

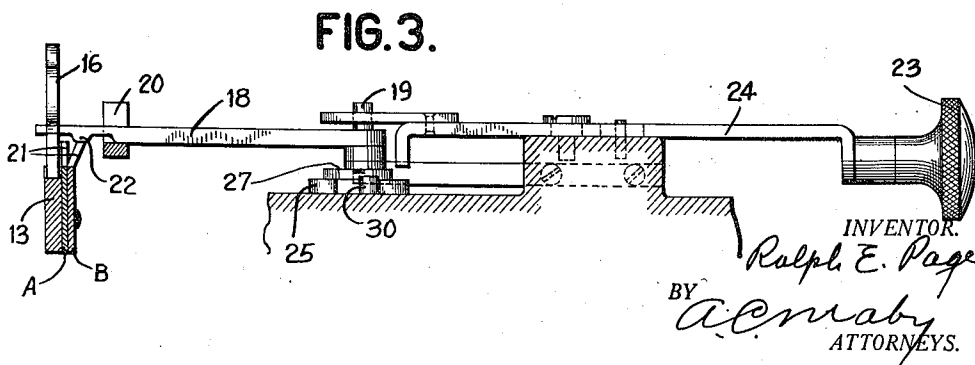
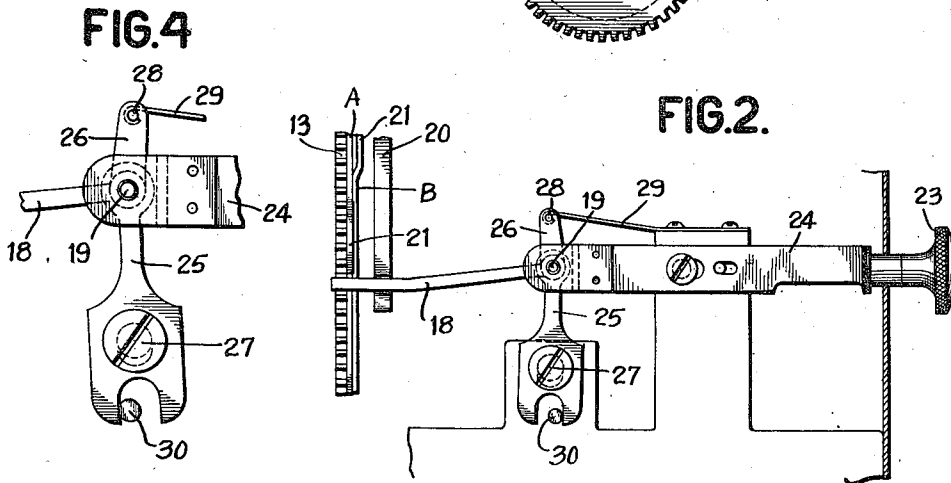
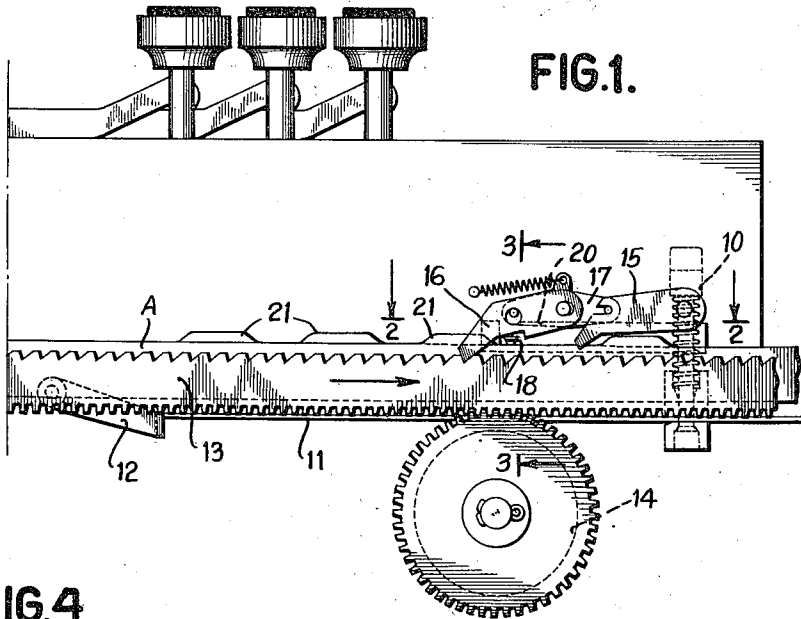
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PERFORATING MACHINE

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2,013,543

PERFORATING MACHINE

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3 Claims. (Cl. 164—112)

This invention relates to record card perforating machines and more particularly to the card advancing mechanisms thereof.

The principal object of the invention is to provide mechanism for causing an automatic skipping operation of a card carriage under control of a so-called skip bar having a configuration in accordance with the portion of the record card to be skipped.

A further object of the invention is to provide a plurality of such skip bars, each having a different predetermined arrangement of control elements, together with means for selecting one of the bars for effective operation. The skip bars are provided with high or camming portions which coast with the normal escapement mechanism to disengage the same from the carriage, thus permitting it to advance uninterruptedly a distance determined by the extent of the camming portion.

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 drawing; and the invention also constitutes certain new and novel features of construction and combination of parts hereinafter set forth and claimed.

In the drawing:

Fig. 1 is a detail view showing the escapement mechanism of a record card perforating machine and showing the relationship of the skip bars to the escapement devices.

Fig. 2 is a detail of parts shown in Fig. 1, looking in the direction of the arrows 2—2.

Fig. 3 is a further detail section, looking in the direction of the arrows 3—3 of Fig. 1.

Fig. 4 is a position view of parts shown in Fig. 2.

The invention is shown in the drawing as applied to a record card punching machine of the type disclosed in Patent No. 1,821,078, granted September 1, 1931 to J. T. Schaaff and only as much thereof need be described as is necessary for an understanding of the present invention.

The machine is provided with a row of punches 10 (Fig. 1) past which a record card 11 is moved column-by-column or step-by-step. Card 11 is of the well-known Hollerith type having the usual twelve index point positions for each of which there is a punch 10. The card is advanced toward the right, as seen in Fig. 1, by a pusher 12 mounted upon escapement rack 13 which is normally urged toward the right by a spring drum 14 with which the rack has gear connection.

Escapement mechanism, comprising holding pawl 15 and stepping pawl 16, permits the rack to advance step-by-step.

As is more fully explained in the patent referred to, for each punching operation lever 17 is rocked clockwise and then back again, during which time the rack will advance one tooth to present the next column of the card to the row of punches 10. Lying beneath the stepping pawl 16 is the free end of a so-called skip lifter lever 18 (see Figs. 2 and 3) which is loosely pivoted on a pin 19 so that its free end may move vertically. Guide 20 is provided to restrain the lever against lateral movement.

It will be apparent that upward movement of the free end of lever 18 will cause the same to disengage stepping pawl 16 from rack 13 so that the latter will move uninterruptedly toward the right until the pawl is again lowered. This raising and lowering of lever 18 is brought about automatically as the card carriage advances by means of skip bars A and B which are provided with camming portions 21 which are co-extensive with one or more columns of the record card. The camming portions 21 are adapted to cooperate with a downward projection 22 (Fig. 3) of the lever 18. When the lever is in the position shown in Fig. 3, the projection 22 cooperates only with the cam portions 21 of skip bar B. When the lever is moved toward the left, the projection 22 will lie in the path of camming portions 21 of skip bar A and will be out of cooperation with bar B. The projection 22 is tapered, as indicated in Fig. 1, so that, as the carriage moves toward the right, the camming portions 21 will engage and raise the lever 18 to lift the stepping pawl 16. The carriage will then move uninterruptedly toward the right with projection 22 traversing the camming surface and thereafter dropping to the next low portion to permit the stepping pawl to interrupt further advance of the carriage by reengagement with rack 13. Selection of either skip bar A or B is effected by means of a knob 23 attached to one end of a link 24 which is suitably mounted for horizontal movement. The other end of the link has connection with the pin 19 which extends upwardly through a suitable opening in the link. Pin 19 is secured in one end of an arm 25 which, with arm 26, comprises a toggle. Arm 25 is pivoted at 27 and arm 26 is pivoted at 28 upon a leaf spring 29 whose other end is anchored to the frame of the machine.

The spring 29 serves to hold the toggle in either the position shown in Fig. 4 or that shown

in Fig. 2. A stop pin 30 serves to limit the movement of the punch.

With the knob 23 in the position shown in Fig. 2, lever 18 is held in its retracted position and skip bar B will be effective. If knob 23 is pushed inwardly, lever 18 will move toward the left and bar A will become effective.

The arrangement described has particular utility where cards of more than one form are being punched and where different fields are to be automatically skipped for each form. Heretofore this has required manual column-by-column skipping of the fields which are not to be punched or removal of the skip bar associated with one form and the substitution of another skip bar therefor. This has been a time-consuming and inconvenient procedure. With the present arrangement, when punching cards of, let us say, form "X", knob 23 is moved toward the left and fields will be skipped in accordance with the configuration of bar A. If the next card to be punched is of form "Y", the knob is drawn toward the right and skipping will be effected accordingly.

When punching cards of a particular form, there may be occasion to suppress the automatic skipping of a particular field. This may readily be effected with the present arrangement by moving knob 23 out of cooperation with the controlling skip bar before the field in question arrives at punching position and moving it back after the field has been punched.

While there has been 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 inven-

tion. It is the intention therefore to be limited only as indicated by the scope of the following claims.

What is claimed is as follows:

1. In a record perforating machine, a record carriage, a rack associated with said carriage, an escapement mechanism engaging said rack for controlling the movement of said carriage, a skip lifter for disengaging said mechanism from said rack, a plurality of skip bars carried by said rack, means for selecting one of said bars for cooperation with said skip lifter, and cam surfaces integral with the selected bar for causing a disengaging operation of said lifter at predetermined points in the travel of the rack.

2. In a record perforating machine, a card carriage, a rack fixed to said carriage, an escapement mechanism engaging said rack for controlling the movement of said carriage, means for actuating said escapement mechanism to cause the carriage to advance with a step-by-step movement, means for disengaging the escapement mechanism from said rack and holding the same out of engagement therewith, said means including a plurality of skip bars movable with said carriage and provided with cam surfaces, and a skip lifter adapted to be interposed between any one of said bars and said escapement mechanism.

3. In a record perforating machine, a carriage for moving a record card, an escapement mechanism normally operating to advance said carriage step-by-step, a pair of skip bars provided with cam surfaces, for automatically disengaging said escapement mechanism, means operable at will for placing either of said bars in operative relationship with said escapement mechanism for any period during the travel of the carriage.

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