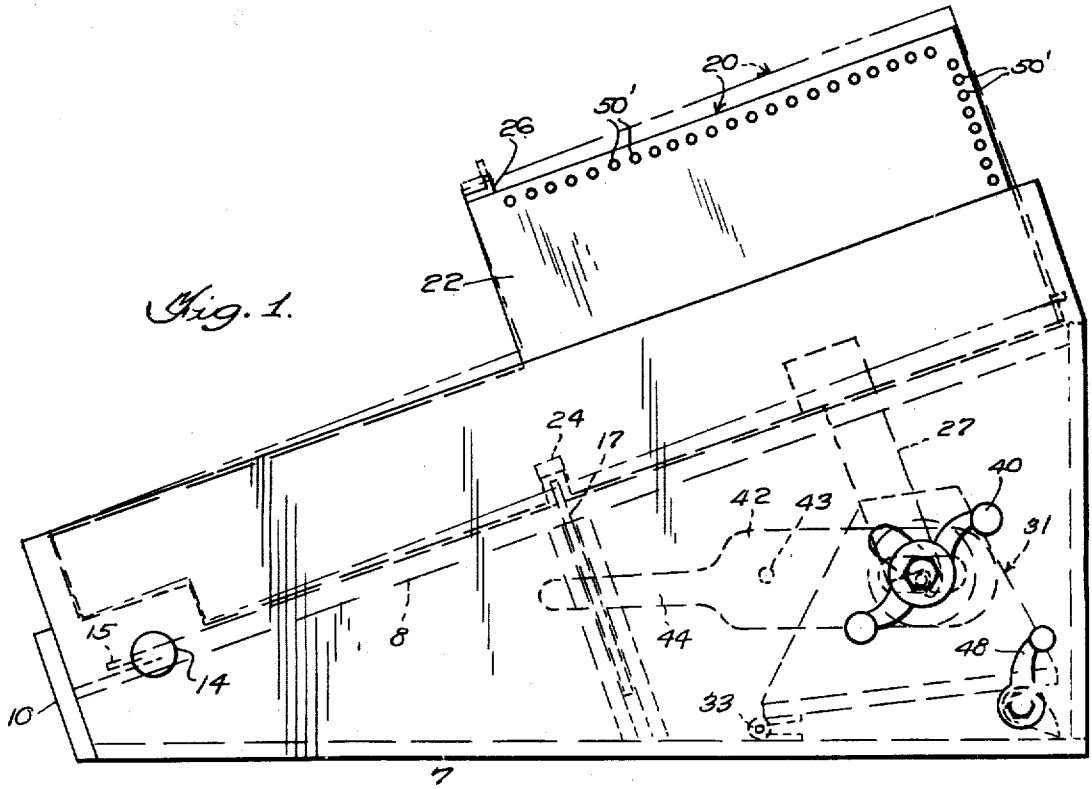
April 6, 1943. W. L. JONES 2,315,860

CARD SELECTOR

Filed May 30, 1942 4 Sheets-Sheet 1

Fig. 1.



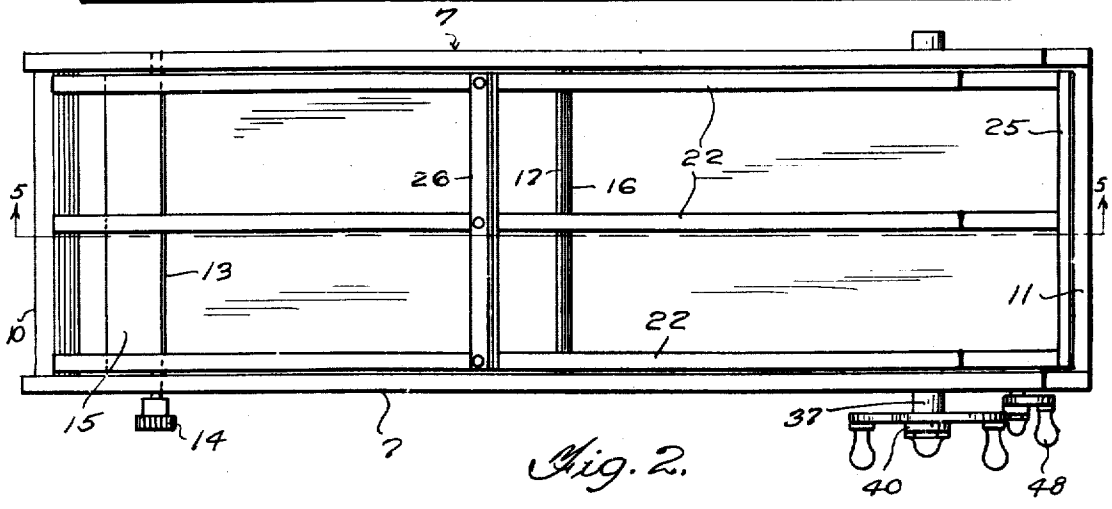


Fig. 2.

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April 6, 1943. W. L. JONES 2,315,860

CARD SELECTOR

Filed May 30, 1942 4 Sheets-Sheet 2

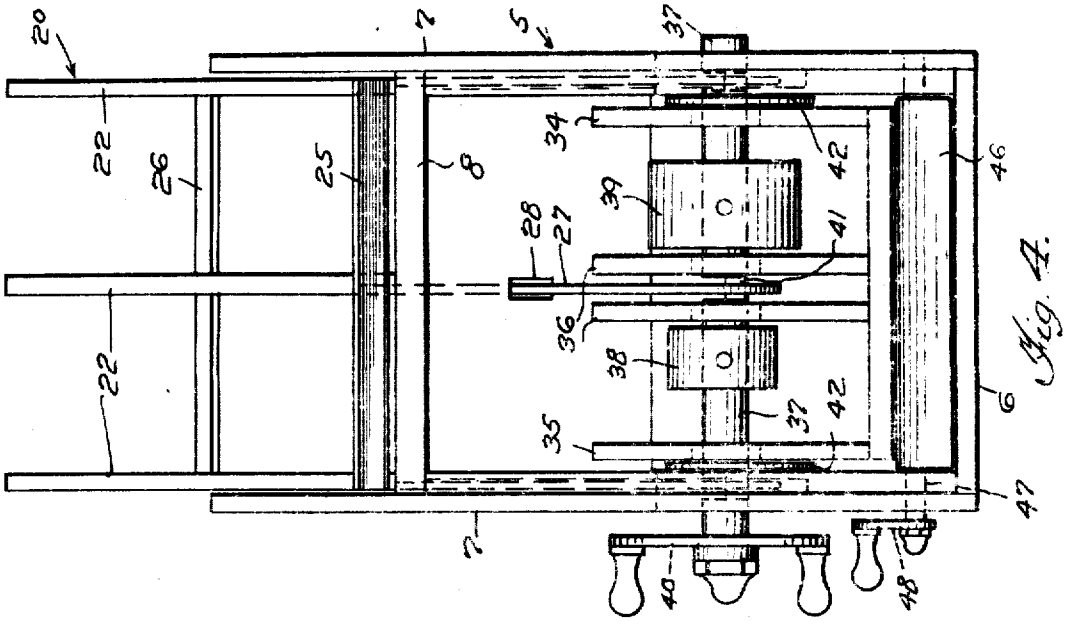


Fig. 4.

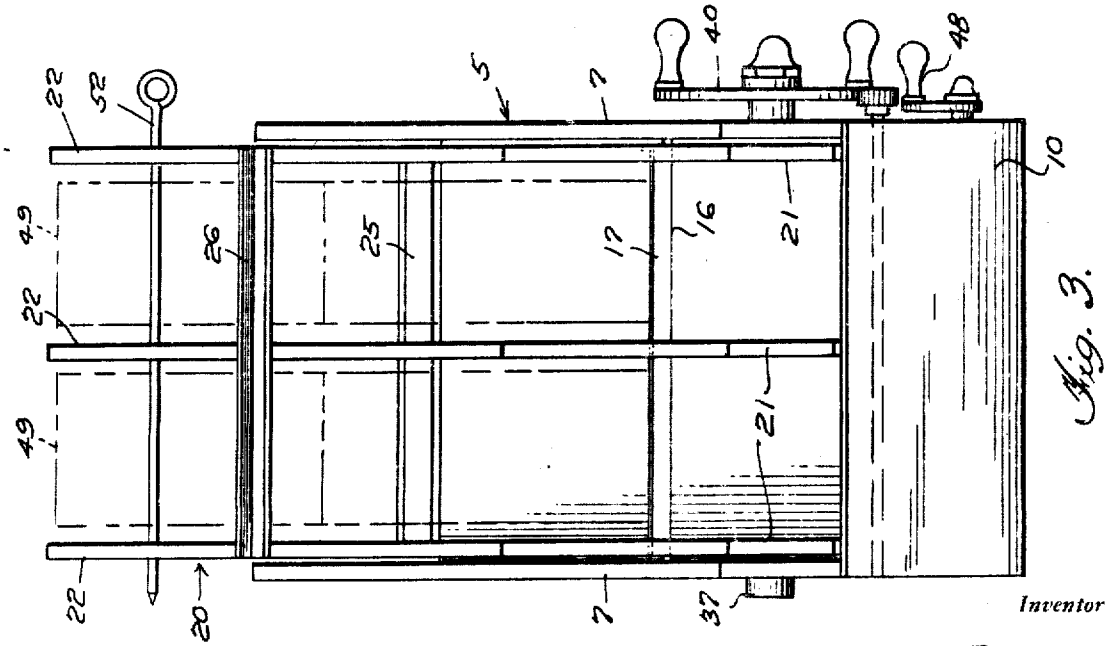


Fig. 3.

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April 6, 1943. W. L. JONES 2,315,860

CARD SELECTOR

Filed May 30, 1942 4 Sheets-Sheet 3

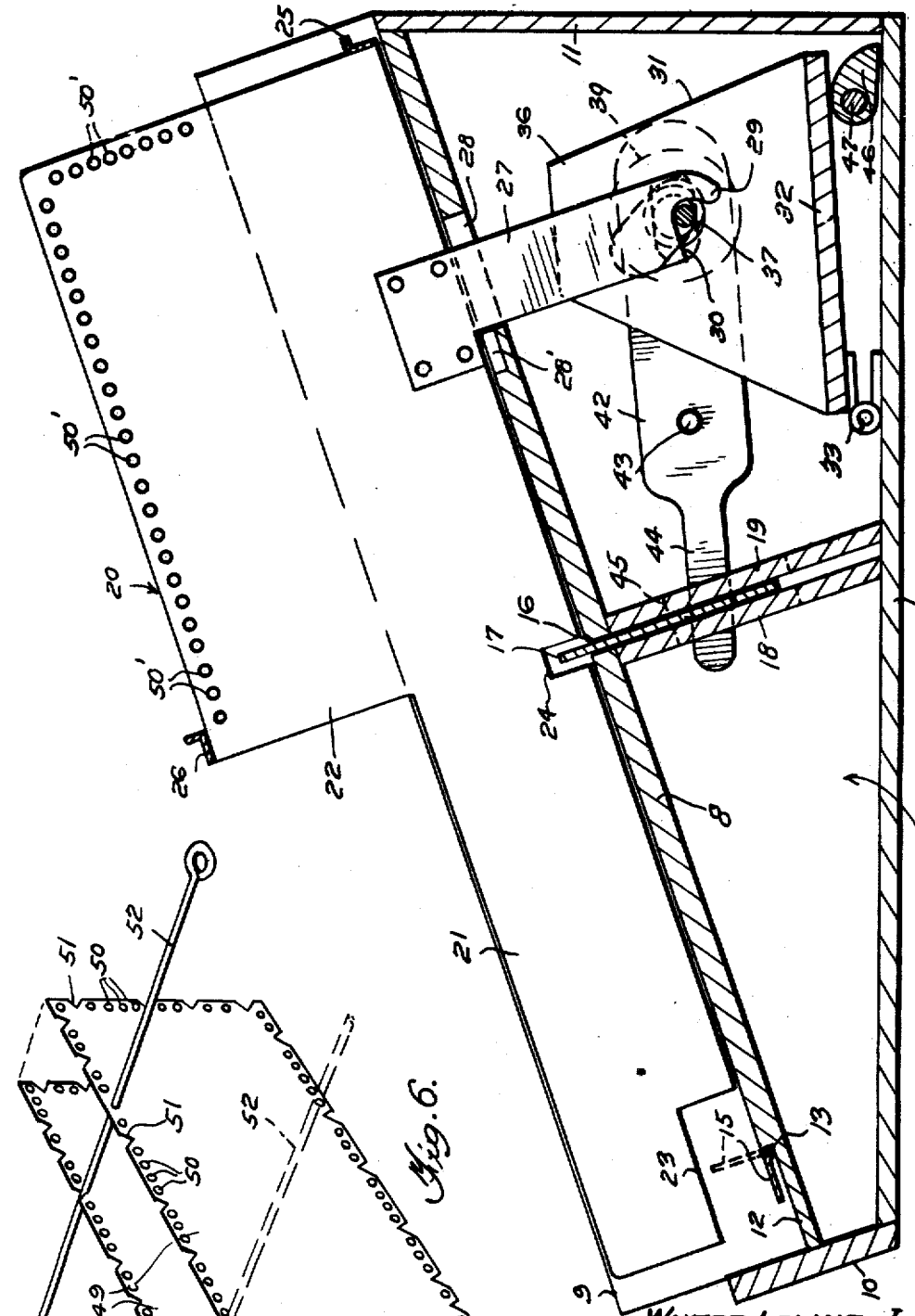


Fig. 5.

Fig. 6.

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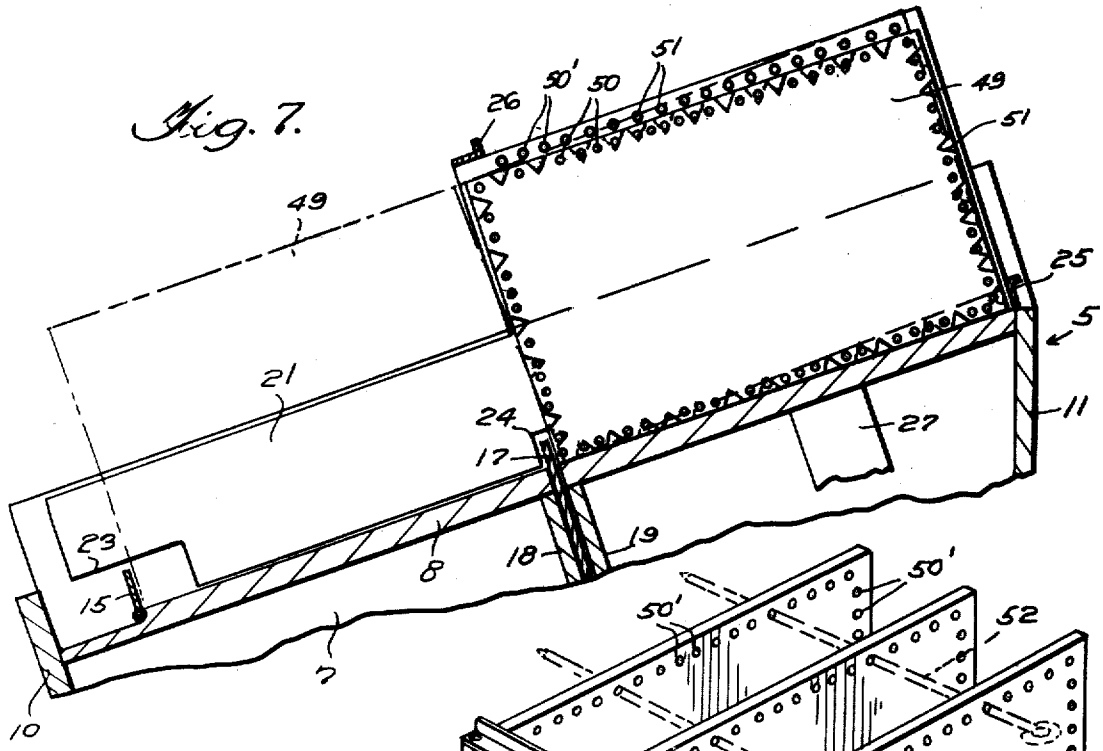
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April 6, 1943. W. L. JONES 2,315,860

CARD SELECTOR

Filed May 30, 1942 4 Sheets-Sheet 4

Fig. 7.



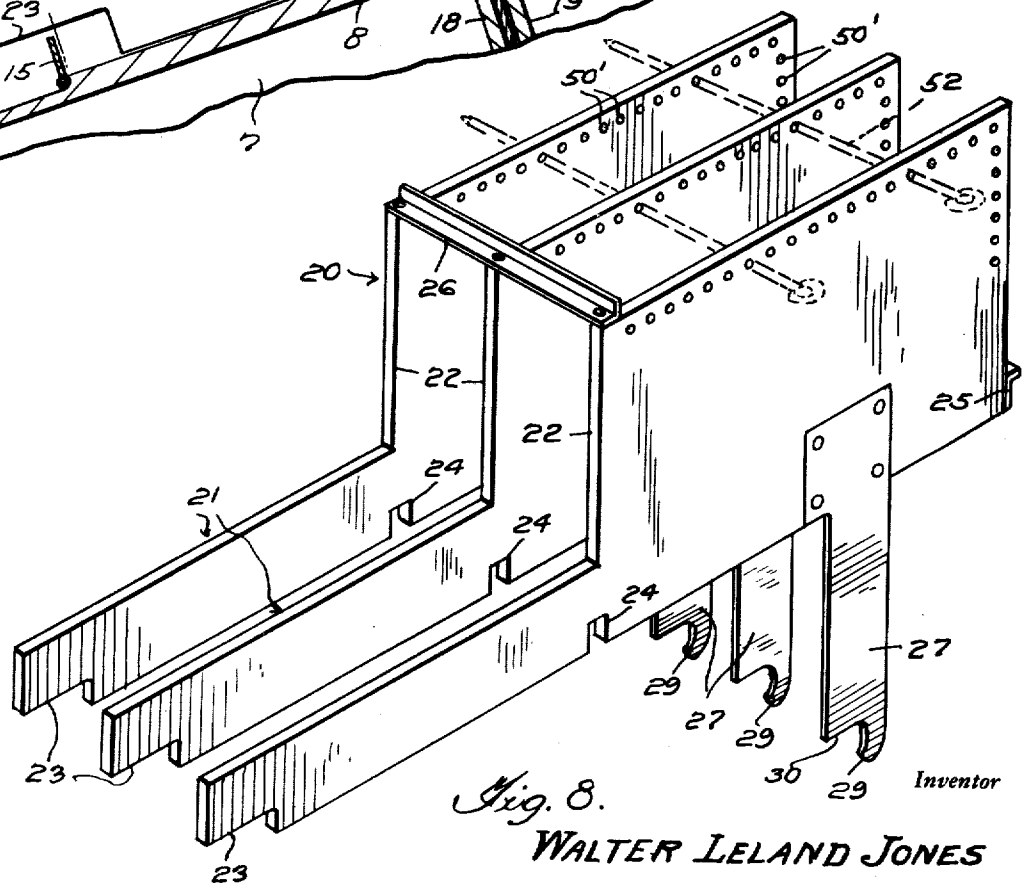


Fig. 8.

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Patented Apr. 6, 1943

2,315,860

UNITED STATES PATENT OFFICE

2,315,860

CARD SELECTOR

Walter Leland Jones, Webster Groves, Mo.

Application May 30, 1942, Serial No. 445,147

6 Claims. (Cl. 129—16.1)

The invention relates to improvements in machines for selecting and removing cards from a pack of record cards, and the primary object of the invention is to provide a more efficient, simplified, and compact machine of this character.

Another important object of the invention is to provide refinements in action and simplifications in construction over the subject matter of my prior Patent No. 2,248,536 granted to me July 8, 1941 for Card sorting devices.

Other important objects and advantages of the invention will be apparent from a reading of the following description taken in connection with the appended drawings, wherein for purposes of illustration there is shown a preferred embodiment of the present invention.

In the drawings:

Figure 1 is a general side elevational view of the embodiment showing certain detail structure in phantom lines.

Figure 2 is a top plan view of Figure 1.

Figure 3 is a front edge elevational view of the embodiment.

Figure 4 is a rear end elevational view with a cover plate removed.

Figure 5 is an enlarged longitudinal vertical sectional view taken through Figure 2 along the line 5—5 and looking upwardly in the direction of the arrows.

Figure 6 is a schematic perspective view showing selector rods engaged with holes and notches in cards to be selected and cards to be retained in a pack of cards.

Figure 7 is a fragmentary longitudinal vertical sectional view similar to but on the smaller scale than Figure 5 and showing a pack of cards in place in full lines and showing at least one of the selected cards separated from the pack in phantom lines.

Figure 8 is a front perspective view of the oscillable card container.

Referring in detail to the drawings, the numeral 5 generally designates the casing which comprises a bottom plate 6 of elongated rectangular form to the side edges of which are attached substantially triangular side plates 7 which support a declining plate 8 between them in substantially parallel relationship to their upper edges 9. A short angulated wall 10 closes the front end of the casing and projects above the level of the card slide 8 to act as a stop for cards accumulated at the lower end of the slide. A removable substantially perpendicular back wall 11 rises from the base 5 to the rear end of the slide 8. A depression 12 is formed at the lower end of the slide, across the end of which depression a shaft 13 is journaled through the side plates 7 and is provided on its right hand end outside of the casing with an operating knob 14. A stop plate 15 is attached by one longitudinal edge to the shaft 13. The stop plate normally rests in a flat position as illustrated in full lines in Figure 5 of the drawings, but may be turned up in the dotted line position to halt the sliding of the separated cards down the slide 8 while portions of the separated cards are still engaged in the pack of cards at the upper end of the slide, this being desirable until all of the wanted cards have been selected and separated from the pack, when the gate 15 may be turned out to allow the selected and separated cards to slide completely out of the pack.

About midway of the length of the slide 8 a transverse slot 16 is formed in the slide at a point substantially even with the lower end of the pack of cards when in place in the machine. A vertically movable gate 17 is disposed in the slot substantially parallel with the end of the pack of cards, the gate 17 being in the form of a flat metal plate sliding between front and rear guide members 18 and 19 supported across the interior of the casing 5 between the side walls 7. The card container which is generally designated 20 comprises a desired number of laterally spaced similar partitions 21, three in number in the illustration given herein, which are set up on edge and are of a length slightly less than the length of the slide 8 and are provided at their upper ends with elongated rectangular integral extensions 22 which with the subjacent portions of the partitions are substantially the same size as the cards to be handled. The lower ends of the partitions 21 are cut away in their lower edges as indicated by the numeral 23 to clear the adjustable stop 15. The lower edges of the plates 21 are notched as indicated by the numerals 24 to provide proper clearance for the action of the vertically adjustable gate 17. An angle iron 25 is attached to the lower part of the rear edges of the partitions to space and connect them, and another angle iron 26 is attached to the forward ends of the upper edges of the extensions 22 to brace and connect the partitions in required spaced relationship. The width of the container 20 composed of the partitions is such as to substantially occupy the space between the side plates 7 above the slide 8 while providing freedom for the oscillation of the container. The angle irons 25 and 26 are carefully placed to avoid interference with placing the cards into

the top of the container 20 or with movement of the cards downwardly along the slide 8, while acting as abutments to hold the cards in a compact pack while suspended on a selector rod and preventing rotation of the cards on the rod, thereby in effect supporting the cards at three points.

Attached to intermediate portions of the upper part of the partitions are plate-like legs 27 which project substantially right angularly from the container and depend through longitudinal slots 28 formed in the slide 8 and which are long enough to provide free action for the legs 27. A reinforcement 28' is provided at the front ends of the slots 28 to resist the impact of the forward edges of the legs during their motion. The lower ends of the legs 27 have forwardly and downwardly curving hooks 29 formed on the rear end portion of substantially straight lower edges 30.

The container operating and conditioning mechanism comprises a carrier which is generally designated 31 and which may be suitably formed of metal which comprises a bottom plate 32 which is hinged as indicated by the numeral 33 at its forward end to the bottom plate 6 of the casing 5. From the plate 32 rise the substantially triangular standards 34 and 35 which are located close to the side walls of the casing but are spaced therefrom, and the similarly shaped standards 36 which rise from points adjacent to the middle of the plate 32 as illustrated in Figure 4 of the drawings. A rotary shaft 37 is journaled in the said standards and extends through vertically elongated openings in the side plates 7 which allow the shaft to move up and down as the carrier 31 is elevated or depressed in a manner to be described. Flywheel weights 38 and 39 are affixed to the shaft 37 between the standards 35 and 36 and the standards 34 and 36, respectively, as shown in Figure 4 of the drawings to smooth the rotation of the shaft during the operation of the machine. The right hand end of the shaft 37 is provided with a suitable operating handle 40 or may be power driven if desired.

The middle of the shaft 37 has an eccentric portion 41 which engages the lower edge 30 of the middle leg 27 and the forward edge of the hook 29 thereof. Other similar eccentric portions are formed on the shaft 37 to engage the lower ends of the outside legs 27. By means of this arrangement, rotation of the shaft 37 by the handle 40 in a clockwise direction, as viewed in Figure 5, causes the container 20 to rise in a straight path, from the normal depressed position, and then to travel with a rotating motion, until the normal depressed position is again reached at which position the rotating motion is abruptly stopped by the forward edges of the legs 27 contacting the stops 28' at the forward ends of the slots 28. This irregular oscillating motion of the container 20 efficiently and positively loosens the cards selected for separation from the pack of cards and starts them down slide 8.

Loosely journaled on the end portions of the shaft 37 between the outer standards 34 and 35 and the walls of the casing are plate-like levers 42 which are pivoted as indicated by the numeral 43 on the side walls of the casing on horizontal axes, and which have forwardly extending fingers 44 which pass through slots 45 formed in the guide plates 18 and 19 and through relatively small slots in edge portions of the vertically adjustable gate 17. The levers 42 are so arranged that when the carrier 31 is in the depressed inoperative position illustrated in Figure 5 of the drawings, the positions of the fingers are such that the gate 17 is in an elevated position to engage the front edges of the cards in the container and prevent any of the pack of cards from moving down the slide 8. The levers 42 are further arranged so that when the carrier 31 is tilted upwardly and forwardly by operation of the cam 46, the fingers 44 withdraw the gate 17 downwardly to a position below the top of the slide 8 and permit such cards as are separated from the pack to slide without obstruction from the gate 17 down along the slide 8. A knob or crank 48 is fixed to the right hand end of the shaft 47 which is journaled through the side plates of the casing 5 near the rear end thereof.

The cards 49 with which the present device is concerned are elongated rectangular in form as illustrated in Figure 6 of the drawings and provided with holes 50 on the upper end or lower edges thereof and on one or both end edges, and with open notches 51 replacing the holes 50 at selected points in accordance with the records or information on the cards. The extensions 22 on the plates forming the containers 20 have holes 50' along and adjacent the upper edges thereof as indicated in Figure 5 of the drawings and along the rear edges, for reception of the selector rods 52 which are passed through the aligned holes with the pack of cards in place between the extensions so as to pass through the holes 50 in the cards which are aligned with the rods and to avoid contact with the cards to be separated by passing through notches 51 in the edges thereof. It will be observed that as the pack of cards is placed in the container the same rest their lower edges upon the upper part of the slide 8, with the container 20 in the depressed position illustrated in Figure 5 of the drawings and with the gate 17 up in retaining position. In this disposition of the pack of cards the selector rods 52 are placed through the holes in the extensions 22.

Once the selector rods have been placed as desired, the stop plate 15 is placed in the up-position and the cam 46 is operated so as to elevate the carrier 31 and hence the container 20 from the depressed position shown in Figure 5 of the drawings to the elevated position illustrated in phantom lines in Figure 1, so that the lower edges of the cards of the pack are somewhat elevated above the slide 8 and they are held in place in the container only by the selector rods, the retaining gate 17 having been depressed out of retaining relationship by the elevation of the carrier. At this stage all is in readiness for the actual separation operation which is accomplished by rotating the shaft 37 by means of the handle or crank 40 so as to impart the described oscillation to the container 20 and hence to the cards supported therein by the selector rods. The cards thus supported by the selector rods are retained in the container while the remaining cards are jostled by the oscillation of the retained cards and the container so that they free themselves from the retained cards and by force of gravity fall upon the slide 8 and slide downwardly therealong until arrested by the stop 15, which holds the separated cards with a portion of their rear edges still engaged between the retained cards. As already explained the stop 15 is dropped when all of the selected cards have been separated from the pack, so as to allow the separated cards to move to the bottom of the slide.

Containers 20 in various sizes can be furnished with each machine for handling cards of different dimensions. The machine can be made with additional stops 15 at various positions on the slide 8 where cards of more than one size are to be handled. A number of packs of cards may be handled simultaneously, a suitable number of partitions 21 and 22 being provided on the container 20 to segregate the packs of cards. The container 20 is quickly and easily removable by simply lifting it upwardly. It or a container of another size may be returned to operative position simply by inserting the legs 27 through the slots 28 and engaging the hooks 29 behind the corresponding eccentrically offset portions of the shaft 31.

Although there is shown and described herein a preferred embodiment of the invention, it is not the intention to limit the invention thereto beyond the scope of the subjoined claims.

Having described the invention, what is claimed as new is:

1. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in laterally spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with selector rod retaining apertures, legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a carrier normally substantially horizontally positioned on said support and engaging the legs of the container and tilting means on said support for tilting said carrier forwardly and upwardly so as to tilt said container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide.

2. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in laterally spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with selector rod retaining apertures, legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a carrier normally substantially horizontally positioned on said support and engaging the legs of the container and tilting means on said support for tilting said carrier forwardly and upwardly so as to tilt said container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide, a vertically adjustable gate extensible through said slide immediately below said selector rod supports, an operating connection between said tiltable carrier and said gate whereby said gate is elevated above the slide in the depressed position of the carrier to prevent any cards from coming out of the pack and whereby said gate is retracted below said slide in the uptilted position of said carrier to permit the unretained cards to move out of the pack and slide down along said slide during the oscillation of said container.

3. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in laterally spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with selector rod retaining apertures, legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a carrier normally substantially horizontally positioned on said support, a horizontal shaft journaled on said carrier and having a portion projecting laterally from said support for application of turning force thereto, and eccentrics on said shaft directly engaging under said lower portions of the legs of the container and means for tilting the container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide.

4. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in laterally spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with selector rod retaining apertures, legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a carrier normally substantially horizontally po-

sitioned on said support, a horizontal shaft journaled on said carrier and having a portion projecting laterally from said support for application of turning force thereto, and eccentrics on said shaft directly engaging under said lower portions of the legs of the container and means for tilting the container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide, said tilting means comprising a cam movably mounted on said support and operatively engaging said carrier, and manual means for operating the cam.

5. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in laterally spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with selector rod retaining apertures legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a carrier normally substantially horizontally positioned on said support and engaging the legs of the container and tilting means on said support for tilting said carrier forwardly and upwardly so as to tilt said container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide, a vertically adjustable gate extensible through said slide immediately below said selector rod supports, an operating connection between said tiltable carrier and said gate whereby said gate is elevated above the slide in the depressed position of the carrier to prevent any cards from coming out of the pack and whereby said gate is retracted below said slide in the uptilted position of said carrier to permit the unretained cards to move out of the pack and slide down along said slide during the oscillation of said container, a retractible stop at the lower end of said slide to enable holding the separated cards with portions thereof still remaining in the pack of cards until all of the selected cards have been separated from the pack, and means for extending and retracting said stop.

6. A machine for selecting and separating cards from a pack of cards, said cards having notches in their edge portions and holes adjacent their edge portions, said machine comprising a support including a declining stationary slide, an elongated card container comprising at least two longitudinal plates fixed in lateral spaced vertical relation to extend along the top of said slide, rear upper portions of said plates being vertically extended to define selector rod supports and provided along their upper edges and rear edges with seelctor rod retaining apertures, legs fixed to and extending downwardly from said plates below said slide, selector rods passing through certain of said apertures of the container and arranged to retainably enter certain of the holes formed in the edge of some of the cards of a pack of cards disposed in said container between said selector rod supports while passing freely through certain of the notches in the edges of other cards of the pack, a rear cross member attached at the lower rear edges of the said longitudinal plates, and a front cross member attached to the front upper edges of said plates, the lower rear edges of the cards of a pack in said container engaging said rear cross member with the forward upper edges of the cards engaging said front cross member while the cards are suspended on a selector rod so that the cards are prevented from rotating on any single selector rod and the cards are maintained in a compact pack, and means for tilting the container from a normally depressed position to a forwardly angulated position in which the lower edges of the retained cards are elevated from the surface of said slide and the unretained cards fall out of the pack to rest upon the surface of the slide.

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