the names of persons or commodities, etc. The operator depresses the letter keys of the typewriter in the well known manner and prints

the customer's name, date, etc., on the invoice along with the code number. As an example we will assume that John Doe's name has been printed on the invoice and that his code number is 5; the 5 key being designated as 79 in Fig. 7. The operator depresses the 5 numeral key which abuts the surface of the actuating member 53 and rocks it downwardly about its pivot 68 closing contacts 54. As will be noted a block of insulation 80 is provided on the arm of the actuating member for closing the contacts. The actuating member 53 is restrained from returning to its normal position by means of a shutter latch 70 previously referred to. In order to perforate the record card the operator now depresses the contact bar 50 which is also moved downwardly about its pivot 68. This contact bar has affixed to one of its arms 74 an insulated block 75 for actuating the contacts 57, (see also Fig. 2). As soon as the contacts 57 have been actuated by the contact bar 50, one of the selecting magnets 20 of the perforating machine is in turn energized, attracting its armature, and causing a perforation to be made in the desired column on the card. It is to be noted that immediately after the insulated block 75 closes the contacts 57 the shoulder 81 of the contact bar arm 74 (see Fig. 7) abuts the surface of the shutter latch 70 pressing it outwardly sufficiently to allow the actuating member 53, through spring 69, to return to its normal position permitting contacts 54 to open. The contact bar arm 74 does not itself become latched by the shutter latch 70 as the shoulder 81 cannot be depressed far enough for this purpose. It is obvious that any other information printed on the invoice may be likewise simultaneously perforated on the record card.

Each actuating member 53 is provided at its lower end with a projection 85 (Fig. 8) which when the member is moved downward upon actuation, forces the latch 70 outwardly until it passes beyond it. Upon the upward movement of the member 53 under the influence of spring 69, the projection 85 catches on the bottom of the latch 70 and is thereby held from further upward movement. In the ordinary operation of the machine for printing and punching a numeral, the punch operating member 50, as hitherto explained serves to press the latch outwardly by means of its lug 81. Should the operator, however, print the wrong numeral on the invoice and detect it before actuating punch operating member 50, he may omit actuation of member 50, thus omitting the punching of said wrong numeral. The wrong numeral may then be erased from the invoice and the correct numeral key actuated. The projection 85 on the member 53 corresponding to the latter key will thereupon force latch 70 outwardly in the same manner as lug 81 of member 50, releasing lug 85 of the previously de-

pressed member 53 corresponding to the incorrect numeral key from the latch and permitting the spring 69 to raise the member to inactive position.

It will be recognized that with my device it is possible for an operator while typewriting and perforating to print numerals as well as letters without effecting perforation upon the card in the perforating machine. In other words, it may be desired to perforate some of the numerals and not to perforate others. This is readily effected by printing the numerals without depressing the contact bar 50. It is also possible to perforate numerals on the card without printing them on the typewriter as will be hereinafter described.

Referring now to Fig. 8, the typewriter is shown in position to "punch and not print," or in other words, the handle 58 has been moved forward to the "punch position" shown on the indicator plate 78 in Fig. 4. In this position it will be noted that the contacts 54 have been rocked slightly upward through the same linkage heretofore described in connection with Fig. 7. The numeral keys 48, 51 and 52 of the typewriter are operated in the same manner to simply punch a record card as they are in connection with the "printing and punch" operation previously described, but are limited in their downward movement. Figs. 7 and 8 differ in that the downward movement of the actuating member 53 is limited by the surface 83 of the member 53 abutting the surface 84 of the bail 61. It is therefore obvious that the distance of the actuating member 53 is limited and thus limits the movement of any of the numeral keys so that the type cooperating with the keys cannot become actuated to come in contact with the paper.

When the device is set to the punching and non-printing position as disclosed in Fig. 8 the depression of a numeral key is adapted to directly effect the operation of the punches without the necessity of depressing the contact bar 50 as will now be described.

When the handle 58 is moved to the extreme right, as shown in Fig. 8, the machine is adjusted for punching by direct key action without printing. At one side of the machine is an insulation pin 91 (see Fig. 9) which overlies a pair of normally open contacts 92 fixed to the plate 56. The movement of handle 58 to the right to punching and non-printing position, through connecting link 65, oscillates plate 56 clockwise about its pivot 56 (as viewed in Figs. 3 and 8). In this movement, contacts 92 fixed to the plate, also rock clockwise, approaching pin 91. The upper blade of the contacts engages pin 91 which thereupon presses it into closed contact with the lower blade. The handle 58 being latched in aforesaid punching position, the plate 56 remains in its advanced clock-

wise position and contacts 92 remain closed during the punching and non-printing setup. Reference to the circuit diagram, Fig. 10, shows that contacts 92 are in series with contacts 54 in the same manner as the contacts 57 closed by bar 50. Closure of either contacts 57 or 92 together with closure of contacts 54 serves to complete the punching circuit. Operation of the numeral keys selectively closes contacts 54 as hitherto explained. Since contacts 92 are already closed in the punching and non-printing setup, the operation of a key and consequent closure of contacts 54 will complete the punching circuit and effect punching. Actuation of bar 50 to close contacts 57 after operation of a key is thus avoided, the punching having been directly effected by an operation of the key.

In Figs. 11 and 12 I have shown a modification wherein the machine may be set up for ordinary typewriting without operating the punching device. The setting up of the typewriter for the "print and no punch" operation is similar to the previously described setups. The handle 58 is pulled forward until it reaches the "print position 86" shown on the indicating plate 78 in Fig. 12. Pivoted to the handle at 87 is a link 88 pivoted at 89 to an arm 90 connected to a bail 106 reaching across the upper portions of the actuating members 53. The arm 90 and bail 106 are pivotally mounted on the shaft 68. The actuation of handle 58 to this position rocks the bail downwardly moving the actuating members 53 to inoperative position with respect to the numeral keys and it also rocks the contacts 54 through link 65 to their maximum downward position, as disclosed. Thus when a numeral key is depressed it will effect printing without closing any of the punching circuit contacts.

According to the Patent No. 1,426,223 issued August 15, 1922, to J. T. Schaaff each time a punch is actuated a lever similar to lever 93 (Fig. 6) is rocked downwardly and this controls the feeding, column by column through well known escaping mechanisms. In my present invention I have shown an extra key 94 (Fig. 9) adapted to close the contacts 95 carried by the frame of the machine and independent of the mounting of the previously described contacts. Depression of key 94 thus energizes a selector magnet 96 (Fig. 10) which through lever 23 and bell crank 27 shifts a special interposer bar which has no punch 34 associated with its forward end. This special interposer rests upon bail 93 and rocks the same in the usual manner causing the card to feed one column for each depression or to feed a plurality of columns, if the machine is set for this purpose.

Referring now to Fig. 10 an illustration of the circuit diagram is disclosed as compris-

ing a plurality of contacts 54. Contacts 57 are provided for completing the closure of the circuit when the contact bar 50 is depressed. The contacts 92 are similar to the contacts 57 but are closed automatically when the handle 58 is adjusted to the punch position. The magnet 98 is energized by the contacts 41 when closed by the interposers 28. The energization of magnet 98 causes the perforating machine to function. Presuming that a numeral key has been depressed closing one of the contacts 54 and that the contact bar 50 has likewise been depressed closing contacts 57, a circuit will be established as follows: from the positive side of the line 99 through resistance 100, magnet 20, corresponding contacts 54, wire 101, contacts 57, wire 102 and back to the negative side of the line. Simultaneously with the above the following circuit is established through the actuating magnet 98 of the perforating machine; from the positive side of the line 99, through resistance 103, magnet 98, contacts 41 and back to the negative side of the line. When the typewriter is set up to simply punch and the handle 58 has been adjusted to this position, the contacts 92 as previously described, are automatically closed. Upon the depression of one of the numeral keys closing one of the contacts 54 the following circuit is established: from the positive side of the line, through resistance 100, magnet 20, corresponding contacts 54, wire 101, contacts 92, wire 104 and back to the negative side of the line. It is also to be understood that simultaneously with the above operation of contacts 92 the magnet 98 is also energized for a perforating operation as heretofore described. When the magnet 94 is depressed closing contacts 95 the circuit is established through the spacing magnet 96 as will be readily recognized in the description of Fig. 10.

While I have shown and described and pointed out the fundamental novel features of the invention as applied to a single modification it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. I intend to be limited therefore only as indicated by the scope of the following claims:

What is claimed is:

1. In a machine of the class described, a plurality of printing elements, means for individually selecting said printing elements, a plurality of punching elements also individually selected by said printing selecting means to effect punching corresponding to the printing elements selected and means controlled independently of the selecting means effective to actuate a selected punch only be-

fore the next printing and punching selection.

2. In a machine of the class described, a plurality of printing elements, selecting means therefor, a plurality of punching elements also selected by said selecting means to effect punching corresponding to the printing elements selected and means for suppressing printing to permit the selecting means to effect punching alone.

3. In a machine of the class described for perforating record cards, a plurality of printing elements and associated punches, means for selecting the punches for operation on operation of their corresponding printing elements and means controlled independently of the selecting means for successively operating the selected punches to punch said record card.

4. In a machine of the class described, a plurality of printing elements and associated electrically operated punches, means for selecting the printing elements for operation, a control circuit for each punch, means controlled by said selecting means for selecting the control circuits and means controlled independently of the selecting means for effecting energization of the selected circuits.

5. In a machine of the class described, a plurality of printing elements, selecting means therefor, a plurality of punching elements also selected by said selecting means to effect punching corresponding to the printing elements selected, means for selectively suppressing punching or printing to permit the selecting means to effect printing alone or punching alone.

6. In a machine of the class described, printing elements, selecting means therefor, perforating elements, means controlled by said selecting means for selecting one of said perforating elements for operation, means for actuating a selected perforating element subsequent to the selecting operation and means controlled by the selecting means for the printing elements for releasing a selected perforating element without effecting punching.

7. In a combined typewriter and perforating machine, printing elements, selecting means therefor, perforating elements, separate electric circuits for operating said perforating elements, said circuits including contacts adapted to be closed by said selecting elements and normally open contacts adapted to be separately closed and means operated independently of said selecting means for momentarily closing said last named contacts to complete the operating circuit for the selected punches, said latter contacts being automatically reopened after the punching operation.

8. In a combined typewriter and perforating machine, printing elements, selecting

means therefor, perforating elements, separate electric circuits for operating said perforating elements, said circuits including contacts adapted to be closed by said selecting elements and contacts adapted to be separately closed and means operated independently of the selecting means for closing said last named contacts after closure of said first named contacts, said last closed contacts being automatically reopened after a punching operation.

9. In a combined typewriter and perforating machine, printing elements, selecting means therefor, perforating elements, separate electric circuits for controlling said perforating elements, said circuits including contacts adapted to be closed by said selecting elements and normally open contacts adapted to be separately closed, means for closing said last named contacts after closure of said first named contacts, said last closed contacts being automatically reopened after an operation of said last named means, and means for at will maintaining said second named contacts closed throughout operation of the machine.

10. In a machine of the class described, a printing device, a perforating device, selecting means for controlling said printing and perforating devices, means for feeding a record upon each printing and perforating operation and means for controlling said record feeding means to feed a record at times other than when a printing and perforating operation is effected.

11. In a machine of the class described, printing elements, perforating elements to punch a record sheet, selecting means for said printing elements, punch control means actuated by said selecting means for selectively controlling said perforating elements, means for latching said punch control means in operative position, means combining with said punch selecting means for causing punching and for releasing said punch control means and means for feeding said record sheet after each perforating operation into position for a succeeding perforating operation by said perforating elements.

12. In a combined typewriter and record punching machine printing elements, punching elements, means for selectively actuating the printing elements, means controlled by said actuating means for selectively controlling the operation of said punching elements, said last named means including a plurality of electric contacts, a common supporting member for said contacts and means for moving said supporting member for controlling the cooperation between said printing and punching elements.

13. In a combined typewriter and record punching machine wherein the record is fed step by step, printing elements, selecting means therefor, punching means controlled

by said selecting means, and means controlled independently of the selecting means and subsequent to the selecting means for operating said punches to punch the record in accordance with the printing elements selected in the intervals between successive record feeding steps.

14. In a combined typewriter and record punching machine, printing elements, means for successively operating said printing elements, punching elements, means controlled by said printing operating means for successively selecting said punching elements for operation, means actuated subsequent to the operation of the selecting means for successively operating said selected punching elements, and means whereby failure to actuate said punch operating means before the next selection releases the prior selected punching element without effecting punching.

15. A combined typewriter and record perforating machine comprising printing elements, selecting means therefor, perforating elements controlled by said selecting means to operate in accordance with the printing elements selected, and means actuated by a selecting operation of said selecting means for returning to original condition a prior selected perforating element without effecting punching.

16. In a machine of the class described, a plurality of printing elements, selecting means therefor, a plurality of punching elements also selected by said selecting means to effect punching corresponding to the printing elements selected, means independent of the selecting means for successively operating the selected punches, and means for rendering ineffective the punch operating means to operate any selected punch.

17. A machine comprising printing elements, operating means therefor, perforating elements selected by operations of the printing elements to effect a plurality of perforating operations on a record card corresponding to the printing operations effected, and means for selectively and individually cancelling selection of any of the punches subsequent to complete operation of their corresponding printing elements.

18. A perforating machine comprising punches, control members therefor, keys for actuating the control members to select the punches for operation, means for latching a control member in actuated position while permitting its associated key to return to idle position, and a device for operating the selected punch under control of the latched control member effective only before the next key operation, said device being provided with means to unlatch the control member after the punching operation.

19. In a record punching machine wherein the record is fed step by step for successive punching operations thereon, punches, se-

lecting members therefor and means manually operated independently of said selecting members for actuating the selected punches one at a time between successive feeding steps of the record.

20. A perforating machine comprising perforating elements, keys depressible to select said elements, a member adapted to be operated after a key has returned to idle position for effecting operation of the punch selected by said key, said member being effective only before the next selecting operation by a key.

21. A perforating machine comprising perforating elements, a control device for each perforating element, depressible members for selectively actuating said control devices, means for latching a control device in control position after an operation thereof while permitting its operating key to return to idle position, and means adapted to be operated after said latter key has returned to idle position for effecting operation of the selected punch under control of said latched control device, said last-mentioned means being effective only before the next key operation.

22. In a combined typewriter and punch, printing elements, perforating elements, a plurality of selecting members for jointly selecting perforating and printing elements, and a member manually operated after said selecting members have been operated for effecting operation of the selected punches, said manually operated member being effective only after each individual selecting operation.

23. In a combined typewriter and punch, printing elements, perforating elements, keys for effecting a common selection of said printing and perforating elements, and means controlled independently of said keys for actuating the selected perforating elements, said means being effective only in the intervals between successive individual operations of the keys.

24. In a combined typewriter and punch, printing elements, perforating elements, keys for effecting common selection of said printing and perforating elements, and means manually operable after a key has been operated and returned to idle position for operating the punch selected by said key, said means being effective only before the next operation of the latter key or any of the other keys.

25. A perforating machine comprising punches, keys for selecting said punches, and means operated and controlled between successive key operations independently of said keys effective to cause operation of a punch selected by a key only in the intervals between successive individual key operations.

26. A perforating machine comprising punches, keys for selecting said punches, and

manual means independent of the keys effective for operating the punches only between successive individual key operations.

27. In a combined typewriter and punch, printing elements, punching elements, common selecting means for said printing and punching elements, and a device manually controlled independently of said selecting means effective for operating said punches only after each individual selecting operation.

28. In a combined typewriter and punch, printing elements, punching elements, manually operable common selecting means for said printing and punching elements, and a manually operable means operating independently of said selecting means effective for operating said punches only after each individual selection.

29. In a machine for operating on records, a punching device and members selectively operable either for selecting said punching device only for subsequent operation or to jointly select and cause operation of the punching device.

30. In a machine for operating on records wherein means are provided to feed the card step by step relative to the punches, a punching element and members separately, manually, successively operated to cause operation of said punching element and to cause said feeding means to thereafter feed the card a step further under said punching element.

31. In a machine for operating on records, punching elements, means for selecting said punching elements for operation, and a member operated independently of the punch selecting means and automatically returnable to initial position for successively operating said elements after selection thereof by said selecting means.

32. In a machine for operating on a record, punches for successively perforating said record, means for successively selecting said punches for operation, means controlled independently of the selecting means for successively operating the selected punches, and means for maintaining the selection of a punch in effect until said operating means has been actuated.

33. In a machine for operating on a record, punches for successively perforating said record, means for successively selecting any of said punches for operation, means controlled independently of the selecting means for successively operating the selected punches, and means actuated by said selecting means for maintaining the selection of a punch in effect until the operating means has been actuated.

34. In a machine for operating on a record, punches, selecting means therefor automatically returnable to initial position after operation thereof, and manual means for successively operating the selected punches after

said selecting means has been operated and returned to initial position.

35. A machine for operating on records, comprising punching elements, circuits for effecting operation of the elements, selecting means for the punch circuits adapted to selectively close contacts in said circuits, and means for completing the selected circuits including contacts in series in said circuit, a carrier for one of said contacts and means automatically returnable to initial position for engaging and operating said contact carrier to close the last named contacts and complete the selected punch circuits.

In testimony whereof, I hereto affix my signature.

JAMES W. BRYCE.