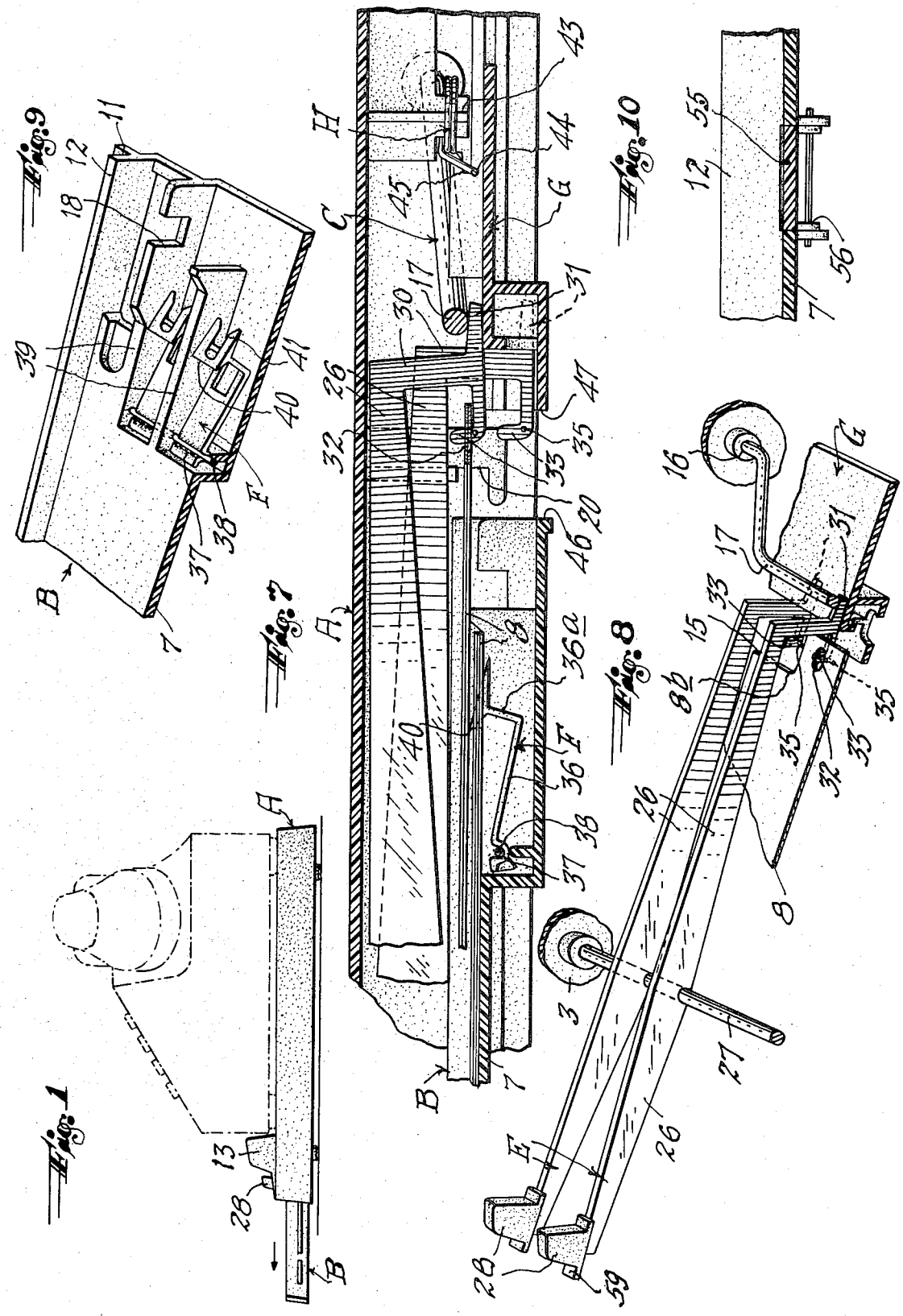
March 20, 1973 R. E. BEGER 3,721,485

TELEPHONE INDEX DEVICE

Filed Feb. 17, 1972 5 Sheets-Sheet 1



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TELEPHONE INDEX DEVICE

Filed Feb. 17, 1972 5 Sheets-Sheet 2

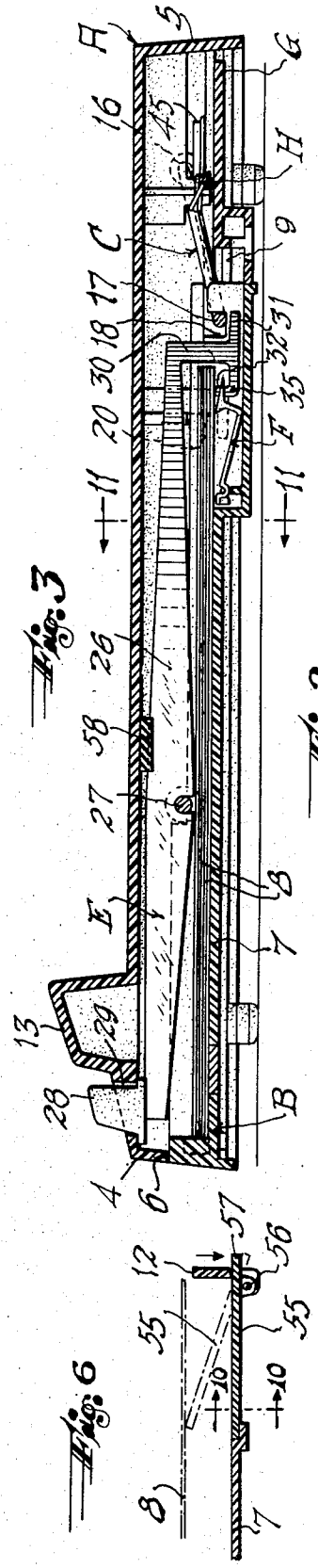


Fig. 3

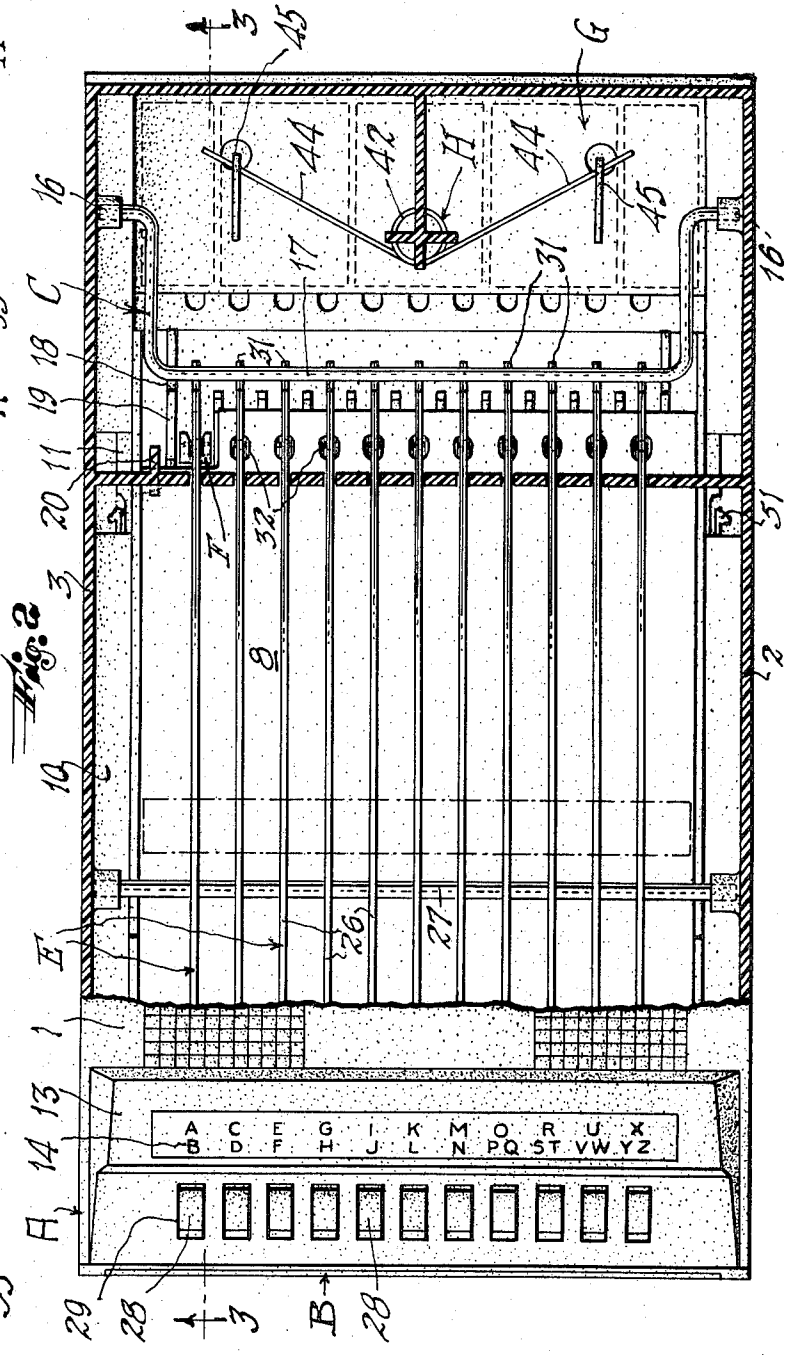


Fig. 2

Fig. 6

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TELEPHONE INDEX DEVICE

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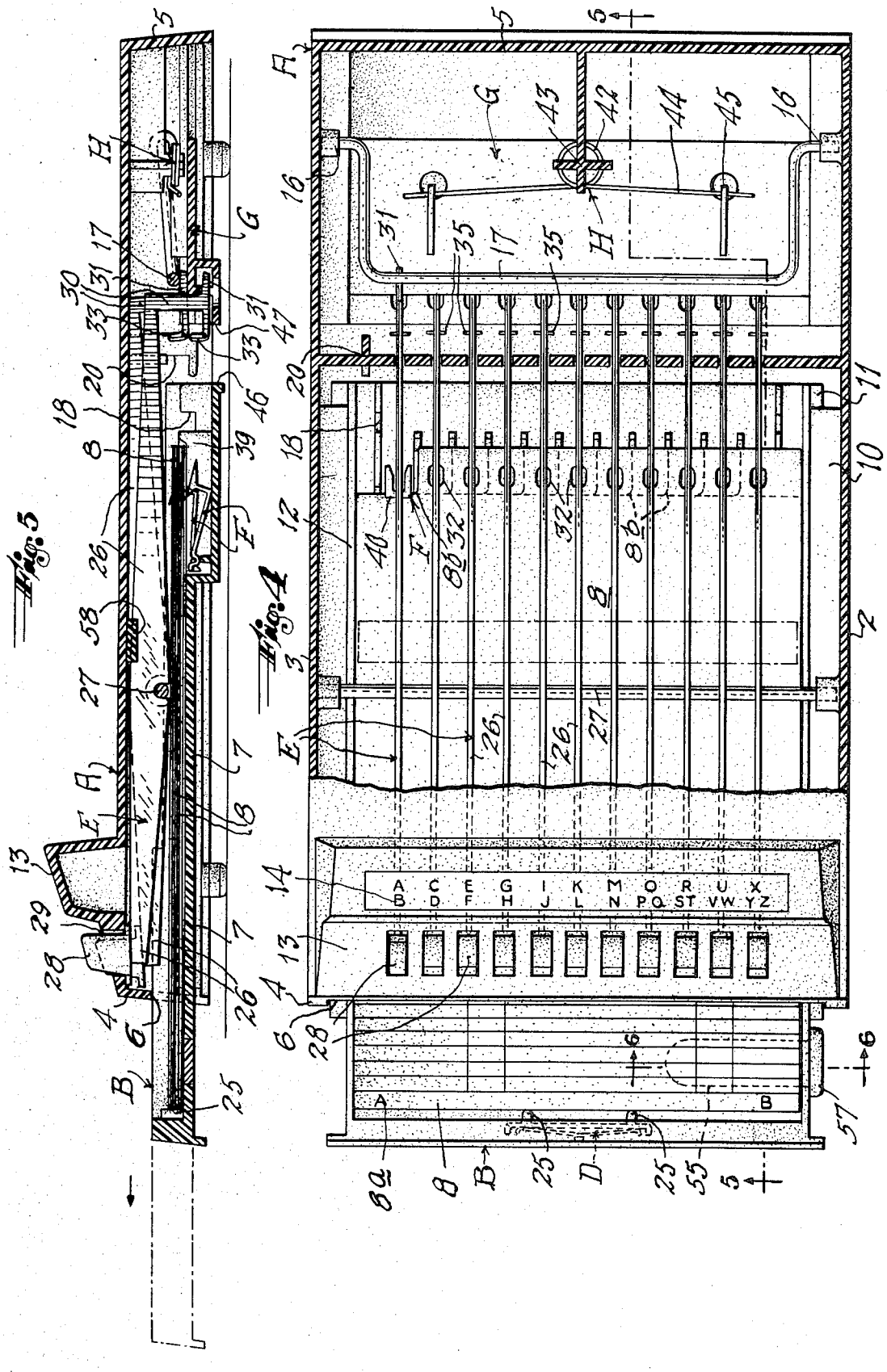


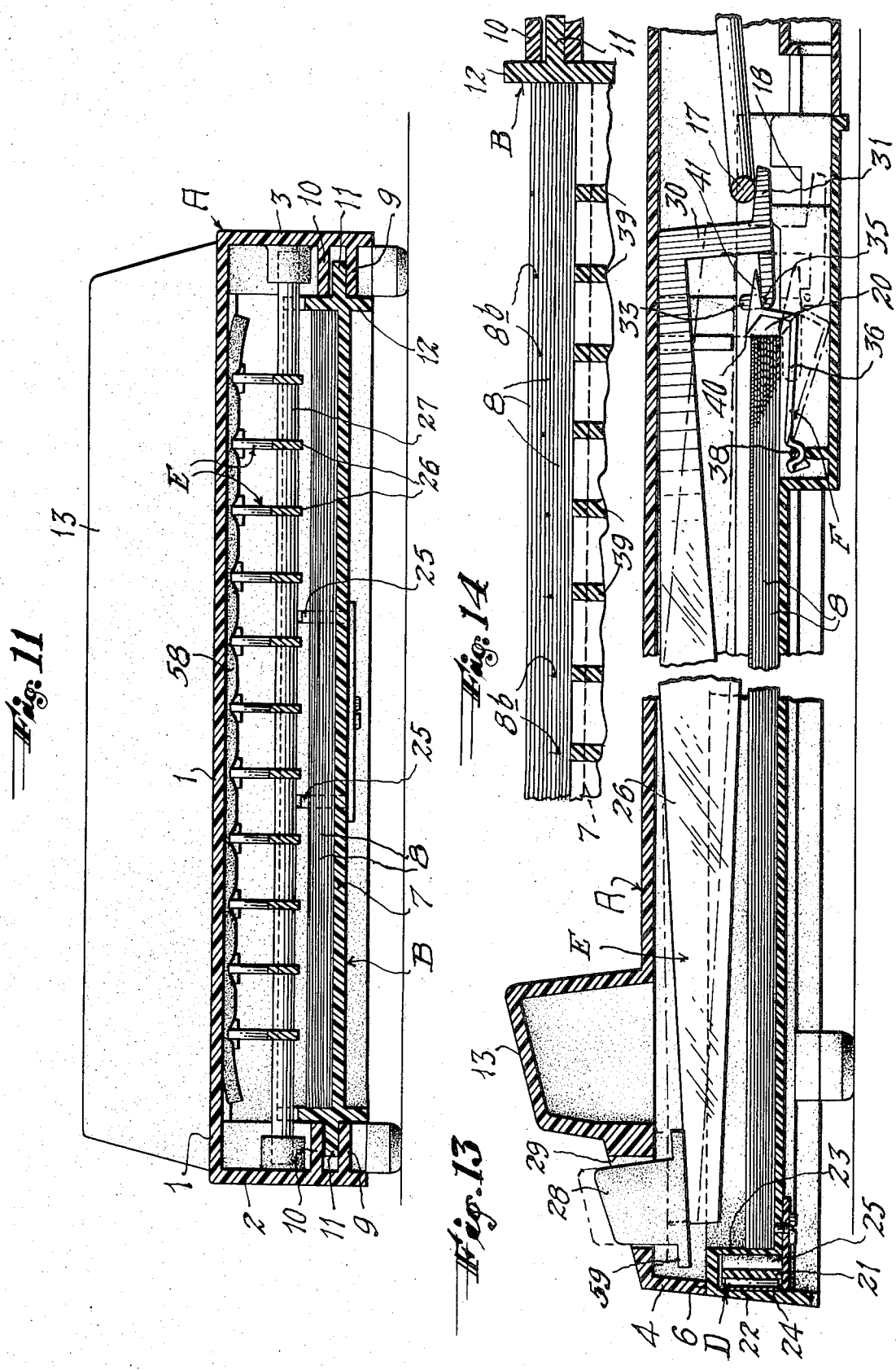
Fig. 5

Fig. 4

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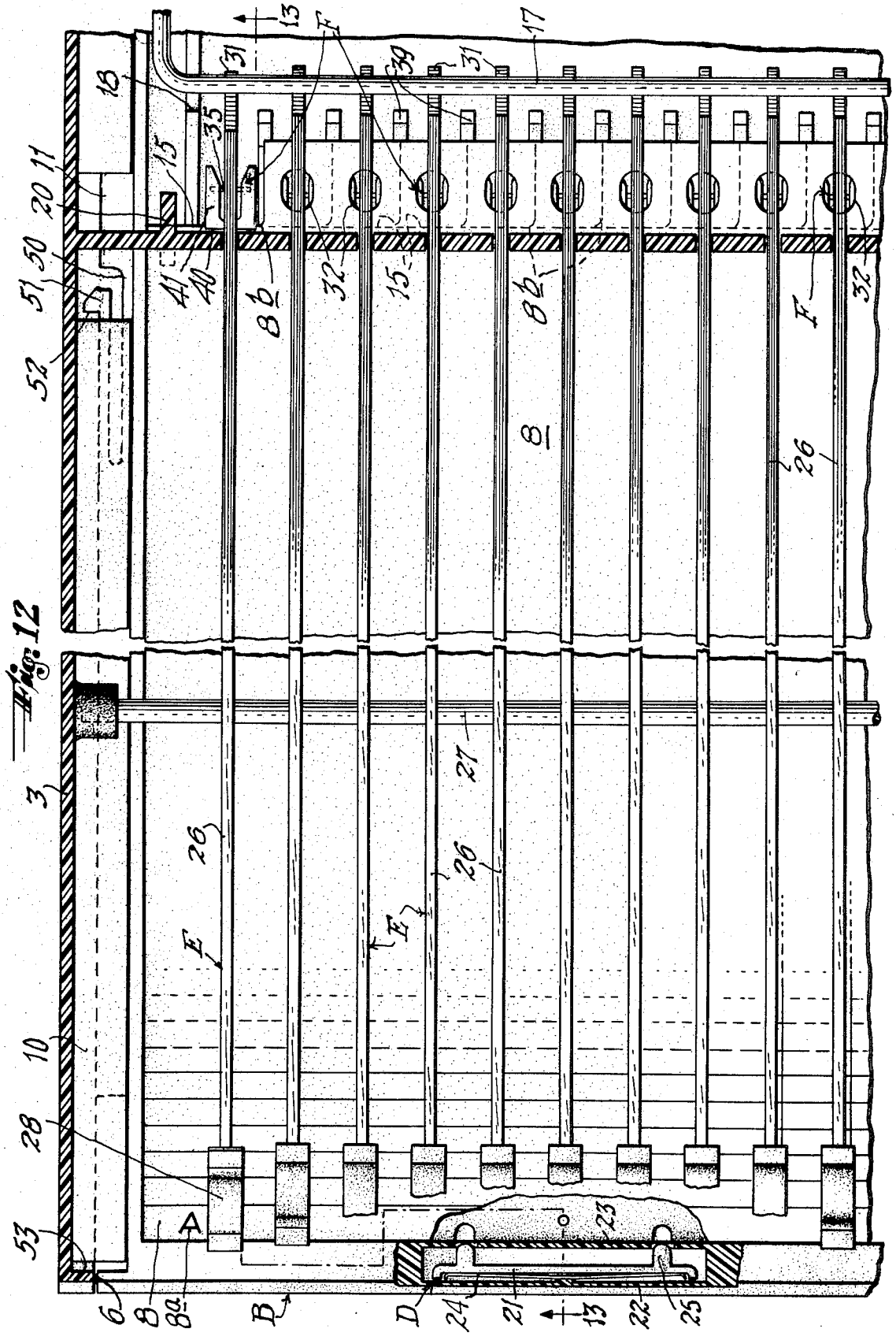


Fig. 12

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Patented Mar. 20, 1973

3,721,485

TELEPHONE INDEX DEVICE

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Int. Cl. A47b 88/00
U.S. Cl. 312—330 9 Claims

ABSTRACT OF THE DISCLOSURE

An index device includes a housing and a drawer therein supporting a plurality of edge-notched and perforated cards and slidable into open and closed positions and held in closed position by a latch rod pivoted in the housing and biased into coaction with a keeper on the drawer, a manually operated key lever for each card pivoted between its ends in the housing which at one end actuates a card puller on the drawer into position to engage the notched edge of an associated selected card and has a stud which at the same time enters the holes in all cards above the selected one to hold them against movement with the drawer and then directly actuates the latch rod to release the drawer for movement outwardly of the housing with the selected card exposed.

BACKGROUND OF THE INVENTION

Field of the invention

This invention relates to so-called list finders or indexing devices wherein the desired card normally enclosed in a housing is key-selected and released from the housing; and the device is adapted for use under a telephone instrument.

The prior art

The prior art discloses index devices of the type that include an index card drawer slidable and normally latched in closed position in a housing, and key-actuated means for selecting a desired card and simultaneously actuating the latch to release the drawer from the housing with the selected card exposed and with the faces of the other cards concealed. In some prior devices, there is a latch releasing mechanism separate from the key mechanism but actuated by the key mechanism to release the latch, but this construction leaves much to be desired in that it is complicated and expensive, including a large number of small interconnected parts which also are not reliable in operation.

The prior art also includes special metal hook-like extensions on the cards to coact with the key mechanism in the selection of a card and in the holding of the other cards above the selected card against movement as the drawer is moved out of the housing to expose the selected card. This construction is also complicated, expensive and leaves much to be desired as to reliability and durability in operation.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide an index device of the general character described, but which overcomes the deficiencies of and objections to the prior art indexes, and which is simple and inexpensive in construction, easy to operate, can be relied upon to accurately select the desired cards and shall be long-lived.

The invention contemplates an index device of this character wherein a finger operated key lever serves to actuate a card puller into position to engage a desired card and at the same time to hold the cards above the selected card against movement and directly release a latch from the card drawer to permit movement of the drawer outwardly of the housing with the selected card exposed.

The invention also provides means automatically operable upon outward movement of the drawer, to lock the key lever in said card holding position so long as the drawer remains in card-exposing position.

Another object of the invention is to provide such an index device, wherein the cards have their inner edges notched for engagement by the card puller and each card has a hole in register with the holes in the cards above and below said card, whereby the stud of the lever for any selected card will enter the holes in all of the cards above the selected card to hold them against movement as the drawer is moved out of the housing to expose a card.

The index also has novel means for normally aligning the cards with their notched edges and holes properly positioned to coact with the card pullers and the studs on the key levers, respectively; and thus to provide a card abutment on the housing for the notched edges of the cards and a spring-actuated card pusher on the drawer at the other ends of the cards for normally biasing the cards against the abutment when the drawer is in closed position and thereby position the notched edges prior to the release of the drawer for engagement by the card puller of the selected card when the drawer is released.

The invention also provides a novel and improved construction and combination of a key lever and a card puller wherein the key lever comprises a bar pivotally mounted between its ends over the drawer and having an index button at one end, its other end having a stud to enter the holes in the cards and lateral pins to separably engage and actuate the corresponding card puller, and a finger normally underlying a spring-actuated latch bar for the drawer, whereby the latch bar normally influences the key lever into normal rest position when the drawer is closed and upon manual operation of the lever to select a card the card puller is actuated into position to engage the card and the latch bar is actuated to release the drawer.

Also, a card lifter is provided and comprises a plate pivoted on the bottom wall of the drawer with one end normally overlaid by the cards and the other end forming a finger grip for tilting the plate to raise the cards into position for their removal from the drawer.

BRIEF DESCRIPTION OF THE DRAWINGS

For a more complete understanding of the invention, reference should be had to the following description in connection with the accompanying drawings in which:

FIG. 1 is a side elevational view of a telephone index embodying the invention and shown as specifically designed for use as a support for or beneath a telephone instrument which is illustrated in dot and dash lines, the card drawer of the device being shown in partially open position;

FIG. 2 is a top plan view of the device with portions of the top wall of the housing broken away for clearness in illustration and showing the drawer in normal closed position and locked;

FIG. 3 is a vertical longitudinal sectional view approximately on the plane of the line 3—3 of FIG. 2;

FIG. 4 is a view similar to FIG. 2 showing the drawer unlocked and in partially open position;

FIG. 5 is a vertical longitudinal sectional view approximately on the plane of the line 5—5 of FIG. 4;

FIG. 6 is a fragmentary vertical sectional view on the plane of the line 6—6 of FIG. 4;

FIG. 7 is a greatly enlarged fragmentary vertical longitudinal sectional view, showing the drawer in partially open position with one of the card pullers engaged with

a selected card and the corresponding key lever stud disposed in the holes of the cards above the selected card;

FIG. 8 is a fragmentary perspective view of two of the key bar as shown in FIG. 7;

FIG. 9 is a fragmentary sectional perspective view of the drawer and two of the card pullers;

FIG. 10 is a fragmentary perspective view on the plane of the line **10—10** of FIG. 6;

FIG. 11 is a transverse vertical sectional view on the plane of the line **11—11** of FIG. 3;

FIG. 12 is a fragmentary top plan view with the top wall of the housing broken away and with the drawer closed but unlocked immediately before starting its movement into open position;

FIG. 13 is a fragmentary vertical longitudinal view approximately on the plane of the line **13—13** of FIG. 12, and

FIG. 14 is an enlarged elevation of the front notched edges of the cards in the stack.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Specifically describing the invention, the reference character A designates the housing of the index device which has a top wall **1**, two parallel side walls **2** and **3**, a front end wall **4** and a rear end wall **5**. The front wall has an opening **6** into and out of which is horizontaly slidable a drawer B on the bottom wall **7** of which are horizontally stacked a plurality of data bearing sheets, for example, cards **8**. As shown, each side wall of the housing has inwardly projecting vertically spaced drawer guide flanges **9** and **10** between which are slidable longitudinal runner fins **11** that project from the side walls **12** of the drawer. In accordance with the invention, the number of cards can be varied, but in the embodiment shown, there are eleven cards to be used as a telephone index, each of the cards bearing alphabetical initials **8***a*, several of the cards having two initials and each of the other cards bearing three initials; and the housing has a raised panel index **13** on which are printed or otherwise applied a plurality of groups of alphabetical letters generally designated **14** in FIGS. 2 and 4 and each corresponding to one of the cards.

As best shown in FIGS. 12 and 14, the rear edges of the cards are notched or cut away, the depth of the notches **8***b* being the same for all cards but the notches increasing in width successively from the right hand side edges and from the uppermost card toward the bottom card, viewing the cards from the rear edges as best shown in FIG. 14. In the present instance the top card of the stack bears the alphabetical initial letters "A" and "B" and the card is arranged on the top of the stack.

The drawer is releasably locked in closed position by a U-shaped latch C having its ends pivotally mounted at **16** in the side walls of the housing and having a bar **17** intermediate its ends normally biased into keeper notches **18** opening through the edges of ribs **19** that project upwardly from the bottom wall of the drawer as best shown in FIGS. **2, 3 and 13**. While the latch is shown as gravitationally biased into the notches, spring means could be utilized. When the drawer is in its closed and locked position, the bases of the notches in the cards abut a cards aligner **20** that depends from the top wall of the housing as best shown in FIGS. 7 and 13; and the cards are yieldingly held in engagement with the cards aligner by a card pusher D best shown in FIGS. 12 and 13 and comprising a bar **21** disposed between the front wall **22** of the drawer and an inner partition wall **23** and biased by a leaf spring **24** so as to normally project card-engaging ribs **25** through openings in the inner partition wall into engagement with the rear edge of the cards.

A card selecting key lever E is provided for each card, and as shown, each key lever comprises a bar **26** pivotally intermediate its ends on a pivot rod **27** whose ends are supported on the side walls of the housing. Each key lever has at its front end a manually operable key **28** which projects upwardly through an opening **29** in the top wall of the housing in juxtaposition to the indicia or alphabetical initials for the corresponding card appearing on the index panel **13**. At its other and rear end each key lever bar has a depending portion **30** from which projects a longitudinal extension **31** that normally underlies the latch bar **17**. Each of the cards except the top card has a transverse hole **32** adjacent its notch normally in register with the holes in the other cards, and the second-mentioned or rear end of each key lever has a stud **33** to extend into said holes during the card selecting operation so as to hold against movement with the drawer all of the cards above the one selected. Said second-mentioned rear end of the key lever also has laterally oppositely projecting pins **35** which coact with a card puller F for the corresponding card.

As shown, each card puller has a shank portion **36** pivotally mounted at **37** on a pivot rod **38** which extends transversely of the drawer and is supported by partition walls **39** between which are located the card pullers as best shown in FIG. 9. The partition walls also serve to support the rear edge portions of the cards. The shank of each card puller is bent upwardly at its swinging end as indicated at **36***a* and has a card engaging lip **40** and a pair of spaced apart arms **41** projecting in the opposite direction from the lip and receiving between them the stud **33** of the corresponding key lever with the pins **35** of the key lever underlying said arms. Each card puller normally and when the drawer is closed, has its lip **40** and arms **41** disposed below the bottom card as best shown by FIG. 3 and the dot and dash lines in FIG. 13, and with the lip in spaced relation to the bases of the notches in the corresponding cards as shown in FIGS. 2 and 3 and by dot and dash lines in FIG. 13.

When it is desired to select a card, the proper key **28** is manually depressed which causes the rear end of the key lever to rise so that the pins **35** elevate the card puller into a position with the lip slightly above the top surface **28** of the corresponding card at the notched edge thereof. Approximately simultaneously the extension **31** of the key lever raises the latch bar **17** out of the latch notches **18** to release the drawer for opening movement. As the drawer starts its movement outwardly, the notched edges of the cards are moved away from the card aligner **20** and the card pusher D slides the cards inwardly of the drawer so that the notched edge of the selected card is pushed beneath the lip of the card puller as best shown in FIGS. 7 and 12, where the top card is engaged by its puller.

Simultaneously with the elevation of the card puller the stud **33** of the key lever is inserted through the holes **32** of all of the cards above the selected card, which here is an intermediate card in the stack, as best shown in FIG. 7, and the selected card with all of the cards beneath it move outwardly of the housing opening **6** with the drawer as shown in FIGS. 4 and 5 so as to expose the selected card which appears as the top one of the cards that are moved outwardly with the drawer.

To ensure that the cards above the selected card shall be held against inadvertent movement, the key lever is prevented from returning to its normal position until the drawer is again closed. To accomplish this result a slide G is mounted in the side walls of the housing between the inner end of the drawer and the rear wall **5** of the housing, and when the drawer is opened the slide is automatically projected into a position beneath the extension **31** of the lever as best shown in FIG. 7. The slide is normally biased by a coil spring H the coil **42** of which is mounted on a post **43** that depends from the top wall of the housing, with the end portions **44** of the spring engaging abutments **45** on the slide.

This slide serves also to normally bias the drawer toward open position. As here shown, when the drawer is pushed into closed position, its rear edge **46** abuts the

forward edge **47** of the slide so that when the drawer is fully closed the slide is pushed against the action of the spring toward the housing rear wall as shown in FIG. 3. Thus, when the drawer is closed, the slide is continuously biased toward the drawer and upon unlocking of the drawer, the slide pushes the drawer toward open position. This action may be such as to completely open the drawer or to only start the opening movement and leave the completion of the drawer opening to manual manipulation.

Suitable means are provided to limit the opening of the drawer, and as best shown in FIG. 12, each runner fin **11** of the drawer is longitudinally notched as indicated at **50** to form a spring dog **51** having a shoulder **52** to abut an inwardly extending wall portion **53** of the front end wall **4** of the housing at the end of the drawer opening **6**. To completely remove the drawer, it is simply necessary to manually press the dog inwardly to clear the shoulder **52** from the wall portion **53**; and the dog is shaped to slip past said wall portion **53** when the drawer is inserted into the housing.

It may be desirable to provide a card lifter for lifting the stack of cards off the bottom of the drawer to facilitate removal of the cards, and as shown in FIGS. 4, 5, 6 and 10, a card lifter plate **55** is pivotally mounted at **56** on the bottom wall of the drawer and flush with that wall so that the plate is overlaid by the cards; and when it is desired to raise the cards from the drawer the projecting end of the lifter is pressed downwardly so as to swing the lifter upwardly and elevate the cards as shown by broken lines in FIG. 6.

It is desirable to provide resilient means on the housing to normally bias the key levers into normal position with said longitudinal extensions and said studs below the plane of the bottom card in the stack. As shown, a block of resilient material such as polyurethane foam **58** may be adhesively secured to the underside of the housing top wall and yieldingly engaging the top edges of the key levers.

Desirably also, each key has a portion **59** to underlie and abut the housing top wall and limit movement of the key lever into said normal position.

The invention thus provides a simple and relatively inexpensive, easily operable and reliable index device, and while the now preferred embodiment has been described and claimed, it should be understood that changes and modifications can be made in the construction of the device within the spirit of the invention and the scope of the appended claims.

I claim:

1. An index device comprising: a housing having an opening in its front wall, a drawer slidable horizontally into and outwardly of said housing through said opening into closed and open positions respectively, means for biasing the drawer into open position, a plurality of cards stacked horizontally in said drawer, a latch comprising a rod movably mounted on the housing normally biased into coaction with a keeper on the drawer to hold the drawer closed, a key lever for each card comprising a bar pivotally mounted intermediate its ends in the housing and having a key at one end exposed for manual operation, the other end of said bar having a portion to directly engage and release said latch rod when the key is manually depressed to permit outward movement of the drawer, and there being means including a pivoted card puller on the drawer and portions on said other end of the bar and on said cards, respectively, coactive when the key is depressed to restrain all of the cards above the card associated with said key from movement with the drawer and to move out with the drawer said associated card and all cards disposed below it.

2. An index device comprising: a housing having an opening in the front wall thereof, a drawer slidable horizontally into and out of said housing through said opening into closed and open positions respectively, a plurality of cards stacked horizontally in said drawer, each card having a notch extending inwardly from the front edge and one side edge thereof, the width of the notches increasing from the top towards the bottom of the stack each card also having a hole in register with the holes in other cards adjacent said notches, a card-aligning abutment on said housing abuttable by the front edges of said cards when the drawer is in closed position and there being on the drawer a spring-biased card pusher normally in contact with other ends of the cards and yieldable when the front edges of the cards are pressed against said abutment, a latch rod normally biased into coaction with a notch in said drawer for normally holding the drawer in closed position, a card puller for each card pivoted on said drawer adjacent the front edges of the cards to swing upwardly when the drawer is closed and to hook over the card at the base of the notch when the drawer is released to move into open position, a key lever for each card comprising a bar pivoted intermediate its ends in the housing and having a key at one end exposed for manual operation and having a stud at the other end movable upwardly into said holes in cards when the key is manually depressed, there being at the second-mentioned end of the bar means to actuate said card puller into card engaging position to pull the selected card and all cards below it outwardly of the housing, said second-mentioned end of the bar also having means to move said latch bar into drawer releasing position, and means in said housing normally biasing said drawer toward open position and movable into position beneath said second-mentioned end of the bar upon opening of the drawer to hold the bar with its said stud extending through all of the cards.

3. An index device as defined in claim **1** wherein one of said portions on the other end of the key bar is a longitudinal extension of the bar, and the latch rod is U-shaped and has its ends pivotally mounted in the housing and its intermediate portion normally overlying said longitudinal extensions of all the key bars.

4. An index device as defined in claim **2** wherein said latch rod is U-shaped and has its ends pivoted in said housing, and said other end of the key bar depends below the cards at their notched edges and said portions constitute respectively, a longitudinal extension of the key bar normally underlying said latch rod so as to raise it from said keeper notch when the key is depressed and said stud which enters the holes in the cards.

5. An index device as defined in claim **4** wherein each card puller is pivoted at one end and has a lip to hook over the edge of the associated card and also has a slot opening through its free end in which the depending end of the key bar is normally disposed, and there are lateral pins projecting from said depending end beneath said notched end of the card puller to lift the latter when the key is depressed and thereby position the card puller lip to hook over the card edge when the drawer is moved outwardly of the housing.

6. An index device as defined in claim **2**, wherein the last-named means comprises a slide in said housing normally abutting the inner end of the drawer when the drawer is closed and spring-biased to start outward movement of the drawer and to move beneath the said other end of the key bar when said latch rod is released.

7. An index device as defined in claim **6**, wherein said other end of each key has a longitudinal extension, and said slide has a portion to overly said extensions of all key bars except the selected actuated bar to prevent unintentional operation of the bars.

8. An index device as defined in claim **2**, with the addition of resilient means on the housing to normally bias said key levers into normal position with said longitudinal extension and said stud below the plane of the bottom card of the stack, and wherein each key has a portion to abut the housing and limit movement of the key lever into said normal position.

9. An index device as defined in claim **1** with the addition of a card lifter plate pivoted on the bottom wall of

the drawer with one end normally overlaid by the cards and the other end forming a finger grip for tilting the plate to raise the cards into position for their removal from the drawer.

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JAMES T. McCALL, Primary Examiner

U.S. Cl. X.R.

40—336; 312—319