

Jan. 13, 1942.

L. I. JAYNE

2,269,767

CARD SEGREGATING MECHANISM

Filed July 30, 1940

2 Sheets-Sheet 1

FIG. 1

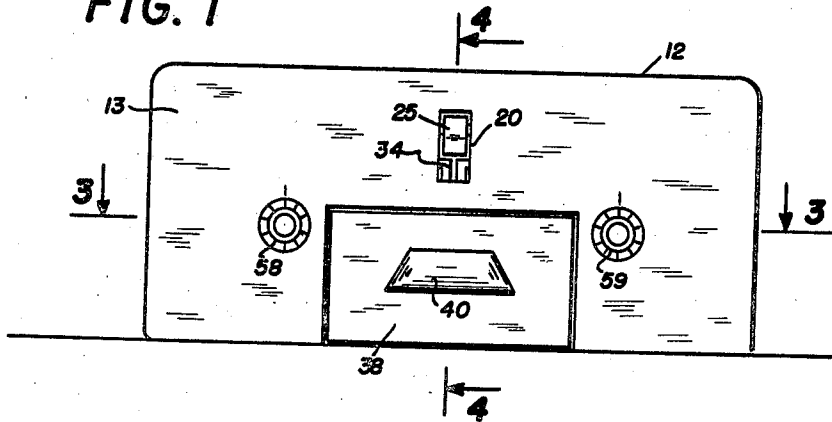
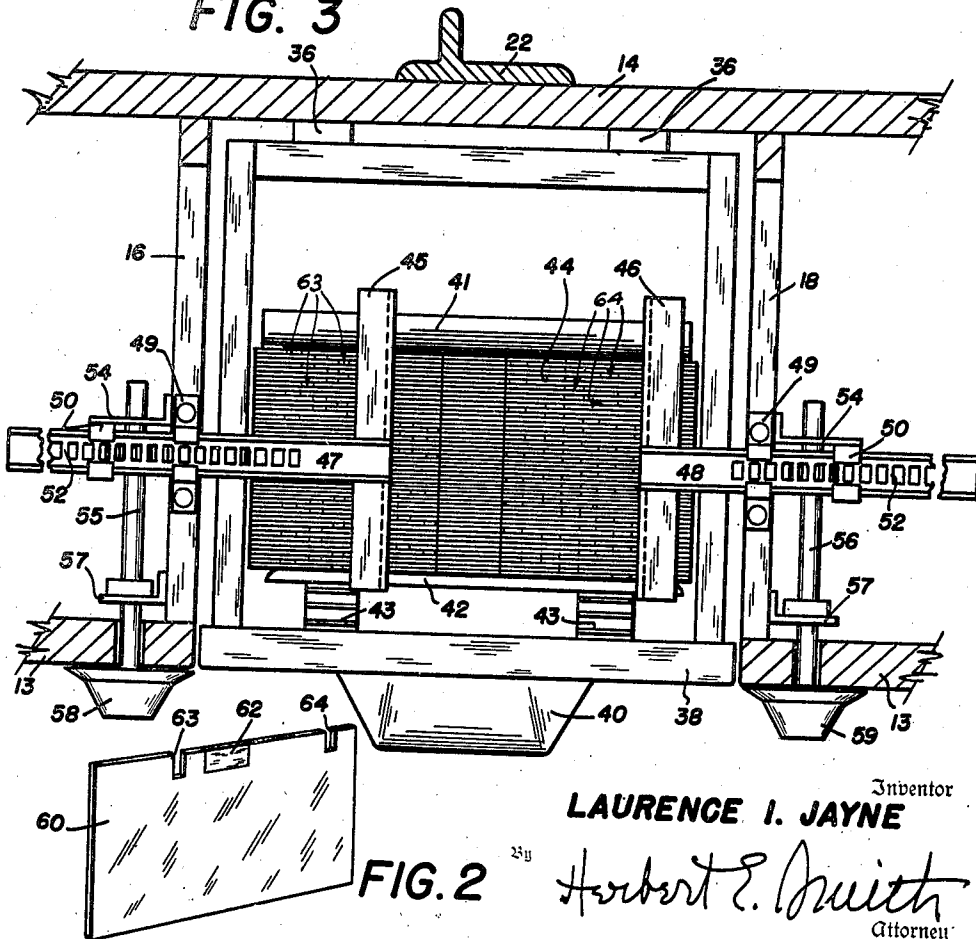


FIG. 3



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FIG. 2

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FIG. 4

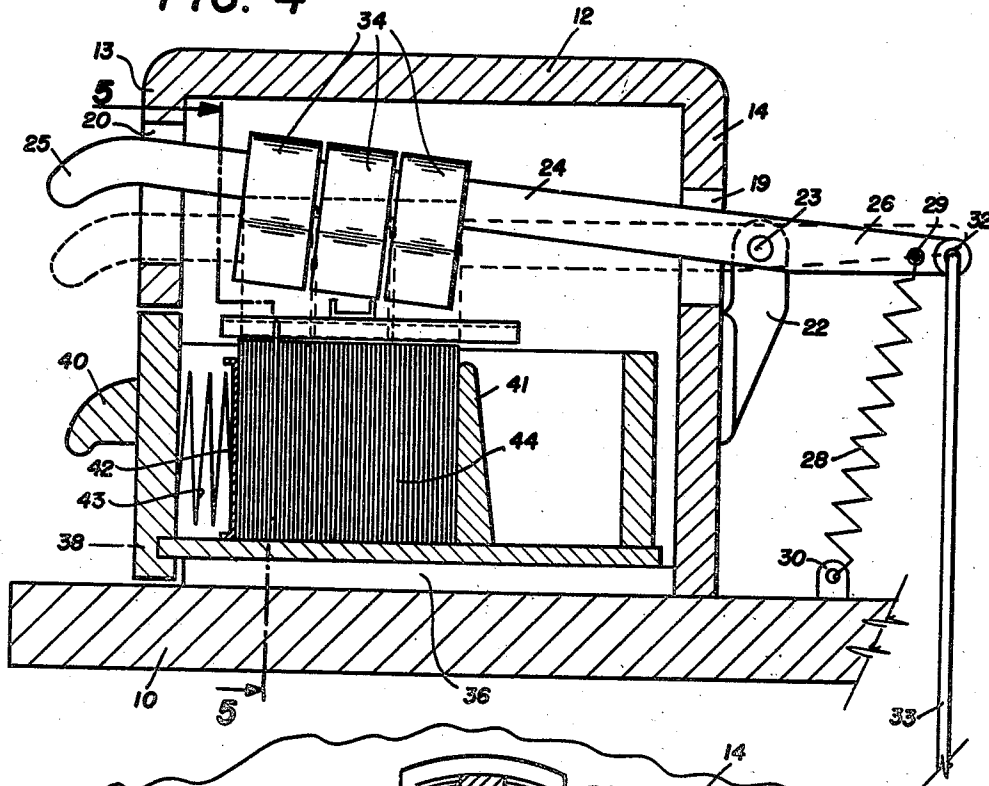
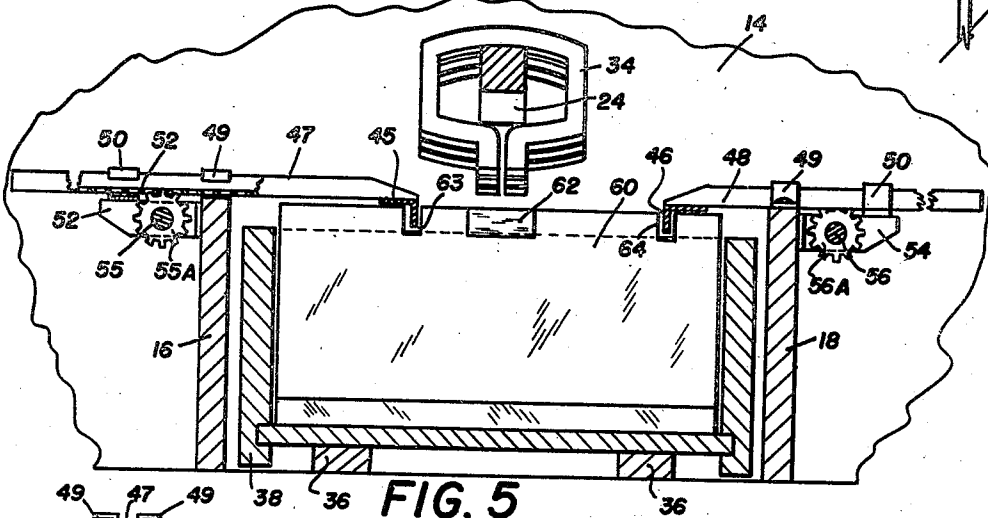


FIG. 5

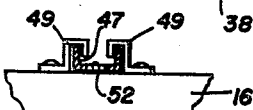


FIG. 6

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2,269,767

CARD SEGREGATING MECHANISM

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Application July 30, 1940, Serial No. 348,586

15 Claims. (Cl. 129—16.1)

My present invention relates to a card segregating mechanism designed for use in connection with record cards, tabulation cards, and like objects which may be filed in a cabinet or drawer in a group, from which one or a number of a similar nature can be removed mechanically.

In modern industry, as well as in all of the professions, the use of cards for recording the many types of information that is often deemed necessary or advisable to file has grown to large proportions. According to some systems such record cards are filed in drawers alphabetically or numerically, and according to other systems they are filed according to their subject matter. In every instance the availability of such cards in any given lot depends upon the accuracy with which they are filed, either alphabetically, numerically, or by subjects. Where they have been filed carelessly or in any manner that would be described as misfiled, it is usually only after long careful searching that the error can be corrected. This is undesirable because, as is so often the case in large offices, the persons to whom the filing is delegated are often inaccurate or inexperienced and may even be serving in their first positions in business.

My invention is designed to assist in the correction of this condition by eliminating the necessity for a high amount of skill and attention to detail on the part of the person filing the cards. My mechanism herein more fully described, permits the filing of cards by groups broadly in large quantities and without the necessity of alphabetical or numerical arrangement or any other more detailed separation than by the major grouping.

In the use of the mechanism of my invention when it is desired to select any one card or any desired group of cards, dials may be set according to a decoding system. Magnets are later brought into operation in connection with the mass of cards and through the use of magnetic force any selected card or group of cards will be segregated from the remainder of the major group, and will be readily accessible to the person desiring to make the selection.

According to my system, each card of a certain class will bear a code number or symbol and the dials referred to will be employed in setting the segregating mechanism which will permit the partial withdrawal of the selected cards, while at the same time the mechanism will retain as a group the remainder of the cards, or those which are not desired in any particular selected segregation.

The invention is described in the specification herein in one of the simpler forms, but it is pointed out that the application of the invention to a more complicated arrangement, and for the handling of larger groups than is herein mentioned can be readily accomplished without the exercise of further invention.

It is an important object of my invention to provide a card segregating mechanism which is simple to operate to attain highly efficient use.

Another object of my invention has been to provide a card segregating means wherein one or a number of independently classifiable cards can be removed from a larger quantity through the use of magnetic force.

Still another object of my invention has been the production of a card segregating mechanism which can rapidly be altered from one set position to another set position for further segregation of a differently classifiable card or group of cards.

Still another object has been to provide a card segregating mechanism wherein may be employed electromagnets, as well as permanent magnets, with equal efficiency.

Other objects and advantages of the invention will be apparent during the course of the following description.

In the drawings, wherein I have illustrated a preferred form of my invention and in which like numerals refer to like parts throughout the same,

Figure 1 is a view in elevation of the face of a cabinet housing my card segregating mechanism,

Figure 2 is a perspective view of a typical card that may be employed in my mechanism,

Figure 3 is a view partially in section and partially in plan, as though taken on line 3—3 of Figure 1,

Figure 4 is a view partially in section and partially in elevation, as though taken on line 4—4 of Figure 1,

Figure 5 is a sectional view taken on line 5—5 of Figure 4, and

Figure 6 is a detailed sectional view taken through a card rack employed in connection with one of my segregator bars.

The numeral 10 designates a base support providing a work surface upon which a cabinet 12 may be mounted. As can be seen in Figures 1 and 4, the cabinet 12 rests directly upon the base 10 and includes the front wall 13 and rear wall 14, as well as spaced inner intermediate walls 16 and 18.

In the rear wall an opening 19 is provided, and

a similar opening 20 is cut through the front wall 13. On the rear wall 14 is provided a pivot support 22 for the pivot pin 23 and the magnet arm 24 intermediate of its ends is mounted on the pin 23. The arm 24 passes through the openings 19 and 20 extending outwardly therethrough as is indicated in Figure 4 at either end.

The forward extension 25 serves as a hand grip and the rear extension 26 provides an overhanging lever for the operation of the raiser spring 28 attached at one end at 29 to the arm 26 and anchored at its other end to the clip 30 on the base 10. In an eye 32, on or near the end of lever 26, is secured the push arm 33.

On the arm 24 within the casing I have mounted a series of horseshoe magnet 34. While I have shown in the drawings permanent magnets, it is to be understood that equivalent electromagnets are readily adaptable and useable in connection with the device herein shown without departing from the principles or the spirit of my invention.

A pair of drawer guides 36—36 is mounted on the base 10 and within the cabinet 12 and a drawer 38 having a drawer pull 40 rests on the guides 36 and is disposed within the cabinet 12. Within the drawer a suitable back stop 41 is mounted and a presser plate 42 tensioned by the springs 43 is also provided.

A group of cards indicated as a whole by the numeral 44 rests in the drawer between the back stop 41 and the presser plate 42.

A pair of segregator bars 45 and 46 are disposed above the cards 41 and extend longitudinally of the drawer for a purpose later to be described. The segregator bars are mounted upon the guide racks 47—48 and the guide racks are mounted in rack clips 49 and 50 for sliding movement.

I have shown the guide racks 47—48 to be substantially U-shaped and having rack teeth 52 in their lower face. The clips 49 are mounted on the divider walls 16 and 18 and have lugs engaging over the upper ends of the arms of the U-shaped rack bars. The clips 50 engage the rack bars 48 in the same manner as do the clips 49 and the clips 50 are supported outwardly from the walls 16 and 18 by means of the bearing arms 54—54.

Pinion shafts 55 and 56 are mounted in the bearing arm 54 and the auxiliary bearing arms 57, and passes through the forward wall 13 of the case. The shafts 55 and 56 have respectively pinions 55a and 56a engaging the teeth of the guide racks 47—48 and also selector knobs 58 and 59 which are disposed on the outer face of the casing 12 on either side of the drawer opening and are readily available for manipulation.

In Figure 2 a typical card of the nature employable in connection with my segregator mechanism is designated by the numeral 60 and in the upper edge of the card I provide a small magnetically sensitive piece of metal 62, which may be in the form of a thin sheet of steel secured to the card edge and adjacent to the lowered point of the magnets 34 when the card is placed in the drawer 38. Notches 63 and 64 are formed in the edge of the card for cooperation with the segregator arms 45 and 46, respectively, in certain set positions.

Method of operation

The cards employed in the device disclosed in this application are indicated typically in Figure 2 as having notches 64 and 63 in their upper

edges. Such an arrangement as is shown in Figure 2 would, of course, be the only notching arrangement employed for cards of that nature. It is customary to divide the space between the center portion 62 and either end of the upper edge of the card into a multiple number of units. For convenience I have chosen number 10. There are ten different positions, therefore, according to this arrangement between the upper left edge and the center member 62, and also there are ten similar divisions between the center member 62 and the upper right edge. By placing the notches on these edges in any different arrangement it will be seen that a variable set position of the segregator bars 45 and 46 would be necessary in order to segregate these other forms of cards.

Ordinarily in use the cards indicated as a group by the numeral 44 are placed between the back stop 41 and the spring presser plate 42. The drawer may be pulled outwardly or inserted when the cards are all standing upright and have their bottom edges resting on the bottom of the drawer. Let it be assumed that a card which may be classified as 88 is shown in Figures 4 and 5 is to be segregated from the remainder of the group. The segregator bar 45 is adjusted to the eighth position over the cards and the bar 46 is likewise adjusted over the eighth position. These adjustments are accomplished through the movement laterally of the rack bars 47—48, respectively. The knobs 58 and 59 may be provided with dial markings and by setting the dial to 8 in each instance, the pinion will be caused to revolve sufficiently to move the rack bars 47—48 to the eighth positions and thus properly locate the segregator bars 45 and 46.

Next the arm 24 is depressed either manually by means of the handle 25, or in any other manner through the push bar 33. The magnets are brought into effective range of the metal portions 62 on the top edges of the cards. Releasing the arm 24 and permitting the spring 28 to raise it again to the position of Figure 4, the selected card of the 88 series will be raised in the position shown in Figures 4 and 5, the magnet picking the card up magnetically and withdrawing it until the edge of the card abuts the under side of the segregator bar 45 or 46. When the drawer is withdrawn now the segregated card will be extending upwardly from the group a distance of approximately three-eighths to one-half an inch in the example used in this application. If there were more than one card of the 88 series in the group 44, all of the cards of that series would be extending upwardly the distance indicated. The remainder of the cards, those from which it is desired to segregate certain cards, will be restrained from rising by being stripped of the magnets 34 by their contact with the under side of the depending flanges of the segregator bars 45 and 46. Only those cards having notches registering with a set position of the segregator bars can be raised by the raising action of the magnets and the magnet arm 24.

According to my device, certain cards or certain types of cards would be classified in certain logical series and would be assigned code numbers or code symbols which would appear on the face of the dials 58—59 in order that the code number could be manually translated into a mechanical movement of the rack bars 47—48 in order to place the segregator bars 45 and 46 in the desired adjusted positions.

I have mentioned the use of the push bar 33

to lower the arm 24 under certain circumstances. The push bar 33 could be connected with any power-actuated or foot-actuated mechanism of any nature such as a treadle in certain instances, or even an ejection type solenoid, which when it is desired to raise the end 26 of the arm 24, and thus bring the magnets into operative position, could be caused to move the push arm 33. The movement of the rack bars 47 and 48 in the clips 49 and 50 in each instance is a sliding movement and is effected by the rotation of the pinions 55a and 56a meshing with the teeth 52 in the lower face of the rack bars, and by rotating the knobs 58 and 59 either clockwise or counterclockwise, the rack bars will be retarded or advanced, as will also be moved the segregator bars 45 and 46.

When the magnets 34 are brought into operative position on the top of the group of cards 44 the natural effect is to raise the entire group of cards and the segregator bars 45 and 46 act to strip from the raising magnets those cards which do not have notches registering with the depending flanges on the segregator bars. The inward or outward movement of the drawer when the cards are raised will not be impeded because the notches in the cards will travel along the depending flange in such movement.

As the cards are removed from the drawer the presser spring 43 will expand and cause the plate 42 to move the remainder of the cards up against the back stop 41. It has been found advisable to maintain the cards in their upright position in order that the chosen cards can be easily segregated from those which are not desired, and that the cards will be presented to the segregating system in a neat and orderly manner at all times.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent is:

1. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar having angularly arranged card stop means, a rack bar supporting said segregator bar above said cards and transversely thereto, means including a pinion cooperable with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to align and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards, magnets on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnets out of their effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnets thereon into effective proximity with said magnetically attractive means, and spring means for returning said lever and said magnets to the normal position above said cards.

2. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar having angularly arranged card stop means, a rack bar supporting said segregator bar above said cards and transversely thereto, means including a pinion cooper-

able with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to align and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards and having its fulcrum intermediate of its ends, magnets on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnets out of their effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnets thereon into effective proximity with said magnetically attractive means, a spring cooperable with the overhanging end of said magnet-supporting lever for returning said magnets thereon to the normal position above the said cards.

3. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar having angularly arranged card stop means, a U-shaped rack bar supporting said segregator bar above said cards and transversely thereto, clips slidably engaging the upstanding legs of the U-shaped rack bar to hold said bar in position, means including a pinion cooperable with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to align and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards, magnets on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnets out of their effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnets thereon into effective proximity with said magnetically attractive means, and means for returning said lever and said magnets to the normal position above said cards.

4. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar having angularly arranged card stop means, a rack bar supporting said segregator bar above said cards and transversely thereto, means including a pinion cooperable with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to align and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards, magnets on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnets out of their effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnets thereon into effective proximity with said magnetically attractive means, and means for returning said lever and said magnets to the normal position above said cards.

5. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being

normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar having angularly arranged card stop means, a rack bar supporting said segregator bar above said cards and transversely thereto, means including a pinion cooperable with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to aline and be engageable with certain predetermined card notches, magnetic means normally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to move into effective proximity with said magnetically attractive means.

6. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a longitudinally movable segregator bar, a rack bar supporting said segregator bar above said cards and transversely thereto, means including a pinion cooperable with said rack bar for advancing or retracting said rack bar transversely of the cards to selectively position the segregator bar to aline and be engageable with certain predetermined card notches, magnetic means normally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to move into effective proximity with said magnetically attractive means.

7. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a movable segregator bar, a rack bar supporting said segregator bar above said cards and transversely thereto, means for advancing or retracting said rack bar to selectively position said segregator bar to aline and be engageable with certain predetermined card notches, and magnetic means normally disposed above said cards in line with said magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to be moved into effective proximity with said magnetically attractive means.

8. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a movable segregator bar supported above said cards transversely thereto, means for moving said segregator bar to a selected position to aline and be engageable with certain predetermined card notches, and magnetic means normally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted

to be moved into effective proximity with said magnetically attractive means.

9. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to aline and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards, magnetic means on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnetic means thereon into effective proximity with said magnetically attractive means, and means for returning said magnetic means to the normal position above said cards.

10. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to aline and be engageable with certain predetermined card notches and said bar having angularly arranged card stop means, a magnet-supporting lever positioned above said cards, and magnetic means on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnetic means thereon into effective proximity with said magnetically attractive means.

11. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to aline and be engageable with certain predetermined card notches, a magnet-supporting lever positioned above said cards, and magnetic means on said lever normally disposed in line with the magnetically attractive means on said cards and situated therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means, said magnet-supporting lever being movable to bring said magnetic means thereon into effective proximity with said magnetically attractive means.

12. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to aline and be engageable with certain predetermined card notches, magnetic means normally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to be moved into effective proximity with said magnetically attractive means,

and means for returning said magnetic means to the normal position above said cards.

13. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to align and be engageable with certain predetermined card notches and said bar having angularly arranged card stop means and magnetic means normally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to be moved into effective proximity with said magnetically attractive means.

14. A segregator mechanism for cards having notches and magnetically attractive means on their upper edges, a quantity of said cards being normally held with their notched edges upward, said mechanism comprising a segregator bar supported above said cards transversely thereto to align and be engageable with certain predetermined card notches, and magnetic means nor-

mally disposed above said cards in line with the magnetically attractive means on their upper edges and spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to be moved into effective proximity with said magnetically attractive means.

15. A segregator mechanism for cards having notched edges and magnetically attractive means adjacent the notched edges, a quantity of said cards being normally held with their notched edges exposed upwardly, said mechanism comprising a segregator bar supported adjacent the exposed edges of the quantity of cards and transversely thereto to align and be engageable with certain predetermined card notches, and magnetic means disposed above said cards for selective cooperable relation with the magnetically attractive means adjacent the notched edges of said cards and normally spaced therefrom a distance sufficient to place said magnetic means out of its effective range with relation to said magnetically attractive means on the cards, said magnetic means being adapted to be moved into effective proximity with said magnetically attractive means.

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