May 14, 1957 H. L. NEILSEN 2,791,848

LIST FINDERS

Filed May 25, 1955 2 Sheets-Sheet 1

Fig. 1.

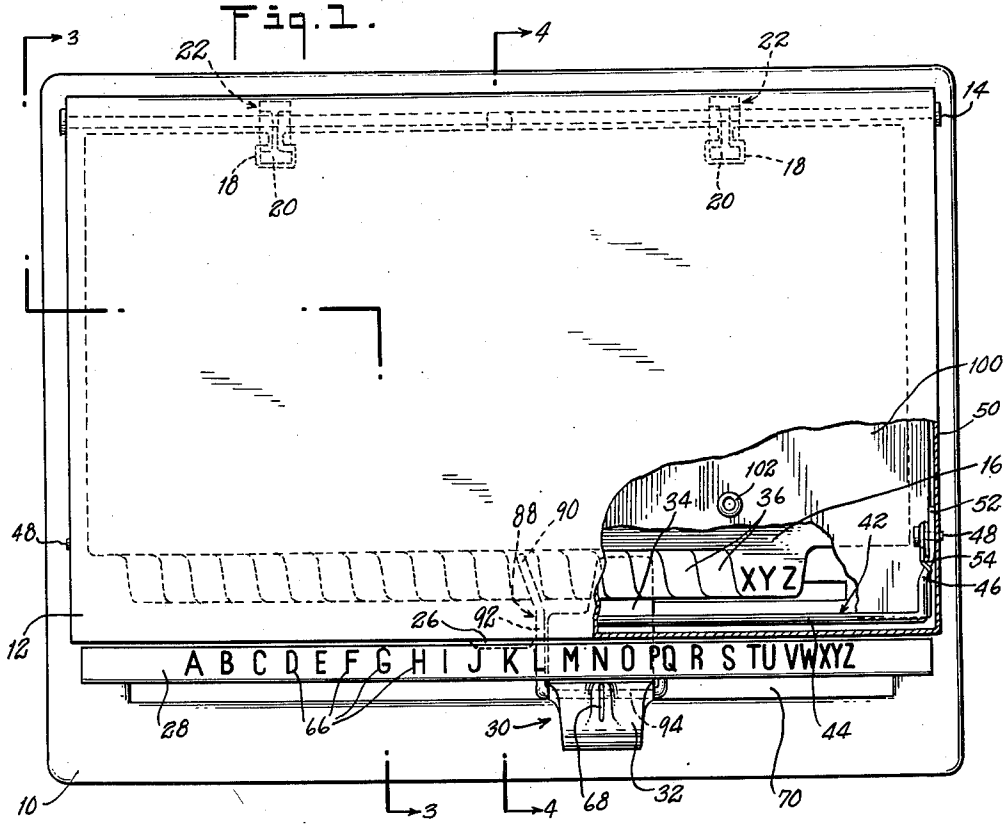


Fig. 2.

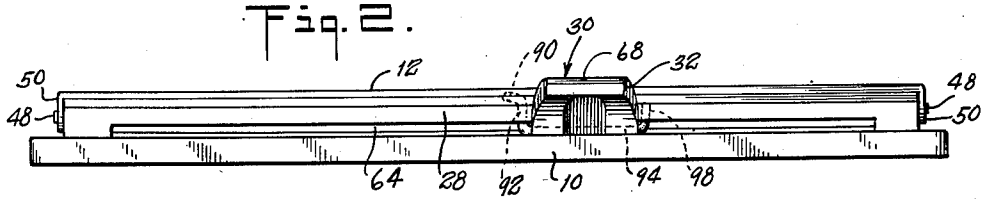
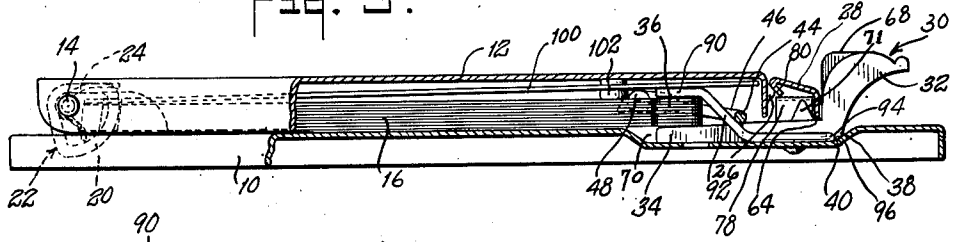


Fig. 3.



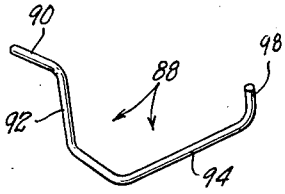


Fig. 9.

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LIST FINDERS

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Fig. 4.

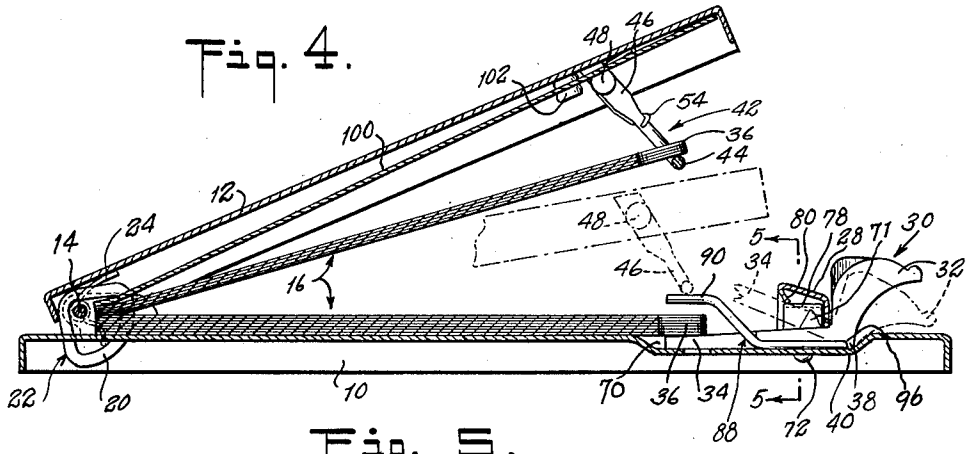


Fig. 5.

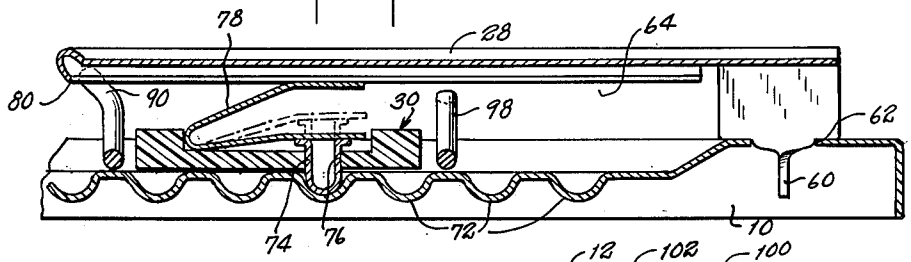


Fig. 8.

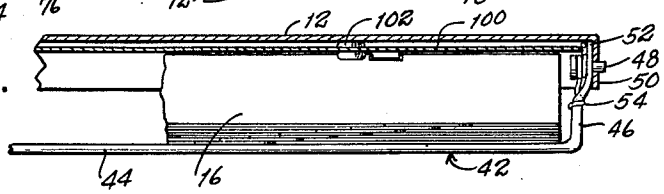


Fig. 6.

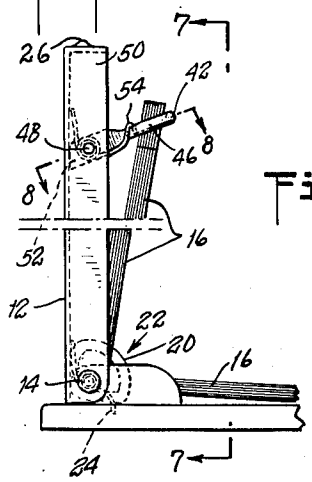
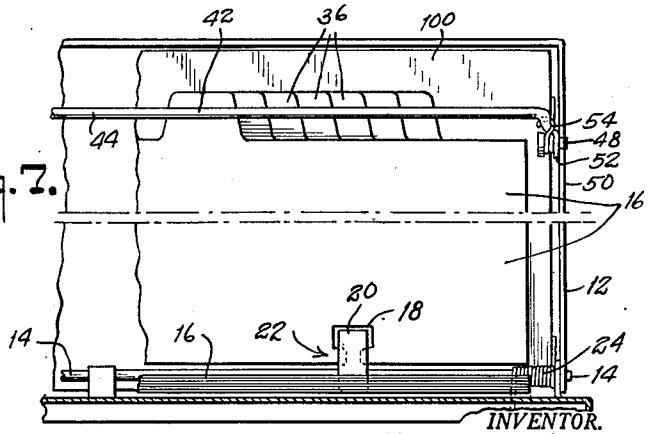


Fig. 7.



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LIST FINDERS

Hildaur L. Neilsen, Metuchen, N. J.

Application May 25, 1955, Serial No. 511,029

4 Claims. (Cl. 40—104)

This invention relates to devices which have become commonly known as "list finders" which are in the nature of an assembled stack of usually alphabetically arranged cards carrying thereon data such as, for example, frequently used telephone numbers to which the user may wish to refer, and include manually operable mechanical means enabling the user to open to view any selected one of said cards. The improvement of this invention relates, more particularly, to said mechanical means and constitutes an improvement in certain respects over the list finder disclosed in copending application of Hildaur L. Neilsen and Arnold Neustadter, Serial No. 508,066, filed May 13, 1955.

The device disclosed in said copending application is provided with a single card-lifting lever in the base of the device, which lever is slidable to a position underlying a tab of a selected one of plural, tabbed cards and then is manually operable as a lever to partially lift the selected, tabbed card to permit a bail, associated with a cover of the device, to move into place underneath the tab of the selected card so that, when the cover moves upwardly to fully open position, the selected card and any other card or cards between it and the cover will be carried up with the cover, thereby opening a selected card to the user's view. Sometimes, particularly if a card or cards have been bent when data have been typed thereon, or if, for some other reason, the tabs of the cards have become deformed or bent, the bail may move into place underneath a card other than the one selected and thus cause imperfect operation of the device.

The principal object of the present invention, therefore, is to provide means associated with said card-lifting lever which will positively hold down a card or cards adjacent to the selected card and guide the bail unerringly to its position underneath the tab of the selected card while said lever partially lifts the latter and also while the selected card and any other card or cards between it and the cover move with the latter to open position.

The foregoing and other objects and the means by which they are achieved are set forth in the following specification and accompanying drawings wherein a single illustrative embodiment of this invention is disclosed without, however, limiting the invention to that particular embodiment.

In the drawings:

Figure 1 is a top plan view of an improved list finder, according to a preferred embodiment of this invention, in its closed condition and partly broken away to show details.

Fig. 2 is a front elevational view of said list finder.

Fig. 3 is a somewhat enlarged front-to-rear, vertical sectional view, substantially on the irregular line 3—3 of Fig. 1.

Fig. 4 is a similarly enlarged front-to-rear, vertical sectional view, substantially on the line 4—4 of Fig. 1, the device, however, being shown in a partially opened condition.

Fig. 5 is a greatly enlarged, fragmentary, vertical, cross-sectional view, substantially on the line 5—5 of Fig. 4.

Fig. 6 is a fragmentary, side elevational view of the back part of the device in its opened condition.

Fig. 7 is a fragmentary, vertical, cross-sectional view, substantially on the line 7—7 of Fig. 6.

Fig. 8 is a fragmentary, detail sectional view, substantially on the line 8—8 of Fig. 6.

Fig. 9 is a perspective view of a hold-down element employed to positively hold down all cards in the device which are not to be lifted when the device is opened.

The illustrated list finder comprises a base 10, a cover 12, a cross-rod 14 by means of which the base and cover are pivotally interconnected, plural data cards 16, formed with slots 18 by which said cards are pivotally and removably mounted between the base and cover on peripheral beads 20 on modified disks 22, each disk having an aperture therein through which rod 14 extends to hold said disks in place.

Torque springs 24, at opposite sides of the device, encircle rod 14 and the ends of said springs coact with the base and cover, in a well understood manner, to continuously urge the latter toward its open position shown in Fig. 6; and frictional engagement of a pressed-out bump 26, on the front of the cover, with a slightly yieldable cross-member 28 (Fig. 3) serves to hold the cover releasably closed against the force of torque springs 24. It should be understood that, except as otherwise indicated, the parts of this device may advantageously be stamped and formed from sheet metal.

Means for opening the device to any selected card comprise a crosswisely slidable lever or key 30, carried by the base 10 and having an elevated operating portion 32 at its front end and a lifting portion 34 at its rear end normally disposed at a lower level than lifting or selector tabs 36 formed integrally in different positions on the front edges of the plural cards 16, these tabs being arranged in a series extending parallel to the line of sliding movement of the lever 30 and so positioned on their respective cards that, when such a tab of one card is raised, only that card and those superimposed upon it will be lifted.

At this point it should be noted that, when operating portion 32 of lever 30 is pressed down to its broken-line position of Fig. 4, an intermediate heel portion 38 of said lever pivots upon an underlying metal portion 40 of the base which serves as a fulcrum, thereby causing lifting portion 34 of the lever to partially lift the tab 36 then overlying it and raise that tab's related card and all overlying cards and the cover, but only to the extent of the pivotal rise of said lifting portion 34.

The means for selectively opening the device also include a card-holding member in the form of a stiff wire bail 42 which comprises a card-holding cross-portion 44 having similar, integral, side arms 46 at opposite ends extending substantially in right-angular relationship to the portion 44, said side arms being pivotally connected near their free ends by studs 48 to depending side walls 50 of cover 12.

The free ends of the side arms 46 are oblique-angularly formed, as indicated at 52 in Fig. 6, and this angular formation coacts with the flat top portion of cover 12 to limit clockwise pivoting of the bail to its card-holding position as shown in said figure, and a torque spring 54 encircling stud 48 is arranged so that its ends coact with side arm 46 and with the cover to continuously urge said bail yieldably toward its said card-holding position.

The cross-member 28 is fixed upon the base 10 in such manner that it may yield slightly in a forward direction when bump 26 engages it as the cover 12 is moved to and from its closed position. To this end, the member

28 is formed with two depending tongues 60 at each of its ends (only one being shown in Fig. 5), which tongues extend through transverse slots 62 formed in the base 10 and are twisted about 90° more or less so that said tongues cannot be withdrawn from said slots while the cross-member is resiliently yieldable to said engagement by the bump 26.

As may be seen in Figs. 3 and 4, the cross-member 28, except at its ends, is spaced from the base 10 sufficiently to accommodate slidably therebetween an intermediate portion of the key or lever 30 and, as shown in Fig. 2 and by comparison with Fig. 1, this space, marked 64, extends substantially across the device to enable the key 30 to be manually slid transversely so that its lifting portion 34 may underlie any selected one of the tabs 36 of the several cards. Indicia 66, which are shown as letters of the alphabet, are printed upon the top of cross-member 28 in such positions thereon and the tabs 36 on the cards are so located that, when a pointer 68 on the key 30 points to any particular letter, the lifting portion 34 of the key will underlie the tab of that card which must be lifted to open the device to the card reserved for listings under said particular letter.

It may be observed from Figs. 3 and 4 that the base 10 is formed with a broad, transverse depression 70 to accommodate lifting portion 34 and intermediate portion 36 of the key 30, and the shapes of this depression and of said key and the width of space 64 are such that the key cannot accidentally become dislodged from said depression. One or more beads 71 formed integrally on the top of the intermediate portion of the lever 30 also prevent such accidental dislodgment of said lever.

The key or lever 30 may advantageously be formed of relatively hard plastic material, and has means associated therewith assuring that it will stay in any card-selecting position to which it is slid. For this purpose, the base 10, at the depression 70, is formed with a transversely extending series of dimples 72, as best seen in Fig. 5, one dimple for each card-selecting position to which the lever 30 may be slid, and said lever is provided with a follower-button 74 having a shank portion extending downwardly through an aperture 76 in lever 30, the bottom of said shank portion being rounded so that it will fit loosely into dimples 72 wherein the button is positively but yieldably seated by a bent, two-arm leaf-spring 78, the upper and lower arms of which, respectively, bear upwardly against the lower edge of a depending, longitudinal flange 80 of the cross-member 28 and downwardly against a cap portion of the button 74.

The curvatures of the dimples 72 and the lower end of the button 74 are such that manual sliding of the lever 30 may easily be accomplished, the button 74, meanwhile, rising and falling in its movement between successive dimples; yet the force of the spring 78 is sufficient to prevent the lever 30 from accidentally moving from one to another of its selecting positions.

The parts hereinbefore described may be found in the structure disclosed in said copending application Serial No. 508,066, and the parts now to be described give rise to novel and advantageous combinations constituting the invention of the present application.

The present invention includes means for positively holding down, upon the base 10, all cards not intended to be lifted by the person opening the device. For this purpose, there is provided a hold-down element 88 which, as illustrated, comprises a piece of wire which is stiff enough to function in the manner hereinafter described. The wire is bent to form, at one end, an elevated finger-tip 90 adapted to overlie the tab of the card which is to be held down with those beneath it, an inclined portion 92, a straight mounting portion 94 adapted to seat with an accurate, but free, fit within a transverse groove 96 formed in the underside of heel portion 38 of lever 30, and a bent-up end portion 98 serving primarily to prevent leftward movement of the element 88 relatively to lever 30 as viewed in Fig. 2.

It will readily be perceived that, as the groove 96 is substantially closed by the underlying portion 40 of the device's base, the element 88 is held in pivotal association with lever 30; also, that the element 88 always remains associated with said lever irrespective of sidewise sliding of the latter. It should also be apparent that, although the lever 30 is pivoted by the operator to partially lift a selected card or cards, the finger-tip and inclined portions 90 and 92 of the hold-down element do not pivot upwardly because of the pivotal interconnection between said lever and hold-down element and for other reasons hereinafter made clear.

The device, preferably, includes an extra, non-tabbed card 100, which is provided with slots similar to slots 18 of the tabbed cards, and, by means of said slots, card 100 is attached to disks 22 immediately adjacent to the underside of cover 12 and overlying all the tabbed cards.

A distance-piece which, conveniently, may be in the form of an eyelet 102, is preferably fixed upon or through card 100 somewhat toward the front edge thereof and toward said card's right side, as shown in Fig. 1. This distance-piece serves, when the device is closed as in Fig. 3, to space the cards 16 from the cover 12 sufficiently that the tabs of all the cards are at a lower level than the finger-tip 90 of the hold-down element. Thus, when the latter element is slid sidewisely (the device being closed), the finger-tip 90 will be certain to pass freely over the tabs 36 along its path of sidewise movement.

The eyelet 102 is illustrated as disposed toward the right side of card 100 because, as illustrated, the tabs of the uppermost cards 16—those most necessary to be held down—are toward the right side of the device. Obviously, the tabs 36 could be arranged oppositely, in which condition the eyelet 102 would preferably be disposed toward the left side of card 100.

The device is very easily operated. Let it be assumed that the device is closed and that pointer 68 of lever 30 points to letter "A" because of the device having been opened to that letter in its previous usage. The user now desires to open it to letter "N" and, therefore, slides lever 30 sidewisely until pointer 68 points to "N," after which he presses operating portion 32 downwardly, causing lifting portion 34 of said lever to pivot upwardly. During the described sliding movement, the finger-tip 90 moves at a higher level than the tabs 36, this being assured by the eyelet 102 as already explained.

The upward pivoting of portion 34 of the lever coacts with the tab of the card which overlies "N" entries to partially lift that card and all overlying cards and the cover and to free the latter from its frictional or latching engagement with cross-member 28. During this partial lifting of certain cards, the finger-tip 90 overlies card "N" and holds that card and underlying cards down upon the base. Said finger-tip thus functions partly because of its weight but more because of the fact that said finger is held down by cross-portion 44 of the bail which then is pressing downwardly upon portion 92 of element 88. Also, during this partial or initial rising of the cover, the bail 42, in response to its spring 54, commences to move automatically upwardly and inwardly upon inclined portion 92 of the wire element 88 from its non-card-holding position to its card-holding position.

By the time the cross-portion 44 of the bail reaches the forward edges of the tabs 36, the mentioned partial lifting of certain cards has taken place, so that, as the bail completes its movement to its card-lifting position, it moves into place beneath the tabs of the cards to be lifted and above those not to be lifted. As the bail, during this movement, rides atop the inclined portion 92 and as finger-tip 90 overlies card "N," it should be clear that the bail could not possibly move underneath the "N" card or under any card underlying that card. Also, as the lever 30, during said movement of the bail, positively

holds the card above card "N" substantially spaced from the latter card, the device inevitably opens to expose the selected card. Remembering that spring **24** continuously urges the cover toward its fully open position, it will be seen that the unlatching of the cover by the described operation of lever **30** enables the cover to rise to fully open position, with the cards to be lifted, to open the device to the letter "N." The same mode of operation occurs when the lever **30** is slid sidewisely to or from any letter of the alphabet and operated as described.

To close the device, the user merely pushes the cover down to its latched or closed position. As the cover approaches its latched position, the cross-portion **44** of the bail rides downwardly upon inclined portion **92** and is forced thereby from its card-holding position to its non-card-holding position in readiness for further similar operation as described.

It should be clear from the foregoing, that the hold-down element **88**, working with other parts of the device in the manner described, serves as very effective means assuring that the device will always open in accordance with the selection made by the user in sliding the lever **30** to a selected letter of the alphabet; also, that the eyelet **102** or equivalent means, employed as described, aids in achieving satisfactory operation of the device. Thus, the invention's objects are achieved by simple and inexpensive means.

It is reiterated that the disclosed embodiment is illustrative and that the inventive concept may be employed in various other structural arrangements without departing from the invention as set forth in the following claims.

I claim:

1. A list finder comprising a base, a cover pivotally movable relatively to said base, a stack of cards, between said base and cover, having separate, serially and marginally arranged tabs, an operating lever slidably associated with said base for sliding movement parallel to the serial disposition of said tabs, said lever having an operating portion and a card-lifting portion adapted to underlie the tab of any selected one of said cards to which said lever may be slid and to partially pivot said selected card with any overlying cards and the cover away from said base, card-holding means associated with said cover, movable automatically into holding engagement with said selected card's tab only subsequent to the selected card's said partial pivotal movement and adapted to constrain said card to pivot further with any cards overlying it and with said cover to a fully open position in which said card is substantially separated from an adjacent non-lifted card in the stack, and hold-down means, slidable with said operating lever, and adapted to overlie the tab of the card immediately underlying the selected card to hold down said underlying card and any card or cards beneath it.

2. A list finder according to claim 1, said hold-down means comprising a wire finger, pivotally associated with said operating lever adjacent the latter's fulcrum point, and extending rearwardly with its free end overlying the tab of one of said cards which immediately underlies the card selected for lifting by said operating lever.

3. A list finder according to claim 1, said hold-down means comprising a wire finger, pivotally associated with said operating lever adjacent the latter's fulcrum point, and inclined upwardly and rearwardly with its free end overlying the tab of one of said cards which immediately underlies the card selected for lifting by said operating lever, and the inclined portion of said wire finger constituting a guide portion coacting with said card-holding means during initial opening movement of the cover to guide the card-holding means to a position above the tab of the card immediately underlying the card selected for lifting by said operating lever, said inclined portion also constituting a guide portion coacting with said card-holding means to guide the latter from card-holding to non-card-holding position as the cover approaches its closed position.

4. A list finder according to claim 1, further including a distance-piece, between the cover and the uppermost card of the stack and adapted, when the device is closed, to press all the cards of the stack down upon the base of the device so that all tabs of said cards are at a lower level than said slidable hold-down means.

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