

Dec. 5, 1939.

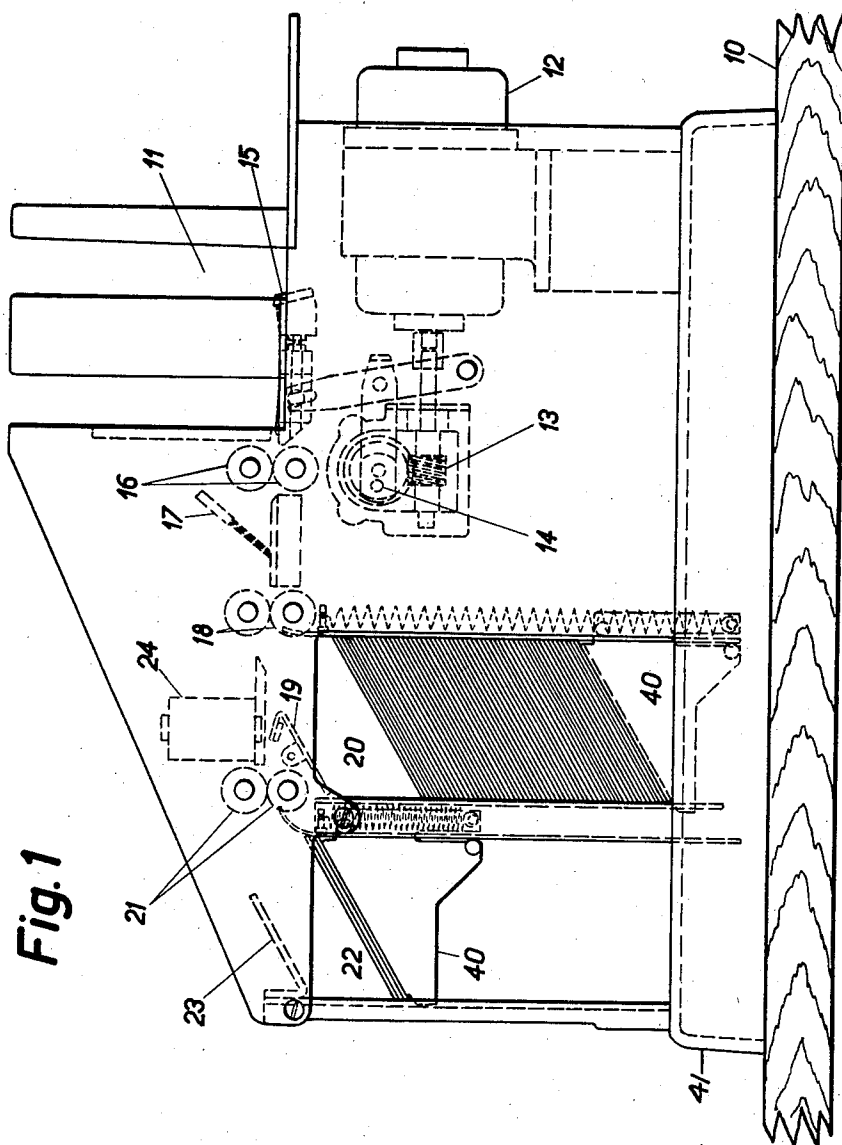
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2,181,995

CARD STACKING DEVICE

Filed Oct. 15, 1938

3 Sheets-Sheet 1



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Fig. 4

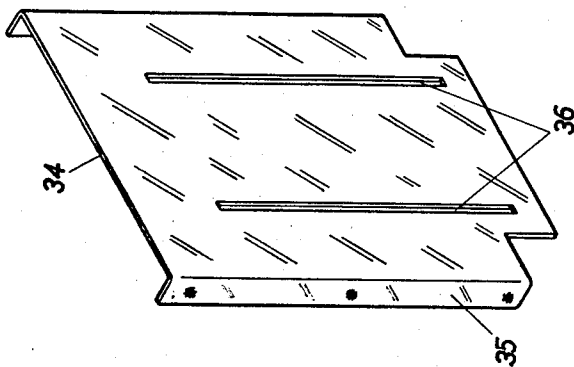


Fig. 3

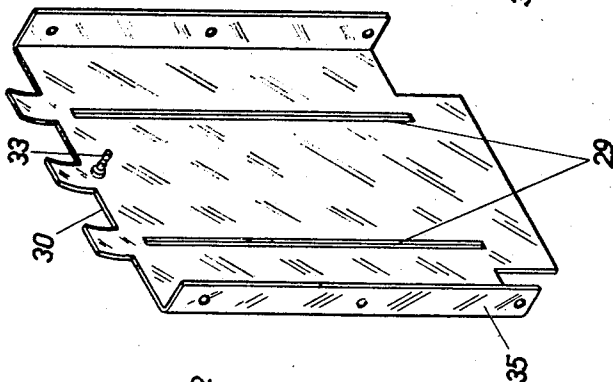
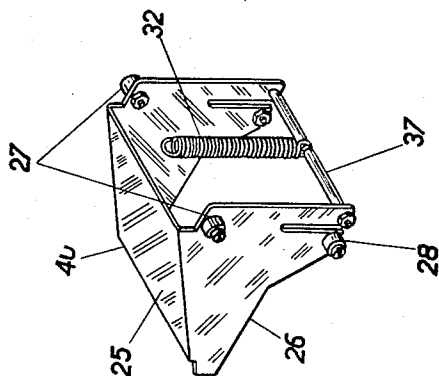


Fig. 2



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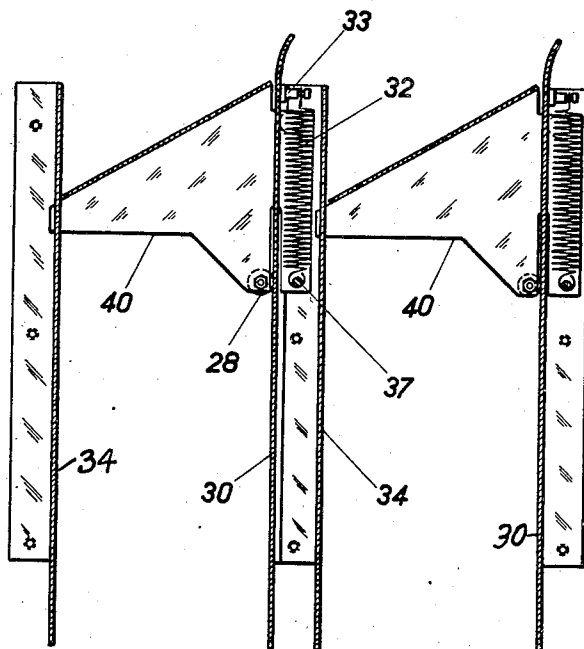


Fig. 5

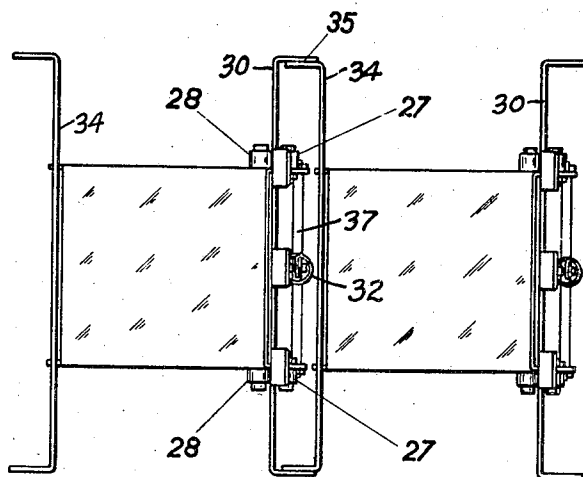


Fig. 5a

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UNITED STATES PATENT OFFICE

2,181,995

CARD STACKING DEVICE

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3 Claims. (Cl. 271-88)

The present invention relates to card depositing devices utilized in card controlled machines such as tabulating and sorting machines controlled by cards with holes or other index marks, wherein the card after having passed through the machine is diverted above the depositing pocket by an inclined surface and drops freely into the pocket immediately after leaving the card feed rollers.

10 In order that in such devices the cards are properly stacked it is necessary that the distance of the free dropping of the cards be as short as possible, and moreover, always constant independently of the height of the card stack which is in the pocket. The bottom of the pocket is, therefore, guided so as to be movable up and down and is usually urged upwardly by a spiral spring. As the cards drop into the pocket the card stack will drop downwardly against the tension of the spring. The resiliency of the spring is so selected that with each newly arriving card a downward movement of the bottom of the card pocket equivalent to the thickness of the card will take place so that the top of the card stack will assume the same position thus causing the distance each card drops into the pocket to always be the same. In order to insure that the downward movement of the bottom of the card takes place immediately with the reception of the cards first received, the friction which the card pocket bottom encounters in its guide must be very low because this friction must be overcome by the weight of the first few cards fed into the pocket.

35 It is a well known construction, in depositing arrangements of the type referred to, to fasten the card pocket bottom with its lower side to a tube in which a spiral spring is arranged and which tube is guided in another fixed tube. The latter tube must, therefore, be arranged below the lowermost part of the depositing pocket. This arrangement complies with the requirement of a guidance with very low friction, however, it requires a construction of the machine which has the disadvantage that below the depositing pocket a comparatively great space must be provided for the long guide tube and, as a rule, a machine frame with long supporting legs is required by this construction.

50 According to the present construction the card pocket bottom is arranged as a carriage running up and down on one side wall of the card pocket and is drawn upwardly by a tension spring also arranged at the side and close to the plane of the rollers. The arrangement is such that in spite

of the restriction of only one spring and two pairs of rollers tilting or jamming of the carriage in the pocket is impossible. The novel arrangement results also in little friction in the guidance of the card pocket bottom and compared with the known arrangement, above described, it affords the advantage that it does not require any great space below the pocket and may, therefore, be incorporated in machines having a frame without legs so that it may be placed on any table with the base plate resting thereon. Such an arrangement is particularly desirable when comparatively small machines, such as small sorting machines, are provided and have only two or three pockets. Such machines are used when the sorting of a stack of perforated record cards according to two or three characteristics is required. For instance, if the cards with a certain designating perforation are to be assorted from the stack of cards, the cards with the desired designating perforation will be fed into one pocket and all remaining cards into the other pocket. The same operations will take place if a separation according to perforated and imperforate cards is required. Assorting may also be effected in a known manner so that all cards having a perforation within certain numerical limits such as, for instance, cards having a perforation representing numbers between 1200 and 1400 are passed into one pocket while all cards with a lower number representing perforation are passed into a second pocket and the cards with a higher number representing perforation are passed into a third pocket. Therefore, in such types of machines only three card pockets would be provided. In these and similar types of machines comprising a sorter with few sorting pockets the improved and novel card depositing arrangement may be incorporated although the particular advantages described are by no means restricted to such types of machines.

One embodiment of the invention is shown in the drawings and preferably illustrated in connection with a sorting machine having only two sorting pockets.

Further objects of the instant invention reside in any novel feature of construction or operation or novel combination of parts present in the embodiment of the invention described and shown in the accompanying drawings whether within or without the scope of the appended claims and irrespective of other specific statements as to the scope of the invention contained herein.

In the drawings:

Fig. 1 is a view in side elevation of the machine showing a depositing mechanism constructed according to the present invention.

Fig. 2 is a perspective view of the card depositing carriage.

Fig. 3 is a perspective view of one side wall of the card depositing pocket on which the rollers of the carriage roll.

Fig. 4 is a perspective view of the side wall of the other card depositing pocket.

Fig. 5 is a longitudinal sectional view taken through the depositing pockets.

Fig. 5a is a plan view of the depositing pockets.

Although the improved arrangement may be applied to card controlled machines of different types it is preferably shown in Fig. 1 in connection with a machine for sorting perforated record cards. This machine has only two sorting

pockets and serves for the assorting of cards, as has been already mentioned. The machine rests upon a table 10. The cards to be sorted are inserted in a supply hopper 11. The card picker

15 is reciprocated by a motor 12 by means of a worm gear 13 and a crank drive 14 causes the picker 15 to feed for each revolution of the crank one card to feed rollers 16 which are also

driven by the motor. The card then passes beneath the analyzing device 17 and further to the feed rollers 18 and depending upon the position of the deflector 19 it will pass either into the pocket 20 or to the feed rollers 21 which feed the card into the pocket 22. When the card is fed

to the pocket 20 it is deflected downwardly by the movable deflector 19 and when the card is fed to the pocket 22 it is deflected by the stationary deflector sheet 23. If the simplest type of machine is assumed in which a card separation

shall take place according to perforated and imperforate cards, upon the analysis of a perforated card the magnet 24 will be energized in a well known manner to cause the deflector 19

to be raised and held temporarily in this position so that the card fed by the rollers 18 will be deflected by deflector 19 into the pocket 20. Thus all perforated cards will drop into the right

hand pocket 20 (Fig. 1). Upon the passage of the imperforate cards the magnet 24 will not be energized. These cards will, therefore, pass over the deflector 19, which remains in its normal position, and such cards will be deflected by deflector sheet 23 to drop into the left hand pocket 22.

In each sorting pocket a card depositing or card receiving carriage (Fig. 2) is provided, generally indicated by numeral 40 and upon the upper inclined surface 25 of the same the cards will be stacked. In Fig. 1 the right hand carriage

40 is shown in its lowermost position with the pocket 20 filled, and the left hand carriage 40 is shown in nearly the uppermost position and which position is taken after a few cards have been dropped into the pocket 22. If sorting

takes place according to perforated and imperforate cards, as has been assumed above, the cards in the right hand pocket are the perforated cards and those in the left hand pocket are the imperforate ones.

The movable card depositing carriage 25 has triangular side walls 26 which carry the pairs of guide rollers 27 and 28. The triangular side walls 26 pass through the slots 29 formed in the fixed card pocket wall 30 and the side walls 26 are guided by these slots. The lower portions of the side walls 26 are interconnected by the rod

37 to the middle of which a tension spring 32 is connected and the other end of said spring is fastened to a spring stud 33 carried by the fixed wall 30 of the card pocket. A wall 34, which is the fixed side wall of the same pocket, is also provided with slots 36 (Fig. 1) receiving portions of the side walls 26 of the card depositing carriage. This arrangement prevents cards from jamming between the carriage and the card pocket walls.

The assembly of card depositing carriage, card pocket wall and tension spring may be best seen in Figs. 5 and 5a. The upper rollers 27 roll on the outside of the fixed wall 30 and the lower rollers 28 roll on the inside of the card pocket wall 30 so that the force acting in counter-clockwise direction and resulting from the weight of the cards, as well as from the tension spring, will merely cause the card pocket carriage to receive a translatory movement. The carriage will, therefore, move downwardly guided by the walls 30 and 34 as soon as cards are deposited thereon so that their weight will overcome the tension of the spring 32.

The sideward movement of the carriage is prevented by the guide slots 29 and 36 of the plates 30 and 34, respectively, receiving the side walls 26 (Figs. 2 to 4). It is, therefore, possible to fasten the spring to the lower end of the carriage, namely, to the pin 37 and to make use of the complete length of the spring.

The side wall 30 of the pocket 22 is assembled together with the side wall 34 of the pocket 20 by overlapping bent lips 35 (Figs. 5 and 5a) which are fastened together by any suitable means and these two side walls form together with the carriage 40 and the spring 32 a unit which is fastened to the machine frame. If more than two depositing pockets are provided this unit arrangement may be provided for any desired number of pockets.

In order to decrease the height of the machine the base plate 41 (Fig. 1) has a recess in which the lower part of the carriage can enter (Fig. 1).

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

What is claimed is:

1. In a card receiving device for cards in which the cards controlling the machine are fed to a card receiving pocket, a support for said cards comprising as a unitary integral structure a card supporting plate having transverse downwardly bent integral side portions, a side wall of said pocket having slots receiving said side portions, a supplemental side wall having slots receiving said integral side portions, pairs of rollers carried by said side portions and arranged to roll on opposite sides of said supplemental side wall, and a spring connected to said support plate and fixed to a part of the machine for resiliently supporting the stack of cards fed to the pocket.

2. In a card receiving device for cards in which the cards controlling the machine are fed to a card receiving pocket, a side wall of said pocket and provided with slots, a supplemental side wall for said pocket and provided with slots, a support for said cards comprising as a unitary integral structure a transverse card bottom receiving

plate extending between said side walls and provided with integral downwardly bent side portions passing into the slots of said side wall and supplemental side wall, pairs of rollers carried by said side portions and arranged thereon in such a manner that one of said side walls provides on its opposite sides the rolling surfaces for said rollers to thereby guide said plate in its upward and downward movement, and a spring connected at one end to said plate and connected at the other end to the side wall cooperating with said rollers.

3. A unitary arrangement for card receiving pockets in which individual cards are fed therein comprising, a pair of interconnected walls which

are spaced thereby, one of which is the side wall for one pocket, and the other of which is the side wall of the other pocket, a card receiving bottom for a pocket comprising as a unitary integral structure a card supporting plate having integral downwardly bent side extensions extending through slots formed in one of said walls, pairs of rollers carried by said extensions so arranged that the last named wall provides at opposite sides thereof the rolling surfaces for said rollers, and a spring extending in the space between said side walls and connected at one end to one side wall and at the other end to said plate.

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