May 18, 1965 R. B. LARTER 3,184,067

ECHELON SORTER

Filed Dec. 10, 1962 2 Sheets-Sheet 1

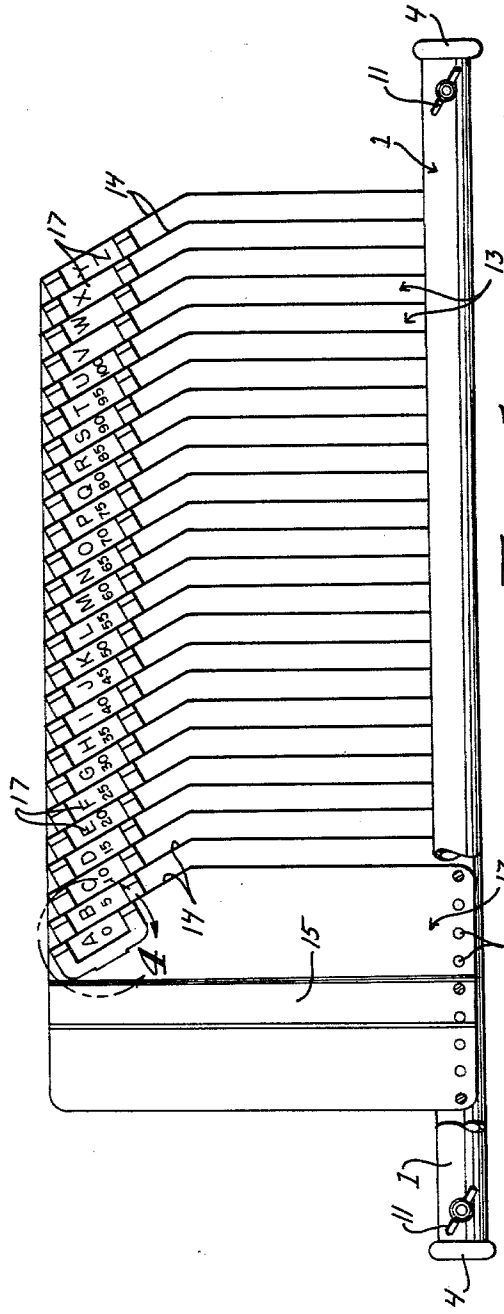


FIG. 1

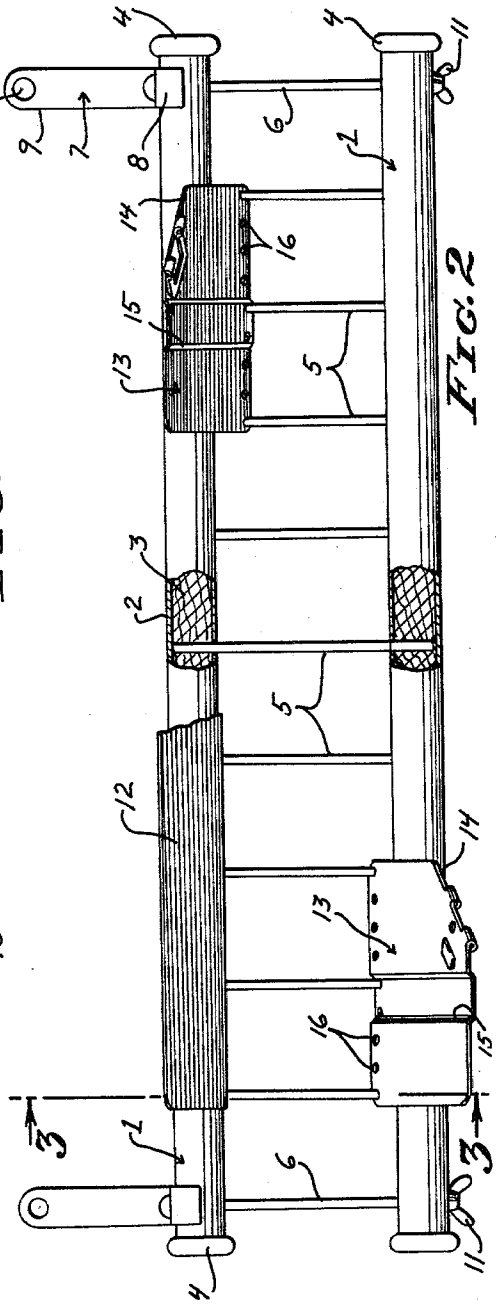


FIG. 2

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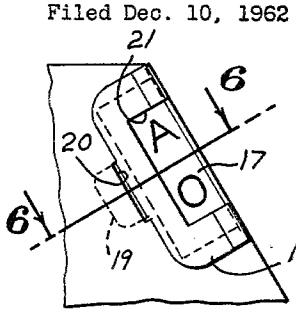


FIG. 4

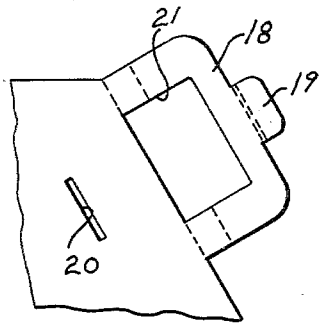


FIG. 5

FIG. 3

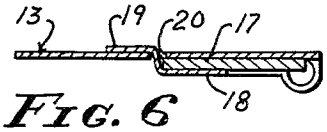


FIG. 6

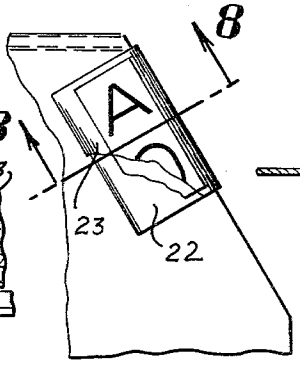


FIG. 7

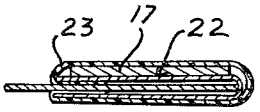


FIG. 8

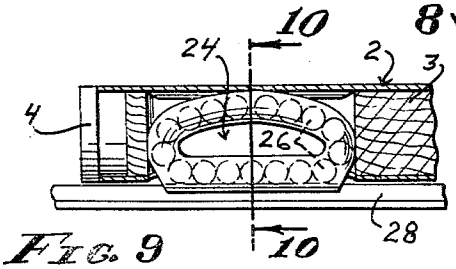


FIG. 9

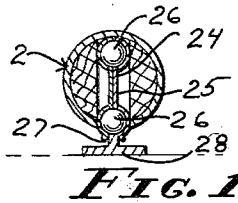


FIG. 10

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3,184,067

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7 Claims. (Cl. 211—10)

This invention relates to echelon sorters, that is, to apparatus for sorting letters, checks, and the like, alphabetically or numerically, and included in the objects of this invention are:

First, to provide an echelon sorter which includes a set of separator panels slidably and tiltably mounted on guide rods in such a manner that they may be readily moved, manually, to facilitate rapid insertion of letters, checks, and similar objects therebetween.

Second, to provide an echelon sorter wherein the separator panels incorporate novel, inclined, indicia-bearing means which facilitate rapid sorting.

Third, to provide an echelon sorter which is easily assembled and disassembled, and wherein the separator panels may be increased or decreased in number to accomplish various sorting requirements.

Fourth, to provide an echelon sorter which may be track-mounted to permit rapid, transverse movement to facilitate the sorting operation.

With the above and other objects in view, as may appear hereinafter, reference is directed to the accompanying drawings in which:

FIGURE 1 is a front view of the echelon sorter with a portion thereof shown in section;

FIGURE 2 is a top view thereof with most of the separator panels removed, with the back plate shown fragmentarily and portions of the base bars in section;

FIGURE 3 is an enlarged, transverse, sectional view taken through 3—3 of FIGURE 2;

FIGURE 4 is an enlarged, fragmentary, elevational view of one of the separator panels taken from circle 4 of FIGURE 1, and showing particularly the tab structure;

FIGURE 5 is a similar fragmentary view showing the tab structure in its unfolded condition;

FIGURE 6 is a fragmentary, sectional view taken through 6—6 of FIGURE 4;

FIGURE 7 is a fragmentary, elevational view similar to FIGURE 4, showing a modified form of tab structure;

FIGURE 8 is a fragmentary, sectional view taken through 8—8 of FIGURE 7;

FIGURE 9 is a fragmentary, longitudinal, sectional view taken through one of the base bars, showing a glide unit fitted therein;

FIGURE 10 is a transverse, sectional view thereof taken through 10—10 of FIGURE 9.

The echelon sorter includes a forward and rearward base bar 1, each comprising a tubular metal sleeve 2 in which is fitted a core 3, preferably of wood. The ends of the base bars are closed by end plugs 4.

The two base bars 1 are joined by a series of parallel guide rods 5. The guide rods are fixed in the rearward base bar and are slidably received in sockets in the forward base bar. Adjacent their extremities the base bars 1 are connected by tie rods 6 which extend through the base bars.

The tie rods 6 are provided with heads which secure brace straps 7 to one of the base bars 1. Each brace strap comprises an arcuate portion 8 and a rearwardly extending portion 9 in which is fitted a button pad 10. The other or forward ends of the tie rods 6 receive wing nuts 11.

The tie rods 6 slidably support a back plate 12 extending substantially the length of the base bars 1. The back plate 12 is intended to rest against the rearward base bar 1 and slope upwardly and backwardly therefrom.

The guide rods 5 slidably receive a plurality of separator

panels 13. Each separator panel is essentially rectangular in shape except that one corner is notched to form a sloping margin 14. Each panel 13 is provided with one or more longitudinally extending, reinforcing ribs 15, and is provided along its lower margin with a row of perforations 16.

The tie rods 6 are spaced from each other a distance equal to several of the perforations 16, the spacing being such that at least two guide rods 5 support each panel 13. By reason of the series of perforations 16, the panels 13 may be arranged in echelon formation, as shown in FIGURE 1. The panels 13 may be offset the distance between adjacent perforations 16 or a pair of perforations, or more if desired.

Indicia slips 17 are mounted along the sloping margins 14 of the separator panels 13. Two means for securing the indicia slips are illustrated.

Reference is first directed to FIGURES 4, 5, and 6. In the construction here illustrated, an integral retainer 18 in the form of a rectangular loop extends from the sloping margin 14, and is adapted to be folded over the front side of the separator panel 13. The retainer 18 is provided with a tab 19 at its extended side adapted to be inserted in a slit 20 formed in the separator panel 13. When folded, the retainer 18 forms a window 21 through which the indicia slip 17 is exposed when it is inserted between the retainer 18 and the separator panel 13.

The second means for securing the indicia slip 17 is illustrated in FIGURES 7 and 8. In this construction there is provided a U-shaped clip 22, preferably formed of spring material, which when forced over the separator panel 13 tends to grip opposite sides thereof. The clip 22 is encased in a transparent cover member 23, the ends of which are fitted between the legs of the clip 22. Space is provided between the forward side of the cover member 23 and the clip 22 to receive the indicia slip 17.

Operation of the echelon sorter is as follows:

The back plate 12 extends the combined width of the group of panels 13, and determines the backward tilt angle of the panels. The back plate 12 may rest against the back base bar 1, as shown in FIGURE 3, or at any position forwardly thereof.

The separator panels 13 fit loosely on the guide rods 5 so that the separator panels may be tilted forward or rearward a limited distance, as suggested in FIGURES 2 and 3. The indicia slips 17 bear numbers or letters, or both, to indicate the divisions into which it is desired to sort a series of letters, checks, or similar objects.

Sorting is accomplished by inserting the objects to be sorted between the separator panels 13, the panels being flipped forward or rearward to provide an open slot to receive each item. The separator panels 13 are preferably dimensioned so that the indicia-bearing portions are above the upper margins of the objects to be sorted.

The number of separator panels 13 to be used depends upon the number of classifications of the objects to be sorted. In some instances a large number of separator panels 13 is required, which would necessitate that the operator reach laterally to manipulate the end separator panels. In this case it is preferred to mount the base bars 1 on tracks. This is accomplished, as illustrated in FIGURES 9 and 10, by inserting a glide unit 24 in each end of each base bar 1. One type of glide unit involves a pair of plates 25 defining an essentially elliptical guideway for a plurality of balls 26. One side of the guideway is flattened and the plates 25 form a slot 27, exposing the balls 26 so that the balls may roll on a track 28. With this arrangement the spacing between the base bars 1 is sufficient to provide stable support without the brace straps 7, and the entire sorter may be freely moved laterally.

If desired, two or more sorters may be arranged, one back of the others. For example, a front sorter, with relatively short panels, may be provided for sorting checks, and a rear sorter, with relatively high panels, may be provided for sorting letters.

While particular embodiments of this invention have been shown and described, it is not intended to limit the same to the exact details of the constructions set forth, and it embraces such changes, modifications, and equivalents of the parts and their formation and arrangement as come within the purview of the appended claims.

What is claimed is:

1. An echelon sorter, comprising:
(*a*) a pair of parallel base bars each having enlargements at their ends to support said bars above an underlying surface;
(*b*) a plurality of guide rods extending therebetween;
(*c*) a plurality of separator panels having perforations along their lower margins to receive selected guide rods and disposed in echelon relation, said panels being tiltable and slidable on said rods between said base bars;
(*d*) one upper corner of each panel being beveled to form a sloping margin at the upper portion of one side;
(*e*) and indicia-retaining means disposed along said margin.

2. An echelon sorter as set forth in claim 1, wherein:
(*a*) said indicia-retaining means is an integral foldable loop element overlying one side of said margin.

3. An echelon sorter as set forth in claim 1, wherein:
(*a*) said indicia-retaining means is a clip member slidable over said margin.

4. An echelon sorter, comprising:
(*a*) a plurality of separator panels having vertically extending reinforcing ribs and perforated lower margins;
(*b*) each separator panel having one upper corner and adjacent side cut away to form a sloping margin;
(*c*) indicia-retaining means disposed along said margin;
(*d*) a frame including a plurality of parallel guide rods threaded through selected perforations in said panels to dispose said panels in echelon relation;
(*e*) glide elements carried by said frame;
(*f*) and a track for said glide elements.

5. An echelon sorter, comprising:
(*a*) a pair of parallel base bars;
(*b*) a plurality of guide rods extending therebetween;

(*c*) a plurality of separator panels having perforations along their lower margins to receive selected guide rods and disposed in echelon relation, said panels being tiltable and slidable on said rods between said base bars;
(*d*) and a back plate formed of sheet material and perforated at its lower margin to receive said guide rods, said perforations being proportioned to limit tilting of said back plate to a lesser angle than said separator panels whereby the rearwardmost of said separator panels bears against the upper margin of said back plate, said back plate being slidable on said rods when said back plate is moved toward a vertical position, and caused to grip said rods when engaged at its upper margin by said separator panel.

6. An echelon sorter, comprising:
(*a*) a plurality of separator panels having perforated lower margins;
(*b*) each separator panel having one upper corner and adjacent side cut away to form a sloping margin;
(*e*) indicia-retaining means disposed along said margin;
(*d*) a frame including a plurality of parallel guide rods threaded through selected perforations in said panels to dispose said panels in echelon relation and brace straps secured to and extending rearwardly from said frame;
(*e*) and a backwardly tilted back plate extending the combined width of said plurality of panels and perforated to receive said guide rods, said back plate being slidable on said guide rods to control the spacing between said panels.

7. An echelon sorter as set forth in claim 5, wherein:
(*a*) glide elements are carried by said base bars;
(*b*) and a track is provided for said glide elements.

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