

July 25, 1933.

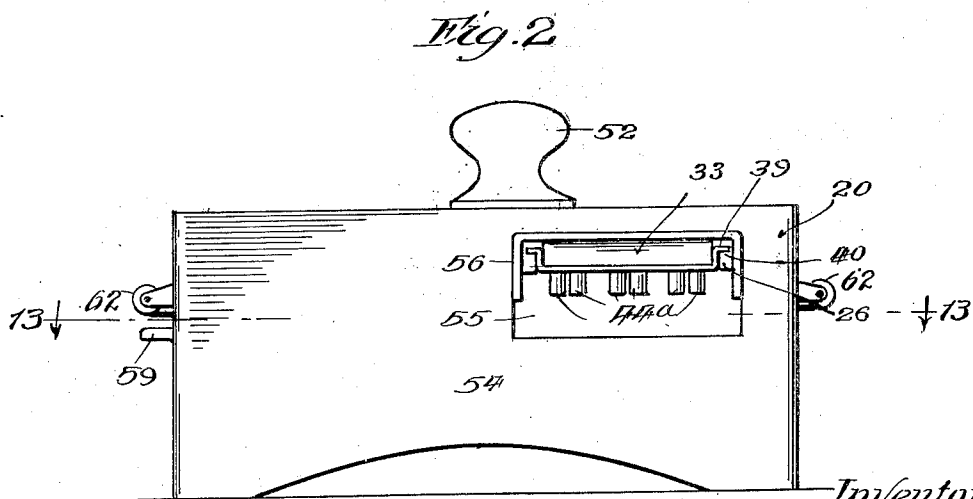
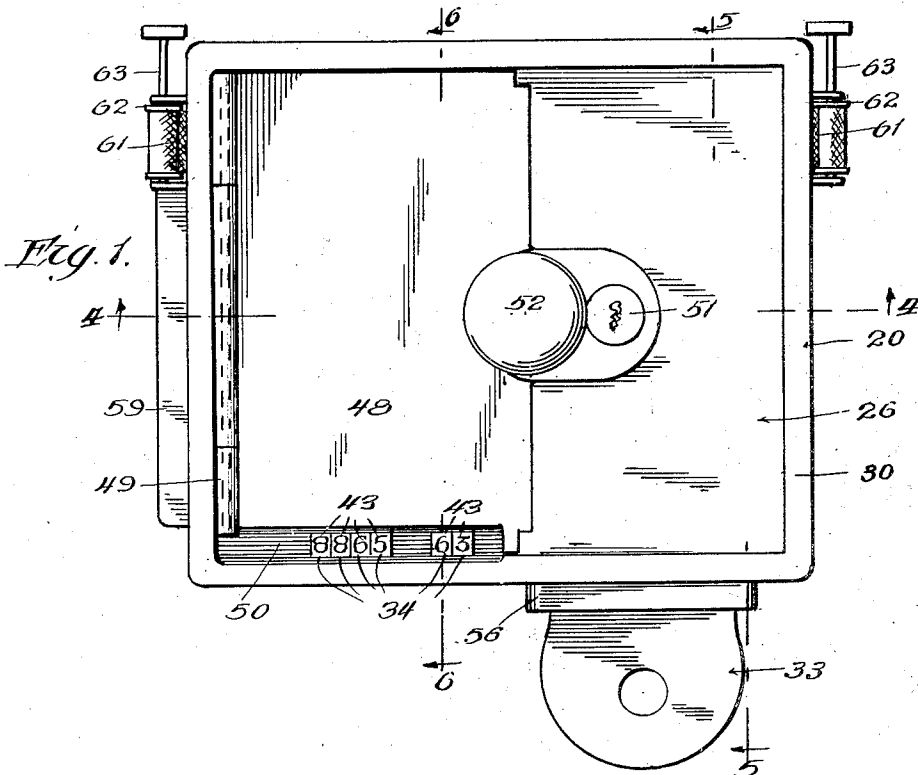
M. J. HOFFMAN

1,919,219

CARD PRINTING AND PUNCHING MECHANISM

Filed Aug. 22, 1931

4 Sheets-Sheet 1



Inventor.
Morris J. Hoffman,
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July 25, 1933.

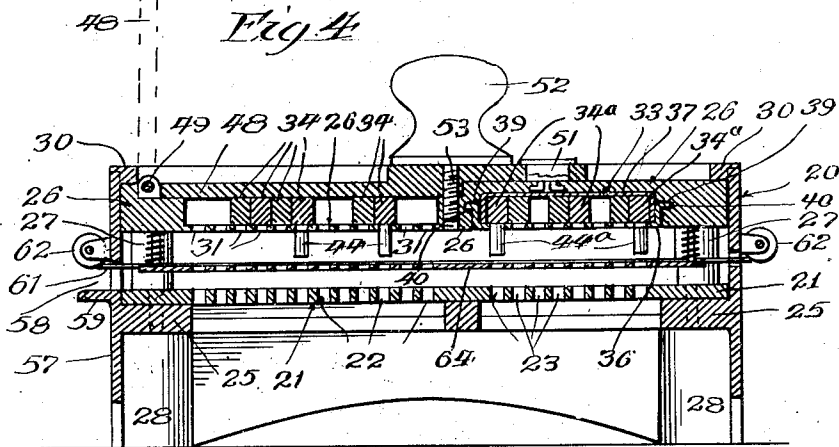
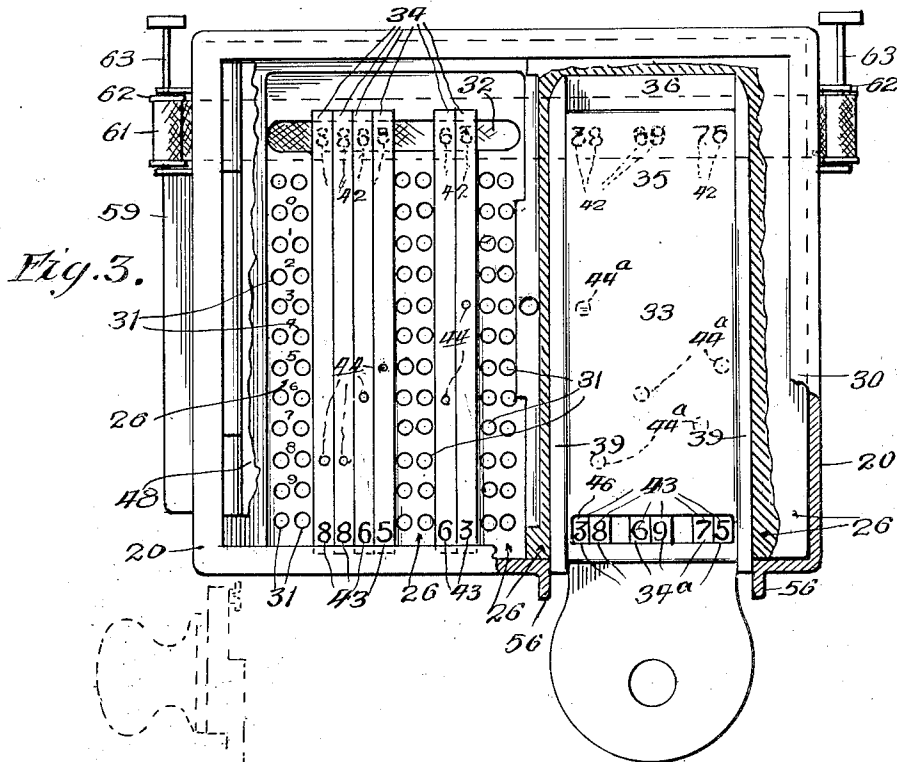
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CARD PRINTING AND PUNCHING MECHANISM

Filed Aug. 22, 1931

4 Sheets-Sheet 2



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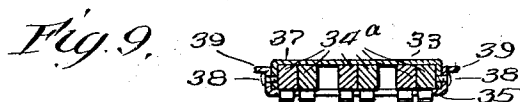
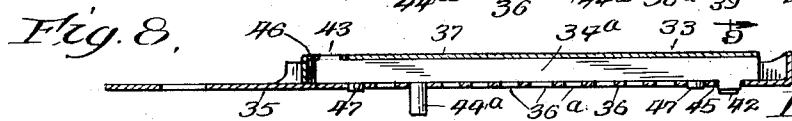
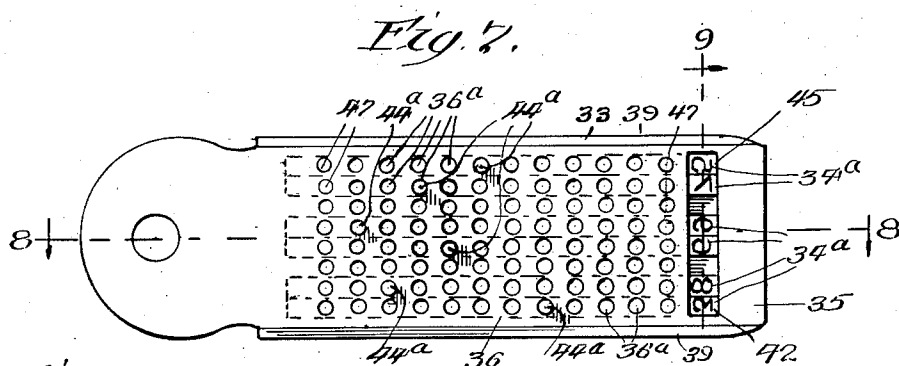
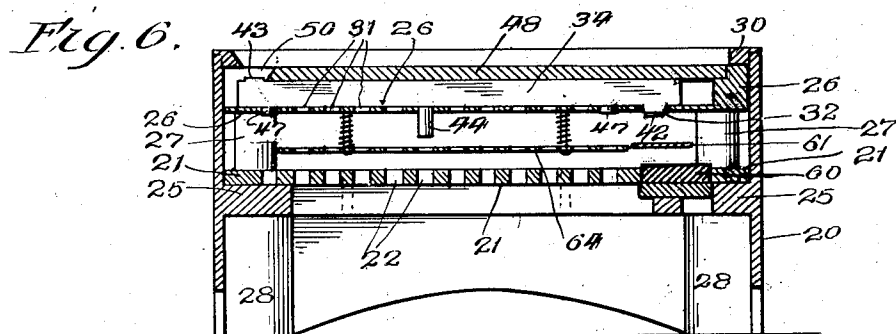
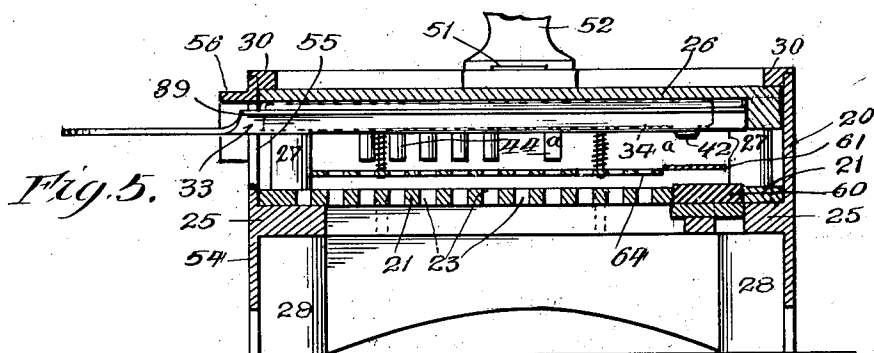
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1,919,219

CARD PRINTING AND PUNCHING MECHANISM

Filed Aug. 22, 1931

4 Sheets-Sheet 3



5 a. 36 47 45 42 Inventor:
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1,919,219

CARD PRINTING AND PUNCHING MECHANISM

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4 Sheets-Sheet 4

Fig. 10.

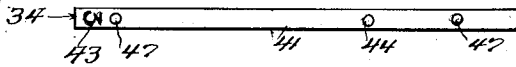


Fig. 11.

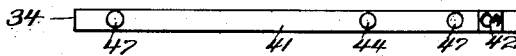


Fig. 12.

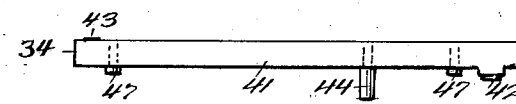


Fig. 13.

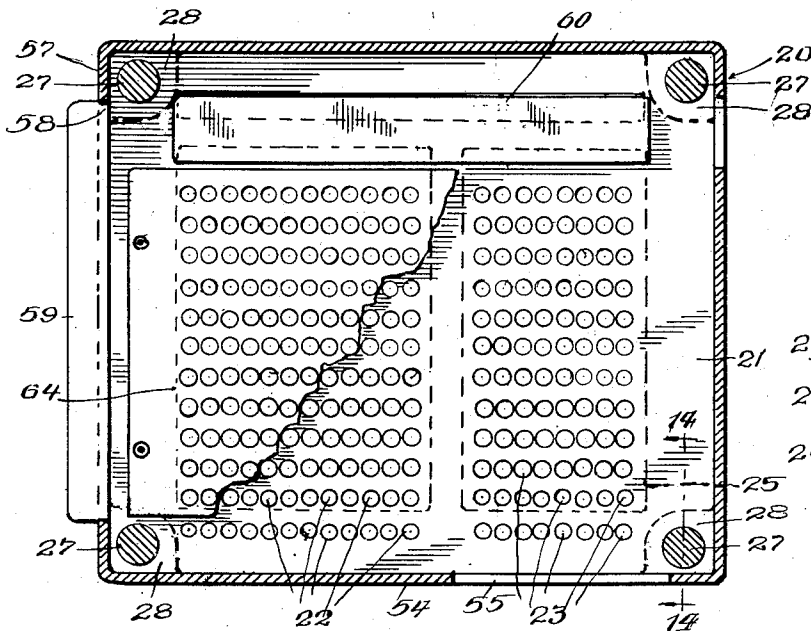


Fig. 14.

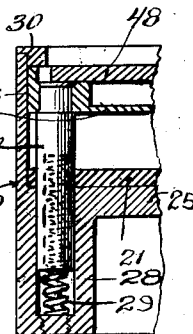


Fig. 15.

8865 63	38 69 75
000000000000	00000000
111111111111	11111111
222222222222	22222222
333333330333	03333333
444444444444	44444444
555550555555	55555550
666606660666	66666666
777777777777	
880088	
99999	

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Patented July 25, 1933

1,919,219

UNITED STATES PATENT OFFICE

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CARD PRINTING AND PUNCHING MECHANISM

Application filed August 22, 1931. Serial No. 558,643.

This invention relates to card printing and punching mechanism, and its principal object is the provision of key controlled printing and punching mechanism whereby data individual to workman and other fixed data may be printed upon a card, and apertures simultaneously punched in the card at definitely located places corresponding to the data printed on the card, and in this manner adapted for use in connection with a tabulating machine or other electrically operated accounting machine which employs punched cards for setting up printing characters that print the data represented by the apertures punched in the card.

Another object of the invention is to provide card printing and punching mechanism, which accurately prints and punches the data, whereby the time and labor usually employed for keeping record of the workmen's labor and the wages due them is greatly simplified and may be accomplished in less time and more economically than has been done heretofore.

In establishments where tabulating machines are employed for keeping record of the workmen's time, cards are usually made out by the workmen to show the job number, the quantity, the clock number, identifying the workman, the operation performed and its price or rate, and these items are first checked and entered into the books of the concern, after which the tabulating cards must be made out from the records and these tabulating cards must be punched so as to prepare them for use in connection with the tabulating machine. All of this requires the services of several employees, it takes considerable time, and is very susceptible of mistakes. In accordance with the present invention, the tabulating card or other punched card is printed and punched by the workman performing the work and at once is ready for the tabulating machine.

The invention consists, therefore, in printing and punching mechanism containing settable punches and associated type and means for actuating the same, whereby to simultaneously print and punch cards. The invention further consists in printing and punching mechanism having fixed but settable type and punches, and having also individual inserts individual to the workmen and provided with settable type and punches, and means for actuating all of said

type and punches, whereby to simultaneously print and punch a record card.

The invention further consists in card printing and punching mechanism embodying individual inserts individual to workmen and having settable type and punches, whereby to print and punch data individual to workmen, and having also fixed settable type and punches, whereby to print and punch data concerning the articles upon which labor is performed.

The invention further consists in the several novel features hereinafter fully set forth and claimed.

The invention is clearly illustrated in the drawings accompanying this specification, in which—

Fig. 1 is a plan of card printing and punching mechanism embodying a simple form of the present invention;

Fig. 2 is a front elevation thereof;

Fig. 3 is a plan with a certain top plate removed and other parts broken away to show parts that would be otherwise hidden from view;

Fig. 4 is a vertical cross section taken on the line 4—4 of Fig. 1;

Fig. 5 is a vertical cross section taken on the line 5—5 of Fig. 1;

Fig. 6 is a vertical cross section taken on the line 6—6 of Fig. 1;

Fig. 7 is a view looking from below of one of the individual inserts employed;

Fig. 8 is a detail vertical longitudinal section taken on the line 8—8 of Fig. 7;

Fig. 9 is a detail cross section taken on the line 9—9 of Fig. 7;

Fig. 10 is a plan of one of the type bars employed in the mechanism;

Fig. 11 is a view of said type bar looking from below;

Fig. 12 is a side elevation of said type bar;

Fig. 13 is a detail horizontal section taken on the line 13—13 of Fig. 2, with certain portions broken out to illustrate other parts therebelow;

Fig. 14 is a detail vertical section taken on the line 14—14 of Fig. 13; and

Fig. 15 is a plan of one of the punched cards.

Referring to said drawings, which illustrate a simple embodiment of the present invention, the reference character 20 designates a rectangular frame or case in which

is contained the operating mechanism. Secured to and supported within the case is a plate-like die 21 in which is contained two series of apertures or perforations 22 and 23 arranged in rows extending lengthwise and crosswise of the die. Said die co-operates with fixed but setttable punches 44 and other punches 44^a carried by an individual insert 33 for punching holes in a record card 24, as will hereinafter be described. The die 21 may be supported in the case in any desirable manner, and, in the drawings, the case is shown as formed with a marginal flange or shoulder 25 on its inner face upon which the die rests and to which it is screwed or otherwise fastened.

Guided to move toward and away from the die 21 is a reciprocating head 26 which carries the fixed punches 44 and the workmen's individual insert 33, and said head is mounted upon posts 27 which are guided in sockets 28 formed upon the case. Coiled compression springs 29 contained in the sockets are provided for urging the posts and therewith the head 26 in an upward direction. The upward movement of the head is limited by a marginal flange 30 formed on the upper end of the case.

The head 26 is of rectangular form and contains a series of apertures 31 also arranged in rows running lengthwise and crosswise of the device and registering with the apertures 22 in the die 21. The apertures 31 in the head are adapted to receive the punches 44 which are carried by fixed type bars 34. The head 26 is also formed with a slot 32 extending lengthwise of the machine through which slot impressions are made on the card by type formed on the fixed type bars 34.

Adjacent one end, the head 26 is arranged to receive and support workmen's individual inserts, one of which is illustrated at 33. The individual inserts contain setttable type bars 34^a which are provided with type characters 42 and with punches 44^a, whereby to print and punch data individual to the workman. The exact construction of the individual inserts 33 is, of course, immaterial to the invention broadly considered, but serves for the purpose of illustration.

Each individual insert comprises a rectangular type holder 35 (see Figs. 7, 8 and 9) having a perforated bottom plate 36 and a top plate 37 secured thereto as by screws 38 and confining between them the type bars 34^a which are set in the individual insert. The perforations 36^a in the plate 36 correspond to the perforations 23 in the die. The sides of the type holder 35 are provided with lengthwise extending flanges 39 adapted for engagement in grooves 40 formed in the head 26, whereby an individual insert may be readily attached to the head by merely sliding the flanges of the individual insert

into the grooves of the head. The underside of the head 26 is recessed to receive the individual insert and the rear end of the recess provides a stop for positioning the individual insert when fully inserted into the head.

All of the individual inserts which accompany the mechanism are substantially of the same form and construction except that each contains type bars having type face, indicating characters, and punches individual to the workman. Each type bar is preferably formed of a bar 41 having formed upon its lower face at one end a type face or character as at 42, and, upon its upper side at its other end an indicating character as at 43 corresponding to the type face or type character 42 at the other end of the bar. Projecting from the lower side of the bar is a punch 44^a which is located on the type bar in a position determined by the character printed by the type and projects down through one of the perforations in the bottom plate 36 of the type holder. The bottom plate 36 is provided with a transversely extending slot 45 through which the type face or type characters 42 project and the top plate 37 is correspondingly provided with a transversely extending slot 46 through which the indicating characters 43 on the opposite sides of the type bars are visible. Duplicates of the type faces or characters set up in any individual insert, are thereupon visible through the slot.

The punches 44^a of the several type bars contained in an individual insert project through the perforations in the bottom plates thereof and co-operate with the apertures in the die 21 to punch holes in the record card. The type bars may also be provided with pilot pins 47 adjacent their ends which are adapted to engage in the endmost apertures in the bottom plate 36 to properly locate the type bars and the punches thereof so that the punches coincide with the apertures 23 in the die.

The fixed type bars 34 which co-operate with the series of apertures 22 in the die 21 may be formed precisely like the ones shown in connection with the individual insert 33, and the type face or type characters thereof project through the slot 32 of the head 26, while the punches project through registering perforations 31 in the head 26, and the pilot pins engage in the end perforations in the head. The fixed type bars 34 are locked in position by a top plate 48 preferably hinged to the head 26 at one end, as at 49, and adapted to be swung down upon the type bars. The top plate 48 is formed with a slot 50 at one end through which the indicating characters on the fixed type bars are visible. The cover plate 48 is arranged to be locked to the head, as, for instance, by a lock 51, whereby, when the fixed type bars have been set in place, they

may be locked against access or manipulation by unauthorized persons.

Suitable means are provided for depressing the head to effect the printing and punching operations, and any suitable means may be provided for this purpose. For instance, the top plate 48 may be provided with a knob 52 which may be struck down by the palm of the hand to depress the head and cause the printing and punching operations. If desired, the knob 52 may be provided with a threaded stem 53 extending through a boss on the top plate 48 and adapted to threadedly engage with a threaded opening in the head 26, and thus fasten the top plate to the head.

The front wall 54 of the case is formed with an opening 55 through which an individual insert 33 may be inserted into the head 26, and at the top of said opening 55 is an outwardly projecting flange 56 which forms a guideway to facilitate the insertion of the flanges 39 of the individual insert into the grooves 40 of the head. The opening 55 is of sufficient depth to enable the individual insert to move downward with the head when the latter is depressed in printing and punching a card. The wall 57 of the case is formed with a slot 58 through which the record card is inserted into the device, and a ledge or flange 59 is provided at the lower edge of the slot to facilitate the insertion of the card.

A platen or striking bar 60 is supported within the case below the head 26 in line with the slot 32 thereof, and, consequently, in line with the type faces or type characters on all of the type bars of the fixed type and the type associated with the individual insert held in the head. Above the platen or striking bar is an ink ribbon 61 which extends underneath the type faces or type characters of the type bars, and is carried by spools 62 rotatably mounted in brackets carried by the end walls of the case. The spools 62 are provided with spindles 63 which have knobs on their ends whereby the spools may be rotated to shift the position of the ink ribbon.

To strip a record card from the punches after the punching operation has been completed, a stripping plate 64 is provided which is yieldably secured to the head 26 a slight distance above the die 21, and said stripping plate is provided with apertures coinciding with the punches 44, 44^a and the apertures 22, 23 in the die 21. The stripping plate 64 occupies a position slightly above a record card when inserted into the device and encounters the card when the head 26 is moved upward, thereby stripping the card from the punches.

The record card, such as is used in connection with tabulating machines, is seen at

24 in Fig. 15, and contains rows of the numerals 0 to 9 as is customary. An assortment of type bars 34, 34^a accompany the device and the type faces thereof are made to print the numerals 0 to 9. The punch on any given type bar is positioned thereon so as to punch a hole in the card coincident with the numeral thereon corresponding with the numeral printed by the type face on the type bar. When a card, punched in this manner, is run through a tabulating machine, the data corresponding to the record made on the punched card is printed by the tabulating machine.

One of the above described mechanisms accompanies each job or lot of articles upon which work is to be performed by one or more workmen. Each lot is usually designated by an identification number, and this number is set up with the fixed type bars 34 and the quantity or number of articles is also set up by the fixed type bars and locked in place on the head 26 by the top plate 48. An individual insert 33 is issued to each workman who performs any labor upon the lot of articles and the workman's identification number or clock number, the identification number for the peculiar operation which the individual workman performs upon the work and the rate or price to be paid him are set up by the type bars in the individual workman's individual insert and locked in place in said key.

As an example, the top plate 48 is unlocked and raised and the type bars are set up on the head to print the job number 8865, and the quantity or number of articles in the job as 63 (see Fig. 3). The top plate is then lowered and locked in place, thereby preventing anyone besides the authorized person having the key from altering the job number and quantity which is to be printed by the device. Assuming that a workman's clock number is 38, the operation performed by him is identified by the number 69 and the price or rate to be paid to him is 75, these figures are set up by type bars in the workman's individual insert and locked therein.

When the workman has completed his work upon the lot of articles identified by the job number, he inserts his individual insert into the head of the device, inserts one of the record cards into the device and strikes down the head, thereby printing the data upon the card and simultaneously punching out the holes therein to prepare the card for the tabulating machine.

I claim:

1. In printing and punching mechanism, the combination with a platen and a die, of a head, and related type and punches removably and interchangeably carried by said head and co-operating with said platen and die to print data on a card and to punch

holes therein corresponding to the data printed by the type.

2. In printing and punching mechanism, the combination with a platen and a die, of a head, settable, related type and punches carried by said head, and an individual insert containing type and punches, and insertable into said head, all of said types and punches cooperating with said platen and die to print data on a card and simultaneously punch holes therein corresponding to the data printed by the type.

3. In printing and punching mechanism, the combination with a platen and a die, of settable printing and punching means fixedly carried by the head, and individual inserts containing printing and punching means, individual to workmen, all of said printing and punching means cooperating with said platen and die to print data on a card and punch holes therein corresponding to the data printed by the printing means.

4. In printing and punching mechanism, the combination with a platen and a die, of a head removable and interchangeable, type bars fixedly secured in said head, said type bars having type faces cooperating with said platen to print data on a card and having also punches cooperating with the die to punch holes in said card corresponding to the data printed by said type face.

5. In printing and punching mechanism, the combination with a platen and a die, of a head, settable type bars fixedly secured in said head, and an individual insert having settable type bars secured therein, all of said type bars having type faces cooperating with said platen to print fixed and variable data on cards, said type bars also having punches thereon and said punches cooperating with the die to punch holes in said cards corresponding to the data printed by said type bars therein.

6. In printing and punching mechanism, the combination of fixedly secured settable printing and punching means, and an individual insert provided with printing and punching means cooperating with settable printing and punching means to simultaneously print and punch duplicate records on a card.

7. In printing and punching mechanism, the combination of settable printing and punching elements, a head in which said elements are set, locking means for locking said elements in said head, and an individual insert, individual to workmen, and having settable type and punches cooperating with said first mentioned type and punches to print and punch duplicate records on a card.

8. In printing and punching mechanism, the combination of a case, a platen and a die mounted therein, a head guided in said case and movable toward and away from said die, settable type bars having type and punches lockingly secured in said head, and an individual insert individual to workmen, and having settable type bars provided with type and punches, secured in said individual insert.

9. In printing and punching mechanism, the combination of a die having holes formed therein, a head having holes therein registering with the holes in the die, and type bars provided with type and punches lockingly secured on said head, each type bar having a punch entering one of the holes in the head.

10. In printing and punching mechanism, the combination of a die having two series of holes therein, a head having a series of holes therein registering with the holes of one series in the die, type bars lockingly secured on said head, each type bar having a punch entering a hole in the head, and an individual insert, removably secured in said head, and having type bars secured in the individual insert, each of said last mentioned type bars having a punch cooperating with the other punches to punch a record in a card.

11. In printing and punching mechanism, a head, type bars lockingly secured thereon, an individual insert, individual to workmen, removably secured to said head and having type bars secured in the individual insert, all of said type bars having type characters and punches thereon.

12. In printing and punching mechanism, an apertured and slotted plate, and an individual insert having on one end a type character projecting through said slot, said type bar having also a punch projecting through one of the apertures in the plate, and a pilot pin entering another of said apertures.

13. In printing and punching mechanism, an apertured and slotted plate, and an individual insert having a type character projecting through said slot and a punch projecting through one of the apertures in the plate, said type bar having also means for positioning the same on the plate.

14. In printing and punching mechanism, an apertured and slotted plate, and an individual insert having a type character projecting through said slot and a punch projecting through one of the apertures in the plate, said type bar having also a duplicate indicating character thereon, and means for positioning the type bar on the plate.

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