

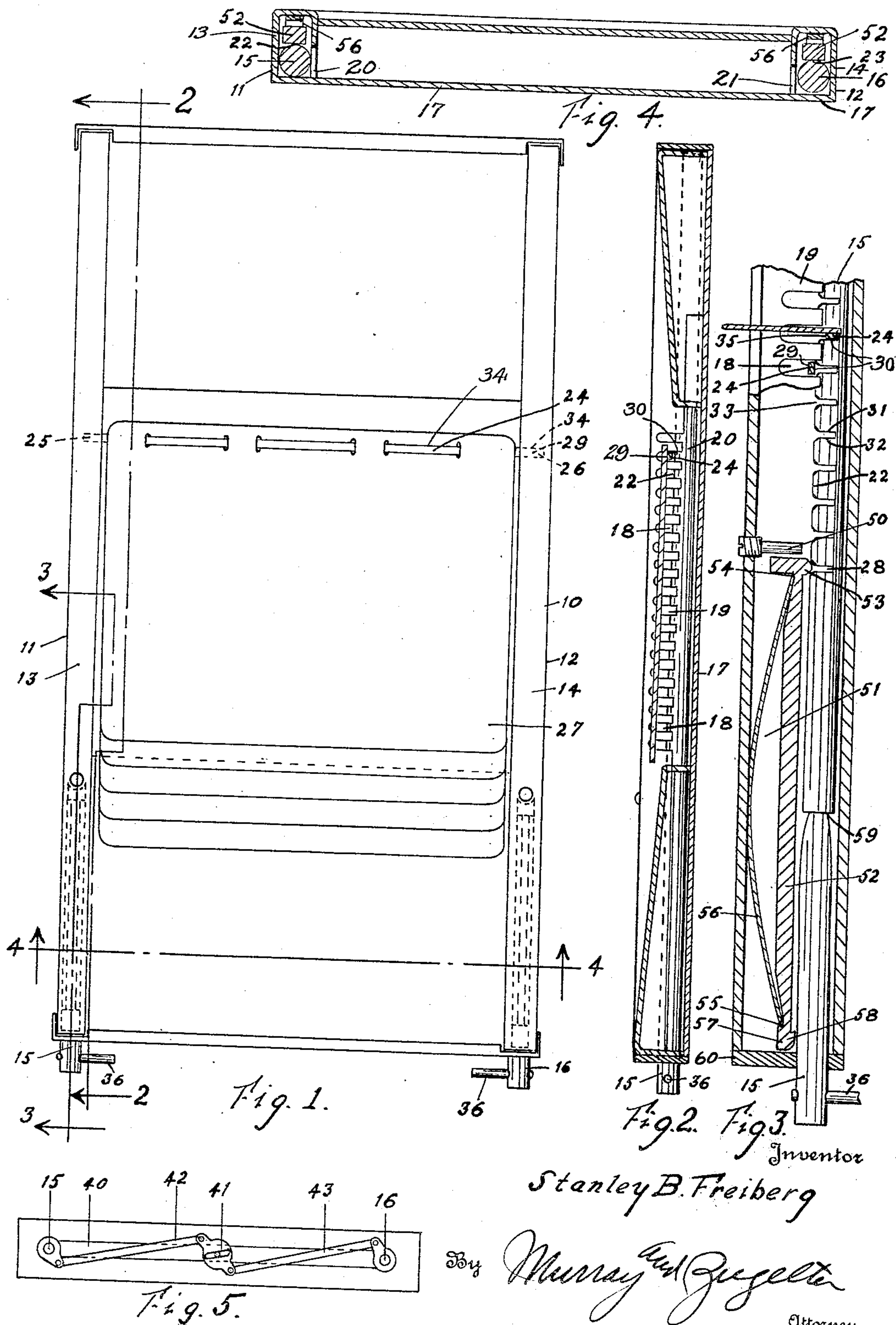
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SHIFTING MECHANISM FOR CARD FILING DEVICES

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# UNITED STATES PATENT OFFICE

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## SHIFTING MECHANISM FOR CARD FILING DEVICES

Application filed April 21, 1928. Serial No. 271,860.

This invention relates to visible card indexes and means for adjustably supporting cards therein.

An object of the invention is to provide simple and efficient adjustment means for cards of the character indicated.

Another object is to provide means whereby variable numbers of cards may be adjusted variable distances in opposite directions.

These and other objects are attained by the means described herein and disclosed in the accompanying drawing in which:

Fig. 1 is a plan view of one form of device embodying the invention.

Fig. 2 is a sectional view on line 2—2 of Fig. 1, parts being broken away and all but one of the cards having been removed.

Fig. 3 is an enlarged sectional view on line 3—3 of Fig. 1.

Fig. 4 is a sectional view on line 4—4 of Fig. 1.

Fig. 5 shows a front view of a modified form of the device.

The tray or holder 10 is provided along its opposed lateral edges 11 and 12 with elongated channels 13 and 14 in which are disposed rods 15 and 16. The rods may be rotated or oscillated in the channels and they may be reciprocated longitudinally thereof. In the present form of tray, the longitudinal edges of the body or base 17 of the tray are turned inward to form the channels 13 and 14. Notches or slots 18 are formed along the intumed edges of the channel portions and the lugs 19 formed between said notches terminate at a distance from the base 17, whereby there are provided along each channel, longitudinal ways 20 and 21 connecting the slots in the intumed edges. The rods 15 and 16 are of a diameter greater than the height of the ways 20 and 21, wherefore the uppermost portions 22 and 23 of the circumferences of said rods are disposed above the lowermost portions or ends of the lugs 19. The rods serve as ledges that support the ends of flat spring card holders or supports 24 that extend into the slots 18. The relationship of the card holders, tray, and card spacing means may be identical with the structure shown in my copending application

Serial No. 226,490, filed October 15, 1927, however, the rods 15 and 16 herein perform the function of the ledges 34 shown in said copending application. The walls of each notch or slot 18 and the rods provide spaced pockets that receive the ends 25 and 26 of the card holders 24. The pockets are arranged in pairs, the pockets of each pair being opposite one another, one pocket of each pair of pockets being at an opposite side of the tray. The cards 27 are perforated and are threaded upon the card holders.

The rods 15 and 16 are each provided with cross slots 28 that may serve as receptacles for receiving and holding the ends of the card holders 24. Normally the rods are so disposed that the cross slots are wholly below the upper surface of the rods, thereby presenting a continuous smooth upper surface upon which the ends of the card holders rest. When the rods are rotatably actuated so as to dispose the cross slots along the uppermost surface of the rods, the ends of the card holders may enter the cross slots, provided the card holders are rotatably actuated to such extent that the wider parallel faces 29 and 30 of the card holder extend in parallelism with the transversely extending walls 31 and 32 of the cross slots. The thickness of the card holders is less than the width of the cross slots, whereas the width of the wider faces 29 and 30 of the card holders exceeds the width of the cross slots. Preferably the mouths 33 of the cross slots are enlarged or the walls are rounded as shown, whereby to direct the ends of the card holders into the cross slots or receptacles when the card holders are turned, generally in conjunction with a card 27, to bring the one edge 34 of the card holder into registry with one of the cross slots. When the cross slots are exposed, only those card holders that are turned at right-angles to their normal position enter the cross slots or receptacles (see Fig. 3). When the ends of one or more card holders are disposed in the cross slots or receptacles, the upper edge or edge 35 of the card holder or holders are disposed below the lugs 19, wherefore the card holders move with the rods when the rods are moved longitudinally. By moving



the rods various distances, the card holders can be moved to and from various pockets. When a card holder has been moved to a selected pocket, return of the rods to normal position, so far as the receptacles are concerned, serves to eject the card holder from the receptacle, and the card holder returns to normal position with its wider faces extending in substantial parallelism with the base 10 17.

The rods may be rotated and/or reciprocated by suitable finger pieces 36. If desired the rods may be connected in any suitable manner for effecting unitary reciprocation and oscillation of the rods. A simple device for that purpose comprises a cross bar 40 that may loosely receive the rods and with a finger piece 41 pivoted thereto and eccentrically attached links 42 and 43 pivotally connected between the rods and the finger piece. 20

At the one end of each channel is provided a stop device, such as pin 50 that precludes escape from the forward or auxiliary channel 51 of a spring-actuated pressure bar or foot 52. The bar 52 is provided with a pawl 53 at its one end, the pawl being adapted to engage in the receptacles for yieldingly restraining the rod against longitudinal movement. The pawl when entering the mouths of the receptacles or cross slots, imparts a slight jar to the rods, whereby an operator may determine the number of pockets that a given cross slot has passed while longitudinally moving the rods in a given operation of the device. 30

The bar or foot 52 is provided with seats 54 and 55 for receiving the ends of spring 56. The forward end 57 of bar 52 may be provided with a catch or lug 58 that may enter an annular groove 59 in the rod to preclude complete withdrawal of the rod from the tray. The forward end of the bar 52 is preferably rounded at the bottom, to facilitate introduction of the rod into the channel after the bar 52 and spring 56 have been assembled therein. 40

Normally the rods 15 and 16 present a continuous upper surface as previously explained. While the rods are so disposed the cards may be turned back and forth, the card holders turning with the cards and received in the cooperating pairs of pockets formed along the lateral edges of the tray. The card holders may be flexed to withdraw and to insert same in various pairs of pockets. Assuming that one card and holder has been withdrawn and it is desired to move all of the other cards and holders, on one side of the space provided by withdrawal of the indicated card, adjacent to the other cards in the tray, an operator would withdraw the rods from the front of the tray until the indicating means indicates that the cross slots in the rods had been moved toward the front of the 50 65

tray, a distance equal to the space between any two adjacent pockets. The rods are then rotatably actuated to bring the cross slots uppermost. The cards that are to be moved are then actuated about their axes to positions such that their respective associated card holders enter the cross slots disposed below the various pockets. The rods are then pushed back into the tray and are then returned to normal position, whereupon the card holders are ejected from the cross slots. In shifting the cards, the rods may in some instances be moved to bring the cross slots uppermost before they are moved longitudinally of themselves as previously mentioned. The cards, in varying number may be moved backward and forward at will, to any distance, contingent on the distance that the rods may be reciprocated. The extent of reciprocation or stroke of the rods will vary with various types and kinds of trays and the uses for which such trays are intended. The various combinations of shiftings that may be made with the device, are so numerous, that no effort will be made to explain them, however, one has no difficulty, when having one of the devices before him, in quickly realizing the various arrangements and shiftings that can be accomplished with the device. 70 75 80 85 90 95

Although flat spring bars or card holders 24 are particularly efficacious in conjunction with the various parts of the device disclosed herein and are therefore claimed herein in certain combinations, the spring bars alone and in combination with the record cards mounted thereon have decided utility independently of the various elements included in the combination claims herein, wherefore claims to the card holder and to the combination of card holder and record card are presented in co-pending application Serial No. 245,406, filed January 9, 1928. 100 105

What is claimed is:

1. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, and means comprising rotatable and longitudinally reciprocable rods for selectively shifting the card holders relative to one another along the tray. 110 115

2. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, means comprising rotatable and longitudinally reciprocable rods for selectively shifting the card holders relative to one another along the tray, and means for indicating the various positions of each rod relative to the receiving and holding means. 120 125

3. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card 130



holders in spaced relationship with one another, means comprising rotatable and longitudinally reciprocable rods for selectively shifting the card holders relative to one another along the tray, and means for effecting similar operating movements of the rods.

4. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, slotted rods mounted for rotation and longitudinal reciprocation relative to the tray whereby the slots in the rods may be placed in position for receiving selected card holders, said rods being adapted for the movement of said selected card holders upon reciprocation of the rods, and means for indicating the various positions of a given slot of each rod relative to the receiving and holding means.

5. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, slotted rods mounted for rotation and longitudinal reciprocation relative to the tray whereby the slots in the rods may be placed in position for receiving selected card holders, for the movement of said selected card holders relative to others upon reciprocation of the rods, and means for effecting cooperative similar operating movements of the rods.

6. The combination of a holder having a pair of opposed ways and pockets along and communicating with the ways and arranged in pairs, a pocket of each pair being disposed at opposed ways, and a shifting device comprising a pair of rods each having cross-slots, the one rod being at one of the ways and the other rod being at the other way, the rods being of a diameter no less than the width of the ways at their junction with the pockets, said cross-slots communicating with their respective associated ways, and card supports each having their opposite ends received in the pairs of pockets and each being of a thickness less than the width of the cross-slots in the rods and of a width not greater than the depth of the cross slots in the rods, the rods being adapted for oscillatory and reciprocatory motion relative to the holder.

7. In a card shifting device the combination of a tray, provided with a plurality of spaced pockets adapted to receive card holders, said pockets having communication with one another by means of a way, card holders extending into the pockets, means disposed adjacent the way for selectively rendering the pockets communicative and non-communicative with the way and for transferring selected card holders through the way, to and from selected pockets.

8. In a card shifting device the combina-

tion of a tray provided with a plurality of spaced pockets having communication with one another by means of a way, card holders extending into the pockets, reciprocable rods disposed adjacent the way and normally precluding shifting of the card holders from one pocket to another, the rods being adapted for receiving selected card holders and transferring same, through the way, to and from selected pockets and for ejecting the card holders into the selected pockets.

9. The combination of a record sheet, a flat card holder attached to the sheet and card holder support means having slots of a width greater than the thickness and less than the width of the card holder, and into which the card holder may enter when turned approximately perpendicular to the support means.

10. The combination of a tray having pockets in opposed relation, flat card holders having their ends received in opposed pockets of the tray and means for shifting said card holders between the pockets, said shift means being inoperative on the card holders in their normal positions and effective for shifting said holders when the holders are turned at an angle to their normal positions.

11. The combination of a tray having pockets in opposed relation, flat card holders having their ends received in opposed pockets of the tray, perforated record sheets, the card holders being threaded through the perforations in the sheets and being non-rotatable therein, and means for shifting the card holders and record sheets between the pockets, said shift means being inoperative for shifting sheets extending in substantial parallelism with the tray and being operative for shifting sheets extending at an angle to the tray.

12. The combination of an elongated tray having opposed pockets along its lateral edges and a way along each lateral edge communicating with its respective pockets, card holders extending across the tray and having their ends received in opposed pockets, and means for sustaining the card holders in the pockets and for moving selected card holders through the ways to and from selected pockets.

13. The combination of a tray having opposed fixed pockets along its opposite edges, the pockets having outlets, card holders extending across the tray and having their ends received in opposed pockets, and means for sustaining the card holders in the pockets or for allowing their passage through said outlets and for moving selected card holders to and from other selected pockets.

14. The combination of a tray having pockets therein, the pockets having outlets, card holders extending into the pockets, and means for sustaining the card holders in



the pockets or for allowing their passage through said outlets and for moving selected card holders to and from other selected pockets.

- 5 15. The combination of a plurality of card holders arranged in spaced relation in a row, individual card holders extending transversely to the row, and means for spacedly supporting the card holders in a row and for moving selected card holders longitudinally of the row.
- 10 16. The combination of a tray comprising card holder spacing means, elongated card holders extending transversely of the tray and positioned in spaced parallelism by said spacing means whereby to provide a row of card holders, and means for moving selected card holders lengthwise of the row for varying the spacing of selected card holders.
- 15 17. The combination with a tray and card holders mounted on the tray for individual oscillation to and from normal and abnormal positions wherein the opposed faces of the card holder extend in substantial parallelism and substantial perpendicularity respectively to the tray, and means for moving the card holders along the tray when the card holders are in abnormal positions, said means being ineffective for moving card holders when in their normal positions.
- 20 18. The combination with a tray and card holders mounted on the tray for individual oscillation to and from normal and abnormal positions wherein the opposed faces of the card holder extend in substantial parallelism and substantial perpendicularity respectively to the tray, and means for moving the card holders along the tray when the card holders are in abnormal positions, said means being ineffective for moving card holders when in their normal positions, said last-mentioned means adapted to return card holders to their normal positions.
- 25 19. The combination of a tray, a rod along each lateral edge of the tray, and each having movement relative to the tray in the direction of their length and the length of the tray, means for limiting the movement of the rods relative to the tray, card holders supported on said rods, and cooperative means on the rods and tray for spacing the card holders and for movement of selected card holders to selected spaced positions along the tray.
- 30 20. The combination with a tray and cards pivotally mounted on the tray, the cards in their normal positions overlapping and lying flat and in substantial parallelism with the bottom of the tray, of means movable lengthwise of the tray for receiving and sustaining the cards in abnormal positions, wherein the cards extend in substantial spaced parallelism to one another and substantially perpendicular to the bottom of the tray, said means adapted for moving the

cards, while in abnormal positions, lengthwise of the tray.

21. The combination with a tray and cards pivotally mounted on the tray, the cards in their normal positions overlapping and lying flat and in substantial parallelism with the bottom of the tray, of means movable lengthwise of the tray for receiving and sustaining the cards in abnormal positions, wherein the cards extend in substantial spaced parallelism to one another and substantially perpendicular to the bottom of the tray, said means adapted for moving the cards, while in abnormal positions, lengthwise of the tray, and to discharge the cards whereby the cards may move about their pivotal mountings to their normal positions.
22. The combination of a record sheet, an elongated card holder having greater width than thickness and attached to the sheet, and card holder support means having slots of a width greater than the thickness and less than the width of the card holder, and into which slots the card holder may enter when turned to such position relative to the support means that the larger transverse diameter of the card holder is in line with the depth of the slots in the support means.
23. The combination of a tray having pockets in opposed relation, elongated card holders having their ends received in opposed pockets of the tray, the card holders having greater width than thickness in transverse or cross-section, the card holders normally assuming positions with the longer transverse diameters thereof extending in substantial parallelism with the tray, and means for shifting the card holders to other pockets, the shifting means being inoperative on the card holders in their normal positions and effective for shifting the holders when the holders are turned at an angle to their normal positions.
24. The combination of a tray having a pair of parallel opposed ways and having pockets along and opening into said ways, the pockets being oppositely aligned in pairs, card holders extending between the pairs of pockets, and single means for sustaining the holders in said pockets and for shifting the card holders through the ways to and from other selected pairs of pockets.
25. In a card shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, and shifting means comprising reciprocal rods having slots for receiving card holders and from which slots the holders may be ejected by manipulation of the shifting means, said shifting means being adapted to move the holders disposed within the slots, to and from selected means associated with the tray for receiving and holding the card



holders in spaced relationship with one another.

26. In a card-shifting device the combination of a tray, means associated with the tray for receiving and holding a plurality of card holders in spaced relationship with one another, slotted rods mounted for rotation and longitudinal reciprocation relative to the tray whereby the slots in the rods may be placed in position for receiving selected card holders for the movement of said selected card holders relative to others upon reciprocation of the rods, and whereby said selected card holders are ejected from the slots upon rotation of the rods.

27. The combination of a tray having pockets along its lateral edges, a rod along each lateral edge, each rod having transversely extending alternate ribs and recesses, each recess normally aligned with a pocket, and opening away from its associated pocket, card holders each having each of its ends received in a pocket, one end at each side of the tray, the rods being movable to positions with the recesses opening toward the pockets, whereby the card holders may be introduced into and may be received in the recesses and may be supported by adjacent ribs and also being movable in the direction of their length, and means for entering the recesses successively when the recesses are in card holder receiving position and when the rods are moved lengthwise, said means yieldingly resisting lengthwise movement of the rods.

28. The combination of a tray having pockets in opposed relation, card holders in the form of strips of greater width than thickness having their ends received in opposed pockets of the tray, record cards carried by the card holders and non-rotatable relative to the card holders, the record cards and card holders normally lying substantially flat in the tray and being movable together with their respective card holders to abnormal positions wherein the record cards are inclined to their normal positions, and means for releasably receiving the card holders when the card holders and their respective associated record cards are moved to abnormal positions and for shifting the abnormally disposed record cards and card holders to and from selected pockets.

29. The combination of a tray having pockets in opposed relation, record sheets provided with laterally extending support means in the form of strips of greater width than thickness for insertion in opposed pockets for pivotally mounting the sheets on the tray, the sheets normally lying substantially flat in the tray and being movable to abnormal positions wherein the sheets and support means are inclined to their normal positions, and slotted means for releasably receiving the laterally extending support means when

the support means and the sheets are moved to abnormal positions for retaining the sheets in abnormal positions and for shifting the abnormally positioned sheets to and from other selected pockets.

30. The combination of a tray having oppositely aligned pairs of fixed pockets, card holders having their opposite ends disposed in the pairs of pockets, means for shifting card holders to and from other selected pairs of pockets, and means for signaling the amount of the movement of the card holder shifting means relative to the pockets for guiding an operator in the relative positioning of the card holders in the tray.

31. The combination of a tray having oppositely aligned pairs of fixed pockets, card holders having their opposite ends disposed in the pairs of pockets, means for shifting card holders to and from other selected pairs of pockets, and means yieldingly resisting movement of the card holder shifting means relative to the pockets.

32. The combination of a tray having oppositely aligned pairs of fixed pockets, card holders having their opposite ends disposed in the pairs of pockets, means for shifting card holders to and from other selected pairs of pockets, and means for signaling the amount of the movement of the card holder shifting means relative to the pockets for guiding an operator in the relative positioning of the card holders in the tray, and for yieldingly resisting movement of the card holder shifting means.

33. The combination with a tray and card holders mounted on the tray for individual movement to normal and abnormal positions, the card holders each having a longer transverse axis normally extending longitudinally of the tray and in abnormal positions having their transverse axes disposed at angles to the disposition of said axes when in normal position, of means for moving the card holders along the tray when in abnormal positions, said means being ineffective for moving card holders when in their normal positions.

34. The combination of a tray having pockets in opposed relation, card holders in the form of strips of greater width than thickness having their ends received in opposed pockets of the tray, record cards carried by the card holders and non-rotatable relative to the card holders, the record cards and card holders normally lying substantially flat in the tray and being movable together with their respective card holders to abnormal positions wherein the record cards are inclined to their normal positions, and slotted means mounted for oscillation and adapted for releasably receiving the card holders when their respective associated record cards are moved to abnormal positions and for sliding to shift the abnormally dis-

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posed record cards and card holders to and from selected pockets, said abnormally positioned record cards and card holders adapted, on rotary movement of and release from  
5 said slotted means, to return to normal positions.

35. The combination of a tray having pockets in opposed relation, record sheets provided with laterally extending support  
10 means in the form of strips of greater width than thickness for insertion in opposed pockets for pivotally mounting the sheets on the tray, the sheets normally lying substantially flat in the tray and being movable to  
15 abnormal positions wherein the sheets and support means are inclined to their normal positions, and slotted means mounted for oscillation and adapted for releasably receiving the laterally extending support means  
20 when the support means and the sheets are moved to abnormal positions, for retaining the sheets in abnormal positions and for sliding to shift the abnormally positioned sheets to and from other selected pockets,  
25 said laterally extending support means and sheets adapted, on rotary movement of and release from said slotted means to return to normal positions.

In testimony whereof, I have hereunto subscribed my name this 16th day of April, 1928.  
30 STANLEY B. FREIBERG.

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**CERTIFICATE OF CORRECTION.**

**Patent No. 1,897,931.**

**February 14, 1933.**

**STANLEY B. FREIBERG.**

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 3, line 15, claim 4, strike out the words "said rods being adapted", and insert the same after "holders," in line 29, claim 5; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 9th day of May, A. D. 1933.

**M. J. Moore.**

**Acting Commissioner of Patents.**

**(Seal)**