

Dec. 9, 1952

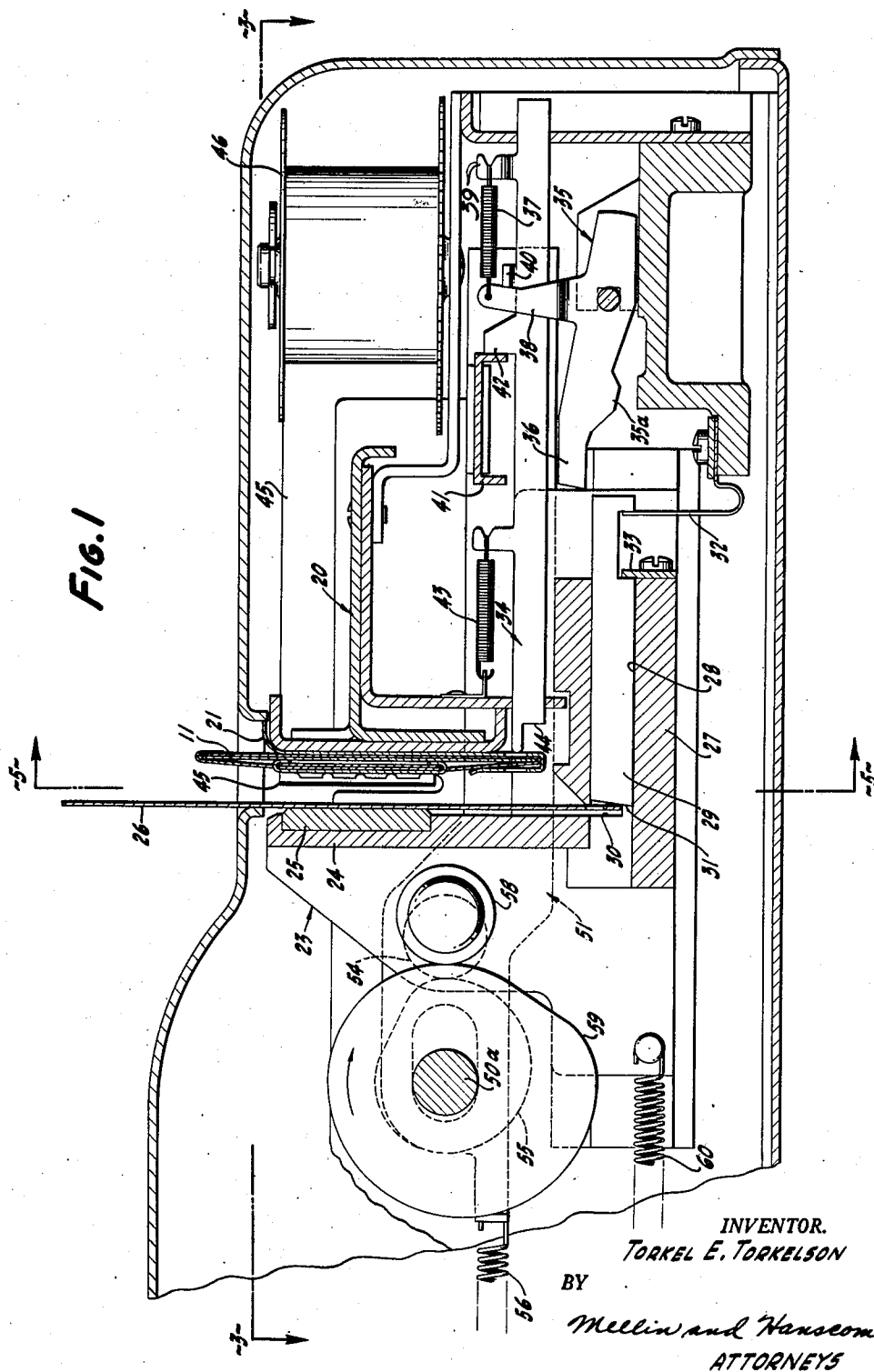
T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 1



Dec. 9, 1952

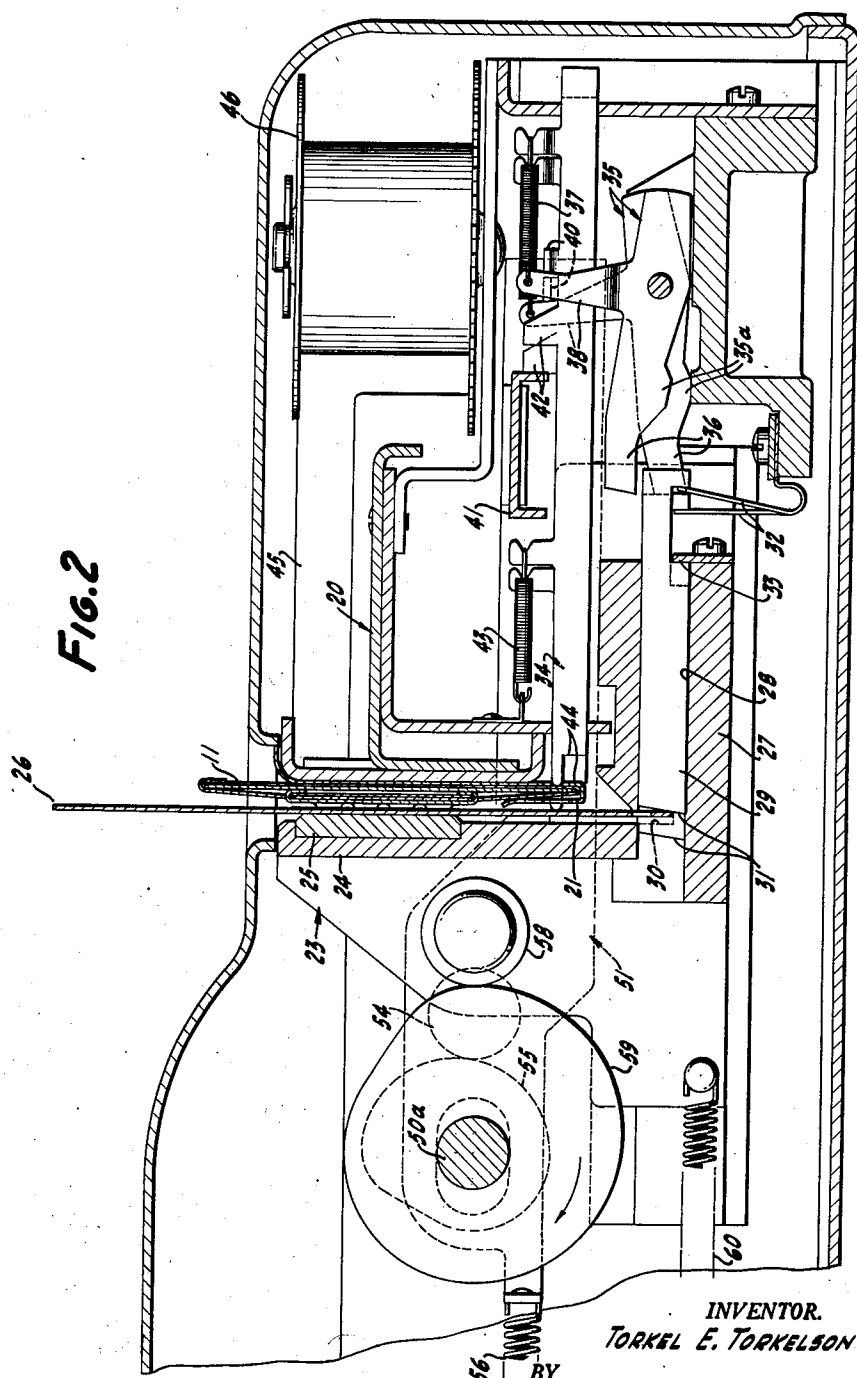
T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 2



INVENTOR.
TORKEL E. TORKELSON

BY

Mellin and Hanson
ATTORNEYS

Dec. 9, 1952

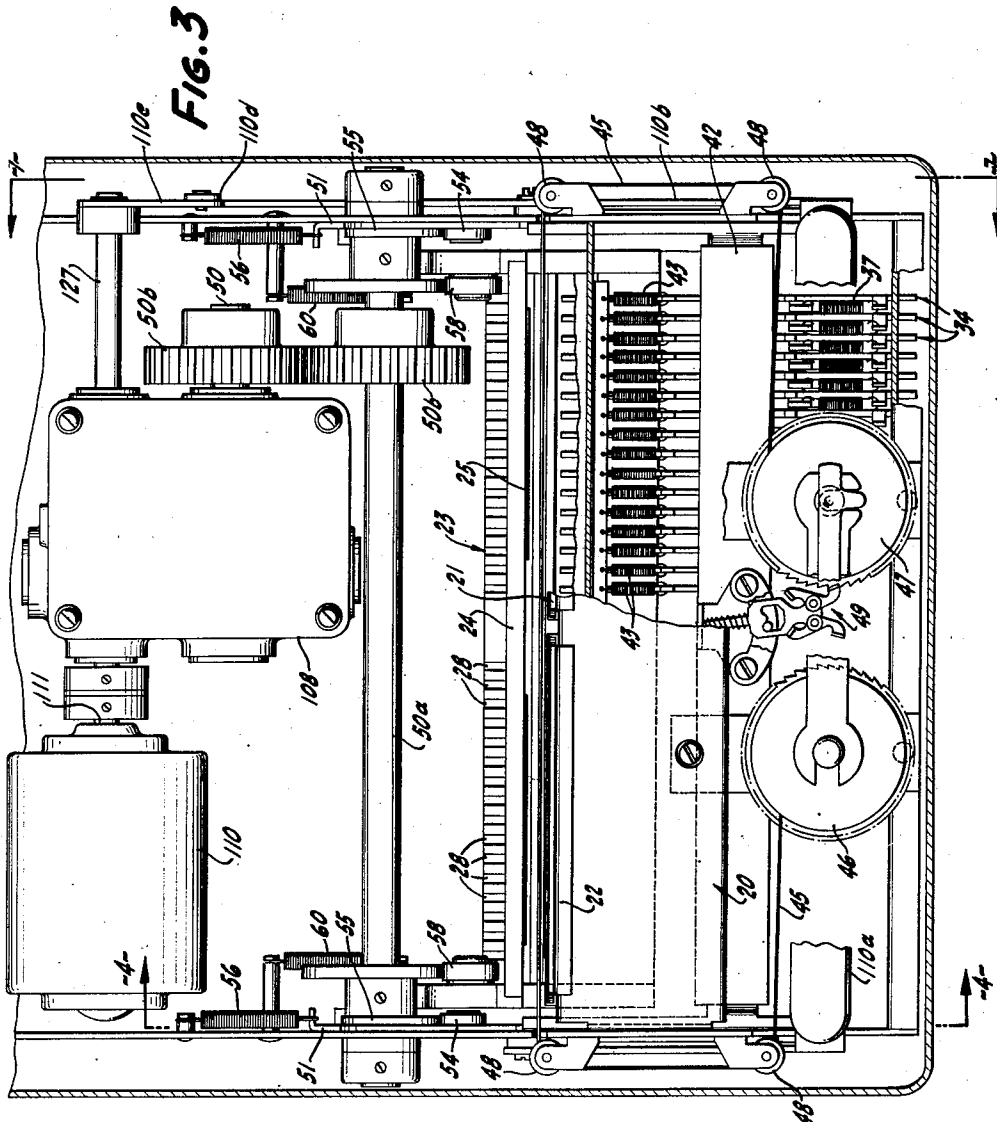
T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 3



INVENTOR.
TORKEL E. TORKELSON
BY
Mellin and Hanson
ATTORNEYS

Dec. 9, 1952

T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 4

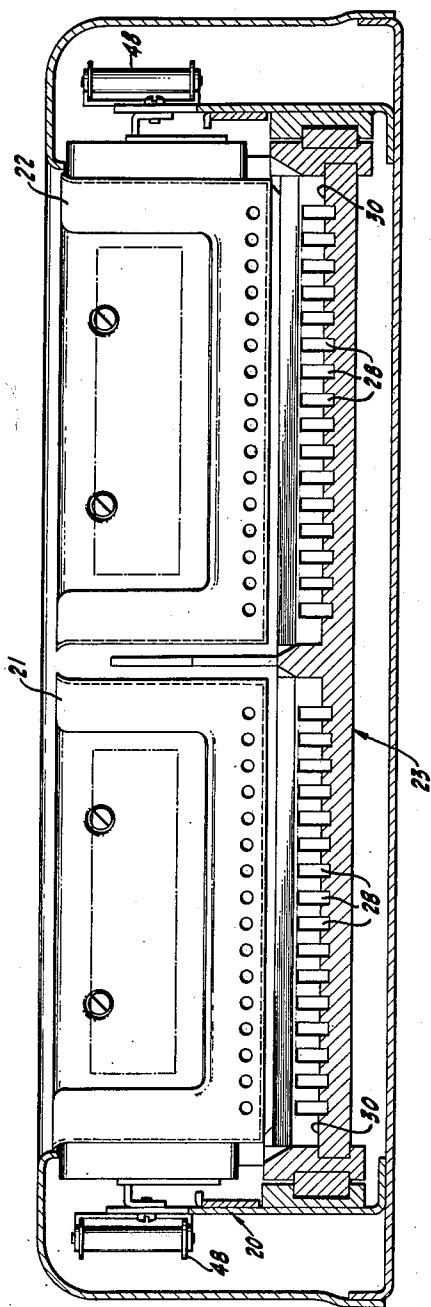


FIG. 5

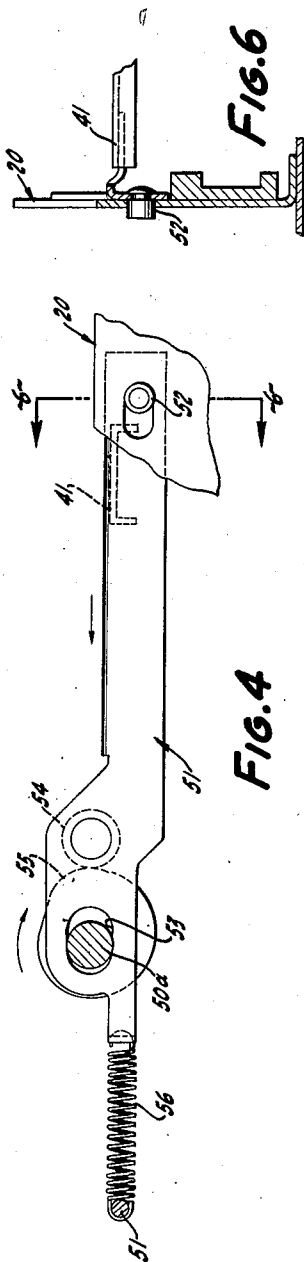


FIG. 4

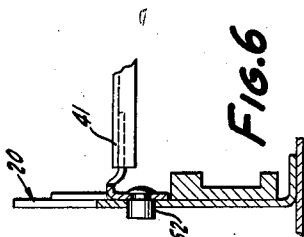


FIG. 6

INVENTOR.
TORKEL E. TORKELSON

BY

Mellin and Hanson
ATTORNEYS

Dec. 9, 1952

T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 5

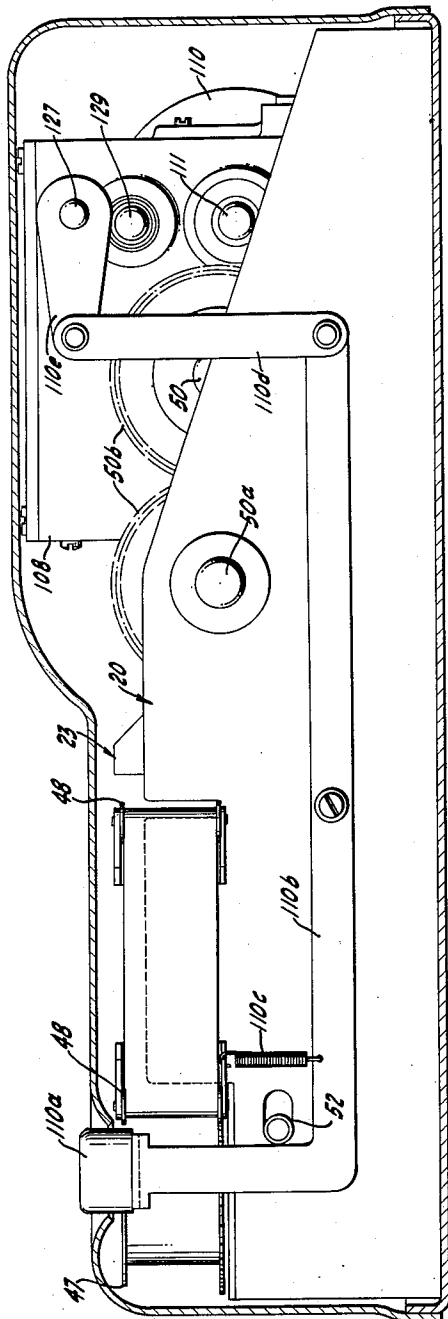


FIG. 7

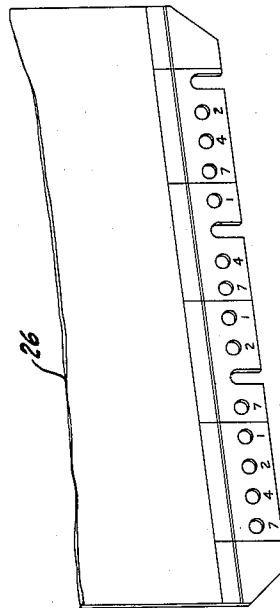


FIG. 9

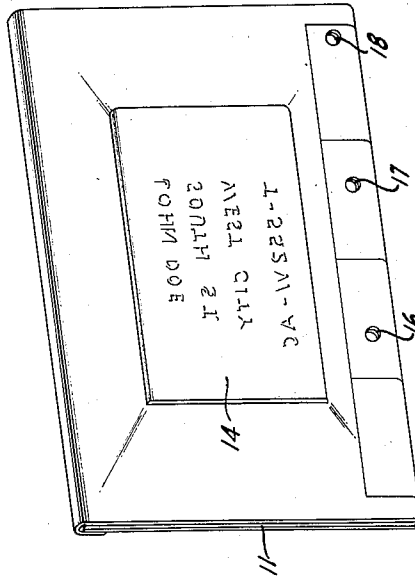


FIG. 8

INVENTOR.
TORKEL E. TORKELSON

BY

Mellin and Hanscom
ATTORNEYS

Dec. 9, 1952

T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 6

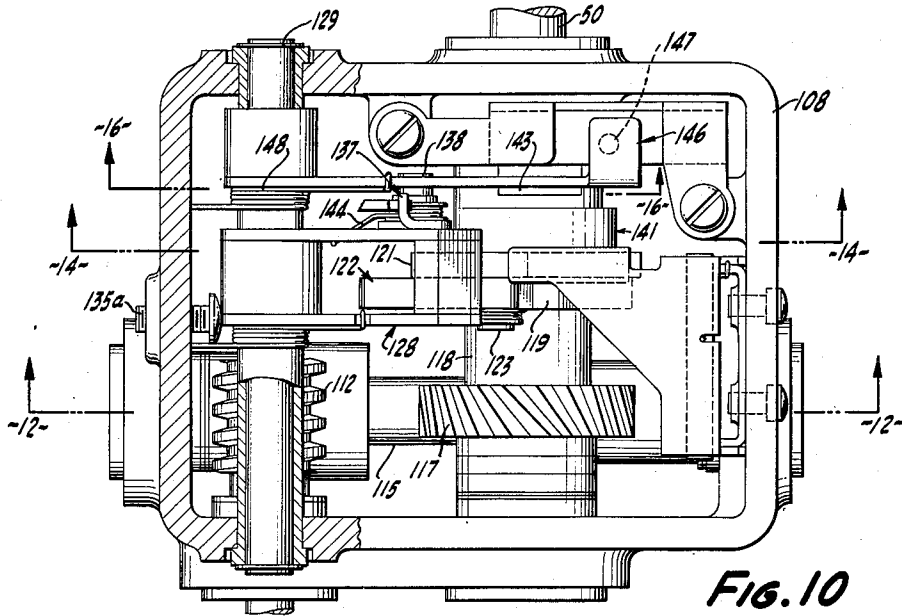


Fig. 10

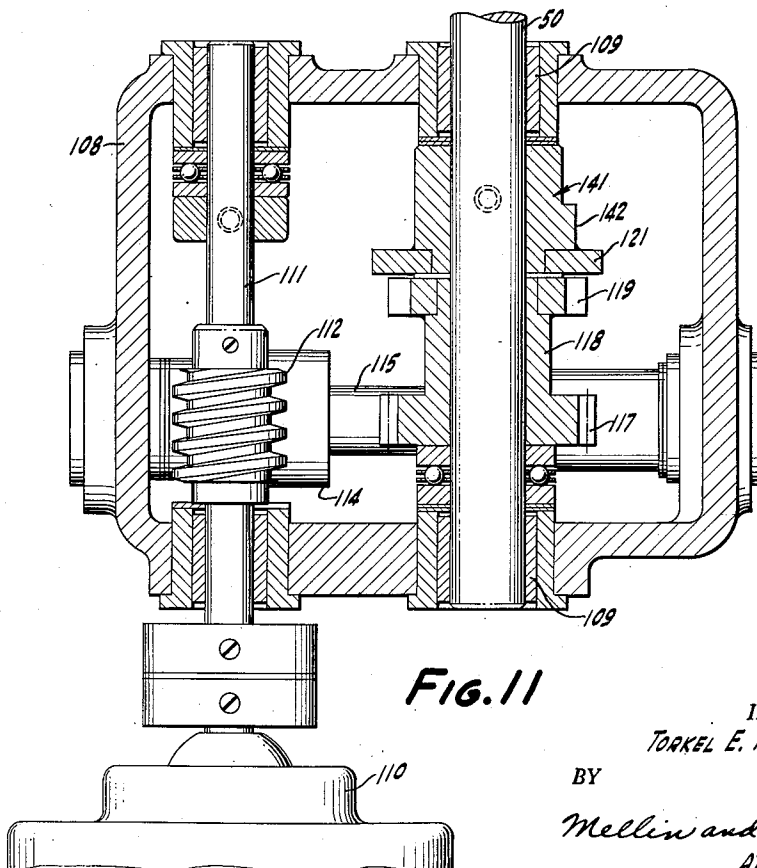


Fig. 11

INVENTOR.
TORKEL E. TORKELSON

BY

Mellin and Hanson
ATTORNEYS

Dec. 9, 1952

T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 7

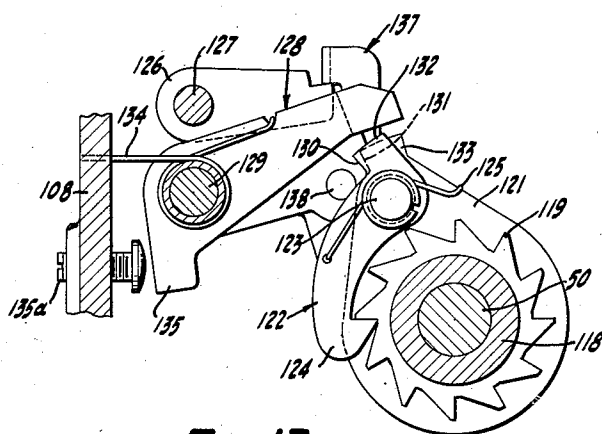
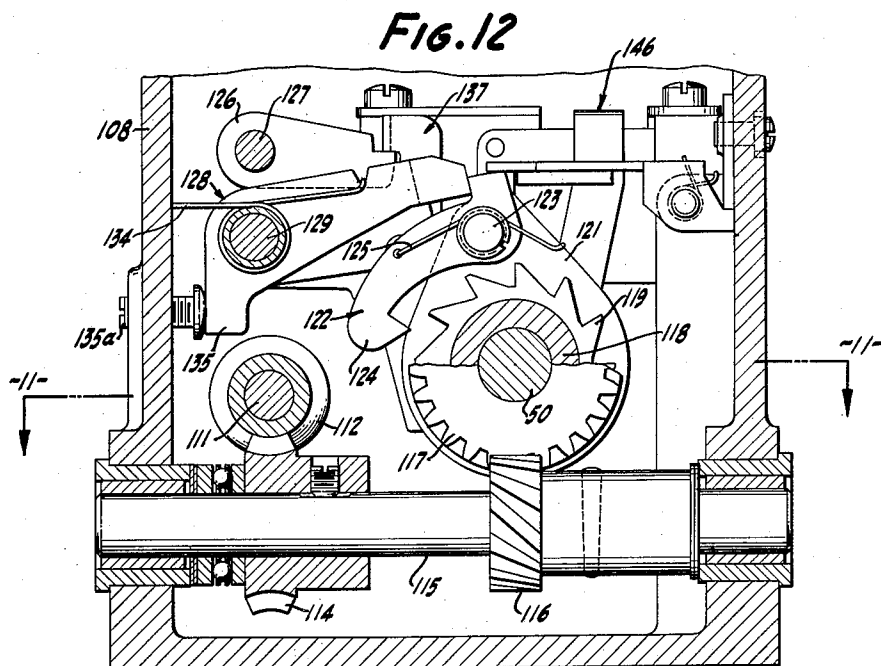


FIG. 13

INVENTOR.
TORKEL E. TORKELSON

BY

Mellin and Hanson
ATTORNEYS

Dec. 9, 1952

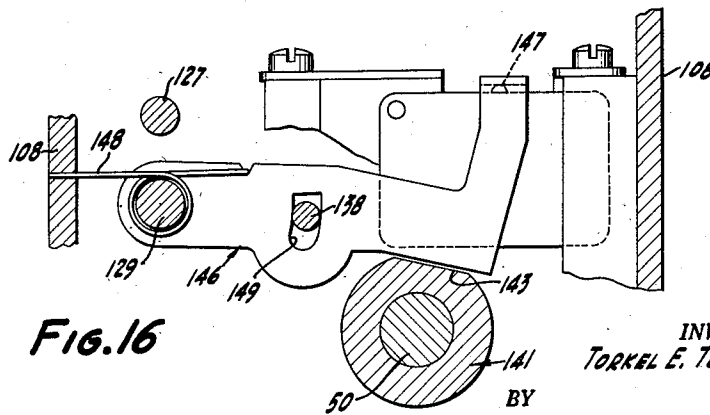
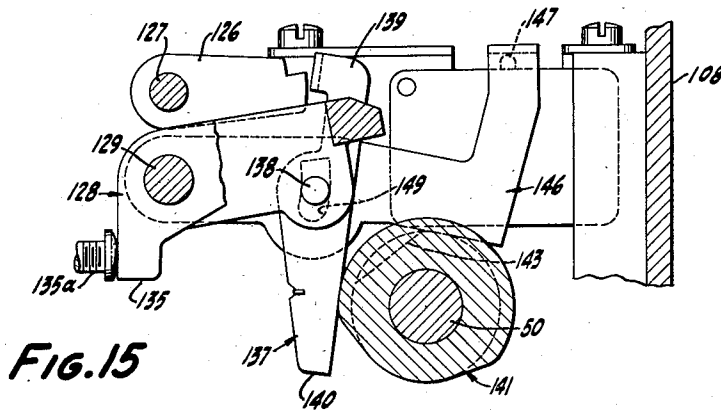
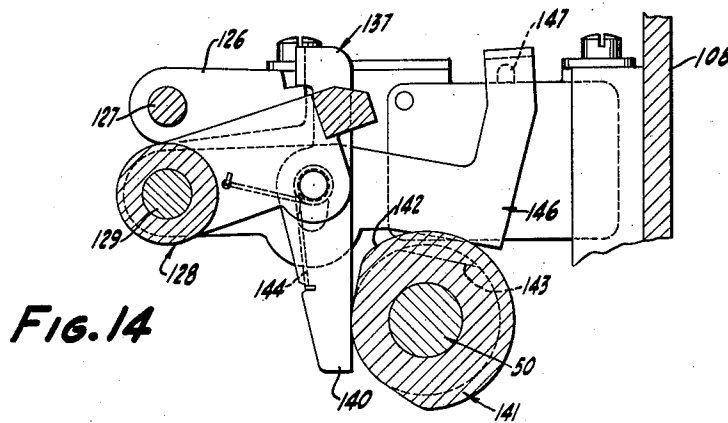
T. E. TORKELSON

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Filed Aug. 31, 1948

8 Sheets-Sheet 8



INVENTOR.
TORKEL E. TORKELSON

BY
Mellin and Hanson
ATTORNEYS

UNITED STATES PATENT OFFICE

2,620,726

MACHINE FOR IMPRINTING AND PUNCHING CARDS

Torkel E. Torkelson, Baldwin, N. Y., assignor to
The McBee Company, Athens, Ohio, a corporation

Application August 31, 1948, Serial No. 47,006

8 Claims. (Cl. 101-19)

1

This invention relates to card or sheet punching and printing machines of the character which are conditioned by the insertion of a master card therein to punch a sheet or card in a manner predetermined by the master card and to imprint such sheet or card by the master card.

It is the principal object of my present invention to provide an improved and simplified machine of the character referred to which is adapted to receive a master card and a copy or sales card or sheet, and is capable of being controlled by the master card to efficiently and accurately operate to duplicate data present on the master card on the sales or record or copy card or sheet by imprinting and punching.

It is another object of my present invention to generally improve machines of the character disclosed in Letters Patent of the United States as follows: Buster No. 2,233,662; McCart Re. 21,534; McCart No. 2,225,313; McCart No. 2,233,138; Connor No. 2,233,158; and provide a machine which will positively and accurately perform the function of transferring data from a master card to a copy card or sheet by imprinting and punching.

One form which the invention may assume is exemplified in the following description and illustrated by way of example in the accompanying drawings, in which:

Fig. 1 is a view in central longitudinal section through a machine embodying the preferred form of my invention, showing the mechanism thereof in starting condition.

Fig. 2 is a similar view showing the mechanism in the condition which it assumes after the commencement of the printing stroke of the platen carrier.

Fig. 3 is a view in plan section taken on line III-III of Fig. 1.

Fig. 4 is a view in plan section taken on line IV-IV of Fig. 3.

Fig. 5 is a view in longitudinal section taken on line V-V of Fig. 1.

Fig. 6 is a transverse section taken on line VI-VI of Fig. 4.

Fig. 7 is a transverse section taken on line VII-VII of Fig. 3.

Fig. 8 is a perspective view of the type of master card employed.

Fig. 9 is a view in perspective of a type of copy card or sheet employed.

Fig. 10 is a view in elevation of the clutch and drive mechanism employed in the present machine.

Fig. 11 is a transverse sectional view taken along the line XI-XI of Fig. 12.

2

Figs. 12 and 13 are transverse sectional views taken on line XII-XII of Fig. 10, showing the mechanism with the clutch in disengaged and engaged condition.

Figs. 14 and 15 are transverse sectional views taken on line XIV-XIV of Fig. 10, showing the tripping mechanism in two different positions.

Fig. 16 is a plan sectional view taken on line XVI-XVI of Fig. 10, showing the operating mechanism for the switch.

Referring to the accompanying drawings, I there disclose a machine for punching cards or sheets in a pattern determined by perforations in a master card which may be inserted into the machine.

The present machine is particularly adapted for use in connection with record or statistical cards, one marginal edge of which is provided with perforations which are separated into digit fields. The card is coded by punching out certain of the perforations throughout the edge of the card corresponding to the number to be coded into the card. For example, as shown in the drawings, each field comprises four perforations commencing with the digit field at the right edge of the card, then from right to left tens field, hundreds field, thousands field, etc.

Assuming that the number to be coded into the card is "421," the perforation in the hundreds field indicated by the numeral "4" is punched out to the edge of the card, the perforation identified by the numeral "2" in the tens field is punched out to the edge of the card, and likewise the perforation identified by the numeral "1" in the digit field is punched out to the edge of the card. Thus, there will be coded into the card edge the number "421." This number may represent the salesman's number, the customer's number, or any other intelligence that may be coded into a card edge.

In the present instance I will describe by way of example the use of my present machine in connection with what are commonly termed "credit cards" ordinarily carried by a customer and presented to the sales person to enable that person to take therefrom the name and address of the customer and other pertinent data contained thereon. I intend that the credit card in this instance be so constructed that the pertinent data thereon will be transferred to a copy card, sales slip or tag by use of the machine. The copy card or sales tag is to be provided with perforations of the character heretofore described and these perforations are intended to be slotted corresponding with the customer's number or other coded matter on the master credit card.

3

The master credit card which I prefer to employ in conjunction with my machine here disclosed is illustrated in the drawings. It will be noticed that this master card comprises an insertable paper card 11 on which may be imprinted suitable data pertinent thereto, and which is enclosed in a cellophane or like envelope of transparent semi-rigid material. Fastened to this envelope and exposed at one side thereof is a printing plate 14 (Fig. 9). This master card is coded by perforations therein, which will correspond with perforations on the sales tag, also illustrated in the drawings (Fig. 9). For example, assuming that the customer's number on the credit card is "421," there will appear in the credit card three perforations, one indicated by the numeral 16 corresponding with the "4" perforation of the sales tag in the hundreds field, a second perforation 17 corresponding with the "2" perforation of the sales tag in the tens field, and a third perforation 18 corresponding with the "1" perforation of the sales tag in the digit field. Therefore, when the master card is inserted in the machine for reproducing the data thereon on a sales tag likewise inserted in the machine, I intend that the "4," "2," and "1" perforations of the hundreds, tens and digit fields of the sales tag be slotted out, thus coding that sales tag for subsequent identification and sorting.

Obviously, any number may be coded into the master card by such type of perforations, and such coding will be accurately reproduced in the sales tag by operation of the machine.

Simultaneously with the punching of the sales tag, as determined by the perforations or coding in the master credit card, I intend imprinting on the sales tag the name, address and other pertinent data desired to be transferred thereto by the master credit card. This intelligence is, of course, formed on the printing plate 14 in raised letters, much in the fashion of what are generally known in the industry as "addressograph" plates.

In the present instance I intend that the machine be made to accommodate two master cards, although, obviously, it can be made as a single unit for the use of one card only. My purpose here in making the machine to simultaneously accommodate two master cards is that the present machine is particularly adapted for service station and like use, in which the customer's card and the service station operator's card are simultaneously placed in the machine, both cards being similarly constructed except that the customer's number is coded into one of the master cards, while the service station operator's number is coded into the other card. Therefore, in one operation a sales slip for the customer, containing the customer's name, address, etc., will be imprinted onto the sales slip. Simultaneously, the service station operator's name and address will be imprinted on a record sheet and his number will be coded by punching into the edge of that record sheet. Thus, duplicate copies of the sales tag and the service station operator's sheet may be sent in to the parent company, and the same may be quickly sorted for record and accounting purposes.

Referring more particularly to the accompanying drawings, my present machine includes a frame 20 on which is mounted for operation the various mechanisms comprising the machine. This mechanism includes a pair of card holders 21 and 22 stationarily mounted on the frame to receive and properly hold in position a pair of

4

master cards of the type previously described. It will be seen that at their lower edges these card holders are channeled so as to receive and properly position the lower edges of the master cards. These card holders support the cards in a vertical position, and the channeled lower portions of the card holders are perforated in a manner corresponding to the perforations formed in the sales or record tag upon which notching is to be effected for coding, there being one perforation in each card holder for each perforation on the sales or record slip, with similar spacing between such perforations. Therefore, there will be two sets of perforations in the machine, one set for the customer's master card and one set for the service station operator's master card. In all respects the mechanisms for each card are identical and are simultaneously operated by the same mechanism, as will be described.

Reciprocally mounted on the frame of the machine for horizontal reciprocation toward and away from the card holders is a platen carrier 23. This platen carrier is formed with a rigid vertical face plate 24 which extends transversely of the machine and carries two platens 25, which register with the printing plates on the two master cards inserted in the two holders in the machine. The sales tag or record sheet or copy card is indicated by the numeral 26 and is to be inserted into the machine between the platen 25 and the printing plate on the master card. On its printing stroke, the platen carrier moves relative to the card holders in a direction and in an amount sufficient to cause the platens 25 to move the record sheet or card into printing engagement with the printing plates on the master cards, thus reproducing on the master cards the intelligence formed on the printing plates.

At the same time punching mechanism is conditioned and actuated to notch the sales or record sheets or copy cards 26 to correspond with the perforations in the master cards. To accomplish this the platen carrier 23 is provided with a rigid punch guide member 27 which is formed with a punch guide 28 in register with each perforation of the sales or record sheets or tags or cards 26 inserted into the machine. Reciprocally mounted in each guide 28 is a punch 29 which, when selected for operation, acts to punch out the registering perforation in the sales or record sheet or card through the marginal edge thereof, as previously described.

It will be seen that the punch guide 27 is formed with a transverse slot 30 which intersects the punch guides 28 beyond the working ends 31 of the punches 29. The depth of this transverse slot 30 is sufficient to properly position the lower edge of the card for punching a selected perforation in the sheet or card 26 through the lower edge thereof. When the sales or record sheets or cards 26 are inserted into the machine, they are, of course, placed and are held with the perforations thereof in proper register with the punch guides 28.

I wish to point out that the punch guide member 27 is a rigid part of the platen carrier 23 and, consequently, reciprocates therewith. Normally, this will effect reciprocation of the punches 29 with the punch guide member 27, and for this purpose I provide each punch 29 with a spring 32 which is fixed to the frame, as illustrated, and which engages the punch 29, as illustrated, so as to move the punch 29 with the punch guide member 27, when the platen carrier 23 is on its printing stroke. An abutment member 33 fixed to the punch guide member 27 acts to return the

punches 29 with the punch guide member 27, when the platen carrier 23 is on the reverse or normalizing stroke.

For the purpose of selectively actuating the punches 29 to slot the sales or record card or sheet 26, I provide selector members 34. These selector members are arranged one for each punch 29 and are mounted in the frame for horizontal reciprocation in the same direction as the punches 29. Obviously, there is one selector member 34 for each perforation in the sales or record sheet 26 and, consequently, one for each perforation spacing in the master card.

I intend that when there is a perforation in the master card registering with one of the selector members 34, that this selector member condition its associated punch for slotting the sheet or card 26. This is accomplished by the provision of a pivotal punch actuator 35 for each associated punch 29 and selector member 34. Each punch actuator is in effect a bell crank lever having one end 36 capable of being positioned so as to abut the end of its associated punch 29 and prevent reciprocation thereof with the platen carrier 23 and punch guide member 27 on the printing stroke of the platen carrier 23.

Normally, the punch actuators 35 are maintained in the position out of register with the punches 29 by means of a spring 37 connected with the other leg 38 of each actuator 35 and with a rigid projection 39 on the associated selector member 34. The associated selector member 34 has a lateral projection 40 to engage one side of the leg 38 of the actuator 35, so that movement of the selector member 34 toward the card holder will cause pivotal movement of the actuator 35 to an extent and in a direction causing its end 36 to be placed in register with the end of the associated punch 29 to abut thereagainst and maintain such punch stationary for a punching operation.

Arranged transversely of the machine and overlying the selector members 34 is a selector control bar 41, one edge of which is adapted to be engaged by a lug 42 on each selector member 34. Normally, this bar is positioned to maintain the selector members 34 and the actuators 35 in a position unaffffecting the punches 29, so that the latter will be free to move with the platen carrier 23 and the punch guide member 27, when the platen carrier 23 is on its printing stroke.

However, simultaneously with or slightly in advance of the movement of the platen carrier 23 on its printing stroke, the selector control bar 41 is moved horizontally in a direction permitting the selectors 34 to advance relative to the card holders and master cards contained therein. The end of each selector member 34 is normally positioned closely adjacent to the card holder, as illustrated, so that as the selector member advances, such end will attempt to penetrate through the master card.

If there is a perforation in the master card aligned with the selector member 34, the selector member will be advanced by means of its spring 43 through such perforation until the lug 35a on the punch actuator 35 engages the frame as shown in Fig. 2. The selectors are permitted to advance this amount by reason of the movement of the selector control bar toward the card holder, enabling the spring 43 of each selector 34 to so advance the selector. However, if there is no perforation in the master card in register with a selector, the movement of that selector 34 will be arrested by abutment of its end against the blank

surface of the master card. The amount of movement thus permitted such a selector will be insufficient to actuate its associated punch actuator 35 so as to place it in abutting relationship with the end of the associated punch 29, and thus such punch remains ineffective.

If, however, a perforation is present in the master card in register with a selector 34, that selector 34 will advance sufficiently to transmit pivotal movement to the associated actuator 35 through the leg 38 thereof as to place the abutting end 36 of such actuator in abutting register with the associated punch 29. Consequently, movement of such punch 29 with the platen carrier 23 and the punch guide member 27 will be prevented so that as the platen moves on its printing stroke together with the punch guide 27, the selected punch 29 will be caused to punch through the sales or record sheet or card 26 as the same is moved by the platen past the punching end 31 of the punch 29.

For printing purposes I provide a printing ribbon 45, one end of which is led around a spool 46 and the other end around a spool 47. From these spools the ribbon is led around guide rolls 48 in a manner so that it will register and be in close proximity with the printing plates on the master cards and the platens 25. Obviously, when the platens 25 move the sales or record sheets or copy cards 26 into printing relationship with the printing plates, printing will be effected on the card in a manner well known in this industry.

I intend to advance the ribbon endwise on each printing operation in the fashion of a typewriter ribbon, and for this purpose I have provided a conventional ratchet mechanism, generally indicated by the numeral 49 in the drawings. This ratchet mechanism is carried by the selector control bar 41 and is actuated, of course, by the reciprocation of this member in conventional fashion.

The selector control bar 41 and the platen carrier 23 are synchronously operated by means of an operating shaft 50a which is journaled at its ends in the frame of the machine and is revolved one complete revolution on each actuation of the machine by gears 50b connecting it to a driven shaft 50.

To operate the selector control bar 41, the latter is provided at its ends with rigid arms 51 which extend at right angles thereto and which are guided for endwise reciprocation at their forward ends by a slot and roller engagement between the arms and the frame, indicated by 52, and at their opposite ends by engagement of a slot 53 in each arm with the shaft 50a. The arms 51 are each provided with a cam roller 54 engaging a cam 55 fixed on the shaft 50a. Likewise, each arm is connected by a spring 56 to the frame at 57 so as to maintain the cam roller 54 in engagement with the cam 55. The cams 55 are so contoured as to reciprocate the bar 41 through its cycle of operation in proper timed relation with the operation of the platen carrier 23.

To actuate the platen carrier, it is provided adjacent its ends with cam rollers 58 engaging cams 59 also fixed on the shaft 50a. Spring means 60 are provided between the platen carrier 23 and the frame to maintain the cam rollers 58 in engagement with the cams 59. Thus, the platen carrier 23 and the selector control bar 41 are actuated by the shaft 50a in synchronism.

To operate the shaft 50a from shaft 50 through one complete revolution, which is sufficient for

one complete cycle of operation of the machine, I provide a clutch and drive mechanism which comprises an electric motor 110 having a motor shaft 111, which is the driving shaft. This shaft is fitted with a worm 112 meshing with a worm gear 114 fixed on a countershaft 115. This, of course, considerably reduces the speed of the countershaft 115 relative to the motor speed.

Also fixed on the countershaft 115 is a gear 116 in constant mesh with a gear 117 fixed on a sleeve shaft 118. On this sleeve shaft 118 is also fixed a ratchet gear or clutch element 119. Therefore, when the motor 110 is in operation, a drive will be transmitted from the motor shaft 111 through the worm 112 to the worm gear 114, and consequently, to the countershaft 115. From this shaft 115, the drive will be transmitted through the gears 116 and 117 and the sleeve shaft 118 to the ratchet gear or clutch member 119. The final drive is transmitted from this driving clutch member 119 to the control or driven shaft 50, as will be described.

It will be seen that the sleeve shaft 118 is rotatably mounted on the control or driven shaft 50, which is suitably journaled in bearings 109 in the clutch housing 108. The motor shaft 111 and the countershaft 115 are also journaled in suitable bearings in the clutch housing 108, as illustrated.

For clutching the driving clutch member or ratchet gear 119 to the driven or control shaft 50, there is provided a driven clutch member 121 fixed on the control or driven shaft 50 in juxtaposition to the ratchet gear 119. A clutch pawl 122 is pivotally mounted on this driven clutch member 121 at an eccentric point 123 thereon exteriorly of the periphery of the ratchet gear 119. The engaging end 124 of this clutch pawl 122 is constantly urged radially inward with respect to the ratchet gear 119 to engage the teeth of the ratchet gear 119 by means of a spring 125. When such engagement is effected, the driving and driven members 119 and 121 clutch the sleeve shaft 118 to the driven or control shaft 50, completing a drive from the latter to the motor 110.

For engaging the clutch and effecting the drive, I provide a depressor bar 110a connected with a depressor bar lever 110b, which is substantially centrally pivoted on the frame. The depressor bar 110a is normally held in its uppermost position by means of a spring 110c. The free ends of the depressor bar levers 110b are adapted to engage a trip lever 110d, which is connected to a crank lever 110e on an oscillatory actuator shaft 127.

Also mounted on this actuator shaft 127 is an actuator lever 126 which cooperates with an oscillatory clutch lever 128 to effect engagement of the clutch upon depression of the depressor bar 110a, which effects actuation of the actuator shaft 127. The clutch lever 128 is pivotal at one end on a shaft 129 mounted in the housing 108. Normally, the clutch lever 128 is positioned substantially tangentially to the circular path of travel of the clutch pawl 122, and its free end is adapted to abut against the radial faces 130 and 131 of radial (with respect to the axis of rotation of members 119 and 121) lugs 132 and 133 projecting radially outward from the clutch pawl 122 and the driven clutch member 121. These lugs 132 and 133 are similarly formed and radially located and are in register when engaged by the end of the lever 128. When the lugs 132 and 133 are so engaged and in register, the clutch pawl 122 is out of engagement with the ratchet gear

119. The clutch lever 128 is normally held positioned to engage the lugs 132 and 133 by means of a spring 134.

Engagement of an angular projection 135 on the lever 128 with an adjustable stop member 135a on the housing 108 limits the movement of the free or engaging end of the clutch lever 128 radially inward with respect to the axis of the driven clutch member 121.

To actuate the clutch lever by means of the actuator lever 126 and the actuator shaft 127, there is provided a trip lever 137 which extends substantially at right angles to the lever 128 and is pivotally connected intermediate its ends to the clutch lever 128 at a point 138 adjacent the free end of the latter. The outer end 139 of the trip lever 137 is formed to be engaged by one side of the outer end of the actuator lever 126. The inner end 140 of the trip lever 137 extends into engagement with the periphery of a two-faced cam 141, the cam faces being indicated by 142 and 143. The end 140 of the lever 137 registers with the cam face 142, as shown. A spring 144 is provided to urge the end 140 radially inward with respect to the cam 141. Normally, this position maintains the end 139 of the trip lever 137 engaged with and in the path of travel of the actuator lever 126. However, when the rise of cam face 142 engages the end 140 of the trip lever 137 and is moved about its pivot 138, the end 139 thereof is positioned out of engagement and path of travel of the actuator lever 126, as illustrated. This enables and insures the return of the clutch lever 128 to clutch releasing position, regardless of the position of the actuator lever 126.

It is intended in the present instance that the circuit of the motor be closed immediately upon the actuation of the depressor bar 110a, and simultaneously with the closing of that circuit to cause engagement of the clutch. It is also intended that the motor circuit be opened when the driven or control shaft 50 has completed its cycle of operation.

To effect the above result, a switch lever 146 is provided and is pivoted at one end on the shaft 129. The other end is in abutting register with the switch button 147. A spring 148 normally positions the switch lever 146 to maintain the button 147 in a position holding the switch open. The switch lever 146 registers with the cam face 143, and during the open period, the cam contour permits the lever 146 to assume the position described to depress the button 147 to open the switch.

However, when the actuator lever 126 is operated to engage the clutch by pivoting the clutch lever 128 through the trip lever 137, the actuation of the clutch lever 128 moves the switch lever 146 to a position releasing the button 147 to close the switch. This is accomplished by engagement of the pivot pin 138 (which connects the trip lever 137 to the clutch lever 128) secured in the lever 128 with a slot 149 in the switch lever 146, as shown. The switch will be maintained closed until the low point of the cam face 143 again registers with the switch lever 146 and permits the lever 146 to open the switch by depressing the button 147.

When the control shaft 50 has revolved one revolution, the cam face 142 will have engaged the end 140 of the lever 137 and permitted the spring 134 to return the end of the clutch lever inwardly toward the periphery of the driven clutch member 121 to an extent permitted by the

members 135 and 135a and in a position to engage the lugs 132 and 133, regardless of the position of the actuator lever 126. If the latter returns to starting condition later, it moves the lever end 139 sufficiently to by-pass it and assume starting position.

As the control shaft 50 reaches the end of its one revolution cycle, the end of the clutch lever 128 engages the lug 132 on the clutch pawl and disengages the latter from the ratchet gear 119. It then engages the lug 133 and stops the revolution of the shaft 50 at exactly one revolution. Simultaneously, the low point on the cam face 143 registers with the switch lever 146 and permits its spring to operate it to open the switch of the motor circuit, as described.

The clutch and drive mechanism just described is described and claimed in my copending application entitled "Clutch Mechanism," filed August 31, 1948, and bearing Serial No. 47,005, which has become Patent No. 2,566,261, issued August 28, 1951.

In operation of the machine, it is constructed and assembled substantially as described, and a master card is provided of a construction substantially as illustrated and described. Obviously, the master card may be of a different construction; and it may be desired to entirely eliminate the printing plate and its accompanying function, if desired.

The master card is, of course, provided with the proper perforations coded therein for the purpose of identifying data on the card.

The copy card or sheet 26 is provided and if it is desired to simultaneously duplicate two master cards, of course two of them are provided with their associated copy sheets.

The operator places the copy sheets in the machine and then inserts the proper master cards, as illustrated. He then depresses the depressor bar 110a to set the machine in operation. This, as previously described, closes the motor circuit, engages the clutch so as to drive the operating shaft 50a one complete revolution. Immediately that the machine commences to operate, the similar cams 55 cooperating with the cam rollers 54 on the arms 51 of the selector control bar 41 causes the control bar 41 to move in a direction releasing the selector members 34 for operation. At the same time the platen carrier 23 is actuated by the cams 59 to move the platen and the copy cards or sheets toward the master cards.

I may point out here that the words "card" and "sheet" with respect to the members 26 are intended to be synonymous. As a matter of fact it may be desired to place manifolded units in the machine for the purpose of the members 26, if desired. I use the term "copy card" purely to distinguish the elements 26 from the master cards.

It should be pointed out that the cam contours of the cams 55 and 59 are such that the selector control bar moves slightly in advance or at a greater rate of speed than the platen carrier 23.

As previously described, when the selector members 34 are released by the selector control bar 41, the springs 43 attempt to advance the selector members 34 through the master card and its holder. Those selector members which register with a perforation in the master card will, of course, be selected by the master card to advance, releasing their associated punch actuators 35 and thus render effective selected punches 29. In the case of the selected punches 29, the punch

actuators are caused by the member 40 to be swung about their pivots to place their ends 36 in abutting relationship to the inner ends of the punches 29 so as to prevent movement of these punches with the platen carrier 23 and the punch guide 27.

Thus, as the platen carrier and the punch guide carrying the copy cards 26 move forwardly, the punches so rendered effective will punch the copy cards 26 as the same are moved into printing relationship with the printing plate on the master card. Thereafter this printing relationship is effected and the data on the printing plate is transferred through the printing ribbon to the copy card. Immediately that the printing stroke of the platen carrier is completed, it commences its return stroke so as to be conditioned for a subsequent operation.

Simultaneously with the end of the printing stroke of the carrier, the cams 55 return the selector control bar to starting condition, and engagement between that bar and the lugs 42 on the selector members 34 return the latter to starting condition, and, of course, the spring 37 returns any selected punch actuators to starting condition.

Immediately that the return portion of the cycle of the platen carrier 23 and the selector control bar 41 is completed, the operating shaft 50a will have made one complete revolution, and it will be unclutched from the driving mechanism and also the switch of the motor will be opened to stop its operation.

It is, therefore, obvious that I have provided a very simple and efficient machine which is capable of receiving and supporting a master card and a copy card and properly maintaining the same relatively in registration, which machine is then capable of operation to reproduce on the copy card by printing and punching certain of the intelligence or data present on the master card.

While I have shown the preferred form of my invention, it is to be understood that various changes may be made in its construction by those skilled in the art without departing from the spirit of the invention as defined in the appended claims.

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

1. A machine of the character described comprising receiving means to receive a master card and a copy card and to properly maintain the same relatively in registration, said receiving means for the copy card being movable relative to the master card, a plurality of punches slidably mounted in said copy card receiving means and normally moving with said means on the operation of the machine, and selector means conditioned by the master card for selecting punches and holding said selected punches stationary during the operation of the machine to effect a punching of the copy card as said copy card receiving means is moved toward said master card, the master card having a printing plate thereon whereby movement of the copy card into engagement with the master card will effect a printing of the copy card by said printing plate.

2. A machine of the character described comprising receiving means to receive and support a master card in a fixed position in the machine, a reciprocable platen carrier, means thereon to receive and support a copy card relatively in registration with the master card in the machine

11

and in echelon relation with respect to the master card, a plurality of separate punches carried by the platen carrier and normally movable therewith and with the copy card but arranged to punch the copy card when the same is moved relative to the punches, a selector member in the machine for each punch, said selector members being disposed right angularly to the plane in which the master card is supported, said selector members being selectively positioned by the master card upon commencement of operation of the machine to cause associated punches of the selected selector members to remain stationary upon movement of the platen carrier and thereby punch the copy card upon movement of the platen carrier.

3. A machine of the character described comprising means for receiving and maintaining a master card in proper relationship in the machine, a master card to be received therein, said master card having perforations selectively positioned in its face, a reciprocable carrier member, means thereon for receiving a copy card and maintaining the same relatively in registration with the master card, a plurality of punches for punching the copy card carried by the carrier member, said punches being reciprocable in said carrier but normally movable in unison therewith and with the copy card, selector means conditioned by the perforations in the master card for maintaining selected punches stationary during movement of the carrier member to effect punching of the copy card.

4. A machine of the character described comprising means for receiving and maintaining a master card in proper relationship in the machine, a master card to be received therein, said master card having perforations selectively positioned in its face, a reciprocable carrier member, means thereon for receiving a copy card and maintaining the same relatively in registration with the master card, a plurality of punches for punching the copy card carried by the carrier member, said punches being reciprocable in said carrier but normally movable in unison therewith and with the copy card, selector means conditioned by the perforations in the master card for maintaining selected punches stationary during movement of the carrier member to effect punching of the copy card, said master card having a printing plate thereon, a platen carried by the carrier member for cooperation therewith whereby to effect printing of the copy card upon operation of the machine and movement of the carrier.

5. A machine of the character described comprising means for receiving and holding a master card in a predetermined position in the machine, a master card for the machine, said master card having perforations therein in selected positions, a reciprocable member on the machine reciprocable toward and away from the master card and in a direction at right angles to the face of the master card, said reciprocable member being adapted to receive and support a copy card relatively in registration with the master card, a plurality of punches reciprocably mounted in the reciprocable member for reciprocation relative thereto in the same direction and positioned to punch openings in the copy card upon relative movement between the punches and said reciprocable member, selector members carried by the machine and adapted upon operation of the machine to move in a direction penetrating through the master card whereby those selector members

12

in register with a perforation in the master card will be permitted to complete their effective movement, means intermediate the selector members and the punches whereby the selector members penetrating through perforations in the master card will actuate the intermediate mechanism to cause relative movement between the punches and the reciprocating member during the operation of the latter to effect punching of the copy card.

6. A machine of the character described comprising means for receiving and holding a master card in a predetermined position in the machine, a master card for the machine, said master card having perforations therein in selected positions, a reciprocable member on the machine reciprocable toward and away from the master card and in a direction at right angles to the face of the master card, said reciprocable member being adapted to receive and support a copy card relatively in registration with the master card, a plurality of punches reciprocably mounted in the reciprocable member for reciprocation relative thereto in the same direction and positioned to punch openings in the copy card upon relative movement between the punches and said reciprocable member, selector members carried by the machine and adapted upon operation of the machine to move in a direction penetrating through the master card whereby those selector members in register with a perforation in the master card will be permitted to complete their effective movement, means intermediate the selector members and the punches whereby the selector members penetrating through perforations in the master card will actuate the intermediate mechanism to cause relative movement between the punches and the reciprocating member during the operation of the latter to effect punching of the copy card, said master card having a printing plate thereon, the relative movement between the reciprocable member and the master card bringing the master card and the copy card into printing relationship to effect printing of the copy card by the printing plate.

7. A machine of the character described for punching and printing a copy card inserted into the machine, said machine comprising a framework, a master card removably disposed in the framework and having a coded area therein identical in significance but different in form from that to be punched in the copy card and a printing plate for printing on the copy card, master card holding means on the framework for stationarily supporting the master card, a carriage supported by the framework for rectilinear movement along a path perpendicular to the plane of the master card, copy card holding means on the carriage for removably supporting a copy card inserted into the machine in a plane parallel to the plane of the master card and at least in partial registry with the master card but in a position extending beyond the master card in the direction in which the cards are inserted into the machine, means for moving the carrier toward the master card to effect a printing of the copy card, a plurality of punches mounted for movement in a direction perpendicular to the plane of the master card and in alignment, in the plane of their movement, with that portion of the copy card extending beyond the master card, means for normally disposing the punches in a position for punching the copy card when the copy card is moved into engagement with the master card, selector means

13

engaging the coded area of the master card to selectively hold the punches in the position just mentioned in accordance with the code pattern on the master card, and means for moving the unselected punches with the carrier, when the carrier is moved to effectuate a printing of the copy card, to prevent punching of the copy card by said unselected punches.

8. A machine of the character described for punching a copy card inserted into the machine, said machine comprising, a framework, a master card removably disposed in the framework and having a coding therein identical in significance but different in form from that to be punched in the copy card, master card holding means on the framework for stationarily supporting the master card, a carriage supported by the framework for rectilinear movement along a path perpendicular to the plane of the master card, copy card holding means on the carriage for removably supporting a copy card inserted into the machine in a plane parallel to the plane of the master card and at least in partial registry with the master card but in a position extending beyond the master card in the direction in which the cards are inserted into the machine, means for moving the carrier toward the master card to effect a punching of the copy card, a plurality of punches mounted for movement in a direction perpendicular to the plane of the mas-

14

ter card, and in alignment, in the plane of their movement, with that portion of the copy card extending beyond the master card, means for normally disposing the punches in a position for punching the copy card when the copy card is moved toward said master card, selector means engaging the coded area of the master card to selectively hold the punches in the position just mentioned in accordance with the code pattern on the master card, and means for moving the unselected punches with the carrier when the carrier is moved toward the master card to prevent punching of the copy card by said unselected punches.

TORKEL E. TORKELSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
1,909,548	Pierce	May 16, 1933
2,050,745	Woodruff et al.	Aug. 11, 1936
2,233,158	Connor	Feb. 25, 1941
2,233,662	Buster	Mar. 4, 1941

FOREIGN PATENTS

Number	Country	Date
38,091	France	Jan. 7, 1931