Sept. 7, 1954 G. H. LEONARD 2,688,443

DEVICE FOR EDGE SENSING ADDRESSING PLATES OR THE LIKE

Filed Aug. 2, 1950 2 Sheets-Sheet 1

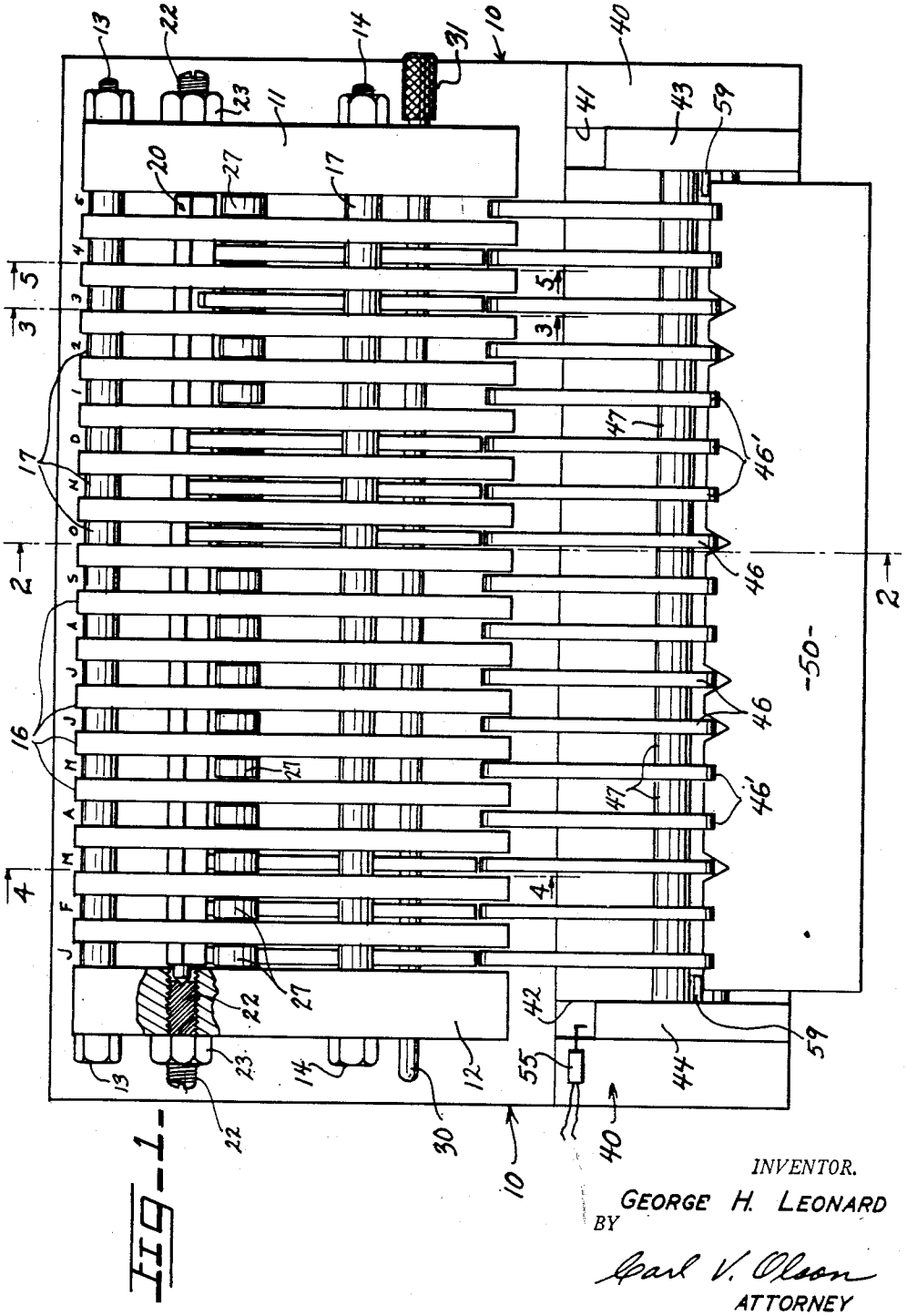


FIG-1-

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Fig. 2

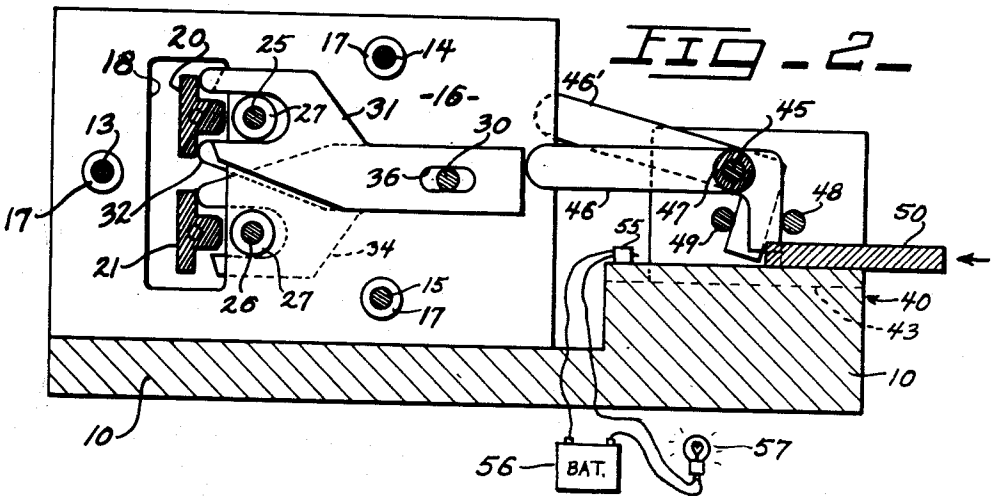


Fig. 4

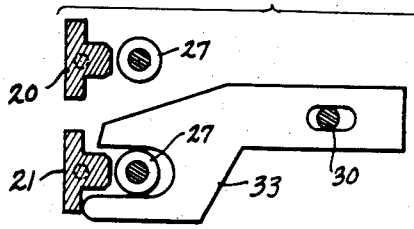
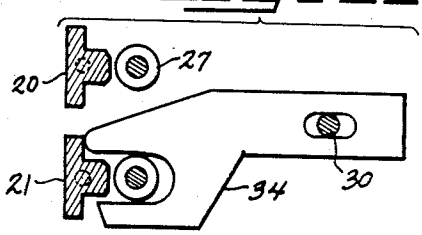


Fig. 5



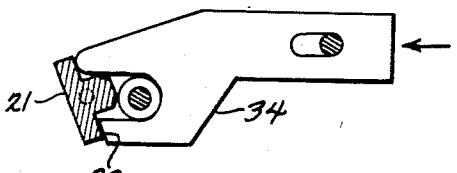
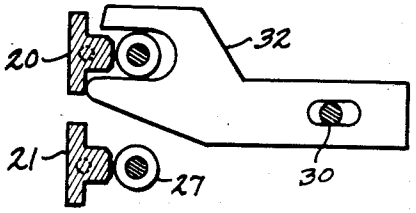


Fig. 6

Fig. 3



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DEVICE FOR EDGE SENSING ADDRESSING PLATES OR THE LIKE

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4 Claims. (Cl. 235—61.11)

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This invention relates to selector or sensing devices and more particularly to devices which may be preset to recognise certain combinations of mechanical conditions.

While not limited thereto, the invention is particularly useful in the automatic addressing machine art wherein addressing plates or stencils are coded with edge notches or perforations. In the use of automatic addressing machines it is often desired to employ only selected ones of the plates or stencils in a large group thereof. For example, the plates may bear the names and addresses of subscribers to a periodical and the edges of the plates may be notched according to a code to indicate the expiration date of the subscription. Then in soliciting for subscription renewals it may be desirable to select those plates representing subscriptions which expire on certain months and years. Sensing means of the prior art have proved inadequate in many instances, as for example when it is desired to select plates coded for certain combinations of months and years. It is therefore a general object of this invention to provide a sensing device which is versatile and free from the limitations of prior art devices.

It is another object to provide a sensing device which may easily be preset for any desired combination of coded notches or the like.

It is a further object to provide a device which is simple and economical to construct in that a relatively small number of different parts are used.

These and other objects of the invention will be apparent to those skilled in the art from the following description, having reference to the appended drawings wherein:

Fig. 1 is a plan view of a device constructed according to the teachings of the invention.

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

Fig. 3 is a partial sectional view taken on the line 3—3 of Fig. 1.

Fig. 4 is a partial sectional view taken on the line 4—4 of Fig. 1.

Fig. 5 is a partial sectional view taken on the line 5—5 of Fig. 1.

Fig. 6 illustrates parts of Fig. 5 in displaced positions.

Referring now in greater detail to the drawings, a frame includes base 10, end members 11 and 12 and bolts 13, 14 and 15. A plurality of partitions 16 are maintained in spaced relation on bolts 13, 14 and 15 by means of cylindrical spacers 17. The partitions are cut away

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at 18 to accommodate bars 20 and 21 having a T-shaped cross section. The ends of bars 20 and 21 are provided with centers for rotation in bearing studs 22 in end members 11 and 12, as shown to advantage in the broken away portion of Fig. 1. Nuts 23 hold the bearing studs securely in position. Bars 20 and 21 are thereby mounted in the frame for rotation on respective parallel longitudinal axes.

Shafts 25 and 26 extending between end members 11 and 12 and through partitions 16 are provided with bearing rollers 27 disposed between the partitions. A removable pin 30 having a knurled head 31 is disposed in axial holes through end members 11 and 12 and the several partitions 16.

Bearing rollers 27 and pin 30 support sensing links 31, 32, 33 and 34 for limited reciprocation at right angles with rotatable bars 20 and 21. The sensing links are bifurcated at one end for reciprocation on rollers 27 and are slotted at 36 for engagement on pin 30, the slot 36 limiting the reciprocation of the links. The partitions 16, bearing rollers 27 and pin 30 may be considered as providing guides for the sensing links. The sensing links are stamped from sheet metal with two different dies; it will be noted that links 31 and 33 are the same, one being turned over relative to the other. Likewise, links 32 and 34 are the same.

Sensing links 31 and 32 form a pair since they have extensions acting on opposite sides of bar 20. Likewise, links 33 and 34 form a pair since they act, when urged toward bar 21, to rotate the bar 21 in opposite directions. The manner in which a single sensing link 34 tends to rotate bar 21 when link 34 is displaced to the left is shown to advantage in Fig. 6. It will be noted that the amount of rotation of bar 21 is limited by engagement of the bar with the beveled edge 38 of the sensing link.

A portion 40 of base 10 is provided with tracks 41 and 42 within which ends 43 and 44 of a feeler carriage ride. The carriage includes a shaft 45 secured to ends 43 and 44, and a plurality of feeler arms 46 and 46′ secured on the shaft in spaced relationship by means of cylindrical spacers 47. Rods 48 and 49 stiffen the assembly and provide stops limiting the extent which feeler arms 46 can pivot about shaft 45.

A plate 50, which may be an embossed addressing plate, is provided with notches at selected positions along one edge. These notches may indicate various facts about the corresponding person, as for example, the expiration date of

his subscription to a periodical, or the particular books or periodicals which have been sent to him.

An electrical switch **55** is disposed on the portion **40** of base **10** so as to be acted upon by end **44** sliding in groove **42**. The switch controls the flow of current from battery **56** to light **57** or any other suitable indicator or mechanism.

The device of this invention is used in conjunction with a code. For example, the first twelve spaces defined by partitions **16** may represent the twelve months of the year and the next five spaces may represent the years 1951 through 1955. The addressing plate **50** is notched according to the same code. Let us assume that it is desired to select all plates notched according to any one of the following six months in two different years:

October 1953	January 1954
November 1953	February 1954
December 1953	March 1954

The pin **30** is withdrawn and eight sensing links are positioned in the appropriate guides as shown in Fig. 1. The upper rotatable bar **20** is associated with the year 1953 and can be acted upon by the link **32** (Fig. 3) in the 1953 guide. Sensing links **31** (Fig. 2) can also act on upper bar **20** from guide positions corresponding to October, November and December. The lower rotatable bar **21** is associated with the year 1954 and can be acted upon by the link **34** (Fig. 5) in the 1954 guide. Sensing links **33** (Fig. 4) can also act on lower bar **21** from guide positions corresponding to January, February and March.

In operation, the notched edge of a plate **50** is urged against the depending ends of feeler arms **46** and up against stops **59** projecting from ends **43** and **44**. The feeler arms **46'** not opposite a notch in plate **50** are pivoted about shaft **45** to a position where they cannot escape a sensing link. As plate **50** is pushed further against stops **59**, the entire feeler arm assembly is moved in tracks **41** and **42** until some of those feeler arms **46** opposite a notch in plate **50** engage the ends of sensing links. Further movement of the plate **50** and the feeler arm assembly is prevented if the feeler arms engage two sensing links which bear against opposite sides of one rotatable bar. In the example shown in Fig. 1, a feeler arm **46** engages the sensing link in the October guide which act against the upper part of rotatable bar **20**; and another feeler arm **46** engages the sensing link in the 1953 guide which acts against the lower part of rotatable bar **20**. The parts are then as shown in Fig. 2 and no further leftward displacement is possible. This indicates that the plate **50** is one notched for one of the six months desired. The fact that lamp **57** remains on may be used as an indication that a desired plate has been found. If one of the two effective notches had been absent from plate **50**, the sensing links and the feeler arm assembly would have been free to move a distance leftward sufficient to act on switch **55** and cause a negative indication from lamp **57**. When a rotatable bar is acted upon on only one side, it rotates to a position as shown in Fig. 6 and this permits a greater leftward displacement of the sensing link.

While the invention has been shown and described as having an electric light to indicate the displacement of the feeler arm assembly, it will be understood by those skilled in the art that other means may be employed, and that the resistance encountered may be employed mechanically to control the operation of an addressing machine in a manner now used in the art.

It is within the contemplation of this invention to provide more than two rotatable bars **21** and **22**, and more appropriately related sensing links, when required by the nature of the information to be sensed.

The invention is not limited to use with plates having notched edges. For example, addressing stencils with information in the form of perforations may be sensed. It will be recognized that the teachings of the invention are applicable to the sensing of a variety of contours both continuous and discontinuous.

While only one embodiment of the invention has been shown and described, it will be understood that this has been done by way of illustration rather than limitation, and that various modifications will be apparent to those skilled in the art which are within the spirit and scope of the appended claims.

What is claimed is:

1. In a device for selectively sensing the contour of a plate or the like, the combination comprising a frame, a plurality of bars mounted on the frame for rotation about parallel longitudinal axes, a plurality of pairs of sensing links, there being at least one pair for each rotatable bar, guide means on the frame for said links permitting limited reciprocation of said links at right angles to said rotatable bars, one of each of said pairs of links being adapted to rotate the corresponding bar in one direction and the other in the opposite direction, and feeler arm means disposed between said plate and said sensing links to be acted upon by said plate for simultaneously urging a number of said sensing links towards said bars according to the contour of said plate.

2. In a device for selectively sensing the contour of a plate or the like, the combination of a frame, a plurality of bars mounted on the frame for rotation on longitudinal axes, a pair of sensing links for each bar mounted on the frame at predetermined positions along the bars for reciprocation at right angles thereto, one of each of said pairs of links being adapted to rotate the corresponding bar in one direction and the other in the opposite direction, and feeler arm means disposed between said plate and said sensing links to be acted upon by said plate for simultaneously urging a number of said sensing links towards said bars according to the contour of said plate, whereby when both links of a pair are urged toward the corresponding bar responsively to said plate, a resistance to movement is encountered which is indicative of the contour of said plate.

3. In a device for selectively sensing the contour of a plate or the like, the combination of a frame, two parallel bars mounted on the frame for rotation on their longitudinal axes, a plurality of bifurcated sensing links, a plurality of guides for said links on the frame extending at right angles with said bars, and means for removably locating said bifurcated sensing links in said guides for limited reciprocation therein, a pair of said bifurcated sensing links being arranged to rotate one of said bars in opposite directions when urged toward the bar, another pair of said bifurcated sensing links being arranged to rotate the other of said bars in opposite directions when urged toward the bar, and feeler arm means disposed between said plate and said sensing links to be acted upon by said plate for simultaneously urging a number of said sensing links towards said bars according to the contour of said plate, whereby when any pair of bifurcated sensing links is

urged toward the bars a resistance to motion is encountered which is indicative of the contour of said plate.

4. The combination as defined in claim 3, wherein said feeler arm means comprises, a carriage reciprocable on said frame, a shaft mounted on said carriage, a plurality of arms pivotally mounted on said shaft, said arms being oriented for engagement at one end by said plate and for engagement at the other end with respective ones of said sensing links, each of said arms being rotated when engaged by a protrusion on said

plate to a position precluding engagement with the respective sensing link.

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