Nov. 6, 1951 E. A. GUBISCH 2,574,102

SPREADER DEVICE FOR SELECTOR DEVICES

Filed Sept. 13, 1949 2 SHEETS—SHEET 1

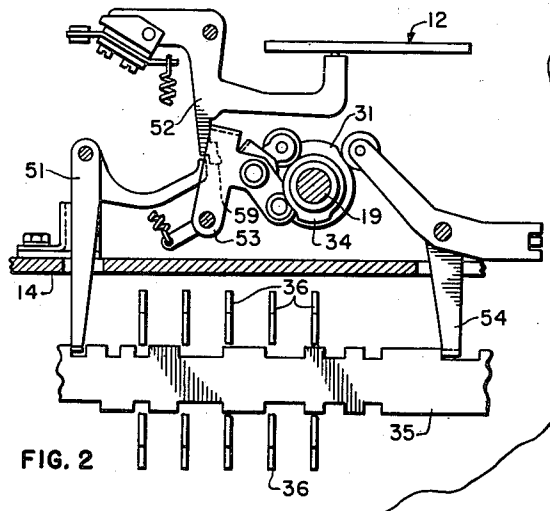


FIG. 2

FIG. 1

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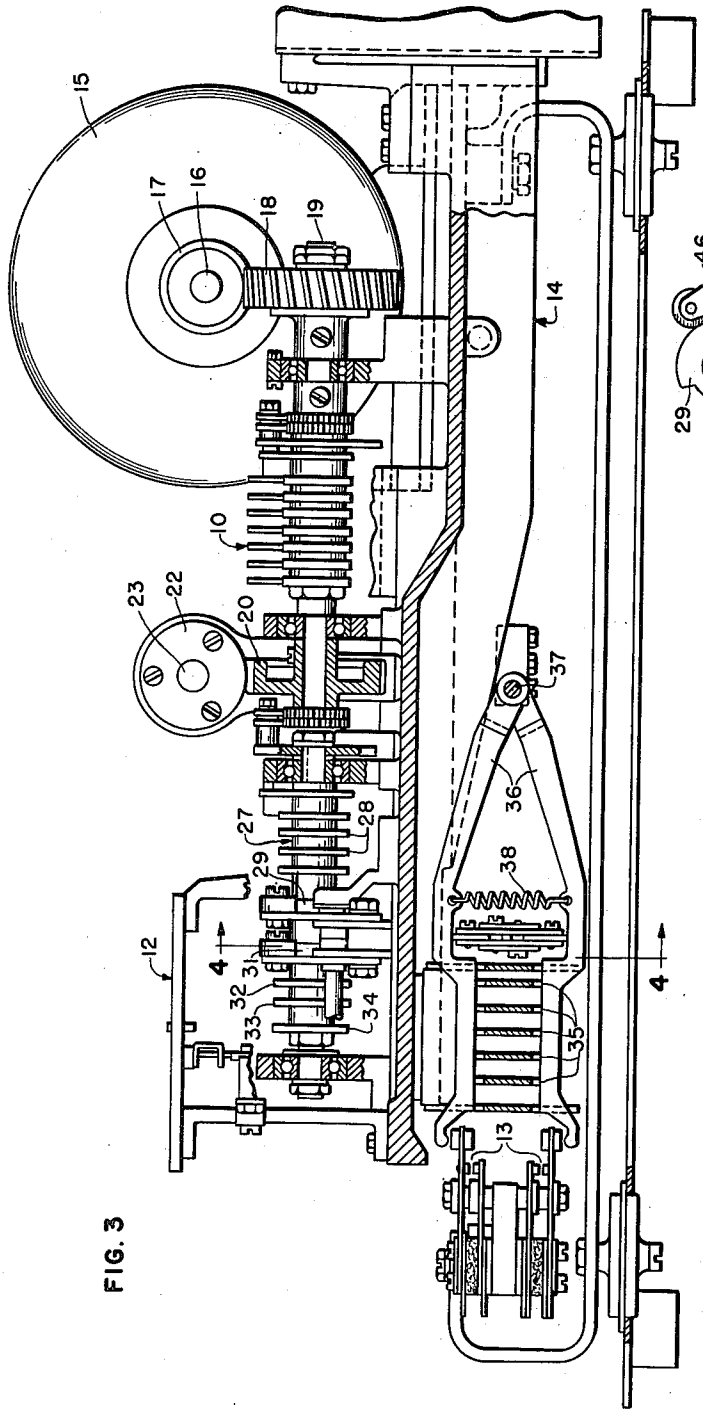


FIG. 3

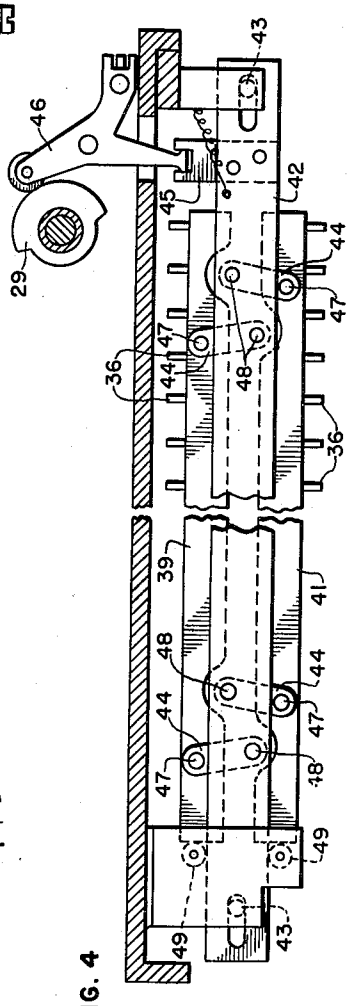


FIG. 4

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SPREADER DEVICE FOR SELECTOR DEVICES

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Application September 13, 1949, Serial No. 115,410

3 Claims. (Cl. 178—17)

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This invention relates to signaling apparatus, and more particularly to improvements in selector devices therefor.

The primary object of the invention is to provide a selector mechanism having improved means for facilitating selective operations therein.

Another object of the invention is to provide a spreader device for holding the selectable members of a selector mechanism in their unoperated position during the setting operation of the permutation bars.

A further object of the invention is to provide a spreader device which is operated on the parallel motion principle.

More specifically, the device according to the present invention is applicable to a translator unit operated under the control of a perforated tape. The tape, after being prepared on a tape perforator in response to code signals received over a signal line, is inserted in the tape sensing or record reading portion of a translator unit or converter comprising a plurality of tape feeler or tape sensing members, each one of which corresponds to a position in the tape that may or may not be provided with a perforation, depending upon the particular code combination that is being read. Upon each momentary arrest of the tape the several tape feelers sense the code combination perforated in the particular positions, and upon the next movement, the combination is transferred to an intermediate set of storage devices following which a set of code bars are also positioned in accordance with such code combination. The code bars are provided with notches on both top and bottom edges thereof and in this manner they accommodate a double alignment of selectable elements. The selectable elements are oppositely disposed with respect to each other in scissors-like fashion, thus constituting two rows which are movable toward each other when urged into selected position by their respective springs. The oppositely disposed selectable elements are normally held apart by the spreader device according to the present invention. For each permutation of the code bars one of these selectable elements is placed, under the control of the spreader device, into selected position and when any particular one is thus selected it acts to close an electrical contact associated therewith.

A more comprehensive understanding of the present invention may be had from the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 is a top view of the translating unit embodying the present invention;

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Fig. 2 is a sectional view taken on line 2—2 of Fig. 1;

Fig. 3 is a side view, partly in section, of the translating unit shown in Fig. 1, and

Fig. 4 is a sectional view taken on line 4—4 of Fig. 3.

The translating unit 11 embodying the present invention is shown on Figs. 1 to 4 of the drawings. The tape or record reader is indicated by the numeric 12 and is suitably mounted on the translating unit 11. The translating unit 11 is utilized in a system disclosed in copending application Serial No. 52,520 filed October 2, 1948, by R. H. Halvorsen. The tape reader 12, as will appear hereinafter, controls the selective closure of the operating contacts 13.

Mounted on the base 14 is a motor 15 having an armature shaft 16 on which is fixed a pinion 17 meshed with a gear 18 fixed to a cross shaft 19. A gear 20 is fixedly carried on the cross shaft 19 and meshes with a gear 22 fixed to a shaft 23 disposed above and at right angles thereto. Operatively connected to the shaft 19 through the instrumentality of a clutch 24 is a cam sleeve 25 of the distributor 10. Also operatively connected to the shaft 19 through a clutch 26 is a cam sleeve 27 which carries a set of timing cams 28, a spreader cam 29, a reset cam 31, a tape feed cam 32, a sixth pin or tape-out cam 33, and a reset cam 34.

Positioned in the base of the unit 14 are a plurality of code bars 35 (five in the present instance), which are notched along their upper and lower edges to cooperate with a plurality of selectable members 36 disposed on each side of the code bars 35 and pivoted on a common pivot 37. The members 36 are biased toward each other by spring 38 common to each pair. Members 36 bear against blades 39 and 41 of a spreader device, according to the present invention. The spreader device comprises a bar 42 slidably carried on a pair of pins 43. The slides 39 and 41 are connected to the bar 42 in parallel motion manner by means of linkage elements or links 44. Fixed to bar 42 is an element 45, the upper edge of which is bifurcated to receive the end of the depending arm of a lever 46 adapted to be operated by the spreader cam 29.

Links 44 are pivotally articulated through pivots 47 to spreader bars 39 and 41. They are also pivotally articulated through pivots 48 to bar 42. When the follower roller of lever 46 drops off from the higher part to the lower part of cam 29, bar 42 is moved rightwardly (as viewed in Fig. 4), due to the pressure imparted by springs 38, through levers 36 on the bars 39 and 41, to

break the toggle effect of links 44, the bars 39 and 41 acting against the end thrust rollers 49. On the other hand, when the lever 46 is actuated clockwise by cam 29, the bar 42 is moved leftwardly and, through links 44, the bars 39 and 41 are spread apart in parallel motion manner, the bars 39 and 41 bearing against the end thrust rollers 49. Great mechanical advantage is obtained in spreading the upper and lower bars 36 apart because of the toggle action imparted by the toggle elements or links 44.

The extremities of members 36 cooperate with individual contacts 13 for the purpose described in said copending application. As shown in Fig. 2, the code bars 35 are articulated to individual bell cranks 51 which cooperate with associated tape sensing levers 52. A bail member 53 functions to operate the sensing levers 52 under the control of the cam 34. Code bars 35 are also notched to cooperate with a reset bail 54 controlled by the reset cam 31.

Upon the energization of magnet 55, the armature 56 thereof is operated to release the clutch 24 to effect the rotation of sleeve 25 to operate the transmitting contacts sequentially. At a predetermined time during the cycle of rotation, a cam 57 on sleeve 25 will operate a clutch trip bail 58 to render the clutch 26 effective to rotate the sleeve 27. The cam 34 thereon functions to operate bail 53 to permit simultaneous counterclockwise actuation of tape feeler or sensing levers 52 (as viewed in Fig. 2) for sensing code perforations or indicia in the tape. The code bars 35, normally held in their leftward position, are, in timed relation to the tape sensing operation, released by the reset bail 54 for rightward movement by their individual springs (not shown), under the control of the reset cam 31. Only those code bars 35 will move rightwardly whose bell cranks 51 are not blocked by the ends 59 of feeler levers 52.

In timed relation to the setting of the code bars 35, the cam 29 will operate bail 46 to retract the blades 39 and 41 of the spreader device, thereby permitting springs 38 to draw the members 36 toward the code bars 35. In accordance with well known principles of permutation code selection, one of the members 36 will find an alignment of notches and will therefore be drawn further than the remaining members 36 to effect the closure of its associated contact 13. The closing of contacts 13 selectively in this manner is analogous to such closure by the keys of a keyboard device. It is seen that in accordance with the present invention the contacts 13 are operated automatically under the control of a perforated tape, and that the selective operation of a contact 13 is achieved under the control of the spreader device comprising spreader bars 39 and 41.

It is understood that various changes may be made in the details set forth in the foregoing description without departing from the essentials of the invention or from the spirit or the scope of equivalency thereof, as defined by the appended claims.

What is claimed is:

1. In combination in a selector mechanism, a set of permutative selector bars, signal controlled means for variously positioning said bars to effect the individual selection of said bars, a plurality of selectable elements mounted on a common pivot, said elements disposed in two rows, one adjacent to each edge of said selector bars, a pair of spreader bars interposed between said rows, reciprocating means associated with said spreader bars, and toggle elements connected to said reciprocating means and said pair of spreader bars, whereby movement in parallel motion manner is imparted to said spreader bars by the toggle action of said elements to effectuate the actuation of said selectable elements toward and away from said permutative selector bars.

2. In combination in a selector mechanism, a set of permutative selector bars, signal controlled means for variously positioning said bars to effect the individual selection of said bars, a plurality of selectable elements mounted on a common pivot, said elements disposed in two rows, one adjacent to each edge of said selector bars, a pair of spreader bars interposed between said rows, slidable means adjacent to said spreader bars, cam operated means for reciprocating said slidable means, and toggle elements connected to said slidable means and said pair of spreader bars, whereby movement in parallel motion manner is imparted to said spreader bars by the toggle action of said toggle elements to effectuate the actuation of said selectable elements toward and away from said permutation selector bars.

3. In combination in a selector mechanism, a plurality of selectable elements arranged in two rows, a set of permutative selector bars between said rows, signal controlled means for variously positioning said bars to effect the individual selection of said elements, means for attrahently biasing said selectable elements, a pair of spreader bars interposed between said rows, and parallel motion means for governing said spreader bars comprising a slidable means adjacent to said spreader bars, and toggle elements connected to said slidable means and said pair of spreader bars, whereby movement is imparted to said spreader bars by the toggle action of said toggle elements to effectuate the actuation of said selectable elements toward and away from said permutation selector bars.

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