

March 5, 1929.

P. M. RAINEY

1,704,259

CARD SELECTING MECHANISM

Filed June 10, 1918

2 Sheets-Sheet 1

Fig. 1

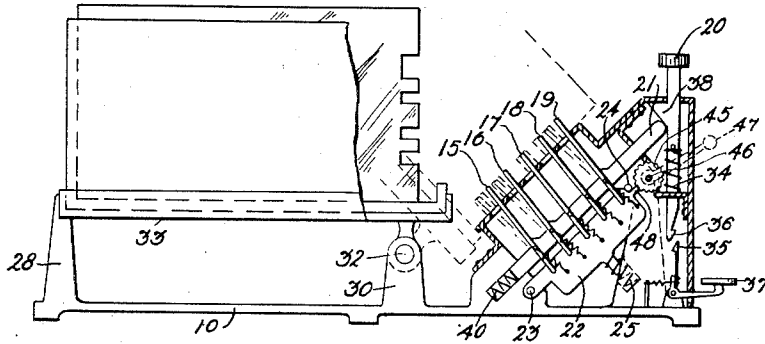


Fig. 2

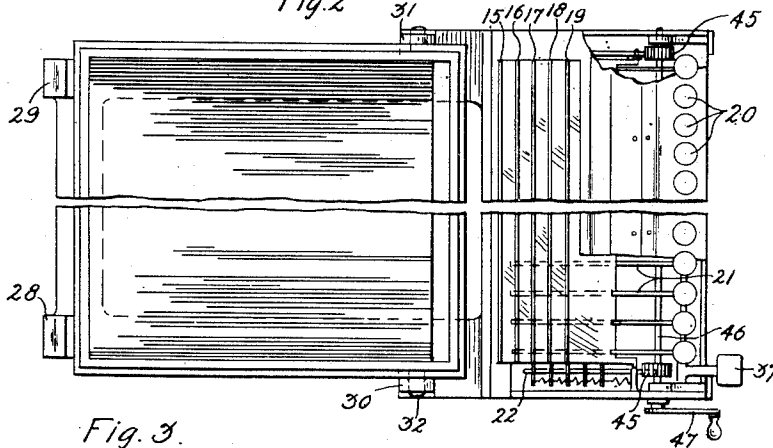


Fig. 3

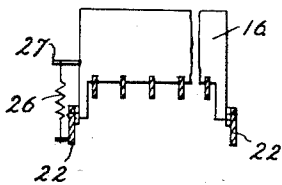


Fig. 4

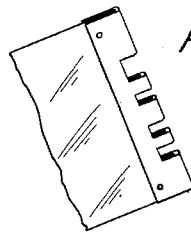
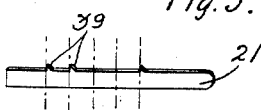


Fig. 5



Inventor:
Paul M. Rainey

March 5, 1929.

P. M. RAINEY

1,704,259

CARD SELECTING MECHANISM

Filed June 10, 1918

2 Sheets-Sheet 2

Fig. 6

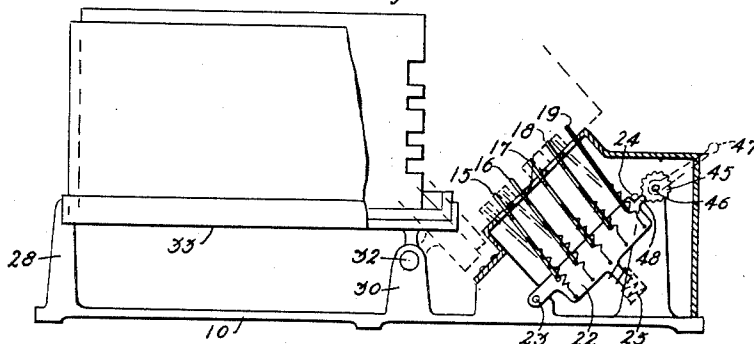


Fig. 7.

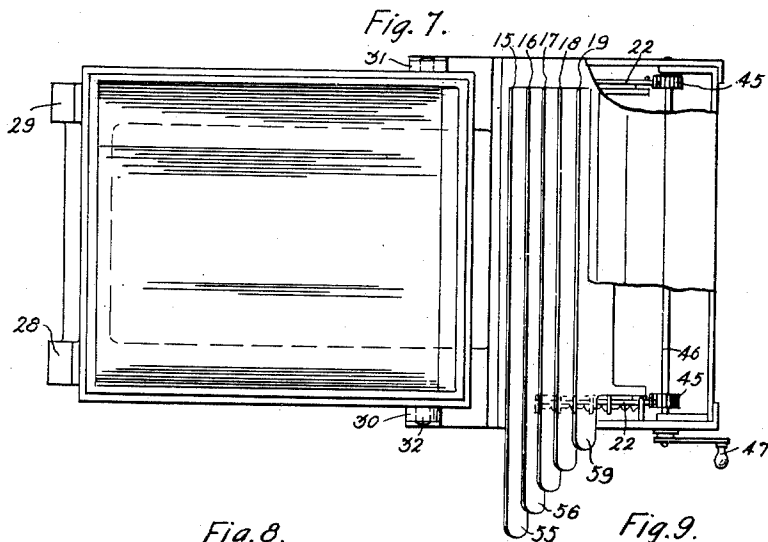


Fig. 8.

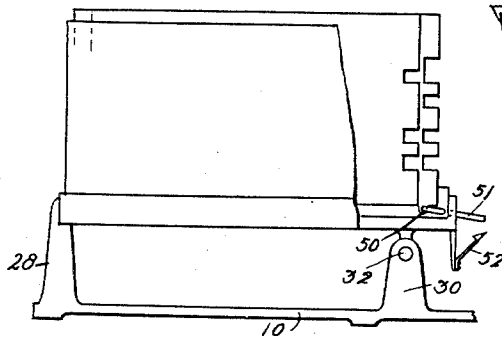
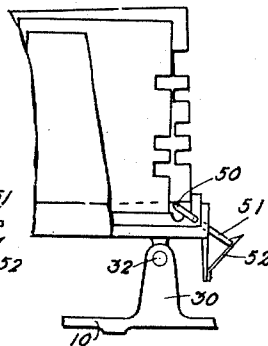


Fig. 9.



Inventor:
Paul M. Rainey

UNITED STATES PATENT OFFICE.

PAUL M. RAINEY, OF MONTCLAIR, NEW JERSEY, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO COMBINATION SELECTOR COMPANY, OF MONTCLAIR, NEW JERSEY, A CORPORATION OF NEW JERSEY.

CARD-SELECTING MECHANISM.

Application filed June 10, 1918. Serial No. 239,262.

This invention relates to card selecting mechanism and particularly to mechanism for selecting one or more elements of similar characteristics from a mass or group of elements.

An object of this invention is to provide a mechanism comprising a plurality of selecting members cooperating with means for selectively operating said members whereby the number of selections possible is limited only by the number of combinations and permutations of the selecting members.

Another object is the provision of a compact and efficient selecting unit and one requiring a minimum amount of time to operate.

For the accomplishment of the above objects, the invention contemplates the employment of permutation means comprising a plurality of selectively operable members and means for bringing selectable elements into position to be selected by said permutation means. The permutation means may consist of a plurality of selecting bars with means for operating said bars selectively and simultaneously or the said bars may be operated selectively and successively. The elements to be selected may be of any desired character or composition such for example as fibre cards, metal cards, address plates, slugs, etc., each element having characteristic notches or permutations carried thereby for selection purposes.

In card sorting apparatus used heretofore, positioning devices have been employed; that is, the groups of cards or elements from which certain ones may be selected are provided with holes and slots in the body thereof into which pins or rods are inserted, or the cards are provided with notches in the edges thereof into which a bar may be inserted to raise predetermined ones out of alignment with the remaining cards. While such systems may be satisfactory in offices or establishments where the number of selections to be made is not great and where speed is not a controlling factor, it is highly desirable in the conduct of big business and business which is to be performed with despatch that means be provided for selecting accurately and quickly all cards or elements containing information directed to certain subject-matter. It is also imperative in the handling of business of large con-

cerns that provision be made for effecting the highest possible number of selections. This system is designed with the above features in mind and it provides a permutation mechanism for selecting a particular class of cards so that the maximum number of possible selections is limited only by the maximum number of combinations and permutations permissible with a given number of permutation devices.

This system is particularly useful in employment offices of large concerns and it also finds a ready field in brokerage offices and all similar concerns where it is highly imperative that notices and letters be sent out as quickly as possible to persons or firms upon the receipt of information in which they may be interested. The system enables anyone to select from a mass or group of cards all those cards containing certain information or relating to a particular subject-matter and to enable the selection to be made as quickly as possible.

The above and other objects of this invention will be more clearly understood from the following description and claims and by reference to the accompanying drawings showing the preferred embodiment of the invention.

Referring to the drawings, Fig. 1 is a side elevation of the selecting mechanism partially in cross-section; Fig. 2 is a plan view of the apparatus shown in Fig. 1; Fig. 3 is a detail view of one of the selecting bars; Fig. 4 is a view of a permutation clip or slug attached to a selectable card; Fig. 5 is a detail view of an actuating bar; Figs. 6 and 7 show an alternative arrangement of the mechanism disclosed in Figs. 1 and 2; and Figs. 8 and 9 show means for elevating the selected cards.

Referring particularly to Figs. 1 and 2, a stand or base 10 is provided on which the selecting mechanism and card container is mounted. The selecting mechanism proper consists of a plurality of selecting or permutation bars 15, 16, 17, 18 and 19, a plurality of keys 20, and a member 21 individual to each key and controlled thereby for selectively operating the selecting bars. A member 22, one end of which is pivotally connected to the base 10 at 23 and the other end of which is normally held against a stop pin 24 by means of a spring 25 set in a recess of the base, is pro-

vided on each side of the machine. The selecting bars 15 to 19 inclusive are pivotally mounted on the members 22 as clearly shown in Fig. 3. A spring 26 having one end attached to the member 22 and the other end attached to a pin 27, is provided individual to each selecting bar for holding the bar in its normal position and for returning the actuated bars to normal position when released.

To set up a selection, one of the keys 20 is depressed against the action of a spring 34 until the detent 36 at the lower end of the key engages the holding member 35. The member 35 is arranged to engage the detent 36 and hold the actuated key in its depressed position until released by the depression of release key 37. Each key 20 is provided with a cam surface 38 which surface engages the end of one of the members 21 and moves it in the direction of its length against the action of a suitable spring 40. Each member 21 has on one edge, one or more teeth or projections 39 which are adapted to engage the selecting bars and move them against the tension of their respective springs 26 into their selecting positions.

At the rear end of the base are two upwardly extending posts or supports 28 and 29. Towards the front of the base are two additional posts 30 and 31. Through the latter posts extends a rod 32 which forms a pivotal bearing for a tray support or drawer holder 33. The drawer support 33 normally rests on the posts 28 and 29 and is adapted to be rotated or tilted about the rod 32 in order to bring the elements or members to be selected into juxtaposition with the selecting bars.

A better understanding of the operation of the selecting mechanism may be obtained from a description of the various operations incident to the selection of a particular card or group of cards. Let it be assumed that a particular group of cards is to be selected and let it be further assumed that to select a particular group, the selecting bars 15, 16 and 19 are to be moved out of their normal position for selection purposes. Therefore by depression of key 20, (Fig. 1), the member 21, individual thereto will be moved in the direction of its length against spring member 40 and by means of the projections 39 carried by the member 21, selecting bars 15, 16 and 19 will be moved into the positions indicated by the dotted lines. When the key 20 is depressed to move the member 21 to this position, the depressed key will be held in its actuated position by means of the locking member 35. After the selecting bars have been selectively actuated to select elements having certain characteristics, the container or drawer containing the cards or elements to be selected may be placed on the support 33 and the support and container may be partly inverted or turned into the position shown

in dotted lines to bring the selectable members into juxtaposition with the selecting bars. When moved into this position, those cards which are notched or cut away in accordance with the selection assumed will move out of their original positions astride the selecting bars and those cards which are not notched in accordance with the selection assumed will abut against the selecting bars and will be held substantially in their original positions.

In the event that the elements or cards employed adhere to one another and offer resistance sufficient to interfere with their free movements astride the selecting bars, a mechanism is provided for the purpose of agitating or moving the elements so that they readily fall to their selected positions. For this purpose a ratchet 45 is provided on each side of the machine and connected by a shaft 46. On the outside of the machine and connected to the rotatable shaft 46 is a crank or handle 47 provided for the purpose of rotating the ratchets 45. A projection 48 is provided on each of the pivotally supported members 22 and placed in position with respect to the ratchets 45 so that when the ratchets are turned, the teeth thereof will impart reciprocatory movements to the members 22. As hereinbefore mentioned the selecting bars 15 to 19 inclusive are pivotally mounted on the members 22. Therefore when the members 22 are oscillated, the selecting bars will be moved in a direction towards the elements to be selected and will consequently move the selectable elements or cards in such a manner that if any of the selectable elements tend to adhere to one another, those elements having the notches or cut away portions corresponding to the position of the selecting bars are freed so that they move astride the selecting bars, while those which are not notched according to the selected positions of the selecting bars abut against the edges of the selecting bars and are held back. If care is exercised in the selection of the material or composition of the selectable elements, it should not be necessary to employ means for agitating the cards to insure that the cards to be selected will move into their selected positions.

As soon as a selection has been made, the support 33 and card container may be restored to normal position and those cards which have been selected may be readily withdrawn from the mass or group of cards because the selected ones will then extend by an amount equal to the depth of the notches out of alignment with the non-selected cards as clearly shown in Fig. 8. In Figs. 8 and 9 is disclosed a device for elevating or shifting the selected cards. The device preferably consists of a rod or bail 50 extending transversely of the base and normally below the cards and provided with a handle or exten-

sion 51. When the cards move forward or into their selected positions, the forward ends of the cards move over the rod 50 and then by depressing the extension 51 the selected cards may be raised above the non-selected cards as clearly shown in Fig. 9. A detent or holding device 52 is provided for locking the rod 50 in its actuated position, thereby holding the selected cards out of alignment with the others.

If several drawers or trays contain cards or elements relating to the same subject-matter or from which cards or elements are to be selected, the first drawer or container may be replaced in the files and the remaining containers may be placed on the support 33 and the cards from those containers may be likewise selected in the manner just described without changing the position of the selecting mechanism. The selecting mechanism may be restored to normal at any desired time by simply actuating the release key 37. The instant the depressed key is released, the actuating bar 21 and selecting bars operated thereby are returned to normal under the action of their respective springs.

In the drawings only one row of keys 20 is shown although it will be understood that the keys may be of any number desired and they may be arranged in the form of the keys of a typewriter. It will also be understood that while only five selecting bars are shown, any number may be employed in order to provide any desired number of selections and it will therefore be understood that the number of selections possible will be limited only by the maximum possible number of combinations and permutations afforded by the number of selecting bars employed.

The mechanism disclosed in Figs. 6 and 7 is of similar construction to that shown in Figs. 1 and 2, except that instead of providing keys for selectively and simultaneously operating the selecting bars 15 to 19 inclusive, each bar is provided with an extension whereby the selecting bars may be moved to their operative positions successively, that is, in the case already assumed, if selecting bars 15, 16 and 19 are to be actuated to effect the desired selection, the extension 55, 56 and 59 respectively may be moved by hand to set up the desired selection. Anyone familiar with the code or operations required to select a particular group of elements containing the desired information would find the structure disclosed in Figs. 6 and 7 entirely satisfactory, while the inexperienced person would find the former arrangement simpler as the keys could be provided with caps or markings which would indicate the key to be depressed in order to select a particular or desired class of elements.

It will be seen from the attached drawings and understood from the description herein given that the arrangement not only provides

unlimited possibilities in the number of selections possible but also enables anyone to select a large number of elements in a minimum length of time, which feature is very essential in the successful prosecution of various kinds of business.

What is claimed is:

1. The method of assorting cards which consists in actuating, to simultaneously position them, a plurality of members comprising a selecting mechanism wherein the number of selections possible is determined by the number of combinations of the positions of said members of the selecting mechanism, and then causing the cards and selecting mechanism to coact to effect the desired selection.

2. In a card-sorting device, a plurality of selectable cards, a selecting mechanism consisting of a plurality of elements, each of which may occupy more than one position, means for effecting actuation of said selecting elements simultaneously, and means for causing said cards and said selecting mechanism to coact to effect the selection determined by the positions of the elements of the selecting mechanism.

3. In a card-sorting device, a selecting mechanism consisting of elements each of which may occupy a plurality of positions, and wherein the number of selections possible is numerically equal to the number of positions each element may occupy raised to a power equal to the number of said elements, and means for actuating a plurality of said elements simultaneously to selective position.

4. In a card-sorting device, a plurality of selectable cards, a selecting mechanism comprising a plurality of selecting elements, means for bringing said selecting mechanism and cards into juxtaposition, and means for operating the selecting mechanism to select the card desired.

5. In a card-sorting device, a plurality of cards, a selecting mechanism comprising a plurality of selecting bars, means for bringing said cards and said bars into juxtaposition, and means for selectively operating said bars to effect the desired selection.

6. In a sorting device, a plurality of elements having selective characteristics, a permutation mechanism, means for bringing said elements into position to be selected by said permutation mechanism, and means for operating said permutation mechanism to select elements of given characteristics.

7. In a sorting device, a container having a plurality of selectable cards, a selecting mechanism comprising a plurality of selecting bars, a base for said container and selecting mechanism, means whereby said cards may be moved into juxtaposition with said selecting mechanism, and key mechanism for operating said selecting mechanism.

8. In a sorting device, a container having a plurality of selectable cards, a selecting

mechanism comprising a plurality of selecting bars, a base for said container and selecting mechanism, means whereby said cards may be moved into juxtaposition with said selecting mechanism, and means for selectively operating said bars.

9. The combination with a container holding selectable elements, of a selecting mechanism, a hinged support for said container whereby said elements may be moved into position to be acted upon by said selecting mechanism, and means for actuating said selecting mechanism.

10. The combination with a container holding selectable elements, a selecting mechanism comprising a plurality of selecting bars, a hinged support for said container whereby said elements may be moved into position to be acted upon by said selecting mechanism, and means for operating the selecting bars.

11. In a card-selecting mechanism, a plurality of selectable elements, a plurality of selecting elements, a support for said selecting elements, and means for actuating said support to impart movement to said selectable elements.

12. In a card-selecting mechanism, a group of cards from which predetermined ones are to be selected, a plurality of selecting bars,

a support for said bars, means for actuating said support to move said bars collectively in one direction, and means for moving said bars selectively in another direction.

13. In a card-selecting mechanism, a group of cards from which predetermined ones are to be selected, a plurality of selecting bars, a support for said bars, means for actuating said support to move said bars in the direction of their length, and means for moving said bars in a direction transversely of their length for selection purposes.

14. In a sorting device, a plurality of selecting elements, means for operating said elements simultaneously, a plurality of selectable elements movable in the direction of their length for selection purposes, and means for moving the selected elements in a direction transversely of their length.

15. In a sorting device, a plurality of selectable elements, a plurality of selecting elements, means for actuating said selecting elements simultaneously in accordance with a predetermined code to select predetermined ones of said selectable elements, and means for moving the selected elements out of alignment with the non-selected elements.

In witness whereof, I hereunto subscribe my name this 3rd day of June, A. D. 1918.

PAUL M. RAINEY.