June 9, 1959 M. J. BELMONTE 2,889,961

DISPENSING DEVICE

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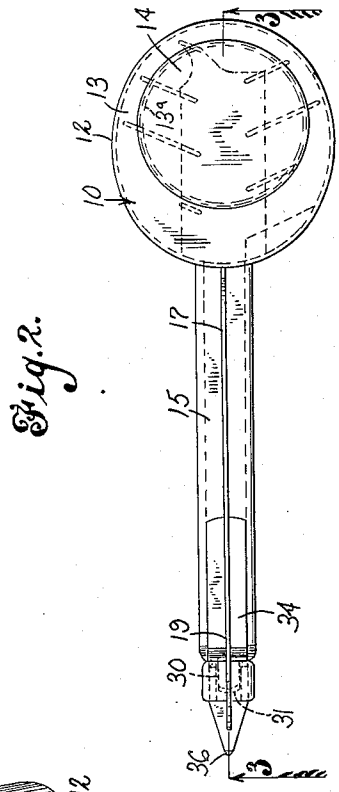


Fig. 2.

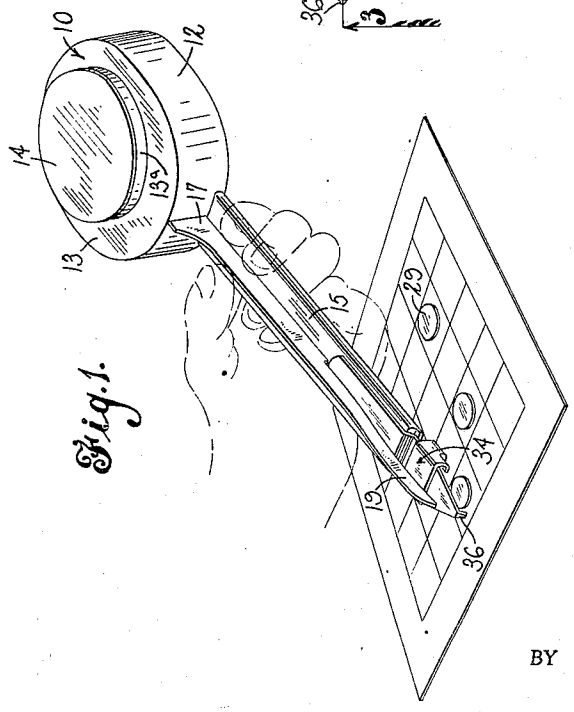


Fig. 1.

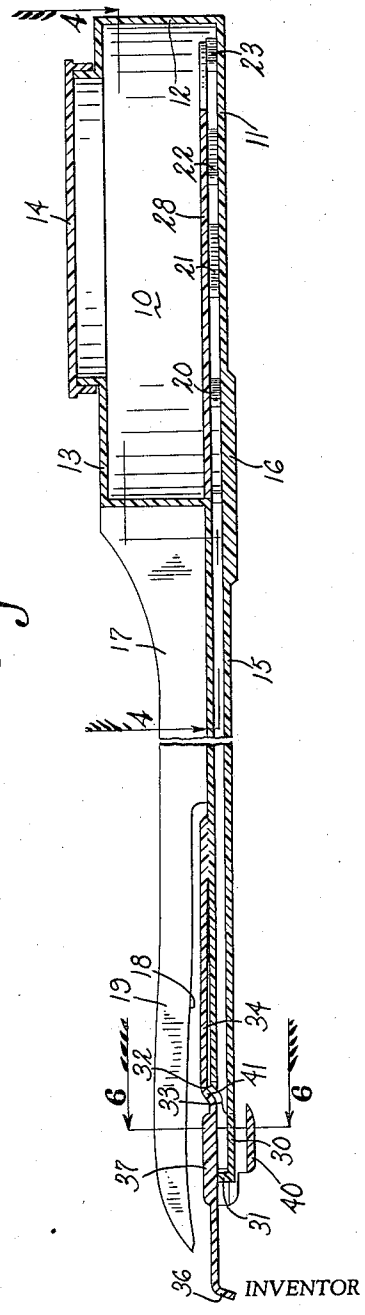


Fig. 3.

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Fig.4.

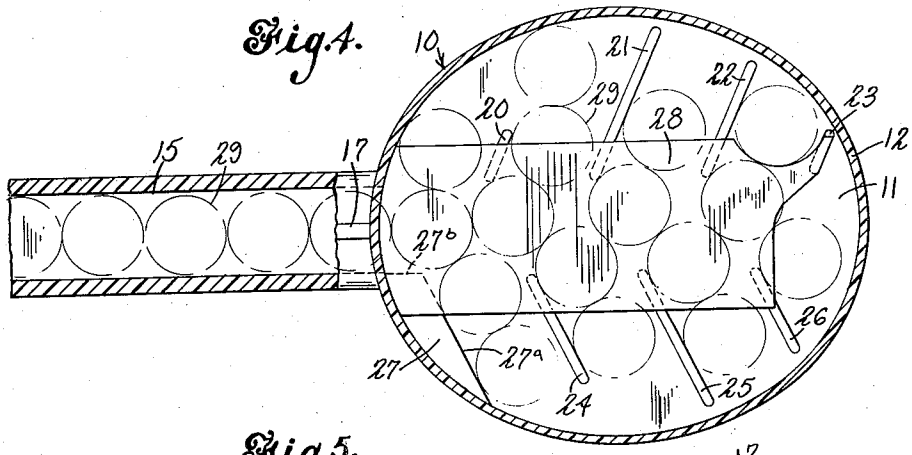


Fig.5.

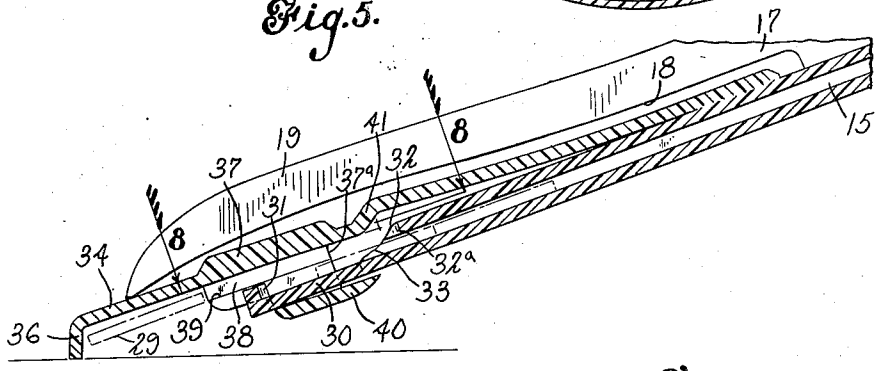


Fig.6.

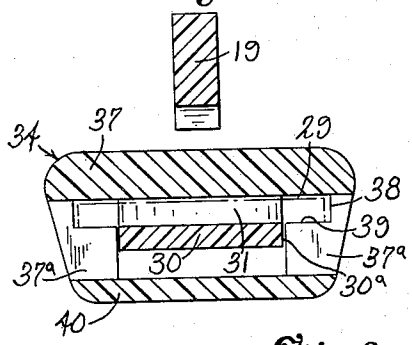


Fig.7.

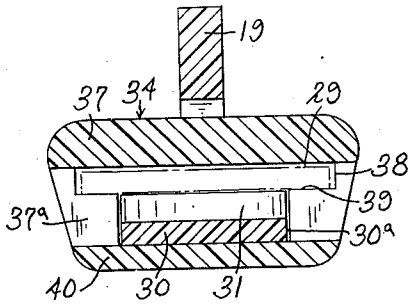
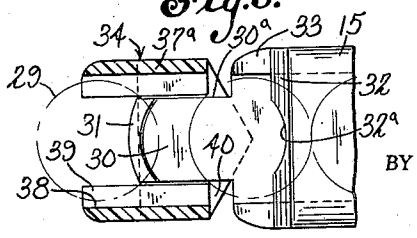


Fig.8.



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DISPENSING DEVICE

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Application February 7, 1957, Serial No. 638,802

5 Claims. (Cl. 221—175)

This invention relates to an article dispenser and relates more particularly to dispensers which, while not limited thereto, are particularly useful for placing markers in proper locations on a game board or the like. The dispenser is admirably suited for dispensing small disks or markers employed in playing bingo. A bingo player often plays a number of "cards," each "card" having on its face twenty-four numbered squares. As numbers are called, the player places a marker in each square corresponding to the number called. Frequently the player falls behind the caller, unless the player has a convenient and adequate supply of markers and has great dexterity.

I am aware that dispensers for game markers have been devised heretofore. However, the dispensers known to me have been open to certain objections. These dispensers are difficult to load; sometimes fail to operate at all, or dispense more than one marker at a time; require an undue and fatiguing amount of finger pressure on the part of the player to operate them; and obscure from the player's view the square on which the marker is to be placed as the dispenser is moved to the dispensing position over the square. My invention contemplates the provision of an article dispenser which has none of the aforementioned drawbacks.

Accordingly, one object of the invention is to provide an improved article dispenser especially useful for dispensing game markers.

Another object of the invention is to provide a dispenser which is easily loaded and which is easily manipulated to dispense markers.

Another object of the invention is to provide a dispenser which is very reliable in use and which is of simple and economical construction.

Further objects will be apparent from the following detailed description of the form of the invention illustrated in the drawings by way of example.

In the drawings:

Fig. 1 is a perspective view of a dispenser embodying the invention, the dispenser being shown in association with a game board or the like;

Fig. 2 is a top plan view of the dispenser;

Fig. 3 is an enlarged sectional view taken on line 3—3 of Fig. 2;

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

Fig. 5 is an enlarged fragmentary view partially in section illustrating the dispensing point of the dispenser, the point being shown in position to dispense a marker;

Fig. 6 is an enlarged sectional view taken on line 6—6 of Fig. 3;

Fig. 7 is a view similar to Fig. 6 but illustrating the parts of the dispenser in different relative positions; and

Fig. 8 is a sectional view taken on line 8—8 of Fig. 5.

In the drawings, the hopper body of the dispenser is indicated at **10**. The hopper body, which may be generally oval in plan, is provided with a bottom **11**, an upwardly extending side wall structure **12**, a flat top **13**, an upwardly extending annular flange **13a** defining a rather large opening in the top, and a removable cover

14 having a press fit with the flange **13a**. The dispenser of the invention may be conveniently formed in its entirety of transparent or semi-transparent plastic material, and at one side of the hopper body **10** there is provided a slideway **15** which, in the illustrated form, extends a considerable distance from the hopper body, perhaps six inches. The slideway **15**, which is of flattened tubular form, communicates with the hopper body and the bottom of the slideway **15** is substantially flush with the bottom **11** of the body. The slideway **15** forms, in effect, a straight extension of the bottom **11**. The dispenser is provided with a reinforcement, as at **16**, at the junction of the slideway **15** with the body **10**. To further reinforce the dispenser at the junction of the slideway **15** with the body **10**, there is provided on the top of the slideway **15** a vertically arranged web **17** fixed to the slideway **15** and the side wall structure **12** of the body. The web **17** extends from the body **10** to a point a short distance beyond the distal end of the slideway **15**. The bottom edge of the web **17** is recessed longitudinally, as at **18**, to form a projecting end or fixed finger **19** spaced above and extending longitudinally of the slideway **15**, the finger **19** extending outwardly over the distal end portion of the slideway **15**.

Formed on the upper surface of the bottom **11** of the body at one side of the longitudinal median plane of the slideway **15** are ribs or partitions **20—23**, each of said ribs forming with one another or the side wall structure **12** of the body a way extending in the direction of said plane and inclined toward the throat of the slideway **15**. As best shown in Fig. 4, these ways extend parallel to one another. Formed on the upper side of the bottom **11** of the body at the other side of said plane are ribs or partitions **24—26**, these ribs being in staggered relation to the ribs **20—23**, as best shown in Fig. 4. Also extending upwardly from the bottom **11** is a projection **27** having a straight side edge **27a** spaced from and parallel to the rib **24** to form with the latter a way extending toward the throat of the slideway **15**. The projection **27** is also provided with a side edge **27b** which, in the illustrated form, is a straight edge forming with the edge **27a** an obtuse angle, the edge **27b** serving as an abutment (which will appear hereinafter) and being substantially flush with the corresponding side of the throat of the slideway **15**, as shown in Fig. 4. The way formed by the projection **27** and the rib **24** is inclined with respect to the longitudinal median plane of the slideway **15**, as illustrated in Fig. 4, and the last-mentioned way is parallel to a way formed by the rib **24** and the rib **25**, a way formed by the rib **25** and the rib **26**, and a way formed by the rib **26** and the side wall structure **12** of the body. The ways formed at the last-mentioned side of the longitudinal median plane of the slideway **15** are in staggered relation to the ways formed at the other side of said plane, as shown in Fig. 4. Spaced upwardly from the bottom of the ways by the ribs **20—26** and the projection **27** is a plate **28** extending in substantially parallel relation to the bottom **11**. The plate **28**, which is of the form shown in Fig. 4, is fixed to the ribs **20—26** and the projection **27**. The plate **28** extends from the throat of the slideway **15** to the opposite side of the hopper body **10** and covers only the inner ends of said ways, the ends closest to the longitudinal median plane of the slideway **15**. The plate **28** is spaced upwardly from the bottoms of the ways a distance only slightly in excess of the thickness of a single marker so that the markers may not slide under the plate **28** in piggyback relation to one another. The markers, which are formed as small disks, are indicated at **29**. The markers **29**, when placed in the hopper body **10** in random fashion will, when the dispenser is agitated by shaking the same in the hand of the player, drop into said ways in all regions except their

inner end regions. The inner ends of the ways at one side of said median plane are spaced from the inner ends of the other ways to form a central passageway (Fig. 4) for the markers **29** leading to the throat of the slideway **15**, and the ways at one side of said median plane are in staggered relation to the other ways so that jamming of the markers **29** in said passageway is inhibited. From the foregoing it will be understood that the ribs **20—26**, the projection **27** and the plate **28** form with the bottom and side wall structure **12** of the hopper body a hopper construction which, while facilitating a flow of markers to the throat of the slideway **15**, inhibits jamming of the disks at the throat. In this connection it may be noted that the edge **27b** of the projection **27** forms an abutment for markers **29** sliding toward the throat of the slideway **15** in the way formed by the rib **20** and the side wall structure **12** of the body, said abutment tending to prevent markers in the last-mentioned way from sliding past the throat of the slideway, as indicated in Fig. 4. Of course it will be understood that the markers **29** move by gravity toward the throat of the slideway **15** when the dispenser is tipped in the hand of the player, as indicated in Fig. 1. When the dispenser is held in the hand in this manner and gently agitated from side to side markers **29** on the upper surface of the plate **28** tend to slide off the last-mentioned plate to one side or the other and drop into the ways formed on the upper surface of the bottom **11**. The hopper body may be loaded by first removing the cover **14** and then dropping a handful or two of the markers into the hopper body at random. The cover **14** may then be replaced.

As shown in Fig. 4, the slideway **15** provides a passage for the game markers **29** which passage is only slightly in excess of the diameter of a single marker so that the markers follow one behind another when the dispenser is tipped in the manner illustrated in Fig. 1. As best shown in Fig. 8, there is provided at the distal end of the slideway **15** a tongue **30** extending longitudinally of the bottom of the slideway **15**, the tongue **30** being somewhat narrower than the bottom of the slideway **15** and having at the outer extremity thereof an upwardly extending flange **31**. The flange **31** is of a height approximating that of the side walls of the slideway **15**. Rearwardly or inwardly from the tongue **30** the top of the slideway **15** is cut away and is provided with a downwardly sloped surface **32** (Fig. 8), the surface **32** forming the outer extremity of the top of the slideway **15**. The surface **32** is recessed, as at **32a**, opposite the flange **31** which has a corresponding curvature (see Fig. 8) so that the outermost marker may be discharged from the slideway **15** with clearance in an upward direction. The outer extremities of the sides of the slideway **15** are sloped, as at **33**. As shown in Fig. 8, the bottom of the slideway **15** extends beyond the sloped surface **32**. The tongue **30** forms, in effect, a narrow extension of the bottom of the slideway **15**, and the upwardly extending flange **31** at the outer extremity of the extension **30** serves as a stop to limit outward sliding movement of the markers **29** in the slideway. The arrangement is such that the outermost marker in the slideway **15** is engaged and stopped (see Fig. 6) by the flange **31**. The last-mentioned marker may subsequently drop, by gravity, from the dispenser only when the marker is raised by a lifting finger **34** relatively to the slideway and the flange **31** thereon. When the last-mentioned marker is lifted by the finger **34** from the position of Fig. 6 to the position of Fig. 7, the marker may slide over the flange **31** (see Fig. 5) and drop by gravity on the game board while the next following marker is stopped and held in the slideway **15** by engagement of the finger **34** with said following marker.

Turning now to the details of the lifting finger **34**, the finger **34** is generally of strip form and throughout the greater part of the length thereof is of a width approximating that of the slideway **15**. The finger **34** extends into the recess **18** formed in the web **17** and at the inner end thereof is secured to the top of the slideway **15** by welding or other suitable means, the finger **34** normally being free of engagement with the web **17**. At the other end thereof, the sides of the finger **34** converge toward one another to provide a tip and the extremity **36** of the tip is bent downwardly, as best shown in Fig. 3. The aforementioned converging sides of the finger **34** extend outwardly beyond the distal end of the slideway **15**, the arrangement being such that the extremity **36** of the tip is spaced outwardly a distance from the upwardly extending flange **31** at the distal end of the slideway **15**. The finger **34** is thickened, as at **37**, in the area of the flange **31** (see Fig. 3) and in this area the finger **34** is provided with depending sides **37a** which closely overlie the sides **30a** of the tongue **30**, the sides **37a** of the finger having clearance with the tongue **30**. The sides **37a** of the finger **34** are provided with opposing grooves **38** forming a track for the markers **29** and providing upwardly facing shoulders **39** at opposite sides of the tongue **30** which, when the tip of the finger **34** is raised relatively to the slideway **15**, engage and lift the outermost marker in the slideway **15** over the flange **31** so that the same may drop out of the dispenser through the track formed by the grooves **38**. As best shown in Fig. 8, the shoulders **39** are located closely adjacent the respective sides of the tongue **30** and the tongue is of a width less than the diameter of the markers **29** so that the markers extend over the sides **30a** of the tongue and onto the shoulders **39**. At their lower extremities the sides **37a** of the finger **34** are interconnected by a part **40** underlying the slideway **15**, the part **40** being rigid with the sides **37a** and serving to brace the same.

When the finger **34** is in the normal position thereof (see Fig. 6) the cross member or part **40** is spaced a distance below the bottom of the tongue **30** and the thickened part **37** of the finger rests on top of the flange **31**. When the finger is in the last-mentioned position the outermost marker in the slideway **15** is held captive in the dispenser through the cooperation of the flange **31** with the thickened part **37** of the finger. While the finger **34** is sufficiently flexible to bend upwardly to the extent necessary to lift a marker over the stop flange **31**, the finger is sufficiently rigid and spring-like to normally maintain the last-mentioned position thereof. It may be noted that the inner fixed extremity of the finger **34** is located a distance inwardly from the upper sloping surface **32** of the slideway. The finger **34** is offset, as at **41**, in the region of the sloping surface **32** of the slideway to provide a forward or outer portion of the finger which is substantially flush with the top of the slideway **15** (see Fig. 3) when the finger is in the normal position thereof. The rear or innermost portions of the side walls **37a** of the finger are of a greater height (Fig. 5) than the forward or outer portions of these walls and the cross member **40** extends between the side walls **37a** at their innermost ends, the cross member **40** extending inwardly beyond the side walls **37a** and being shaped as indicated in Figs. 5 and 8.

From the foregoing it will be understood that to discharge game markers from the dispenser the dispenser is held in the hand in the manner indicated in Fig. 1 with the body in an elevated position and the tip in a lower position so that the slideway between the tip and the body is inclined toward the game board. When the dispenser is held in this manner it may be gently agitated by shaking it from side to side so that disks in the hopper may drop off the plate **28** and feed by gravity to the throat of the slideway **15** and then fill the slideway. When the slideway is made of transparent or semitransparent plastic material the player may know at a glance when the slideway is full. The markers **29** are discharged from the dispenser by pressing the tip downwardly against the game board in a manner to effect upward lifting movement of the tip relatively

to the distal end of the slideway **15**. This movement of the outer end of the finger **34** effects lifting of the outermost marker **29** above the flange **31** so that the last-mentioned marker may slide out of the dispenser on the shoulders **39** and drop by gravity on the game board. During this movement of the tip the next following marker is prevented from being discharged by engagement of the latter with the rear extremities of the sides **37a** below the grooves **38**, as shown in Fig. 5. When the finger **34** is in the position of Fig. 5 the last-mentioned extremities of the sides **37a** are spaced forwardly from the top of the slideway **15** a distance less than the diameter of a single marker, the distance being approximately one-half the diameter of the marker. This facilitates holding said following marker in the slideway **15** as the marker is closely confined between the top and bottom of the slideway, and, therefore, may not tip upwardly. Before the marker is discharged from the dispenser the tip must first be returned to the normal or rest position thereof. The tip must be in the normal position thereof in order for the marker to slide onto the shoulders **39**. It will be understood that when and as downward pressure of the tip on the game board is released or terminated the tip springs from the position of Fig. 5 to the normal position thereof, shown in Fig. 3.

The distal end of the fixed finger **19** is engageable by the tip of the dispenser to limit movement of the latter in an opening or dispensing direction, as shown in Fig. 5. This inhibits breaking of the tip. It may also be noted that the depending outer extremity **36** of the tip serves as an abutment to limit outward falling movement of a marker as it is discharged from the dispenser. This facilitates exact placement of a marker on a game board.

In accordance with the foregoing disclosure, there is provided a dispenser which is very easy to load and which has a large capacity. There is also provided a dispenser which is fast and very reliable in operation and which dispenses articles one at a time. The dispenser requires very little finger pressure on the part of hte user and is not tiring to operate. Furthermore, as the tip may be formed of transparent plastic material, the dispenser does not obscure from the player's view the square on which the marker is to be placed as the dispenser is moved to the dispensing position over the square. Still further, the dispenser is of simplified and rugged construction and is very economical to produce.

While only one form of the dispenser has been illustrated and described by way of example, it will be understood that the dispenser is susceptible of various modifications and changes in details without departing from the principles of the invention and the scope of the claims.

What I claim is:

1. In a dispenser for small objects of disk form, an upwardly extending body forming a receptacle for the disks and for support in the hand of the user, the body having laterally extending means forming a slideway for the disks and including a stop fixed to the slideway and limiting outward sliding movement of the disks one behind another in the slideway, and disk-discharging means for depositing the disks one at a time on a disk-receiving surface, the last-mentioned means being supported from the slideway and comprising a lifting finger overlying the outer end of the slideway, the finger extending beyond the outer end of the slideway and the stop and being operative to discharge the outermost disk when pressed downwardly on the disk-receiving surface.

2. In a dispenser for small objects of disk form, a hopper body for support in the hand of the user having a bottom and a side wall structure, said body forming a receptacle for the disks disposed at random in the latter, means extending laterally from the body at the bottom and forming a slideway for the disks one behind another, said means comprising a stop fixed to the slideway and limiting outward sliding movement of the disks one behind another in the slideway, and a second means supported from the slideway and cooperating with the first-named means to lift the disks over the stop one at a time and deposit them on a disk-receiving surface, said second means comprising a lifting finger overlying the outer end of the slideway, the finger extending beyond the outer end of the slideway and the stop and being operative to discharge the outermost disk when pressed downwardly on the disk-receiving surface.

3. In a dispenser for small objects of disk form, a hopper body for support in the hand of the user having a bottom and a side wall structure, said body forming a receptacle for the disks disposed at random in the latter, an elongate member of flattened tubular form extending laterally from the body at the bottom and forming a slideway for the disks one behind the other, a web of elongate form vertically arranged having one end fixed to said side wall structure and extending longitudinally of the slideway, said web having a portion thereof fixed to the top of the slideway adjacent said body and having a free projecting end spaced above and extending beyond the distal end of the slideway, and means supported on the slideway to lift the disks out of the distal end of the slideway one at a time and deposit them on a disk-receiving surface, said means comprising a lifting finger extending outwardly from the distal end of the slideway and having a tip movable upwardly relative to said end of the slideway, the finger extending below and beyond the projecting end of the web and normally being spaced from the latter, and said lifting finger being operative to discharge the outermost disk when pressed downwardly on a disk-receiving surface, said projecting end of the web being engageable with said finger to limit lifting movement of the latter.

4. In a dispenser for small objects of disk form, a hopper body for support in the hand of the user having a bottom and a side wall structure, said body forming a receptacle for the disks disposed at random in the latter, means extending laterally from the body at the bottom and forming a slideway for the disks one behind another, the slideway having a discharge end and a throat at the other end, said hopper bottom having a series of upright partitions formed on the upper surface thereof at each side of the longitudinal median plane of the slideway, the partitions being of a height only slightly in excess of the thickness of a disk, and the partitions of each series being spaced apart and inclined toward said throat forming with one another ways for the disks, each way being of a width only slightly in excess of the disk diameter, one series of partitions being spaced from the other to provide therebetween a passageway extending toward the throat, the partitions of one series being in staggered relation to the partitions of the other series, and a plate member extending parallel to the bottom of the hopper body over the inner ends of the ways and leaving exposed the outer end portions of the ways, the plate member extending over said passageway extending toward the throat, the plate member being fixedly supported in the body to extend closely over the tops of the partitions so that the disks may not enter said passage in piggyback relation to one another and jam in the area of the throat.

5. In a dispenser for small objects of disk form, a slideway for the disks one behind another, the slideway having a tongue at the discharge end forming an extension of the bottom of the slideway, the tongue being narrower than the diameter of the disks and having at the distal end thereof an upwardly extending flange serving as a disk stop, a spring-like lifting finger over the tongue having the distal end thereof extending beyond the flange for engagement with a disk-receiving surface, the other end of the finger being in fixed relation to the slideway, the finger having intermediate its ends depending sides closely overlying the sides of the tongue, the sides being shouldered to provide lifting surfaces for

lifting a disk over said stop flange when the distal end of the spring-like finger is pressed downwardly on the disk-receiving surface.

References Cited in the file of this patent

UNITED STATES PATENTS

135,329	Glidden	Jan. 28, 1873
1,521,819	Lenz	Jan. 6, 1925
1,685,183	Wilhelm	Sept. 25, 1928
1,800,459	Maclean	Apr. 14, 1931
1,807,942	Stimpson	June 2, 1931
1,897,200	Klett	Feb. 14, 1933
2,256,340	Gora et al.	Sept. 16, 1941

FOREIGN PATENTS

296,750	Great Britain	Sept. 7, 1928
486,873	France	Feb. 22, 1918