Dec. 31, 1935. E. G. LAYER 2,026,503

CARD INDEX DEVICE

Filed Feb. 24, 1934

Fig. 2.

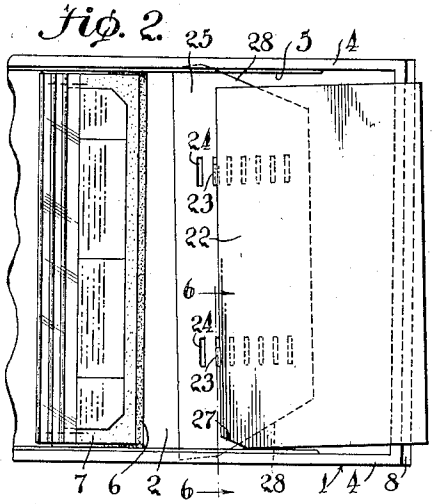


Fig. 1.

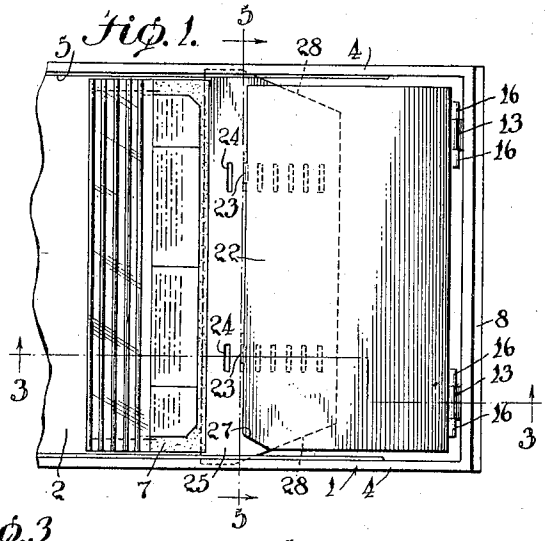


Fig. 3.

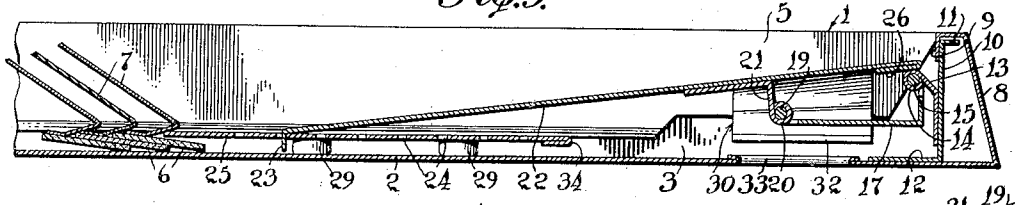


Fig. 4.

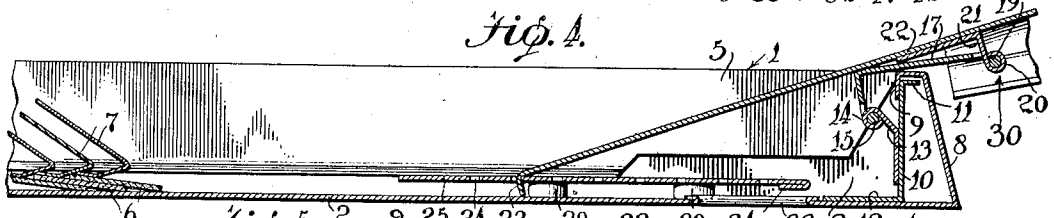
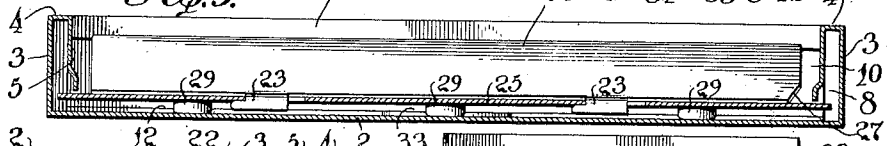


Fig. 5.



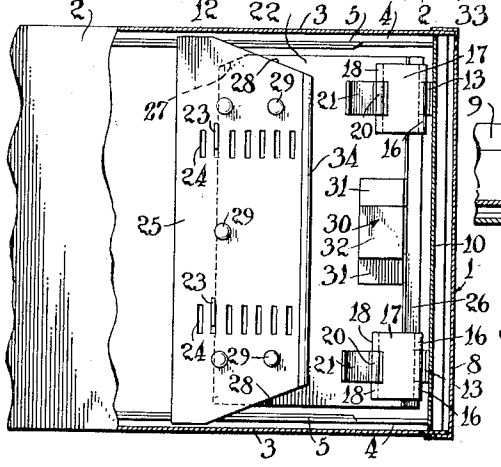


Fig. 6.

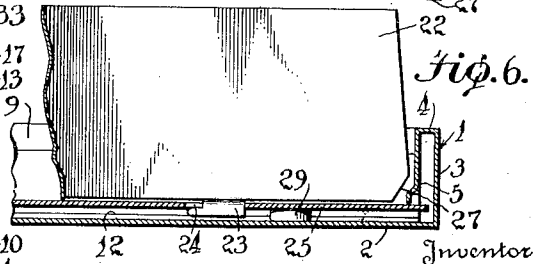


Fig. 7.

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Patented Dec. 31, 1935 2,026,503

# UNITED STATES PATENT OFFICE

2,026,503

## CARD INDEX DEVICE

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Application February 24, 1934, Serial No. 712,759

6 Claims. (Cl. 129—16)

This invention relates to improvements in visible card indexes and particularly to a follower or bottom stop construction for visible card index trays.

Visible card index trays are usually elongated shallow drawer-like constructions formed of sheet metal having channels along opposite sides to receive the ends of flexible supporting strips on card holders that extend transversely of the tray, in which each strip carries a record card or holder portion. These card holders or cards may be individually detachable from the tray by flexing the supporting strip to shorten the distance between the ends to less than the distance between the sides of the tray, and are insertable by reversing this operation. In a conventional form of card holder construction, these strips and the card holder portions are so arranged that the rear edge of one supporting strip engages between the supporting strip and card holder portion of the next adjacent card holder structure in internested relation, so that the card holders cooperate to form a series extending from the front to the rear of the tray in offset overlapping relation with the free margin of each card or holder portion provided with a uniformly visible margin.

The present invention is provided for use in connection with card holders arranged as above described and provides a follower for engaging the end card holder of a series in the tray together with operating means for moving the follower into engagement with the end card holder so that it will move all of the card holders into adjacent contacting or internested relation and normally retain the card holders in this relation against sliding movement in the tray or detachment therefrom.

When it is desired to remove any one of the card holders or to interchange one with another, the operating means for the follower may be actuated to retract the follower from engagement with the end card holder and provide for longitudinal movement of the card holders in the tray relative to each other so that any one or more card holders may be removed and replaced or rearranged as desired.

The invention provides a follower or bottom stop construction for the record members or card holders in a visible index tray having a follower for engaging the end record member or card holder of a series, and a pair of pivotally connected members having the free end of one member suitably connected to the follower, and the free end of the other member suitably connected to the tray, to provide for the relative pivotal movement of the members on each other, so that the members may be pivoted relative to each other in one direction to fold them together for retracting the follower from engagement with an end record member of the series in the tray, while movement in the opposite direction will project the follower into engagement with the end record member, the movement of the pivoted members being limited when they are moved in the direction to engage the follower with the end record member of the series, in such a way that they will lock the follower against movement and retain the record members in assembled relation.

The invention comprehends the provision of a follower plate slidable in the channels of a visible card index tray, and an operating plate detachably and adjustably connected to the follower plate for relative pivotal movement, the operating plate being provided with pivoted link connections to the tray so that the operating plate may be moved about its hinged link connections with the tray toward the bottom of the tray for moving the follower into engagement with the end record member of a series to hold them in compressed relation, the pivotal connection between the links and the operating plate being arranged to pass the line or plane of the pivotal connections of the operating plate with the follower and the links with the tray, to provide a means for locking the follower in record member retaining position. This construction also provides a follower that is operatively mounted and housed entirely within the tray in record member retaining position including adjusting and locking means, and is also readily operated into a position to release the record members for adjustment or removal from the tray.

In the drawing:

Fig. 1 shows a plan view of one end portion of a card index tray with the record members moved about their hinge connections to a substantially upward and rearwardly extending position in the tray, so as to show the follower construction of this invention in plan view in the tray with the parts in operative position to hold the follower in engagement with the end record member of the series.

Fig. 2 is a view similar to Fig. 1 showing the follower in partially retracted position and inclined at an angle in the tray, illustrating the method of detaching the operating plate from the follower in adjusting the connection between the follower and operating plate.

Fig. 3 is an enlarged vertical longitudinal sec-

tion through the tray and follower construction taken on line 3—3 of Fig. 1.

Fig. 4 is a view similar to Figure 3 showing the follower plate and operating plate in the retracted position relative to the card holder.

Fig. 5 is an enlarged vertical cross section taken on line 5—5 of Fig. 1.

Fig. 6 is an enlarged vertical cross section taken on line 6—6 of Fig. 2.

Fig. 7 is a bottom view of the tray with the bottom of the tray broken away illustrating the follower plate, operating plate and other details of construction in elevation.

A visible card index tray indicated generally at 1 is formed of sheet metal having a bottom 2, upwardly extending side walls 3 terminating in inturned portions 4 at the upper edges and formed at the inner edges of said inturned portions with depending flanges 5, the lower edges of which are spaced from the bottom to provide channels extending longitudinally along the side edges of the tray for receiving the ends of supporting strips 6 forming part of card holders 7 having hingeable connections adjacent strips 6 in the manner clearly shown in Figs. 3 and 4 of the drawing.

These card holders with their supporting strips may be arranged in the internested relation shown in Figs. 3 and 4 by having the edge of the supporting strip on one card holder and its record holding portion interfitting and internested between the supporting strip and record-holding portion of an adjacent card holder. In this position of the card holders they are arranged in offset overlapping relation so that a free marginal portion of the card holder opposite to that attached to the strip 6 will be visible beyond an overlying card holder in a well known manner for visible indexing purposes.

A front wall 8 is formed by bending the sheet metal plate at the front end of the bottom 2 upwardly and, at the upper end, the front wall is provided with an inwardly and downwardly extending portion indicated at 9. An inner front wall member 10 extends between downwardly extending portion 9 and the front 8 of the tray as shown in Figs. 3 and 4 and has offset flange portions 11 and 12 at the upper and lower ends respectively, the portion 12 being suitably secured by spot welding or the like to bottom 2, while flange 11 cooperates in reinforcing the upper front construction on the tray, the wall 10 being suitably secured to downwardly extending portion 9.

Hinge members 13 are secured to wall portion 10 in the manner shown in Figs. 1, 3 and 4, a pair of said hinge members being used and located in opposite side portions of the tray. These hinge members have cylindrical portions 14 that receive hinge pins 15 engaged in cylindrical portions 16 of link members 17. The link members 17 form part of the follower operating mechanism and are constructed to provide a pair of cylindrical portions 16 to engage hinge pins 15 at opposite ends of cylindrical portions 14 as clearly shown in Figs. 1 and 7. The opposite ends of links 17 are provided with pairs of aligned cylindrical hinge portions 18 to receive hinge pins 19 extending through the cylindrical portions 20 of hinge members 21 secured to an intermediate portion of operating plate 22.

The rear end of operating plate 22 is provided with a pair of L-shaped lugs 23 arranged in spaced relation on the edge thereof for detachable interlocking engagement with corresponding pairs of slots 24 in follower plate 25. Operating plate 22 and follower plate 25 are each formed of sheet metal as shown in the drawing, plate 22 having the forward edge portion provided with a flange portion folded against the underside of the plate as shown in Fig. 3 at 26 to provide a rounded or beaded front edge, and the lower rear corner portion as shown in Fig. 1 is cut off to provide an angular edge portion 27 for a purpose that will be presently described.

The follower plate has two rows of openings 24 as shown in Figs. 1 and 2 arranged transversely in aligned relation to receive lugs 23 in the manner illustrated, so that the follower plate may be connected to operating plate 22 in any adjusted position provided for by slots 24. Follower plate 25 is provided with angular front corner portions as indicated at 28 while the rear corner portions engage in the channels formed in the sides of the tray under the lower edges of flanges 5 for slidably retaining the follower plate connected with the tray. The inclined corner portions 28 provide for the twisting of the follower plate in the tray as shown in Fig. 2, as well as further twisting of the follower plate in the tray, so that it may be removed or replaced with the ends engaged under flanges 5. Follower plate 25 is supported in spaced parallel relation above bottom 2 as shown in Fig. 5 by means of bosses 29 formed by offsetting portions of the sheet metal from the body of the follower plate. This provides the necessary space between follower plate 25 and bottom 2 to accommodate L-shaped lugs 23.

The underside of operating plate 22 between hinge members 21 as shown in Fig. 7 is provided with a handle member 30 having the end portions 31 secured by welding or the like, to the under face of operating plate 22 and the central portion offset below the operating plate in spaced parallel relation to provide a handle portion 32. When follower plate 22 is in the position shown in Fig. 3, housed within the tray, handle portion 32 is aligned with an enlarged finger receiving opening 33 as shown in Figs. 3 and 4.

The forward edge of follower 25 is folded rearwardly as shown at 34 under the follower plate to provide a rounded front edge.

With the follower constructed as above described a readily adjustable and operable construction is provided which will engage and hold the card holders 7 in internested position in the manner clearly shown in Fig. 3. In this position of the parts operating plate 22 is housed within the front end of the tray with the forward folded edge 26 seated on hinge members 13 limiting the downward movement of operating member 22 into the tray and also limiting the hinging movement of operating plate 22 and links 17 relative to each other. Operating plate 22 and links 17 form what may be termed for the purpose of the claims, hingedly connected operating mechanism for the follower in which these hingedly connected members are in turn hingedly connected at their opposite ends to the tray and the follower and thereby form a toggle operating mechanism for the follower. The construction of operating plate 22 limits the relative pivotal movement of the members in one direction so that the links 17 and operating member 22 will be limited to stop in the position shown in Fig. 3 where the members forming the toggle mechanism are in the extended position to hold the follower plate 25 in engagement with card holder 7 so that they are held against shifting in the tray.

When it is desired to release the card holders for manipulation in the tray, follower 25 is retracted from the end card holder of the series to a position as shown in Fig. 4 by the operator sticking a finger through opening 33 to engage handle 32 and raise operating plate 22 upwardly in the tray. This will move the links 17 and operating member 22 about their pivotal connection on pins 19 and also on the pivotal connection on pins 15. As soon as the forward edge of operating plate 22 having the folded portion 26 is elevated above the upper edge of the tray 1, it may then be grasped and pulled forwardly to fold links 17 underneath operating plate 22 to retract follower 25 from the end card holder to the position shown in Fig. 4. By reversing this operation of links 17 and operating plate 22 it will be seen that the follower 25 may be moved into engagement with the end card holder of the series in the tray for retaining these members as shown in Fig. 3.

With the follower 25 and operating plate 22 in the position shown in Fig. 3, links 17 have their pivotal connections with operating plate 22 on pins 19 so arranged that the pivot on pins 19 lies below a plane common to pins 15 and the connection of lugs 23 with follower 25. This forms an efficient means for locking operating plate 22 and follower 25 in extended relation as the operating plate engaging hinge members 13 limits movement of the operating plate and links 17 in one direction with the pivotal connection of the links with the plate moved past the plane of the other pivots as above stated.

When it is desired to adjust the connection between operating plate 22 and follower 25, a simple manipulation will secure the connection and disconnection of operating plate 22 from the follower. This is accomplished by raising operating plate 22 upwardly about its pivot until links 17 are in a substantially vertical position which is illustrated in plan view in Fig. 2. Then by pressing on the upper right-hand corner of operating plate 22 as shown in Fig. 2, while holding the left-hand end of the follower, a twisting of the operating plate in the tray is obtained, together with the twisting of the follower, into an inclined position together with a twisting or relative movement of the pair of links 17 to each other through their inherent resiliency. This produces a movement of the L-shaped lugs 23 in slots 24 from the position shown in Fig. 5 where they are locked in connection with plate 25 by engaging under the plate to the left of slots 24, to the position shown in Fig. 6 and the pressing action on operating plate 22 has the effect of elevating the rear end of the plate so that as soon as the L-shaped lugs 23 disengage from under plate 25 at the left-hand side of slots 24, the rear end of the plate will spring upwardly and become detached from follower 25.

When the operating plate is then adjusted to the desired slots 24 with which lugs 23 are to be engaged for the adjusted position between operating plate 22 and follower 25, operating plate 22 is manually operated by pressing on the rear edge when it is aligned with openings or slots 24, at the same time pressing on the upper right-hand corner of operating plate 22 as illustrated in Fig. 2 whereupon the parts are moved laterally in the tray toward the lower edge as shown in Fig. 2 as well as twisted slightly and lugs 23 thereby become aligned with the selected slots 24 and drop through the slots into the position of Fig. 6. Upon release of pressure on the upper right-hand corner of operating plate 22, the parts spring back into their normal position parallel with the tray and the ends of L-shaped lugs 23 engage under follower plate 25 at one side of slots 24 as shown in Fig. 5. The beveled edge 27 on operating plate 22 as well as the beveled corners 28 on follower 25 provide for this twisting of the operating plate and follower 25 in the tray into the position shown in Fig. 2 so that the lugs may be disengaged or engaged with selected slots 24 in the follower. The lugs 23 are thus resiliently held in interlocked relation in slots 24 in the follower.

It is to be understood that reference to index cards or card holders in the claims is intended to refer to all of the various types of cards and holders commonly used in visible index trays that this bottom stop may be used with to obtain the results that it is capable of producing. It is to be further understood that the details of construction and arrangement of the parts for this bottom stop construction may be varied to some extent without departing from the scope of the claims.

What is claimed is:

1. In a card index tray adapted to support a series of cards on card holders in offset overlapping relation for relative longitudinal sliding movement in said tray, the combination of a follower slidable longitudinally in said tray to engage an end holder of said series so as to compress and maintain said holders in adjacent engaged relation against longitudinal sliding movement, and operating means for said follower having a pair of pivotally connected members, the free end of one of said members being operatively connected to said follower and the free end of the other of said members being pivotally connected to said tray, means limiting relative pivotal movement of said members in one direction with said pivotal connection therebetween at one side of the plane of the connections of the ends of said members with the tray and follower, and said members being movable on their pivotal connection in the opposite direction to the other side of said plane for folding said members together and retracting said follower from engagement with said end holder and thereby releasing said card holders for relative longitudinal movement in the tray and the removal thereof from the tray.

2. In a card index tray adapted to support a series of cards on card holders in offset overlapping relation for relative longitudinal sliding movement in said tray, the combination of a follower plate slidable longitudinally in said tray to engage an end holder of said series so as to compress and maintain said holders in adjacent engaged relation against longitudinal sliding movement, and toggle lever operating means pivotally connected to said tray and follower operable to move and retain said follower in position to compress and maintain said card holders in said adjacent engaged relation in one position of said toggle lever means, said toggle lever means being operable to retract said follower from said card holders whereby said card holders may be moved longitudinally in the tray and removed and replaced in said tray.

3. In a card index tray adapted to support a series of card holders in offset overlapping relation for relative longitudinal sliding movement in said tray, the combination of a follower plate slidable longitudinally in said tray to engage an

end holder of said series, an operating plate having one marginal portion hingedly connected to said follower, and link means hingedly connected to an intermediate portion of said operating plate and hingedly connected to said tray, the free end of said operating plate engaging said link means for limiting pivotal movement between the link means and operating plate in one direction for retaining said operating plate and link means in extended relation with said follower in engagement with an end holder of said series so as to compress and maintain said holders in adjacent engaged relation against longitudinal sliding movement in the tray, said operating plate and link means being movable on their pivotal connections to retract said follower from the end holder of said series for releasing said holders for manipulation in said tray.

4. In a card index tray having inwardly opening longitudinal channels at the side edges thereof adapted to support a series of card holders in offset overlapping relation for relative longitudinal sliding movement in said tray with end portions engaged in said channels, the combination of a follower plate having end portions slidably engaged in said channels for longitudinal sliding movement in said tray to engage an end holder of said series, an operating plate, inter-engaging parts on a marginal portion of said operating plate and said follower plate detachably connecting said operating plate to said follower plate for relative pivotal movement, links pivotally connected at one end to said tray and at the opposite end to an intermediate portion of said operating plate, said operating plate having the edge portion opposite to said marginal portion adapted to limit pivotal movement of said operating plate and links relative to each other in one direction with the links and operating plate in extended relation with each other for retaining said follower plate engaged with an end holder of said series so as to compress and maintain said holders in adjacent engaged relation against longitudinal sliding movement, said operating plate being movable to fold said links on their pivotal connections under said plate to retract said follower plate from said end holders whereby said holders are released for manipulation in said tray.

5. In a card index tray having longitudinally extending inwardly directed channels at the sides thereof adapted to receive end portions on a series of card holders to support said card holders in offset overlapping relation for relative longitudinal sliding movement, the combination of a follower plate having a rear edge portion adapted to engage an end holder of said series, and rear end portions engaged in said channels for slidably mounting said follower plate in said tray, the forward ends of said follower plate being formed to provide angular edge portions adapted to provide for relative twisting of the follower plate in said tray for removal and insertion in the channels in the tray, said follower plate having a series of slots and means for supporting said plate for sliding movement in spaced parallel relation above the bottom of said tray, said tray having a front wall, a pair of links pivotally connected at one end to said front wall, an operating plate having the central portion pivotally connected to the opposite end of said links, said operating plate having laterally extending L-shaped lugs on the rear edge thereof resiliently engaged in interlocked relation with selected openings in said follower plate, and a handle on the underside of said operating plate adapted for manual engagement and manipulation through an opening in the bottom of said tray, whereby said operating plate may be moved into the tray toward the bottom thereof on the pivotal connections with said links so that said operating plate and links will lie in an extended position in said tray and push said follower plate into engagement with an end holder of said series so as to compress and maintain said holders in adjacent engaged relation against longitudinal sliding movement in the tray, the pivot between said links and operating plate moving below the plane of the pivots of said links with said tray and the connection of said operating plate with said follower plate whereby the follower plate is locked in position, said operating plate being movable out of said tray by operating said handle through the opening in the bottom of the tray to raise the plate upwardly, said plate being subsequently manually operable to fold said plate on said link connections in movement forwardly in the tray to retract said follower plate from engagement with said card holders.

6. In a card index tray adapted to support a series of card holders in offset overlapping relation for relative longitudinal sliding movement in said tray, the combination of a plate member having means to engage an end card holder of said series, and link means pivotally connected at one end to the under surface of said plate member, and hinge means inside the front of said tray pivotally mounting the other end of said link means, said plate member having an end portion adapted to engage said hinge means in one position to limit relative movement of said plate member and link means in one direction and to retain the means on said plate member engaged with an end card holder, said plate member being retracted from said end card holder when moved on said link means away from said hinge means.

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