

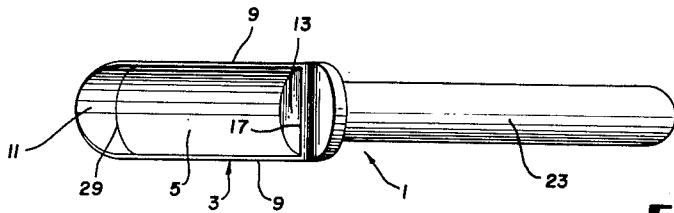
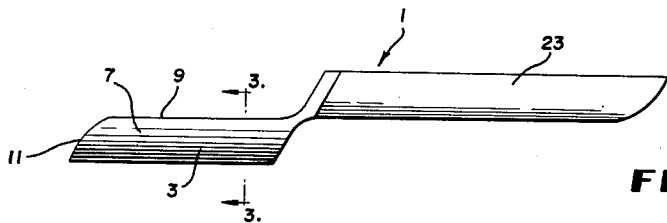
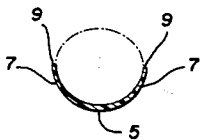
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**F. H. GATES**

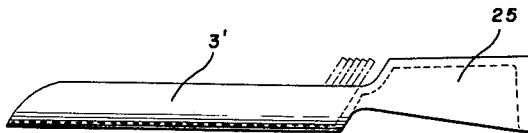
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DEVICE FOR DISPENSING DISKS AND THE LIKE

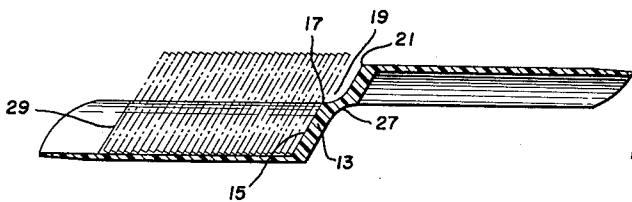
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**FIG. 1****FIG. 2**

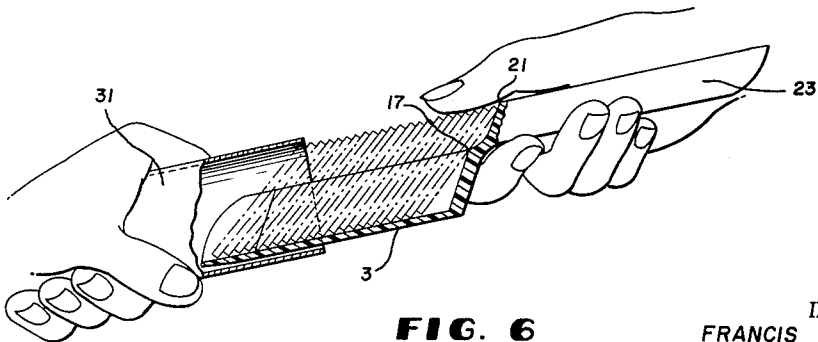
**FIG. 3**



**FIG. 4**



**FIG. 5**



**FIG. 6**

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1

3,163,170

**DEVICE FOR DISPENSING DISKS AND THE LIKE**

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2 Claims. (Cl. 133—8)

The present invention relates to devices for dispensing disks and the like, more particularly to devices adapted to be held in the hand to count and load into containers relatively small flat disks such as coins, poker chips, and tokens. It is not necessary that the disks be solid, for they may be annular as in the case of washers, nor is it necessary that the outer contour of the disks be circular, for polygonal nuts and the like are also contemplated as articles suitable to be handled by the present invention.

It is an object of the present invention to provide such devices effective to receive and dispense disks and the like in predetermined quantities thereby to serve as a means for counting the disks or for dispensing a predetermined number of the disks.

Another object of the present invention is the provision of such dispensing devices adapted to effect insertion of a quantity of disks into a tubular container without binding of the disks either with the dispenser or with the interior wall of the container.

Still another object of the present invention is the provision of such devices adapted to dispose the disks in one position convenient for counting and in another position convenient for dispensing.

A still further object of the present invention is the provision of such devices having portions adapted to serve selectively as scoops or as handles.

Finally, it is an object of the present invention to provide such devices that will be relatively simple and inexpensive to manufacture, quick, easy and accurate to operate, and rugged and durable in use.

Other objects and advantages of the present invention will become apparent from a consideration of the following description, taken in connection with the accompanying drawing, in which:

FIGURE 1 is a plan view of a dispensing device according to the present invention;

FIGURE 2 is an elevational view of the device of FIGURE 1;

FIGURE 3 is a section taken on the line of 3—3 of FIGURE 2;

FIGURE 4 is an elevational view showing a modified form of the invention;

FIGURE 5 is a longitudinal cross sectional view of the device of FIGURE 2; and

FIGURE 6 is a view showing the device of FIGURE 2 in use in the operation of dispensing disks into a tubular container.

Referring now to the drawing in greater detail, there is shown a dispenser according to the present invention indicated generally at 1 and comprising an open topped trough 3 having a bottom 5 and sidewalls 7 terminating in straight parallel horizontal upper edges 9. Trough 3 is of arcuate cross sectional configuration and has a uniform cross sectional configuration substantially from end to end thereof. The interior of trough 3 is elliptical in cross section, that is, in a multiplicity of planes perpendicular to the axis of the trough. The radii of curvature of the interior surface are greatest adjacent bottom 5 and least adjacent sidewalls 7. The cross sectional configuration of the interior of trough 3 is a semi-ellipse, and upper edges 9 are closely adjacent, and in the illustrated embodiment coincide with, the ends of the major axis of the ellipse of which the cross sectional configuration of the interior of trough 3 comprises one-half.

Trough 3 is open at one end 11 and is rounded at that end in the manner of a scoop, and it is closed at the other

2

end by a wall 13 having a flat surface 15 bounding a portion of the interior of trough 3. Considering the axis of trough 3 to be horizontal, surface 15 extends upward from the bottom of the trough, and in the illustrated embodiment is inclined downward toward end 11 of the trough relative to a plane perpendicular of the axis of the trough. Surface 15 terminates upward in a horizontal edge 17 disposed above bottom 5 of trough 3 a distance substantially less than the width of trough 3 between upper edges 9. In the illustrated embodiment, edge 17 is at the same level and lies in the plane of edges 9.

A recess 19 above edge 17 spaces edge 17 from an abutment 21. Abutment 21 defines with edge 17 a plane inclined forwardly downward relative both to the plane of surface 15 and a plane perpendicular to the axis of trough 3. Abutment 21 may be provided in a number of ways: for example, it can be provided by the relatively sharp point to which the lead line from reference numeral 21 extends in FIGURE 5; or it can be provided by some point below that last point on a boundary portion of recess 19. Alternatively, recess 19 can be eliminated and edge 17 can form a horizontal dihedral between two flat surfaces, one of which is surface 15 and the other of which would be represented in FIGURE 5 by a straight line between edge 17 and the point touched by the lead line of numeral 21 in FIGURE 5.

A handle means is provided for holding trough 3 in the hand while disks are received into and dispensed from the trough. In the preferred embodiment, this handle means is provided by a second trough 23 having its axis parallel to or co-axial with the axis of trough 3 but extending in an opposite direction from and inverted relative to trough 3. The second trough 23 is of a width distinctively different from the width of trough 3 so as to accommodate disks of distinctively different size from those handled by trough 3. For example, if the disks are coins, then trough 3 can handle coins of one denomination while trough 23 can handle coins of another denomination, the coins of all denominations having distinctively different sizes. Alternatively, as seen in the modified form of FIGURE 4, the trough 3 can have a handle means provided by a handle 25 that performs no function other than serving as a handle for trough 3'.

As indicated, however, the double trough arrangement of all of the figures other than FIGURE 4 is the preferred arrangement. Thus, in this preferred form, the trough 23 is closed at its rear by abutment 21, the abutment in this sense performing a double function as abutment and end wall, the sidewalls of trough 23 providing grips as a handle when trough 3 is used for disks rather than trough 23. Abutment 21 and wall 13 are interconnected by a web 27, and the dispenser of the present invention is virtually a reversed mirror image of itself, apart from changes of dimension, on opposite sides of the plane that bisects web 7.

In operation, disks or the like are stacked in one of the troughs as seen in FIGURE 5, with the rearmost disk flat against surface 15 and the other disk flat against the next disk to the rear. In this position, any rims on the disks, such as the rims on poker chips, tokens and coins, do not tend to lock into each other, and the coins can be easily dislodged from each other. Also, in this position, the individual uppermost edges of the disks are slightly displaced from each other so as to give a saw tooth or serrated appearance from the side. In this way, the disks can be easily separated from each other by manipulation of their uppermost edges. All the disks are thus parallel to each other but inclined downward toward end 11 of the trough. The elliptical configuration of the cross section of the trough assures that the lower edges of the disks are in contact with the trough substantially entirely about the lower portion of the disks. The disposition of

the upper edges 9 of the trough adjacent the ends of the major axis of the semiellipse assures that substantially the upper halves of the coins project above the trough and are exposed for manipulation.

In this position, it is easy to count the disks by the distance the stack of disks extends from surface 15. To this end, indicia 29 are provided for measuring the height of the stack on the interior of the trough. Indicia 29 may for example take the form of lines marked on or inscribed in the inner surface of the trough parallel to the lower edges of the disks in the position the disks initially assume in the trough. There may for example be a line at 5, 10, 15, 20, and 25 units, the lines being spaced apart by multiples of the thickness of the disk to be accommodated. In the case of coins, for example, the lines may be marked with numerals corresponding either to the number of coins of a certain denomination that reach to that line or the value of coins of a certain denomination that reach to that line.

For reasons stated above, it is advantageous to incline flat surface 15 as shown relative to a plane perpendicular to the axis of the trough; however, too much inclination of surface 15 results in excessive inclination of the disks. In the illustrated embodiment, an inclination of 30° from the vertical is shown; and this is a convenient degree of inclination for most purposes. Excessive inclination, however, results in an inaccurate count of the disks. When the disks are too nearly lying on their sides relative to each other, the distance to which they extend from surface 15 is subject to considerable variation for the same number of disks. At the same time, however, it is difficult to insert the disks in a tubular sleeve if the disks are too nearly vertical in the trough. Indeed, it is difficult to insert them in a tubular sleeve when they are flat against surface 15. Hence, the utility of edge 17 and abutment 21 will become apparent, for as is seen in FIGURE 6, it is possible by means of edge 17 and abutment 21 to further incline the disks after they have been counted, simply by pressing back on the staggered upper edges of the disks until the rear disk swings about edge 17 and contacts at its upper end a portion of abutment 21. In this further inclined position, the disks slant so relative to the trough that their position in the trough no longer accurately indicates their number. But at the same time, they slant sufficiently that they can be introduced easily into a tubular container such as a tubular coin sleeve 31 without interfering with the side walls of the container, as seen in FIGURE 6. As also seen in FIGURE 6, it is not necessarily the sharp upper peak of abutment 21 that contacts the rear disks, for the upper edge of the disk can also contact a boundary portion of recess 19. FIGURE 6 also illustrates the ease with which the second trough 23 serves as a handle in the double trough embodiment.

It will also be noted that the distance between the abutment and the bottom of the trough measured in the plane defined by the abutment and the horizontal edge is not greater than the diameter of a disk to be handled.

Comparison of FIGURES 5 and 6 also shows the virtue of inclining flat surface 15 as described so as to prevent rims on the disks from interlocking. If surface 15 were vertical, then it would obviously be quite difficult to move rimmed disks from a position in which their rims interlocked to the position shown in FIGURE 6 simply by manipulation of the disks with the thumb.

Comparison of FIGURES 5 and 6 will also make it plain that abutment 21 can be formed in any of a variety of manners, as described in greater detail above, for it

is necessary only to provide a point or surface spaced above edge 17 and a short distance behind the plane of surface 15 relative to open end 11 and at a height above bottom 5 less than the width of the trough, that is, less than the height of the disks to be accommodated. These requirements being satisfied, it is relatively quite unimportant whether recess 19 is present or absent, or whether abutment 21 is in the form of a plane bordered on one edge by edge 17, or whether it takes any of a variety of other configurations.

As will now be appreciated, a dispenser 1 can be formed of any of a variety of materials provided that it is substantially rigid. Particularly preferred are hardened plastics from which it can be molded as an integral piece.

Although the present invention has been described in connection with preferred embodiments, it is to be understood that modifications and variations may be resorted to without departing from the spirit of the invention, as those skilled in this art will readily understand. Such modifications and variations are considered to be within the purview and scope of the present invention as defined by the appended claims.

What is claimed is:

1. A device for dispensing disks and the like, comprising a pair of open-topped troughs disposed end-to-end and inverted relative to each other and having closed ends adjacent each other and open ends opposite each other, and single wall means closing said closed ends of the troughs and having a portion closing one trough and a portion closing the other trough, said wall means providing at each closed end of each trough a flat surface that extends from the bottom of each trough upwardly and terminates in a horizontal edge spaced from the bottom of the trough a distance substantially less than the width of the inside of the trough, the side of each said wall portion opposite its associated trough providing an abutment above the bottom of the trough other than its associated said trough a distance less than the width of the inside of said other trough and above said edge associated with said other trough and a short distance on the side of the plane of said flat surface of said other trough opposite the open end of said other trough.

2. A device as claimed in claim 1, in which said flat surfaces are inclined downwardly toward the open ends of their associated troughs.

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