Feb. 23, 1932. J. W. WHITSON 1,846,779

CARD RECORD APPARATUS

Filed Jan. 5, 1925 3 Sheets-Sheet 1

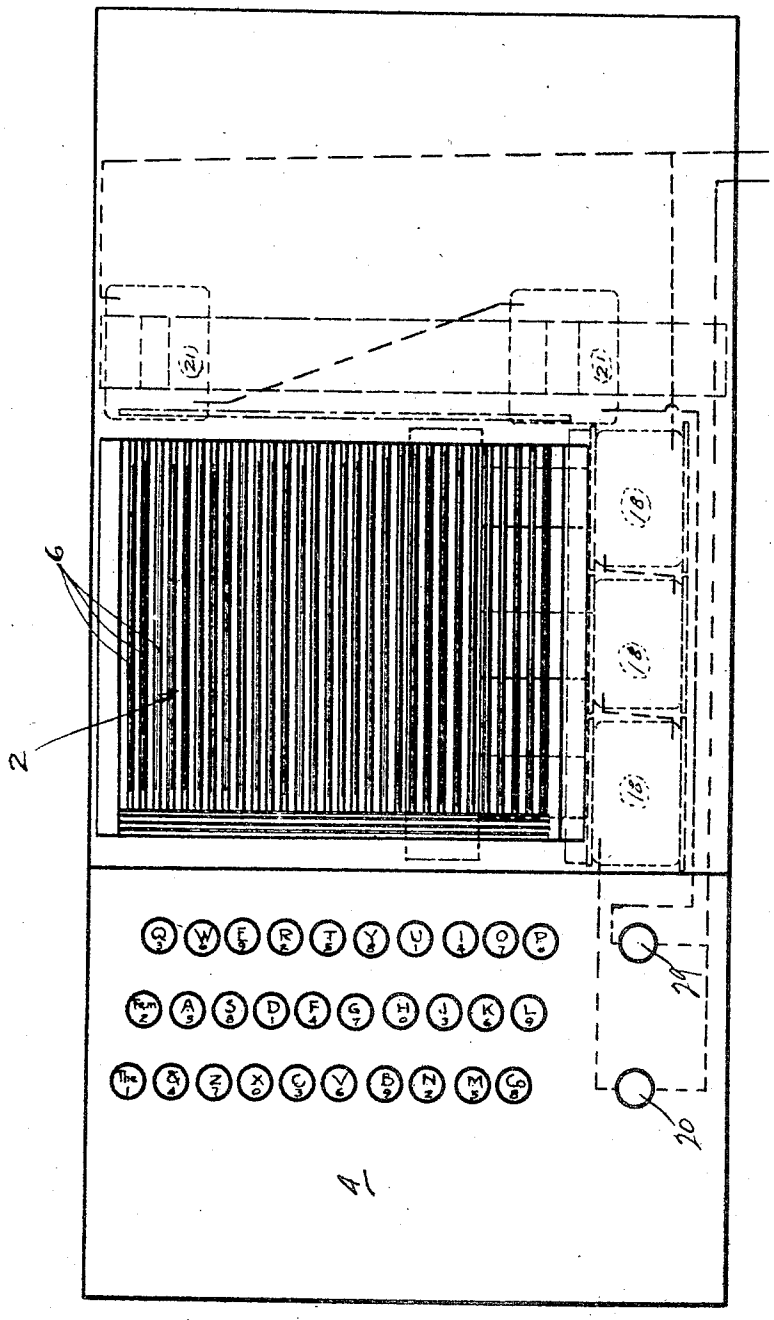

Fig 1

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CARD RECORD APPARATUS

Filed Jan. 5, 1925 3 Sheets-Sheet 2

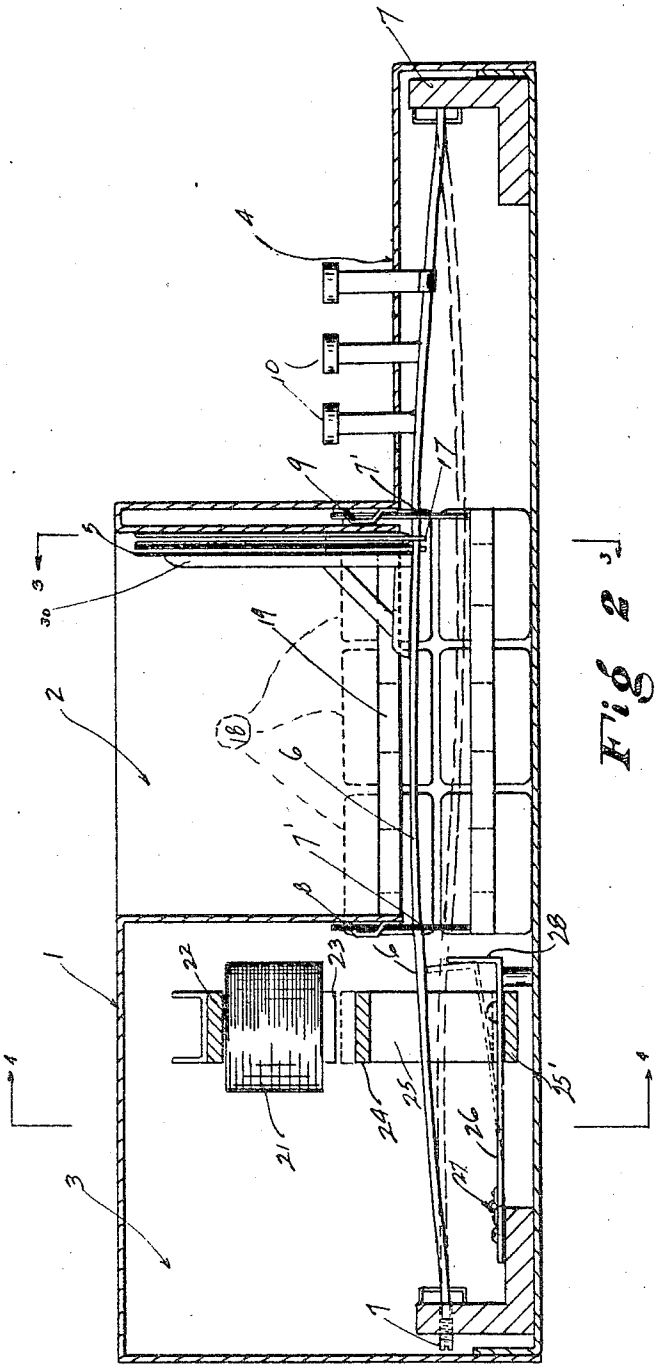

Fig 2

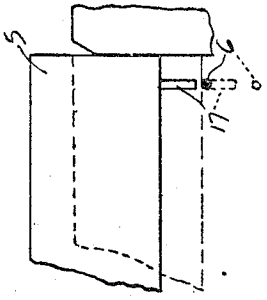

Fig 8

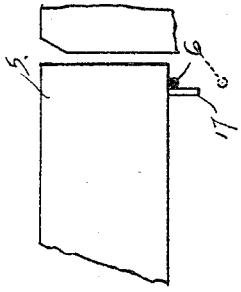

Fig 7

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Feb. 23, 1932. J. W. WHITSON 1,846,779

CARD RECORD APPARATUS

Filed Jan. 5, 1925 3 Sheets-Sheet 3

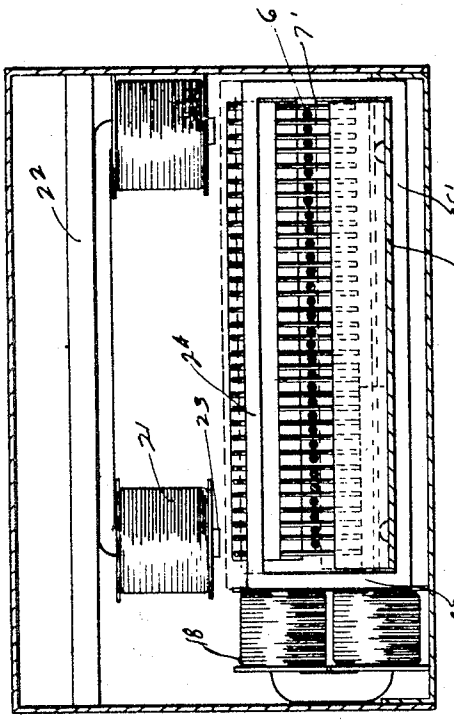

Fig 4

Fig 6

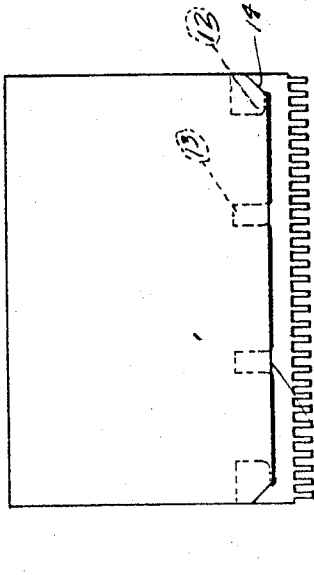

Fig 5

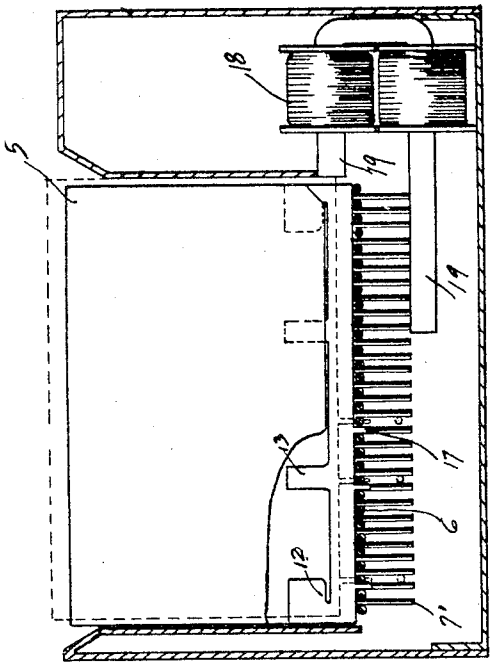

Fig 3

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Patented Feb. 23, 1932 1,846,779

UNITED STATES PATENT OFFICE

JOHN W. WHITSON, OF OAKLAND, CALIFORNIA

CARD RECORD APPARATUS

Application filed January 5, 1925. Serial No. 663.

This invention relates to improvements in card-record systems and resides in the provision of a mechanism wherein the desired card or cards of a plurality of cards provided with differing physical characteristics stored regardless of filing order or special arrangement in a container or box, may be quickly and accurately selected and moved into accessible position out of alignment with the other cards through a simple and easily effected operation, for example as by the manipulation of finger keys suitably designated and located.

One of the purposes of the invention is to provide a mechanism of the character described which will be comparatively simple as to construction and arrangement, compact, inexpensive, accurate in its operation and which will provide for a considerable saving in time in the maintaining and operation of a card record system.

Another purpose of the invention is to provide a card filing mechanism of the character described wherein there is provided an arrangement of finger keys simulating the keyboard of a typewriter, the manipulation of certain keys providing for selection of cards desired to be segregated from the group of cards, there being a means which will move the selected cards out of position of alignment with the remaining cards, which means is put into operation by the depression of another finger key or keys.

The machine of this invention embodies a practical device for carrying out the method disclosed in my previous application entitled Segregating system for cards, filed March 26, 1918, Serial No. 224,917.

With the above mentioned and other objects in view, the invention consists in the novel construction and combination of parts hereinafter described, illustrated in the accompanying drawings, and set forth in the claims hereto appended, it being understood that various changes in the form, proportion, size and minor details of construction within the scope of the claims may be resorted to without departing from the spirit or sacrificing any of the advantages of the invention.

Referring to the drawings:

Fig. 1 represents a plan view of the mechanism of this invention with follower removed.

Fig. 2 represents a longitudinal sectional view of the mechanism of this invention.

Fig. 3 represents a cross-sectional view of the mechanism taken on line 3—3 of Fig. 2.

Fig. 4 represents another cross sectional view of the mechanism taken on line 4—4 of Fig. 2.

Fig. 5 represents a front view of one of the cards.

Fig. 6 represents an end elevation of one of the cards.

Fig. 7 represents a fragmentary elevation of a card showing in section one of the rods associated with the card, in position to prevent movement of the card, in full lines, and in dotted lines as when in non-obstructing position.

Fig. 8 represents a view similar to Fig. 7 showing in full lines, the relation of the card and rod after the card has been moved to the right and the rod has been moved back to normal position and has lifted the card, and showing in dotted lines the relation of the card and rod after the card has been moved to the right but before return of the rod to normal position and consequent lifting of the card, the card as shown in full lines being held above the rod by frictional engagement with the other cards.

The embodiment of the invention shown in the accompanying drawings comprises a casing 1, made up of a card compartment 2, a mechanism compartment 3 and a keyboard 4. Cards 5 are supported on flexible upwardly bowed bars or rods 6 extending beneath the card compartment and fastened at their ends to supports 7. These rods extend between guide bars 7′ which project downwardly from brackets 8 and 9. A plurality of finger keys 10 are fixed to the bars 6 and extend above the keyboard 4. On depression of a key the rod to which it is attached is flexed downward past center, clear of the lower edges of the cards and remains in a downward bow as shown in dotted lines in Fig.

2. Those of the bars 6 not depressed support the cards.

The cards are of uniform size and shape except that at their lower edges have different physical characteristics, that is, each card may have a different characteristic or a group or groups of cards may have common characteristics, different however, from other group characteristics, each card has a metal, preferably steel strip, on its lower edge. The strip is fastened by hooks 12 and lugs 13 to the card and, in this instance, the card comprises a single card sheet folded to provide a double card, there being notches 14 at the ends of the fold for the hooks and slots 15 for the lugs to extend through. A plurality of equidistantly spaced lugs or abutment members or retaining elements 17 corresponding in number to the number of the rods 6, extend downward from the strip and receive the rods 6 between them. By this arrangement the cards are stacked evenly in the compartment.

The different characteristics are provided by breaking or cutting off certain of the lugs 17 on each card. For example, one card may have all of the lugs cut off except the third one from the left end, or this card may have all but two or three lugs removed. The lugs extend to the left of the rods and a card having only one lug, the first one on the left end, for example, is held in position of alignment with the other cards by the first rod 6 on the left, which rod is actuated by the key designated "The" (see Fig. 1). When the rod carrying the "The" key is depressed, the card or cards as the case may be, having but one lug, the first one on the left will be free to be moved to the right out of line with the remainder of the cards, as shown in dotted lines in Fig. 3. When cards have more than one lug, the keys relating to said lugs, when depressed, move the rods controlling said lugs out of position and such cards are free to be moved out of position as will be later described more fully. Thus, it will be seen that the cards may be selected at the will of the operator according to certain characteristics, by depressing the finger keys. For example, if the operator desires to select all of the cards marked D, U, E, he depresses the D, U, and E, keys. If a card is identified as "J. Doe", the operator depresses the J. D, O, and E keys, to release the card desired. Various selections of this kind may be quickly and accurately made without requiring that the operator touch the cards, the mere depression of the proper keys being all that is required to select individual cards or groups of cards. The cards with the lugs thereon and the finger key control rods comprise means for releasingly holding the cards in alignment, which means is selectively operable to release a card, that is any card of a group or in fact any cards of a group. The means which will be later described, provides for moving cards out of alignment so that they may be removed from the card compartment, exerts an influence on all of the cards, consequently the selecting means hereinbefore described serves to releasingly hold the cards in alignment against this influence, and said means is selectively operable to release any card or cards and permit the card or cards to be moved out of alignment.

Means is provided for moving a card or cards after the selection thereof so that the selected card or cards will be moved out of alignment with the other cards into position to be readily grasped and read or removed from the box as desired.

This means is preferably set into operation by the depression of a key or keys as the case may be, and exerts a force such that the card or cards desired will be bodily moved, as above described. In the present instance, I employ two forces, one acting to move the cards laterally out of alignment and the other to move the cards vertically, these forces being controlled by two finger keys. One force however, pulling outwardly and upwardly on the cards, would bring the cards to approximately the same out-of-alignment position. In this embodiment of my invention, I use magnetic forces preferably derived from electro-magnets, there being a group of electro-magnets 18 arranged in the compartment 3 on one side of the card receptacle 2. These magnets have their cores 19 disposed so that on energization of the magnets, those of the cards which are released will be moved to the right, due to the attraction by the cores of the metal strips on the cards. These magnets are arranged to be energized by a suitable source of electrical energy, (not shown) controlled by a suitable push-button switch 20 mounted on the keyboard. Another group of magnets 21 are mounted on a bracket 22 within the compartment 3 above the rods 6. The cores 23 of these magnets are adapted to attract and move upwardly a metal frame 24 disposed beneath the cores. This frame has portions 25 extending downwardly at the sides of the group of rods and a lower connecting portion 25′ to which a trip member 26 is secured. This trip is hinged as at 27 within the compartment 3. The trip member 26 is provided with an upturned end or flange 28 disposed beneath the bars 6 in such position that when the member 24 is moved upwardly by the magnets, the portion 28 will engage the bars and move them out of downward flexed or bowed position into uppermost position. These magnets are controlled by a push-button switch 29 mounted adjacent the switch 20 on the keyboard and when energized so as to cause the trip to move upwardly the portion 28 of the trip to engage the bars 6 and move them past center thereby causing the bars 6 to snap into uppermost

position and the cards which have been moved laterally to one side of their normal positions, to be pushed upwardly with respect to the other cards. The lower ends of the lugs 17 on the cards are engaged by the bars 6 when they are moved upwardly and the cards are in this way pushed upwardly as above mentioned.

If the operator desires to select a card or cards from a group, for example, the card bearing the designation J. R. Doe, he depresses the keys designated J. R. D., or depending on the method of installing the system, may have to spell out the entire name, at any rate, the depression of these keys will move the rods 6 downwardly below the lugs 17 of the card or cards selected, leaving said cards free to be moved to the right. The operator then depresses the push button switch 20 and energizes the magnets 18 so that the magnets will attract the strips on all the cards and move the selected cards to the right, out of alignment with the remainder of the cards. This movement of the cards disposes the lugs 17 on the cards over the bars which are depressed, said bars remaining depressed until released by the trip member 26. To cause the selected cards which have been moved out of alignment to be raised above the other cards so that they may be grasped at their upper edges and removed from the receptacle or lifted into such position that they may be read, the operator depresses the switch 29 and energizes the magnet 21. This lifts the member 24 which raises the trip 26 and causes the upstanding member 28 to engage the bars 6 and lift them upwardly. As the bars 6 move past center in their upward movement, they snap quickly in their upwardly bowed position and engage the lugs 17 on the cards which have been moved, thus causing said cards to be forced upwardly above the other cards. The frictional engagement of the selected cards between the cards of the group or stack, is sufficient to maintain the raised cards in lifted position.

With the mechanism of this invention it will be seen that any card or cards or groups of cards, may be selected in comparatively easy and accurate manner by the mere depression of finger keys. The operator uses the keyboard very much as a typewriter keyboard is used in order to select a card or group of cards and on pressing the switches will cause the card to be moved into position to be removed from the other cards, or segregated. No matter in what way the cards are arranged, the ones selected, through the manipulation of the finger keys, will at all times be segregated on operation of the push buttons. This is a distinct advantage in that no special order of filing or arranging of the cards need be followed and the operator on returning the cards to the receptacle need not put them in any special position. One of the important advantages of this invention is that it will provide for a great saving in time in the maintaining and operation of a card record system.

It is obvious that the keys with which the selecting of the cards is effected may be alphabetically or numerically designated. I also wish it understood that various other designations may be used and that other methods of selection may be made with the apparatus of the invention. In the present instance the selection is made in a positive manner by moving the selected card out of alignment with the remaining cards but obviously this may be reversed and those of the cards not desired may be moved out of alignment with the desired card.

The double card provides for a better attachment of the lug strip in that it presents a smooth card face and does not form any obstruction which would tend to interfere with the free removal or insertion of the cards from the stack. Fig. 6 shows that the front and rear faces of the cards are free from interfering obstructions of any kind. A suitable follow block 30 is adjustably mounted in the card compartment and provides for holding the cards in a sufficiently tight pack to insure the maintaining of a raised card in elevated position due to the frictional engagement thereof with the cards not raised.

I claim:

1. Card record apparatus comprising a card compartment, a plurality of cards mounted in the compartment, each of which cards is adapted to be moved by magnetic attraction, means for subjecting cards to magnetic attraction, selectively operable means releasably holding cards against movement when cards are subjected to magnetic attraction.

2. Card record apparatus comprising a card compartment, a plurality of cards mounted in the compartment, each of which cards is adapted to be moved relative to the other cards by magnetic attraction, means for applying magnetic attraction to the cards and selectively operable means releasably holding the cards against movement.

3. Card record apparatus comprising a card compartment, a plurality of cards mounted in the compartment, a plurality of lugs depending from the lower edge of the cards, a plurality of rods extending across the under edges of the cards, means for moving the rods into and out of position to be engaged by the lugs and to prevent lateral movement of the cards and means for applying a force to all of the cards which force tends to move the cards laterally and causes movement of those of the cards which are released.

4. Card record mechanism comprising a

card compartment, a plurality of cards mounted in the compartment, which cards are adapted to be moved by magnetic attraction, means for applying magnetic attraction to the cards and tending to move all of them and selectively operable means releasably holding the cards in alignment which means is adapted to release any of the cards.

5. A card record mechanism comprising a casing including a card compartment, a plurality of cards mounted in the compartment, lugs projecting downwardly from the lower edges of the cards, a plurality of rods extending between the lugs and supporting the cards in place, means for selectively moving said rods out of position between said lugs to release a card for movement into position out of alignment with the other cards and means for moving the selected cards into a position out of alignment with the other cards.

6. A card record mechanism comprising a casing having a card compartment, a plurality of cards mounted in the compartment, members projecting downwardly from the lower edges of the cards, a plurality of rods movable into and out of position to be engaged by the members to prevent movement of the cards, means for selectively moving the rods out of card-obstructing position, means for moving the cards which are released into position out of alignment with the remaining cards and with the members disposed immediately over the top of the rods which are moved out of obstructing position and means for moving the rods back into obstructing position, which rods on such movement will engage said members and move cards upwardly.

7. A card record mechanism comprising a casing having a card compartment, a plurality of cards mounted in the compartment, members projecting downwardly from the lower edges of the cards, rods capable of being flexed into and out of position to be engaged by said members means for flexing the rods out of card-obstructing position and means for flexing the rods into card-obstructing position.

8. A card record mechanism comprising a card compartment, a plurality of cards mounted in the compartment, a plurality of rods capable of being flexed into and out of position to obstruct movement of the cards and means for flexing said rods out of card-obstructing position, and means for flexing the rods into card-obstructing position.

9. Card record mechanism comprising a card compartment, a plurality of cards mounted in the compartment, a plurality of flexible rods extending beneath and on which said cards are supported, members projecting downwardly from the lower edges of the cards on the sides of the rods, means for flexing said rods to position below said members to release the cards, means providing for movement of the released cards to bring the members immediately over the downwardly flexed rods and means for causing movement of the flexed rods into card-obstructing position.

10. A card record mechanism comprising a card compartment, a plurality of cards mounted in the compartment, a plurality of resilient rods extending beneath and on which said cards are supported, a plurality of members extending downwardly from the lower edges of the cards and normally projecting below said rods, said rods being upwardly bowed and adapted to be flexed downwardly past center whereby the rods will remain in down position and beneath the lower ends of said members, means for flexing the rods downwardly out of obstructing position with respect to the said members and means for flexing the rods into normal position.

11. Card record mechanism comprising a card compartment, a plurality of cards in the compartment and means for holding the cards against movement which means is selectively operable to release a card.

12. Card record mechanism comprising a card compartment, a plurality of cards in the compartment, means for holding the cards against movement, which means is selectively operable to release a card and means for moving said card, out of alignment with the held cards.

13. Card record apparatus comprising a card compartment, cards mounted in the compartment, means on operation of which all of the cards are influenced to move and means holding the cards against movement, which means is selectively operable to release a card and permits said card to move under the influence of the first-named means.

14. Card record apparatus comprising a card compartment, cards mounted in the compartment, means holding the card against movement in one direction, which means is selectively operable to release any card and means which when operated will move the released card relative to those that are held.

15. Card record apparatus comprising a card compartment, a plurality of cards mounted in the compartment, each of which cards is adapted for movement when under magnetic attraction, means for subjecting cards to magnetic attraction, means holding cards against movement when cards are subjected to magnetic attraction, which means is selectively operable to release a card.

16. Card record apparatus including selecting means and record cards adapted for movement by magnetic attraction, magnetic means for moving selected cards and means for supporting the cards in operative relation to said magnetic means.

17. Card record apparatus including selecting means and record cards which are re-

sponsive to magnetic attraction, means for magnetically attracting selected cards and means for supporting the cards in operative relation to said magnetic means.

18. A record card for use in card segregating apparatuses which card is provided with a surface adapted to receive record matter, means associated with and for rendering the card subject to movement by magnetic attraction and an abutment member extending outwardly from a marginal edge of the card for the purpose of engagement by said apparatus holding the card against movement when subjected to magnetic attraction.

19. A record card for use in card segregating apparatuses which card is provided with a surface adapted to receive record matter, a metallic element carried by the card and which makes the card subject to movement by magnetic attraction, and an abutment member projecting outwardly from a marginal edge of the card for the purpose of engagement by said apparatus holding the card against movement when subjected to magnetic attraction.

20. A record card for use in card segregating apparatuses and which is adapted to be moved by magnetic attraction, said card having a surface adapted to receive record matter and an abutment member on said card for the purpose of engagement by said apparatus holding the card against movement when subjected to magnetic attraction.

21. Card record apparatus comprising a card compartment; a plurality of cards mounted in the compartment; means a predetermined operation of which influences all of the cards to move; and means normally holding the cards against movement but operable to selectively release them, which last-named means permits a card so released to move under the influence of the first-named means, and includes elements fixed to and supported by the cards.

22. Card record apparatus comprising a card compartment; cards mounted in the compartment; means normally holding the cards against movement in one direction, which means is adapted for selective operation to release any card and includes elements fixed to and entirely supported by said cards; and means a predetermined operation of which tends to move all the cards but which will move any released card relative to the remaining cards.

23. Card record apparatus including a support; a plurality of record cards mounted on the support and being distinguished from one another by differences in contour; means associated with each card and carried thereby for rendering the cards subject to movement by magnetic attraction; normally holding all of the cards against said movement, but selectively operable for releasing a card of given contour and magnetic means for moving the released card.

24. Card record apparatus including a card compartment; a plurality of record cards mounted in the compartment; means associated with said cards for rendering the same subject to movement by magnetic attraction; a plurality of abutment members projecting outwardly from a margin of each card, said cards being distinguished by the differences in the position of abutment members carried thereby; means engaging said abutment members for normally holding all of the cards against said movement, but selectively operable for releasing a card having said abutment members in given positions; and magnetic means for moving said released card.

25. Card-selecting apparatus including cards and card selecting means and means providing for the movement of selected cards through the instrumentality of magnetic attraction.

26. A record card for use in card segregating apparatuses of the type described, means associated with the card for rendering the same subject to movement by magnetic attraction, and a plurality of retaining elements on the card subject to selective removal for purposes of rendering the card subject to said movement for the purpose of segregation.

27. The combination with a card-selecting apparatus including a card compartment, a stack of magnetically responsive cards in the compartment, and a mechanism to select a card or cards from the stack of cards, of magnetic means to move any selected card or cards relatively to the other cards.

28. Cards for a card-filing apparatus, each card being provided with a surface to receive record matter, means associated with each card for rendering the card subject to movement by magnetic attraction and a series of abutments carried by said means, certain of said abutments being adapted to be severed to distinguish one card from another.

29. Cards for a card-filing apparatus, each card being provided with a surface to receive record matter, means associated with each card for rendering the card subject to movement by magnetic attraction, and a plurality of spaced abutment members projecting outwardly from a margin of each means, of which predetermined abutments are removable to provide enlarged spaces between abutments to thereby distinguish one card from another by the differences in the position of the enlarged spaces between the remaining abutments.

30. A record card for use in card segregating apparatuses, which card is provided with a surface adapted to receive record matter, an armature associated with and for render-

ing the card subject to movement by magnetic attraction, and an abutment member extending outwardly from a marginal edge of the armature for the purpose of engagement by said apparatus, holding the card against movement when subjected to magnetic attraction.

JOHN W. WHITSON.