Jan. 5, 1932. D. F. SCHUMACHER 1,839,415

HAND PUNCH

Filed May 10, 1928

FIG. 1.

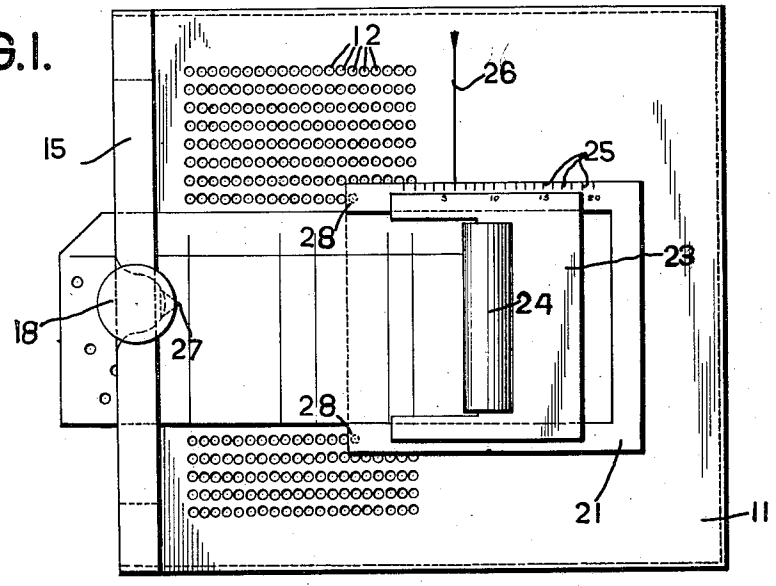


FIG. 2.

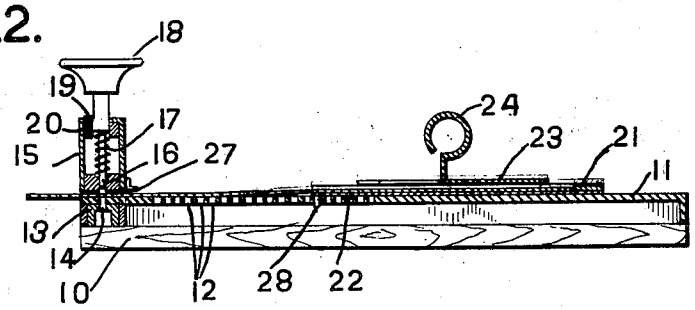


FIG. 3.

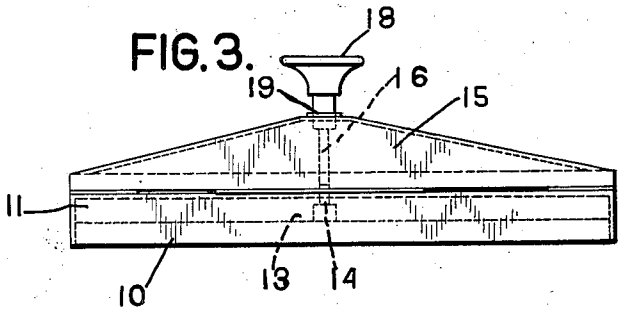
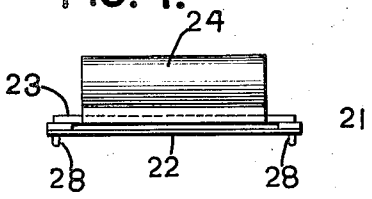


FIG. 4.



Inventor

D. F. Schumacher

By his Attorney

W. M. Wilson

Patented Jan. 5, 1932

1,839,415

UNITED STATES PATENT OFFICE

DIEDRICH FRIEDRICH SCHUMACHER, OF BERLIN, GERMANY, ASSIGNOR TO THE TABULATING MACHINE COMPANY, OF ENDICOTT, NEW YORK, A CORPORATION OF NEW JERSEY

HAND PUNCH

Application filed May 10, 1928, Serial No. 276,643, and in Germany January 30, 1928.

This invention relates to punching devices for perforating record cards. Information is recorded on said cards by index points, usually in the form of perforations. The meaning of an index point is determined by its location on the card in accordance with a predetermined scheme. Thus, the well-known Hollerith card has a plurality of parallel columns, each of which contains at least ten index point positions for recording digits 0–9 and frequently two additional positions above the 0 position for recording numbers 11 and 12 or other desired items.

It is an object of this invention to provide a manually operative punching device for conveniently perforating record cards.

It is a further object of the invention to provide a simple indicating means to locate the record card in desired punching position.

Still another object is to provide a card feeding device which may be retained in selected positions relative to the punch and readily adjusted to said positions.

Various other objects and advantages of my 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.

Fig. 1 is a plan view of the device.

Fig. 2 is a side section thereof.

Fig. 3 is an end view thereof and

Fig. 4 is an end view of the card holder.

In detail, the device includes a base 10 having a plate 11 provided with holes 12. The latter are arranged in columns parallel to the end of the base, adjacent columns being a distance apart equal to that between adjacent card columns. Adjacent holes in a column are spaced apart a distance equal to that between successive index point positions in a card column. The purpose of holes 12 will be hereinafter fully explained.

At its forward end, the base rigidly carries on its surface a die block 13 having a die opening 14. Above the die block, the base has fixed thereto a substantially triangular frame 15 carrying a punch 16. Alined openings in said structure guide the punch into cooperation with die opening 14. The punch is normally held in uppermost position by a spring 17 and is provided with a knob handle 18 for depressing it against the force of the spring. A pin 19 on the frame abuts a shoulder 20 on the punch stem to limit the upward movement of the punch. The bottom of the frame 15 is spaced from the top of die block 13 so that a card or sheet may be fed between the frame and the die block to be operated on by punch 16. For perforating record cards, it is desirable to provide means for quickly and conveniently locating the card relative to the punch in order to perforate the selected index point positions. For this purpose a card holding frame 21 is provided.

The card holding frame comprises a base 22 on which the card is adapted to rest and a cover plate 23 having a handle 24 formed therewith. The forward end of the base is open to permit the card to be inserted between the base and the cover plate. The sides of the base extend above the surface thereof to abut the longitudinal edges of the card and hold the card against movement laterally of the frame. The rear end of the base also projects above the surface thereof to abut the end of the card and limit its movement longitudinally of the frame. One side of the frame is provided with graduations 25 cooperating with an indicating line 26 on the die plate 11 to show which column of the card held by the card frame is in line with the punch. The lower punch guiding plate of frame 15 carries a pointer 27 which cooperates with the card to indicate which index point position on the card is under the punch. At each side, adjacent its forward end, base plate 22 of the card holder carries a pin 28 which is adapted to enter any of the holes 12 in plate 11. Graduations 25 in cooperation with indicating line 26 indicate which card column is in line with the punch when the pins 28 are inserted in a pair of holes 12 in the same column of holes. Thus in the example shown, the punch is in readiness to perforate column 6 of the card.

In order that the punch perforate the desired index point position in the column, the card holder is first lifted out of cooperation with plate 11 and then moved along the column of holes 12 corresponding to the card column to be punched as indicated by graduations 25 and line 26 until the pointer 27 is opposite the desired index point position. The pins 28 are then permitted to drop into the pair of holes determining said index point position. The card is thereby held firmly for punch 16 to perforate the selected index point position.

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:

1. A punching device comprising a punch, a punch carrier, said carrier having a plurality of apertures therein, a card holder, and pins on said holder spaced apart and alined parallel to a column of the card in the holder entering said apertures to align and position the holder relative to the punch.

2. A punching mechanism comprising a punch, a frame carrying said punch, a base on which said frame is fixed, means directly in contact with the base for holding the work in position for an operation by said punch, said holding means being freely movable away from the surface of said base, and means on said base preventing movement of the holding means parallel to the surface of the base only when resting on the base.

3. A device for perforating a record card having a plurality of columns of index point positions which may be perforated to designate items, comprising a frame, a manual punch carried by said frame, a record card holder movable on a surface of said frame in a plurality of directions, and retaining means on said surface adapted to retain the holder in any position in which the punch can perforate an index point position of the record card in the holder.

4. A device such as described in claim 3, and indicating means on said frame surface for indicating the position of the card relative to the punch.

5. A device such as described in claim 3, a portion of said retaining means being located underneath the record card in the holder.

6. A device such as described in claim 3, said holder having a plurality of spaced elements alined in a direction parallel to a card column of the card in the holder, said elements cooperating with said retaining means in restraining movement of the holder.

7. A punch device for a card comprising a templet plate, a punch adjacent one end of the templet plate, a frame for the punch including upper and lower guiding portions for the punch rigid with the templet plate, said portions being spaced to form an aperture just wide enough to permit the card to pass therethrough and thereby to substantially restrain the portion of the card in the aperture against movement transversely to the templet plate, and means for retaining the card in adjustably selected position on the templet plate.

8. A punching device comprising a punch and a card holder for moving the card relative to the punch, said card holder comprising a frame within which the card is restrained against edgewise movement and a plate rigid with said frame for preventing movement of the portion of the card underneath said plate transversely of the card surface, said plate being provided with a handle portion for manipulating the card holder.

9. A punching device comprising a base on which the card rests, a punch carried by the base for perforating the card, and a card holder for moving the card relative to the punch, said card holder having three sides engaging two side edges and the rear edge of a card and open at the side facing the punch, and a handle provided on said frame for manipulating the card holder.

In testimony whereof I hereto affix my signature.

DIEDRICH FRIEDRICH SCHUMACHER.