March 4, 1952 C. BARD 2,587,682

CARD SORTER

Filed May 27, 1946 4 Sheets-Sheet 1

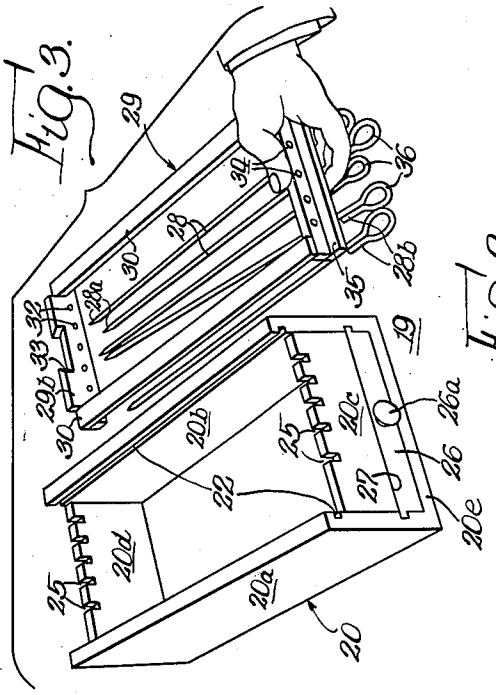


Fig. 3.

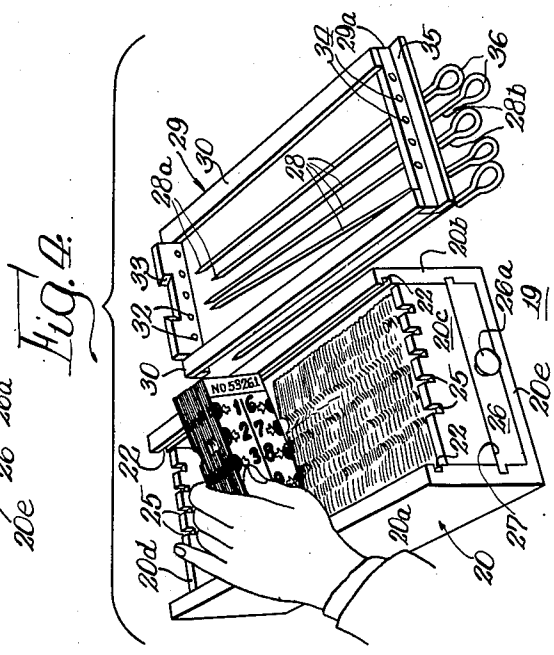


Fig. 4.

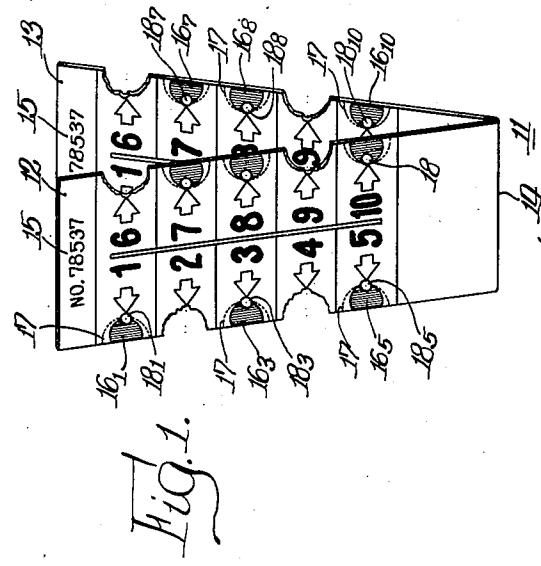


Fig. 1.

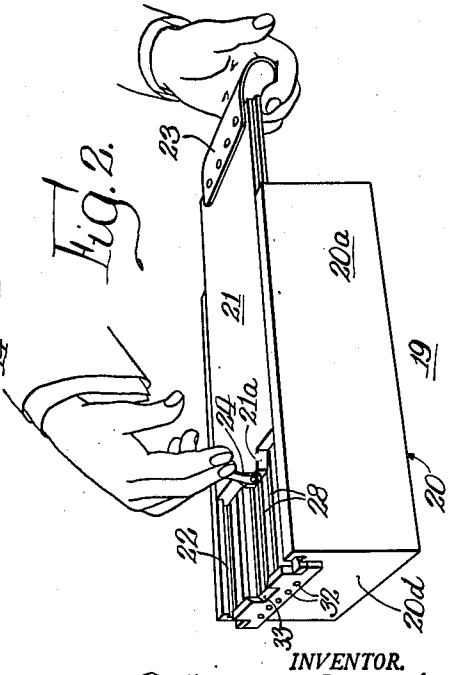


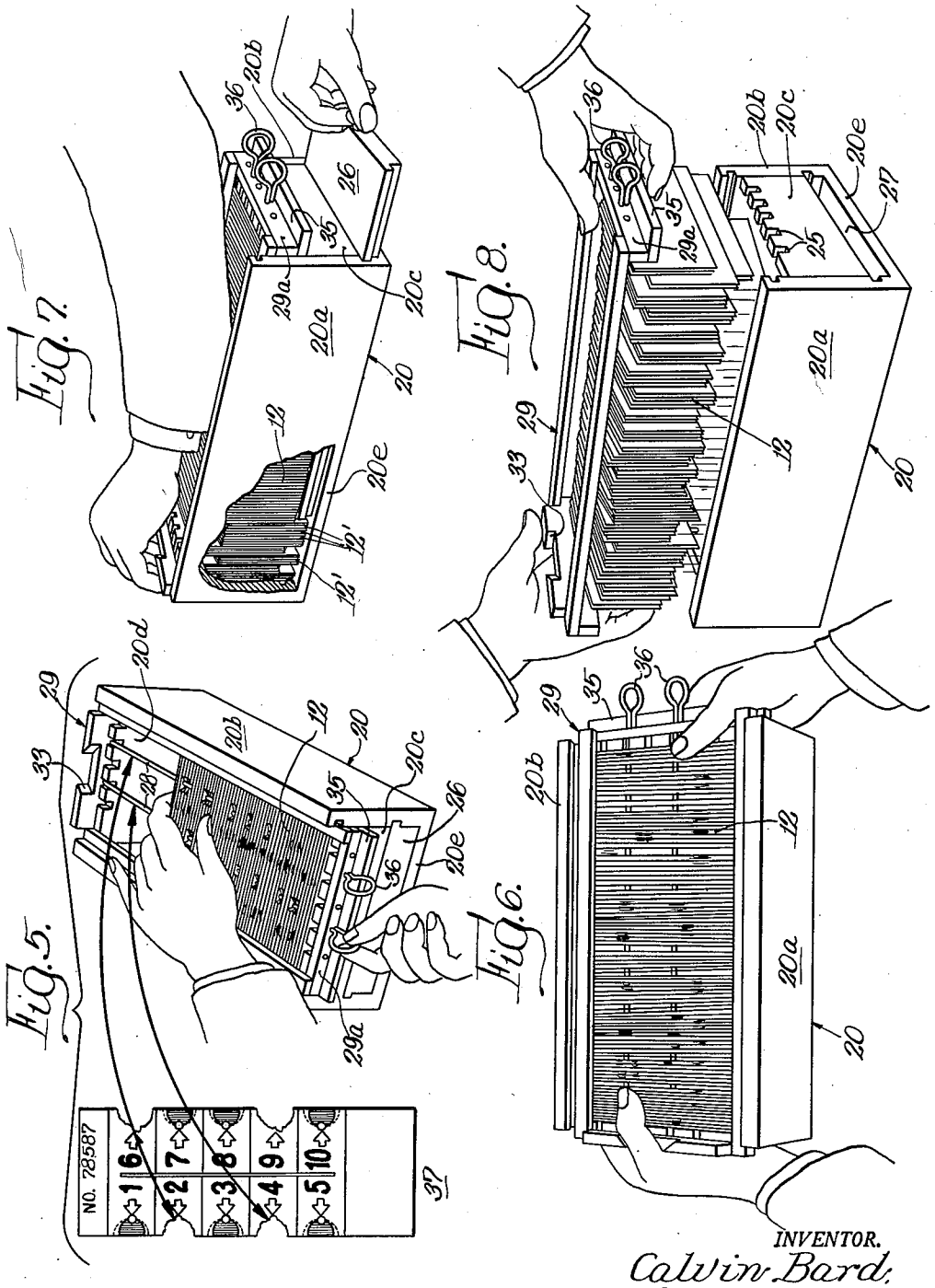
Fig. 2.

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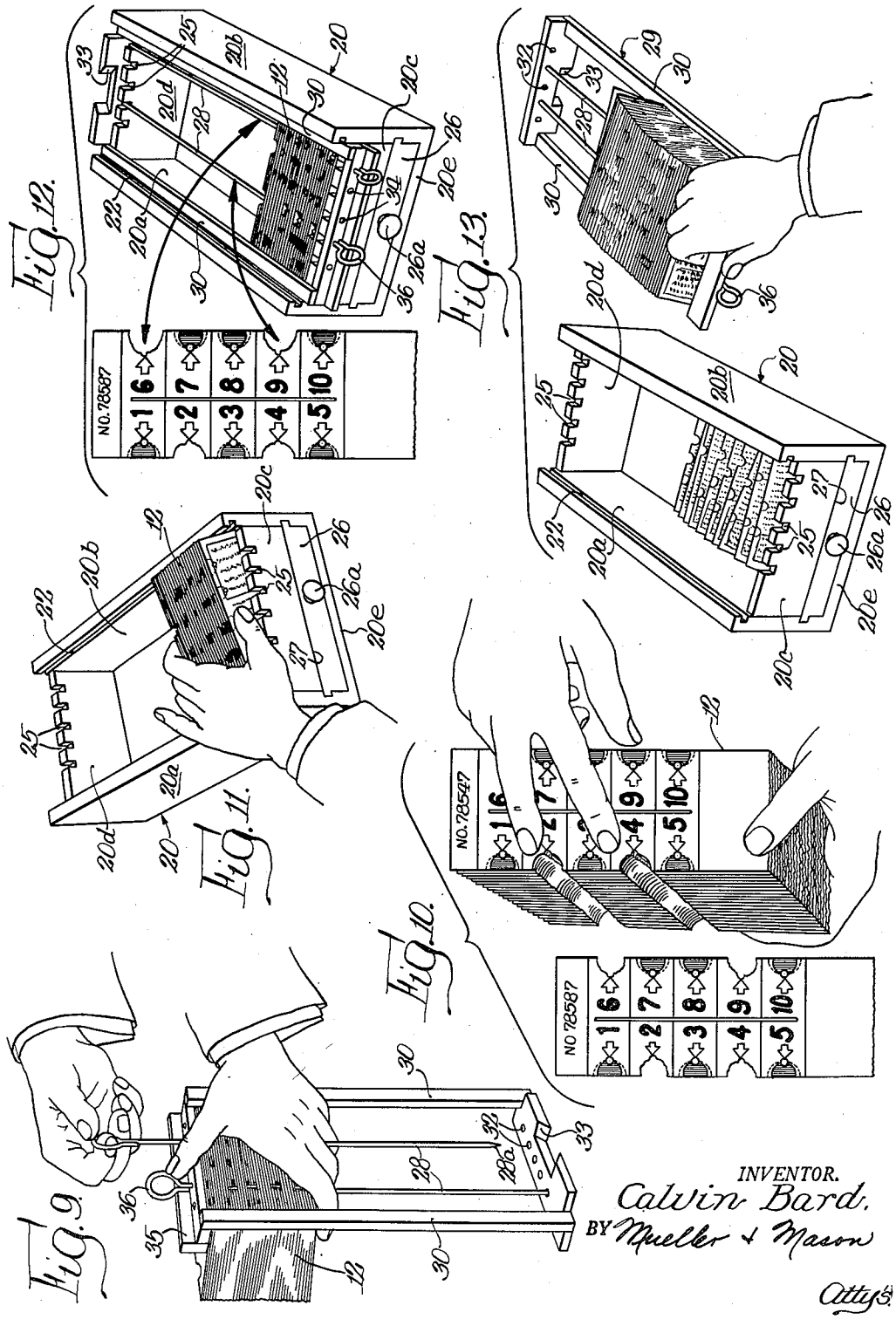
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CARD SORTER

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CARD SORTER

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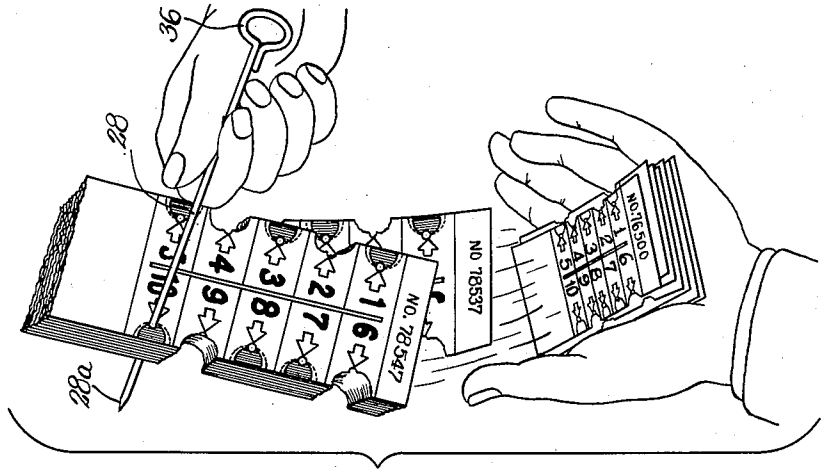



Fig. 15.

Fig. 16.

Fig. 14.

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# UNITED STATES PATENT OFFICE

2,587,682

## CARD SORTER

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Application May 27, 1946, Serial No. 672,399

3 Claims. (Cl. 129—16.1)

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The present invention relates to a method and an apparatus or device for sorting cards.

In order to promote attendance at various recreational establishments such as theaters, community houses, fairs and the like, it has been the practice in many localities to conduct some sort of contest or game which can be participated in by all of the attendants or patrons of the amusement or recreational establishment. One sort of contest that has been used is a true-false contest in which a series of statements are made to the contestants who are provided with suitable cards or the like upon which their answers are indicated. These cards are then collected and sorted to find out how many of the contestants answered all of the statements correctly. Heretofore the problem of determining the winner or winners by picking out the card or cards which have the answers indicated thereon in exactly the same way as the master card has been very tedious, particularly where the contest is employed in large theaters where hundreds and sometimes even thousands of contestants are involved. It would be desirable to provide a sorting device which is simple and inexpensive and yet which can be used to quickly and accurately sort out the winning card or cards from among hundreds and perhaps even thousands of similar cards. Furthermore, such a sorting device should be capable of being used by people having no training in the operation thereof and perhaps by boys and girls in their teens having no special skill in this regard. In addition, the device must never make an error.

Accordingly, it is an object of the present invention to provide a new and improved sorting device having all of the desirable features enumerated above.

It is another object of the present invention to provide a new and improved sorting device and method of using the same which is simple and inexpensive and which can be used to quickly and accurately sort out a particular card or group of cards from a collection of hundreds and perhaps even thousands of cards.

Still another object of the present invention is to provide a card sorting device which is simple and compact, which is easily portable and which is capable of being used anywhere without the requirement of any accessory devices, sources of electric or other power, or the like.

Further objects and advantages of the present invention will become apparent as the following description proceeds and the features of novelty which characterize the invention will be pointed

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out with particularity in the claims annexed to and forming a part of this specification.

For a better understanding of the present invention, reference may be had to the accompanying drawings in which:

Fig. 1 represents one type of card which can be sorted by the card sorting device of the present invention;

Fig. 2 is a perspective view of the card sorting apparatus or device of the present invention;

Fig. 3 is a perspective view illustrating some of the details of the sorting device and also one step in the sorting operation, and

Figs. 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15 and 16 are perspective views illustrating successive steps in the method of sorting cards using the sorting device of the present invention.

It should be understood that the method and apparatus for sorting cards of the present invention are applicable for sorting many different types of cards. For example, the method and device may be used for sorting cards containing records of business transactions, for sorting ballots in connection with elections, or in connection with educational devices such as games or contests. The method and sorting device of the present invention are specifically illustrated in connection with sorting cards used in a contest or game of an educational nature.

Referring now to Fig. 1 of the drawings, there is illustrated a particular type of card capable of being used in connection with a game or contest which may be employed with the sorting device of the present invention. As illustrated, this card 11 is of folded construction comprising two identical halves 12 and 13 which are joined together at 14. The two halves are formed from one piece which is folded at the junction 14 therebetween. The printed matter appearing on each half of the card 11 is identical including identical serial numbers such as are indicated by way of example at 15. As illustrated, the face of each half 12 and 13 of the card 11 is provided with a plurality of numbers illustrated as 1 to 10 in the drawings which represent ten statements that the announcer or contest director reads to the audience. It will be understood that more or fewer than ten numbers may appear on each card. Assuming that the contest is a true-false contest, some of these statements are true and others are false, it being up to each contestant to decide into which category each statement belongs. If the statement is true, the contestant may remove a colored semicircle or tab such as 16 opposite the number

of the statement. These semicircular tabs 16 are designated by an appropriate numerical subscript depending upon the particular number of the statement. In other words, the tab 16 adjacent the number 1 is tab $16_1$, the tab adjacent number 2 is tab $16_2$, etc.

In order to facilitate the removal of the colored tabs 16, perforations indicated at 17 are provided adjacent the edges thereof. When indicating on the card 11 whether the statements are true or false, the contestant has the two parts or halves 12 and 13 of the card folded together so that in removing the tab or semi-circle 16, for example, it is removed simultaneously from both halves 12 and 13 of the card 11. It will be apparent that the contest director may ask that the tabs 16 be removed if the corresponding statement is true and permitted to remain if the corresponding statement is false. He may equally well ask that false statements be indicated by removing the tabs while permitting them to remain if the statement is true. Assuming that the tabs are removed, if the statement is true, then the fact that the tabs $16_2$, $16_4$, $16_6$ and $16_9$ are removed from the card of Fig. 1 indicates that the contestant believes that the statement 2, 4, 6 and 9 were true statements while the remaining statements were false statements. At the end of the contest, each contestant tears his card 11 at the fold 14 retaining one half such as 13 as his copy of his answers while the other half being identical in every respect even as to the tabs 16 which are removed, is handed to the judges who will determine the winning contestant or contestants. For a purpose which will become apparent from the following description, the portions 12 and 13 of each card are provided with apertures or perforations 18 opposite each of the numbers from 1 to 10 inclusive which are specifically designated as $18_1$, $18_5$, $18_7$, etc., depending upon whether the perforation 18 is opposite the numbers 1, 5, 7, etc. Each of the apertures or perforations 18 are at least partically within the associated semicircular tabs 16.

The card sorter of the present invention generally designated as 19 in the drawings and clearly shown in Figs. 2, 3 and 4, comprises a box 20 including side members or walls 20*a* and 20*b*, a front wall 20*c*, a rear wall 20*d* and a bottom 20*e*, all joined together to form a rectangular construction. A cover 21 slidable in grooves 22 positioned near the top edges of side walls 20*a* and 20*b* of the rectangular box 20 is provided. The cover 21 is provided with a curved extension or handle portion 23 at the front end thereof and an extension 21*a* at the rear to which is pivotally fastened a latch member 24. The side walls 20*a* and 20*b* of the box 20 are somewhat higher than the end walls 20*c* and 20*d*, respectively, as is clearly shown in Figs. 3 and 4 of the drawings. In addition, the end walls 20*c* and 20*d* are provided with a plurality of notches or sawcuts 25 extending for a predetermined distance downwardly from the top edges thereof. The number of sawcuts may vary, depending upon the particular construction of the cards to be sorted. The corresponding notches or sawcuts 25 in the front and rear walls are in alignment for a purpose to be described hereinafter. Slidably mounted within the box 20 and adjacent the bottom 20*e* thereof is a false bottom in the form of a slidable member or bottom slide 26, which extends through a suitable opening 27 in the front wall 20*c* and is provided with a suitable handle or knob 26*a* to permit removal thereof without removing cards to be sorted positioned in the box 20.



In order to accommodate a plurality of sorting rods 28, there is provided a sorting rod supporting rack 29 comprising a front member 29*a* and a rear member 29*b* held in rectangular spaced relationship by means of side supports 30. The rack 29 is adapted to be positioned on the box 20 beneath the cover 21 so that the side supports 30 rest on the top edges of the front and rear walls 20*c* and 20*d*, respectively. In this position, the member 29*a* has its upper edge parallel and substantially level with the top of front wall 20*c*, while the member 29*b* is adjacent the rear wall 20*d* and extends below the level of the sawcuts 25 therein. The rear member 29*b* of the rack 29 is provided with a plurality of openings 32 for rods, 28, which openings register with the sawcuts 25 when the rack 29 is properly positioned on the box 20. This member 29*b* is also provided with a notched-out portion 33 which cooperates with the extension 21*a* of the cover 21, the extension 21*a* fitting into the notch 33 when the cover 21, as shown in Fig. 2 of the drawings, is moved to the closed position whereby the latch 24 is adapted to engage with the rear member 29*b* of the rack 29 to hold the cover 21 in the closed position.

The front portion 29*a* of the rack 29 is also provided with a plurality of openings 34 for accommodating rods 28, which openings register with the sawcuts 25 in the front wall 20*c*. It is apparent that the rods 28 are adapted to extend through the openings 34 in the member 29*a*, the sawcuts 25 in the front and rear walls 20*c* and 20*d*, respectively, and the openings 32 in member 29*b*, corresponding openings and sawcuts being in alignment or registry. In addition, the front portion 29*a* of the rack 29 is provided with a ledge 35 which may be covered with a strip of felt or the like, not shown. Each of the rods 28 is provided with a suitable point 28*a* at one end thereof and a manually engageable handle portion 36 at the other end. These handle portions are preferably obtained by bending the rod 28 in the form of a loop with the end portion 28*b* of the rod being parallel with the main portion of the rod for a short distance as is clearly shown in Figs. 3 and 4 of the drawings. The ledge 35 is so positioned relative to the openings 34 that when the rods 28 are moved so that the handle portions 36 extend in a vertical direction, the ends 28*b* of the rods 28 are wedged against the ledge 35, thereby firmly holding the rods 28 in a relatively fixed position.

The cover 21 with its associated extension 23 and latch 24 actually serves three functions. It serves as a cover for the rectangular box 20 comprising the sorter 19 of the present invention when the sorter is not in use. Secondly, the curved portion 23 serves as a guard for the handles 36 of the rods 28 which extend outside the box 20 when in position in rack 29 and with the rack positioned on the box 20. Thirdly, the cover 21 and more specifically the curved portion 23 thereof, serves as a handle for carrying the complete assembly when the latch 24 is in latching engagement with the rear portion 29*b* of the rack 29. It will be obvious that the card sorting device 20 thus far described is a very simple and inexpensive device which is portable and furthermore is usable any place without the requirement of any additional accessories or the like.

To use the card sorting device of the present invention, the sorter is placed on a suitable

stand or table with the curved end 23 of the cover 21 facing the particular person operating the sorter. The latch 24 is moved to the position shown in Fig. 2 and the cover is removed and placed to one side. Next the rods 28 are withdrawn from the rack 29 and are placed at one side of the sorting device as indicated in Fig. 3 of the drawings. The rack 29 is then also removed from the box or sorting device 20 and placed on the top of the rods 28, as indicated in Fig. 3 of the drawings, as a reminder to the operator not to replace the rods until after the rack has been returned to its position on the box 20. With the rack 29 removed from the box 20, the cards 11 to be sorted which comprise either the front half 12 or the rear half 13 of the cards 11 such as shown in Fig. 1 of the drawings, are placed within the box in a predetermined manner. These card portions to be sorted are hereinafter designated as 12, although it will be understood that the other half 13 might just as well have been turned in by the contestant since the halves are identical. For example, as illustrated in Fig. 4 of the drawings, all of the cards are placed within the sorter 20 with their serial numbers 15 toward the right as viewed in Fig. 4 and the face of the card containing the numbers from 1 to 10 facing toward the front 20c of the box 20. All of the cards are then compressed toward the front of the box as indicated in Fig. 5 of the drawings, thereby leaving a vacant space at the rear thereof.

The next step in the process comprises replacing the rack 29 on box 20 with the ledge 35 adjacent the front wall 20c. The sorting operation is now continued with reference to a master card designated by the numeral 37 in Fig. 5 of the drawings. This master card 37 has the answers to the true-false statements correctly indicated thereon and it is necessary to sort out those cards from the total number of cards which conform exactly with the master card as to the tabs 16 removed therefrom or remaining thereon. Accordingly, the master card 37 is placed where the person operating the sorting device 19 can see it clearly at all times. This master card indicates that the statements 2, 4, 6 and 9 are true and the other six statements are false.

It will be apparent that with the answers indicated on two sides of the card portions 12, first the sorting device 20 is used to find those cards having the correct tabs 16 removed from one side thereof after which the process must be repeated for the other side. With the cards positioned in the box 20 as indicated in Fig. 4 of the drawings, the sorting operation can be performed with regard to statements 1 to 5, the answers to which are indicated along one edge of the cards to be sorted. With the cards in this position, it will be observed that the perforations $18_1$, $18_2$, $18_3$, $18_4$ and $18_5$ opposite the numbers 1 to 5 are in registry with the openings 34 in the front member 29a of rack 29.

By observing the master card 37, it is noted that with respect to questions 1 to 5, the tabs $16_2$ and $16_4$ opposite questions 2 and 4 have been removed and accordingly it is desirable to find all those cards having the tabs 2 and 4 removed. With the cards compressed toward the front as indicated in Fig. 5 of the drawings, one rod 28 is inserted in rack 29 so as to extend through the perforations $18_2$ in the card portions 12 opposite the number 2 of the card. A second rod 28 is inserted in the same manner through the perforations $18_4$. When the rods have been inserted in this manner, the handle portions 36 thereof are turned in a vertical direction so that the portions 28c are wedged against the ledge 35 to hold them in a substantially fixed position relative to rack 29. The sorter 19 is then picked up and shaken as indicated in Fig. 6 of the drawings so as evenly to distribute the card portions 12 throughout the full length of the box 20. Thereafter with the box 20 held with the left hand, the bottom slide 26 is withdrawn with a quick jerk so that all the cards not held by the rods 28 inserted in the perforations $18_2$ and $18_4$ fall downwardly to the bottom of the sorter. These cards which have moved downwardly are indicated by the numerals 12' in Fig. 7 of the drawings. The rack 29 is then removed from the box 20 as indicated in Fig. 8 of the drawings and during this removal of the rack, it is shaken up and down so that cards 12' not attached to the particular rods 28 inserted in perforations $18_2$ and $18_4$ opposite the numbers 2 and 4 on the card portions 12 fall free and remain in the box 20. It will be understood that those card portions 12 remaining in the box 20 are the ones that have the tabs $16_2$ and $16_4$ removed opposite the numbers 2 and 4 just like the master card 37 shown in Fig. 5 of the drawings. The cards fastened to the two rods 28 as shown in Fig. 9 of the drawings are those where the contestant failed to remove one or more of the tabs $16_2$ or $16_4$. The card portions 12 remaining in the rack 29 are moved to the upper end of the rack as shown in Fig. 9 of the drawings and the rods 28 are removed. These cards are placed to one side since they contain at least one error. The cards remaining in the box 20 of the sorter 19 are removed and it will be noted from Fig. 10 of the drawings that the cards remaining in the box 20 when compared with the master card 37 have the tabs $16_2$ and $16_4$ opposite the numbers 2 and 4 removed and that is why they fell free from the rods 28 in the sorting step just described.

The first phase of the sorting operation has now been completed and the cards 12, all of which have the tabs $16_2$ and $16_4$ removed, are replaced in the box 20 as indicated in Fig. 11 of the drawings, which has been restored to the condition shown in Fig. 4 of the drawings. The faces of the cards 12 containing the numbers from 1 to 10 are now directed away from the front wall 20c of the box 20, although the cards are arranged so that the serial numbers 15 are still on the right-hand side of the box 20 as viewed in Fig. 11 of the drawings. When positioned in this manner, the sides of the cards 12 with the numbers 6 to 10 are adjacent the rack 29, with the number 6 in the same position the number 1 occupied during the first phase of the sorting operation. Some of the preceding steps indicated in Figs. 5 to 9 of the drawings are then repeated, with reference to the side of the master card 37 of Fig. 12 of the drawings containing the numbers from 6 to 10. It is noted that the tabs $16_6$ and $16_9$ opposite the numbers 6 and 9 of the master card are removed and accordingly, the rods 28 are inserted in the openings $18_6$ and $18_9$, respectively, as indicated in Fig. 12 of the drawings. By shaking the rack and sorter as indicated in Fig. 6 of the drawings and then removing the rack from box 20 as indicated in Fig. 13 of the drawings, those cards having both of the tabs $16_6$ and $16_9$ removed drop to the bottom of the box 20. Consequently, now remaining in the box 20 are only those cards 12 which have at least the tabs $16_2$, $16_4$, $16_6$, and $16_9$ removed. This completes the

second phase of the sorting operation of the present invention.

The cards remaining in the box **20** of the sorter **19** following the step illustrated in Fig. 13 may then be compared with the master card in the manner shown in Fig. 10 of the drawings except with reference to the side of the master card containing the numbers from 6 to 10. In the final phase of the sorting operation, it is necessary to remove from the sorted cards those cards which have tabs **16** removed therefrom in addition to the tabs $16_2$, $16_4$, $16_6$ and $16_9$. This can be accomplished by inserting one of the rods **28** through the perforations $18_1$ as indicated in Fig. 14 of the drawings and then permitting those cards which wish to fall free of rod **28** to do so. It will be obvious that all cards with tab $16_1$ incorrectly removed will drop free of the rod **28**. This operation is repeated for the numbers 3, 5, 7, 8 and 10, the final step being indicated at Fig. 15 of the drawings. When the operation indicated in Fig. 15 of the drawings is completed, all of the cards remaining shown in Fig. 16 of the drawings will exactly match the master card and will be the cards of the winning contestants.

In view of the detailed description included above, the card sorting device and method of operation thereof will be fully apparent to those skilled in the art and no further description need be included herewith. It will be apparent that a very simple sorting device is provided which can be operated anywhere and does not depend upon a source of electric current or other power means for operation thereof. In addition, the sorting method is foolproof with the possibility of an error in the sorting operation completely eliminated. The sorting device can be operated by anyone with only the very simplest of instructions and the winning contestants can be determined from among hundreds and even thousands of contestants in a very short period of time.

It will be apparent to those skilled in the art that the present invention is not limited to the particular construction and method shown and described, but that changes and modifications may be made without departing from the spirit and scope of the present invention. It is aimed in the appended claims to cover all such changes and modifications.



I claim:

1. A card sorting apparatus comprising a box, a cover for said box, a rack removably positioned on said box beneath said cover, a plurality of sorting rods in said rack having ends thereof extending beyond one end of said rack and box, and a curved extension on said cover which partially encloses the extending ends of said rods, said extension also serving as a handle for carrying said apparatus.

2. A card sorting apparatus comprising a box, a rack removably positioned on said box, a plurality of aligned notches in the front and rear walls of said box, a plurality of openings in said rack registering with said notches when said rack is in position on said box, a plurality of sorting rods extending through said openings in registry with said notches and having ends thereof extending beyond one end of said rack and box, a cover for said box, and a curved extension on said cover which partially encloses the extending ends of said rods, said extension also serving as a handle for carrying said apparatus.

3. A card sorting apparatus comprising a box, a rack removably positioned on said box, a plurality of removable sorting rods in said rack having ends thereof extending beyond one end of said rack and box, means defining a ledge at one end of said rack, and means on each of said rods effective upon limited pivotal movement of said rods frictionally to engage with said ledge for holding said rods in a fixed position in said rack.

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