This invention relates generally to card indexes or card registers of the kind in which the index cards or sheets have certain structural characteristics adapted to cooperate with portions of a container or holder for the cards to permit the positioning of the cards in relative offset relation whereby portions of all such cards will be visible. More particularly, the invention relates to containers for the cards whereby such cards may be readily arranged and handled. Accounting and filing systems of this character are disclosed and claimed in United States Patents No. 1,713,945 granted May 21, 1929; No. 1,975,566 granted October 2, 1934; and No. 2,192,178 granted March 5, 1940.

It has been proposed to employ slotted or aperted cards cooperating with supporting or positioning ribs and the like whereby the cards are offset either vertically or horizontally with respect to one another and in its simplest form, this arrangement involved slotting the cards along the lower edges thereof for horizontal offsetting as well as vertical offsetting.

In my Patent No. 2,374,965 dated May 1, 1945, I have proposed portable trays which were adapted to stand upon a table or desk or be slidably in cabinets and having pivoted side walls, the bottom of the tray being provided with a number of positioning bars to be received in the slots in the cards.

One object of the invention is portable carriers or trays each receiving a plurality of index cards and which may be severally disposed in a cabinet in a compact arrangement while at the same time side wall portions of the portable trays are capable of angular displacement to afford inclined supporting surfaces for the cards in ready reading position.

It is also an object of the invention to provide portable trays or other containers which may accommodate cards or sheets in which the slots in the lower edges vary in relative spacing.

Another object of the invention is a portable tray the parts of which may be readily assembled in mass production.

The invention also seeks constructions which are practical from the standpoint of ease and practicability of manufacture and convenience and durability in use.

These and other objects of the invention and the means for their attainment will be more apparent from the following detailed description taken in connection with the accompanying drawings illustrating various embodiments by which the invention may be realized and in which:

Figure 1 is a view in end elevation showing a portable tray of this invention in which the various features are incorporated and side walls being shown in open position in full lines and in closed position in broken lines;

Figure 2 is a detail view showing a modified feature of the invention;

Figure 3 is a view in side elevation of the portable tray of Figure 1, parts being removed to show details of construction;

Figure 4 is a fragmentary view in plan looking from above in Figure 1;

Figure 5 is a view showing in plan a card positioning device of this invention, the intermediate portion being broken away in the interest of compactness;

Figure 6 is a view in side elevation showing a detail of the structure shown in Figure 5 and taken in the plane indicated by the line 6–6 of that figure;

Figure 7 is a view in front elevation showing a cabinet within which a plurality of portable trays are disposed;

Figure 8 is a transverse, vertical, sectional view taken in the plane indicated by the line 8–8 of Figure 7 and looking in the direction of the arrows;

Figure 9 is a fragmentary view showing a detail of the tray in position with respect to a positioning track; and

Figure 10 is a view in perspective showing a center piece of simple construction adapted to support the movable walls of the trays in a container.

The portable tray of this invention, indicated generally by the reference character 11, comprises a rectangular base member having a bottom 12 and integral side walls 14 and the end members 16 which are of uniform height with the other walls of the base member. The end members are formed at their ends with inwardly turned flanges 18 fitting between the side walls and, conveniently, spot welded thereto.

Pivotally mounted upon the side walls 14 are movable side members 20. These side members 20 are pivotally mounted as by elongated butt hinges 22 extending substantially the length of the side walls but terminating short of the ends thereof. One wing of the hinges 22 is secured to the respective side walls 14 and the other wing is secured to the movable sides 20 retaining the adjacent edges slightly spaced to permit movement.
of the sides outwardly past the vertical through an angle of about 20°.

Outward movement of the sides 20 with respect to the side walls 19 is limited by engagement of the lower edge of the movable sides 20 with the upper edge of the sides 14. In other words, the upper edges of the side walls 14 serve as stops against which the lower edges of the movable sides 20 abut when in their outwardly inclined position.

To afford more certain positioning of the movable sides 20 of the portable tray of this invention, the upper edges of the sides 14 are turned outwardly and the lower edges of the movable sides 20 are also turned outwardly as shown at 24 in Figure 3, so that these two outwardly turned edges engage one another and the lowermost outwardly turned edge serves as a stop engageable by the outwardly turned edge of the movable side members 20 and thus hold these movable sides 20 in position as inclined surfaces against which the index cards disposed in the carrier may be supported in inclined position during an examination of the cards therein, as will be understood.

On the uppermost portion of the movable side members 25 and proximate the upper edges thereof, the portable trays of this invention are provided with handles 25 which are shown in Figure 3 as formed of rods or wire bent in the form of trapezoids and of dimensions such that the hand may be passed therethrough conveniently. The adjoining ends of these bent rods are held in position by semi-cylindrical lugs 28 which are secured, as by spot welding, to the movable sides 25 in close proximity to their upper edges. By this construction, the handle can be applied in the lug on to the side in one operation. Thus when a group of cards is disposed within a tray and it is desired to remove the tray from a receptacle and carry it to a table or desk for examination of the respective cards, the tray may be carried conveniently from one point to another by the handles 25. Ribs 30 may be formed in the sides 25 to add strength to the construction.

Transversely, preferably, of the longer dimension of the portable tray, the base member is provided with positioning members in the form of rods or bars 31 engageable by the slots or cut-out portions in the bottom of the cards, as will be understood. These positioning members are conveniently formed of round rods or wires which may be spot welded, in parallel relation, to the lowest portions of the longitudinally extending rods or wires which serve to support the positioning bars in position and form a ladder-like structure. The spacing of the positioning bars of Figure 1 may be such that cards having slots of different spacings may be positioned by the same ladder-like positioning frame. Heretofore cards in which the slots were spaced from one another at intervals of one-half an inch (from center to center) were accommodated by spacing the bars one-half inch apart. Cards in which the slots were spaced from one another at intervals of an inch (from center to center) were accommodated by spacing the bars one inch apart (from center to center). In the ladder-like positioning device of this invention, the bars in one modification are spaced one inch apart from center to center thus accommodating cards with slots either spaced one-half inch where alternate slots only are engaged by a bar or one inch where every slot is engaged by a bar. Similarly, where the slots in the cards were spaced six-tenths of an inch apart, while for cards having slots of one and two-tenths inches, the bars were spaced one and two-tenths inches (from center to center). According to another modification, the ladder-like frame of this invention is comprised of bars spaced one and two-tenths inches apart which will accommodate cards with slots spaced six-tenths of an inch apart as well as cards with slots spaced one and two-tenths of an inch apart. These four are the most commonly required and by this invention only two sizes of ladder-like frames are required instead of four as would be the case if the prior art were followed. For convenience and cheapness of manufacture, the members of the ladder-like frame are shown as made of wire but it will be obvious that other structural shapes may be availed of, if desired. The bars 31 are supported from the under side of longitudinal frame members 32. To support these bars at the desired distance above the bottom of the portable tray so that the bottom edges of the cards may rest on the bottom of the tray and be merely positioned and not supported by the bars, the bars may be provided with lugs 33 spot welded thereto adjacent the respective ends of the bars which raise the bars above the specified distance above the bottom of the portable tray.

In the interest of convenience of manufacture and assembly, the bars or the ladder-like frame are not secured to the bottom of the tray as in the prior art but the ladder-like structure of Figure 5, separately formed as a unit, is insertable and removable in the portable trays. This affords not only ease of manufacture but permits replacement and substitution of the bars in a container to fit or accommodate itself to the particular disposition of slots in the cards which may be used in a particular tray. Thus, the ladder-like structure is insertable and removable from the container in the following manner: To position the bars properly in the bottom of the tray, the ends of the longitudinally extending wires 32 are bent outwardly, as at 35, and extended outwardly from the outermost bars so that there is some degree of movement permissible due to resiliency. The transverse dimension or spacing of the outer edges of these outwardly bent ends of the supporting bars are such as to snugly fit within the spaces defined by the side walls 14 of the tray and to permit these bars to be readily positioned in and held in place or removed from the bottom of the tray by flexing the wires 32. The hinges 22 which support the movable sides 23 from the side walls 15 of the base terminate a sufficient distance short of the ends 13 of the tray to permit this ladder-like member to be passed downwardly between the end of the hinges and the ends 16 to assume a position resting upon the bottom of the tray with the ends 35 yieldedly held against the sides 14, as shown in Figures 1, 3 and 4. It has heretofore been proposed to prevent the cards slipping on the surface, and thus being displaced, by applying a piece of fabric, such as canvas, on the surface on which the cards stand. Adhesive is required to secure the fabric in place and difficulty is experienced in the application of the fabric because it does not stretch. It is therefore proposed that the bottom of the trays on which the cards rest be provided with a wrinkle finish as by a thickened lacquer. In Patent No. 2,574,965, a table or the like is illustrated on which is mounted a rotatable cabinet adapted to contain a plurality of portable trays. Such a cabinet is illustrated in Figure 7 and is representative,
for the purpose of this application, either of the turn-table of the application or a drawer or any other receptacle for portable trays. The length, which is the transverse direction as viewed in Figure 7, is sufficient to receive the portable trays transversely and any number of such trays may be provided in the cabinet along its length although in Figure 7, in the interest of compactness of illustration, only two such trays are illustrated. The drawer or cabinet of Figure 7 is provided with end walls 39 which are fixed in position and a rear wall 41 similarly fixed in position while the front wall, not shown, may, as in the Patent No. 2,374,965, if desired although not necessarily, be pivoted to move downwardly out of the way to permit the portable trays 11 to be drawn outwardly in a horizontal direction and thus avoid the necessity of lifting them out of the box-like cabinet 31. It is provided at each end with an inclined inner surface 43 on the end walls 39 to permit the sides 14 of the portable trays and the cards 45 therein to be shifted from one inclined position through a vertical position to the opposite inclined position in order that they may be made of desired cards when in position in the cabinet.

Similarly, there is shown, midway between the ends of the cabinet what is termed a center piece or partition indicated generally at 47 having inclined walls against which the movable sides 28 of the portable trays 11 may rest to likewise facilitate the shifting of the cards while in the cabinet. Such a member 47 may be inserted anywhere in a cabinet to take the place of a tray that has been removed. In the illustrated embodiment, this intermediate wall member 47, not shown, with the inclined walls is a removable member and is also formed of wire. Conveniently each end of the removable member is formed of a continuous piece of wire consisting of a transverse bottom portion 49 from which the portions 51 are upwardly bent at right angles thereto and then angled at 30° as inclined portions 53 to unite in a reversely bent curved upper portion 55 as they gradually approach one another. The two curved portions of each end are united by a longitudinally extending wire 57. The bottom ends are united by wires 58 running longitudinally. Longitudinal wires 61 parallel thereto unite the ends of the vertical wire portions. Transverse wires 66 unite the respective longitudinal wires 61. All of these wires are conveniently spot welded together to form a rigid but removable frame which can be moved from place to place as desired in the cabinet or remain stationary at the center to support the movable sides 20 when the contents of a particular portable tray is to be examined.

It will be observed that the side walls 20 of the portable trays are capable of a movement through an angle of about 30° on each side of a vertical plane including the side walls 14 of the trays. This is made possible by the type of hinge connection illustrated and by the predetermined length and relation of the abutments or stops 44 on one side wall of the cabinet as well as on the other. Furthermore, by placing the hinged connection inwardly of the plane of the side walls, close positioning of the trays is possible, but adjacent trays are not required to afford support for the sides of one another.

To prevent a tray from tipping over and to guide the trays in and out of the cabinet, tracks 68 are provided. These take the form of angle irons extending transversely of the cabinet.

These tracks 68 are arranged back to back, Figure 7, on the bottom of the cabinet so that the trays are supported on the horizontal flanges thereof. The free edges of the vertical sides of the angles terminate short of or substantially in the same horizontal plane as the upper edges of the sides 14 of the trays and intermediate the upper and lower edges of these angles the edges are pressed outwardly to form elongated recesses 68 which are engaged by ribs 70 on the adjacent tray sides 14. Each tray can be readily pulled out of the cabinet without obstruction offered by adjacent trays. In Figure 8, the tracks extend, as illustrated, forwardly to what may be considered the front or open side of the cabinet and the upper edges 72 of these tracks are substantially horizontal for the rear half thereof. From the midpoint toward the front, as at 74, the tracks decrease progressively in height to the front edge to facilitate the entrance and removal of the portable tray.

The purpose and operation of the several features of the invention have been described in conjunction with the description of the several parts and no further description of the operation of the device is deemed necessary. Suffice it to say that card index cabinets have been provided which are readily manufactured in a simple fashion to meet every requirement of business and in which many mechanical changes may be made without the use of tools.

Various modifications will occur to those skilled in the art in the composition, configuration and disposition of the component elements going to make up the invention as herein described in the selection and combination of particular features to satisfy specific situations and no limitation is intended by the phraseology of the foregoing description or illustrations in the accompanying drawings except as indicated in the appended claims.

What is claimed is:

1. In a receptacle for card indexing devices comprising a container, positioning means for(2,5),(995,995)