April 11, 1967 G. BROWN 3,313,477

TRANSPARENT BANK CONSTRUCTION HAVING COIN SORTING MEANS

Filed Feb. 5, 1965 3 Sheets-Sheet 1

Fig. 1

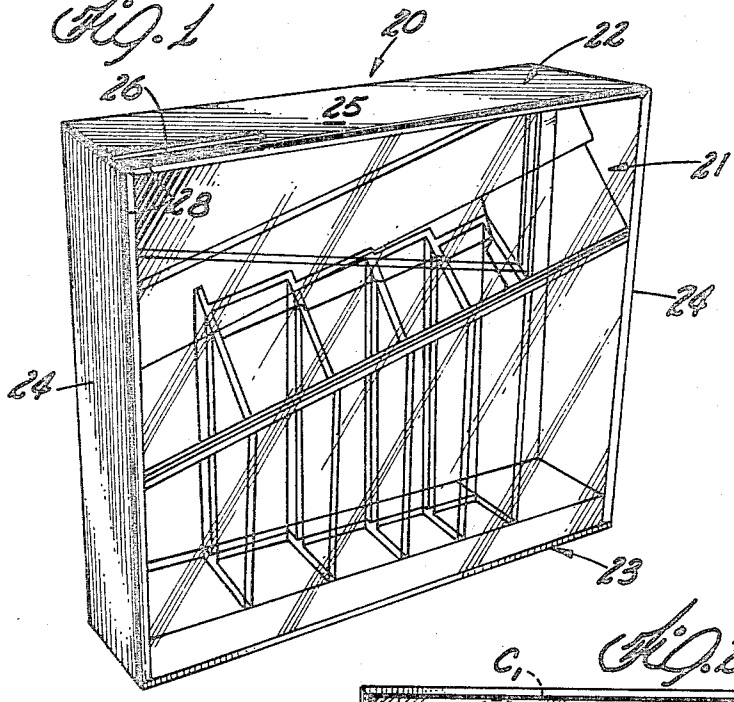


Fig. 2

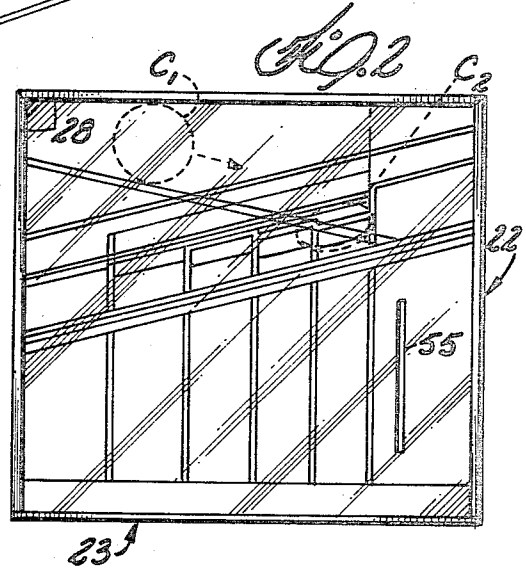
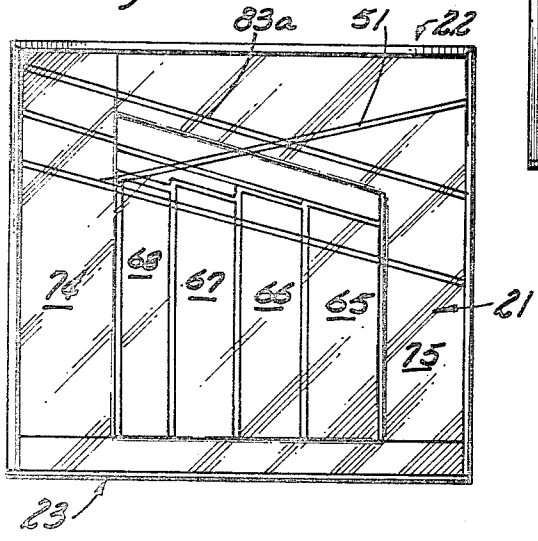


Fig. 3



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TRANSPARENT BANK CONSTRUCTION HAVING COIN SORTING MEANS

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Fig. 4

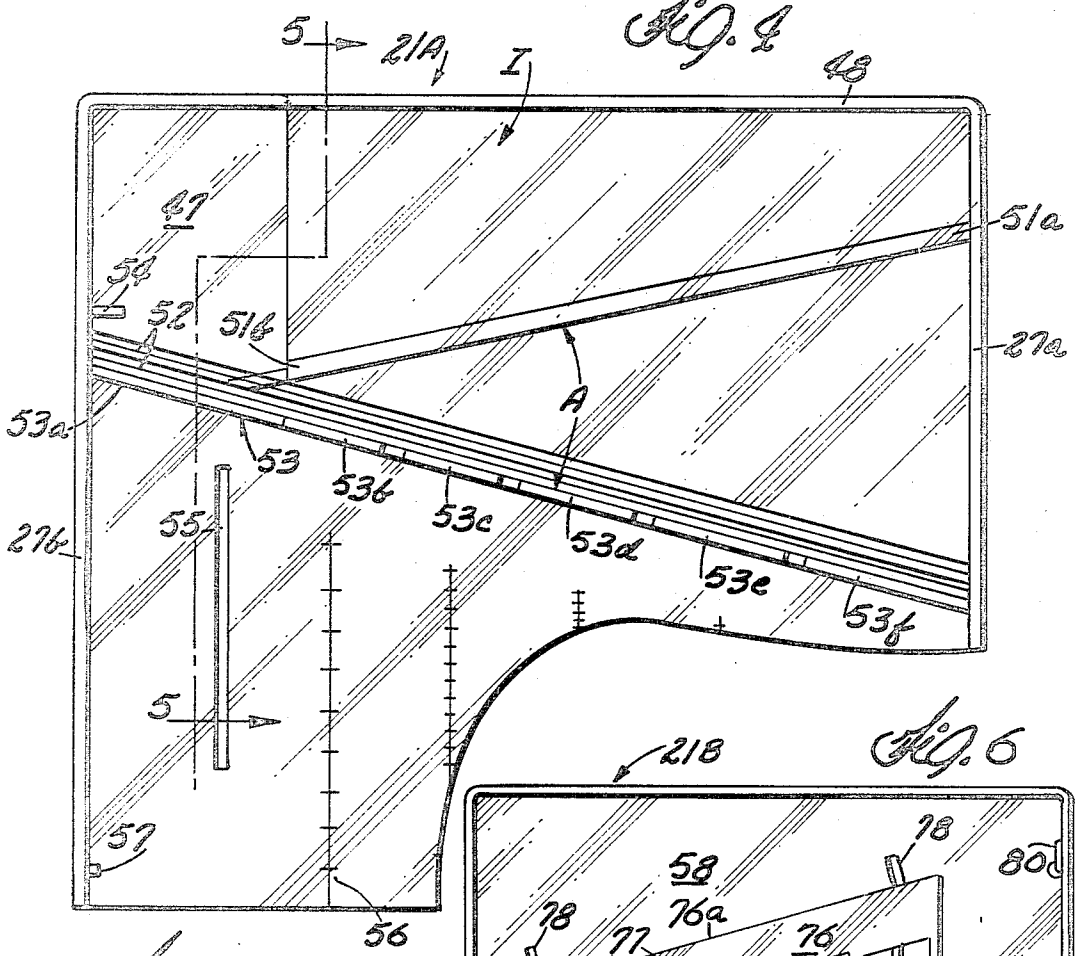


Fig. 6

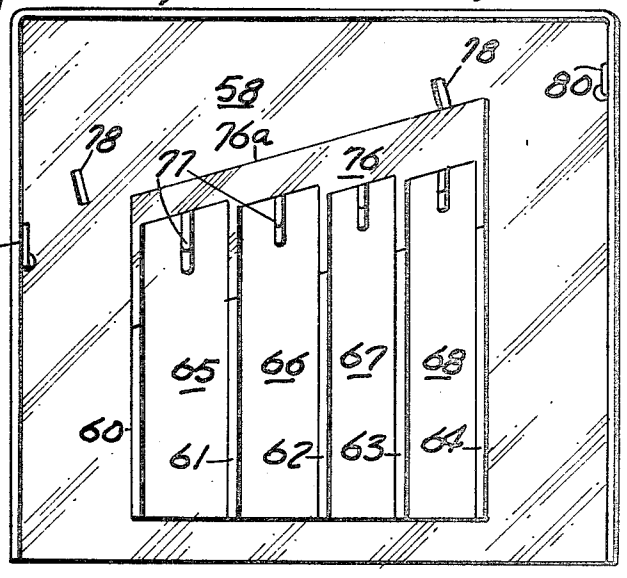
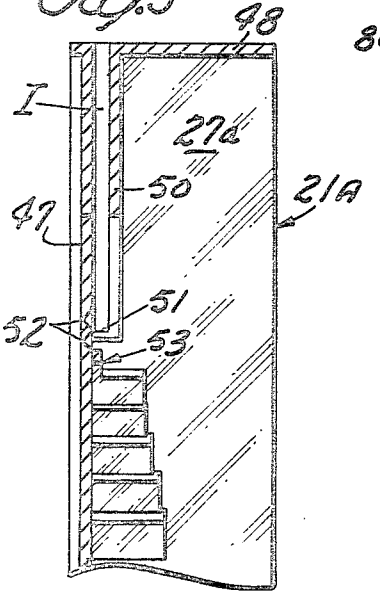


Fig. 5



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TRANSPARENT BANK CONSTRUCTION HAVING COIN SORTING MEANS

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Fig. 8

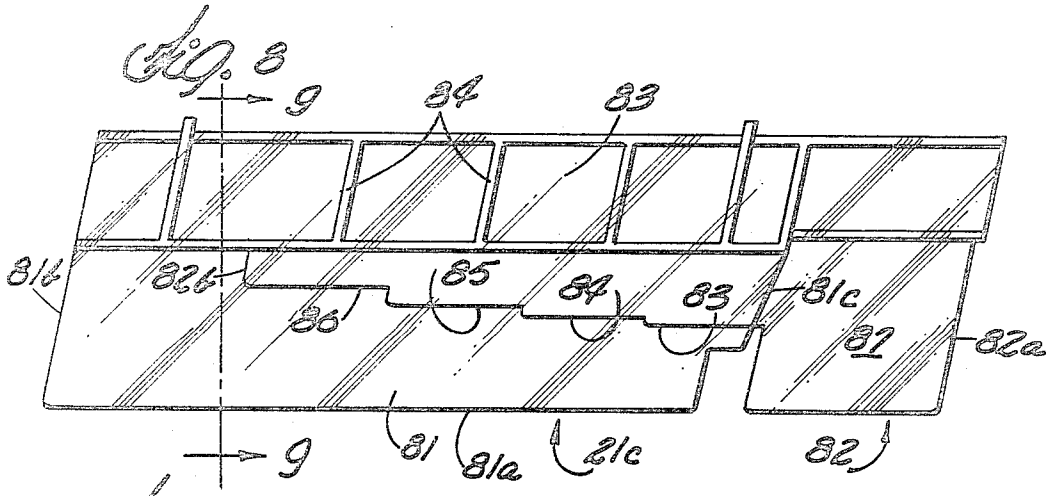


Fig. 9

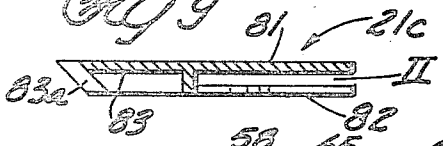


Fig. 7

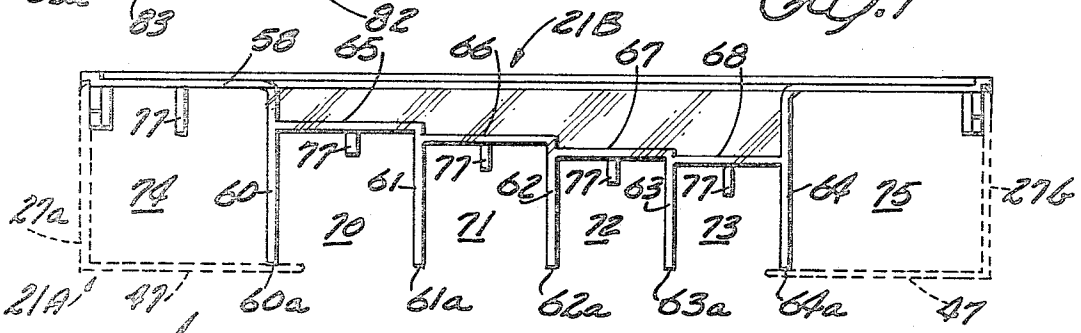


Fig. 10

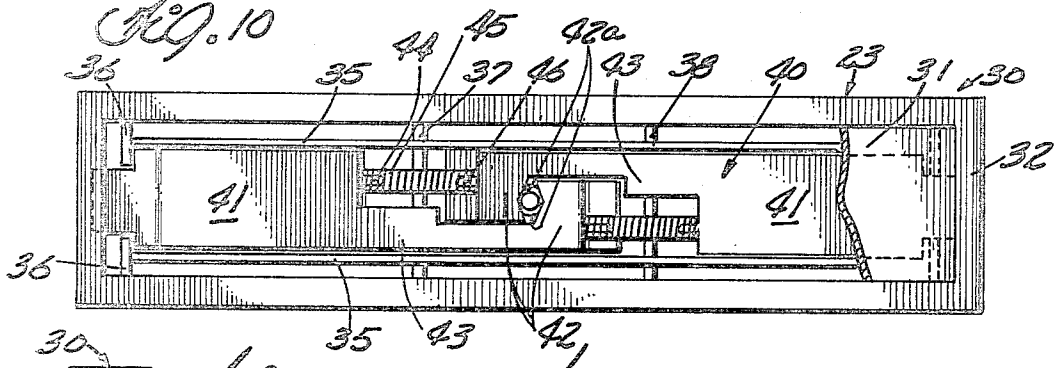


Fig. 11

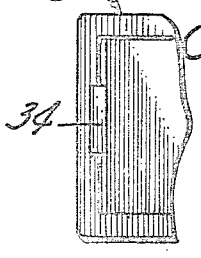
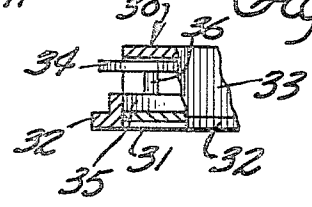


Fig. 12



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United States Patent Office 3,313,477 Patented Apr. 11, 1967

3,313,477

TRANSPARENT BANK CONSTRUCTION HAVING COIN SORTING MEANS

Gustave Brown, Wheaton, Ill., assignor to Harold B. Spector and Raymond B. Spector, a co-partnership doing business as Superior Toy & Mfg. Co.

Filed Feb. 5, 1965, Ser. No. 430,658
7 Claims. (Cl. 232—5)

This invention relates to a bank construction and more particularly to a toy coin bank which has particular appeal to children and adults alike both as a fascinating toy and an effective depository for a wide variety of coins as well as folding currency.

It is generally recognized that children at an early age should learn the value of money and at the same time develop frugal habits. In addition, it is desirable that children learn to recognize and identify the various coins used in our monetary system. To stimulate and facilitate this learning process, it is important as well as desirable that the child receive some enjoyment or entertainment in the course of such learning and handling of money. Toy coin banks are oftentimes the means of providing such enjoyment and entertainment.

Toy banks of many types and sizes have heretofore been proposed which are intended to function both as a toy as well as bank or container for coins. These prior structures in many instances had many animated exterior parts which provided fascination to the child, as well as an adult, when a deposit was made in the bank. In other prior banks, audio devices were used to signify that a deposit had been made. Also various prior bank structures provided means whereby the coins when deposited would be automatically segregated into various compartments.

To incorporate one or more of these above features in such banks, however, oftentimes resulted in a bank of complex as well as costly construction and one which was highly susceptible to breakdown. Furthermore, in many prior bank structures, a coin deposited therein could be removed therefrom without utilizing a key to open same and without too much difficulty, dexterity, or ingenuity on the part of the person desiring the coin.

Thus, it is an object of this invention to provide a bank which is not beset with the aforementioned shortcomings associated with prior structures.

It is a further object of this invention to provide a bank which is void of any moving parts, and yet is possessed of fascinating animation by the coin itself upon being deposited in the bank.

It is an additional object of this invention to provide a bank which has a plain, simple, substantially uniform exterior configuration which is void of any protrusions which might complicate packaging of the bank for shipping or storage or which might otherwise cause injury to the user or damage to clothing while the bank is being handled.

It is a further object of this invention to provide a bank wherein the deposited coins are automatically segregated and counted and can be removed from the bank only when a portion thereof has been unlocked and removed so as to provide access to the interior of the bank.

It is a still further object of this invention to provide a bank which is attractive in appearance and is of sturdy inexpensive construction.

Further and additional objects will appear from the description, accompanying drawings, and appended claims.

In accordance with one embodiment of this invention a toy coin bank is provided which comprises a hollow housing having a coin infeed opening formed in the upper portion thereof, and an element removably mounted on the exterior of the housing to permit, when removed, access to the lower portion of the housing interior. Adjustable locking means are provided for retaining the element on the exterior of the housing. The housing interior includes a downwardly inclined first coin guideway which has the upper end thereof in communication with the coin infeed opening. The lower end of the first guideway communicates with the upper end of a downwardly inclined second coin guideway. The inclination of the first guideway forms an acute included angle with respect to the inclination of the second guideway. A coin, when inserted through the infeed opening, rolls down the first guideway and then makes an abrupt change in direction upon commencing to roll down the second guideway, the axis of roll of the coin, while disposed in the second guideway, being at an angle with respect to the horizontal. One wall of the second guideway, which is engaged by the substantially flat surface of the coin while rolling down the second guideway, is provided with a plurality of longitudinally spaced apertures, the configuration of each being sized to the peripheral shape of a coin of a given denomination whereby a coin upon reaching the appropriate aperture will automatically pass therethrough and leave said guideway. Starting with the uppermost aperture, the areas of the apertures become progressively larger. Communicating with each aperture is the upper end of a depending coin-accommodating compartment. Each compartment is disposed in the lower portion of the housing and receives the coin subsequent to the latter passing through one of the wall apertures.

For a more complete understanding of this invention reference should be made to the drawings wherein:

FIG. 1 is a perspective view of one form of the improved bank.

FIG. 2 is a front elevational view of the bank shown in FIG. 1.

FIG. 3 is a back elevational view of the bank shown in FIG. 1.

FIG. 4 is an enlarged fragmentary elevational interior view of one section of the housing.

FIG. 5 is a fragmentary sectional view taken along line 5—5 of FIG. 4.

FIG. 6 is an elevational interior view on a reduced scale of a second section of the housing.

FIG. 7 is an enlarged top view of the housing section shown in FIG. 6.

FIG. 8 is an enlarged elevational view of a third housing section which is disposed intermediate the housing sections shown in FIGS. 4 and 6.

FIG. 9 is a sectional view taken along line 9—9 of FIG. 8.

FIG. 10 is a bottom view of the removable housing element and having a portion thereof cut away so as to expose the locking mechanism carried thereby.

FIG. 11 is a fragmentary top plan view of one end of the element shown in FIG. 10.

FIG. 12 is a fragmentary side elevational view, partially in section of FIG. 11.

Referring now to the drawings and more particularly to FIGS. 1–3, one form of the improved coin bank 20 is shown which is adapted to accommodate a variety of coins C_1 and C_2, see FIG. 2, as well as folding currency. The illustrated bank 20 has a substantially square prismatic exterior configuration and includes a sectional housing 21, a marginal piece 22 which is adapted to overlie the top and vertical, narrow side walls of the housing, and a removably mounted base piece 23 which subtends and closes off the lower portion of the housing. The housing 21 in this instance is formed of three individual sections 21A (FIGS. 4 and 5), 21B (FIGS. 6 and 7), and 21C (FIGS. 8 and 9). Each section is preferably of one piece con-

struction molded of a transparent, sturdy inflexible plastic material (e.g. general purpose polystyrene). The sections 21A–C interfit with one another, when the bank is assembled, and are held in assembled relation by means of an adhesive and the marginal piece 22, to be described more fully hereinafter.

Piece 22 may be formed of a thin gauge metal having a polished exposed surface. The piece is preferably of one piece construction and has two vertical parallel side segments 24 of like construction interconnected at their upper ends by a segment 25. Segment 25 is provided with an elongated coin infeed opening or slot 26 where each coin to be deposited is inserted. The lower end of each segment 24 is provided with one or more inwardly extending tabs, not shown, which are adapted to subtend the lower edge of the narrow side walls 27*a* and *b*, see FIG. 4 of the housing section 21A. Each of the piece segments 24 and 25 is substantially channel-shape in cross section and is provided with a pair of inwardly projecting flanges 28 which are adapted to overlie the marginal portions of sections 21A–B, when the housing is assembled.

Piece 22 may be formed of either a transparent, translucent, or opaque plastic material, if desired, and the coin feed slot 26 may be formed wholly in the upper end of piece segment 24 or may be partly formed in adjacent portions of both segments 24 and 25.

Base piece 23, in the illustrated embodiment, is formed of a hollow upper section 30 and a complemental bottom section 31. Both sections 30 and 31 may be formed of plastic, metal, or any other suitable material. Section 30 is provided with an outwardly extending flange or shoulder 32 which delimits the underside of said section, see FIG. 10 and is sized so as to prevent the base piece 23 from being inserted too far into the bottom open end of the housing.

A hollow central portion 33 extends upwardly from flange 32 and has such an exterior configuration that it may snugly fit into the bottom open end of the housing. The opposite narrow ends of portion 33 are open, see FIG. 12, so as to permit a locking lug 34 to project laterally outwardly therefrom. The underside of hollow portion 33 is provided with a plurality of strengthening ribs 35, 36, 37 and 38 which also serve as guides for the locking mechanism 40 disposed within the hollow upper portion 33.

Locking mechanism 40 in the illustrated embodiment comprises a pair of elongated slidable members 41, which are of like configuration. At the outer end of each member 41 is provided the lug 34. The inner end 42 of each member 41 is substantially L-shaped. The L-shaped end of one member is inverted with respect to the L-shaped end of the other member. Outwardly from the L-shaped end 42 of each member is provided a stepped segment 43. Formed in each segment 43 is an inwardly projecting stub 44 which is adapted to be encompassed by one end of a coil spring 45. The opposite end of the coil spring 45 accommodates a second stub 46, which is formed on the L-shaped end 42 of the other member 41. The force of springs 45 react upon members 41 so as to cause the locking lugs 34 to be normally extended.

The adjacent inner opposing faces of the L-shaped ends 42 are provided with complemental notches 42*a*, which enable the end of a key, not shown, to be inserted therebetween. The key is provided with shoulders which are adapted to engage the notched portions 42*a* and upon turning the key a quarter turn, cause the shoulders to spread apart and overcome the force of springs 44 and effect retraction of lugs 34 whereupon the base piece 23 is free to be removed (withdrawn) from the bottom of the housing 21. Various other forms of locking mechanisms may be utilized from that heretofore shown and described without departing from the scope of this invention.

Once the locking mechanism 40 has been positioned within portion 33, the bottom portion 31 is affixed in place, thus retaining the locking mechanism within the hollow portion 33.

As heretofore mentioned, housing 21 is formed of three sections 21A–C. Section 21A, see FIGS. 4 and 5, comprises a planar side 47, which forms the front side of the assembled housing. Extending transversely from the upper and vertical side marginal portions of side 47 are top flange 48 and side flanges 27*a* and *b*, respectively, which in turn constitute the top and narrow side walls of the housing 21.

Disposed in spaced parallel relation with respect to the inside upper surface of side 47 is a wall 50. The lower edge of wall 50 is made integral with side 47 by a downwardly inclined web portion 51. As noted in FIG. 4, portion 51 has one end 51*a* thereof terminating at flange 27*a*. The other end 51*b* of portion 51 terminates adjacent to but spaced from flange 27*b*. Web portion 51 has a downward inclination of approximately 10°–15° with respect to the horizontal.

Wall 50 and web portion 51 cooperate with the upper portion of side 47 to form a first coin guideway I. It will be noted in FIG. 5 that the upper side of guideway I is open throughout; however, when the bank is assembled, only a portion of the guideway upper side remains open by reason of the segment 25 of marginal piece 22 overlying flange 48. The infeed slot 26, formed in segment 25, see FIG. 1, is in registration with a portion of the upper side of guideway I.

Also formed on the interior surface of side 47 of housing section 21A is a downwardly inclined double groove 52 and ledge 53. The angular dispositions of ledge 53 and web portion 51 are such as to form an included acute angle A of approximately 20°–30°. The upper part 53*a* of ledge 53 is relatively narrow and terminates at the flange 27*b*. Formed in the portion of the ledge disposed beneath guideway I are a plurality of platform-like projections 53*b*, *c*, *d*, *e*, and *f*. Positioned above ledge upper end 53*a* is a small projection 54. The functions of the double groove 52, ledge 53, and projection 54 will be discussed more fully hereinafter.

Disposed beneath ledge 53 and adjacent to but spaced from the left-hand flange 27*b*, see FIG. 4, is an elongated vertical slot 55. To the right of slot 55 and arranged in spaced parallel relation with respect thereto are columns of indicia 56. The indicia may be etched or painted on either the interior or exterior surface of side 47.

Positioned a short distance above the lower, or bottom edge of each vertical flange 27*a* and *b* and projecting inwardly from the interior surface thereof is an elongated protuberance 57 which extends substantially the full width thereof. When the bank is assembled, protuberances 57 are engaged by the lugs 34 of the locking mechanism 40 and prevent the base piece 23 from being removed from the underside of the housing 21 except when the lugs 34 assume retracted positions.

Section 21B, see FIGS. 6 and 7, has a wall 58 which forms the back side of the assembled housing. Substantially centrally disposed with respect to wall 58 and extending inwardly from the interior surface thereof are a plurality of vertical, spaced, parallel partitions 60, 61, 62, 63, and 64. Adjacent partitions are interconnected by segments 65, 66, 67, and 68, whereby the adjacent partitions and the interconnecting segments cooperate to form a plurality of substantially U-shaped compartments or cavities 70, 71, 72, and 73, see FIG. 7.

The free vertical edges of 60*a*, 61*a*, 62*a*, 63*a*, and 64*a* of these partitions contact the interior surface of wall 47 of section 21A, when the housing sections are assembled and thus wall 47 closes off the front side of each cavity 70, 71, 72, or 73.

The columns of indicia 56 provided on surface 47 are aligned with the corresponding compartments or cavities. It will be noted in FIG. 7 that the segments 65–68 are recessed a progressively greater amount from wall 58. Furthermore the size of the U-shaped cavities, starting with cavity 70, becomes progressively smaller. Thus, cavity 70 is adapted to accommodate a large coin, such as a 25¢ piece; cavity 71, a 5¢ piece; cavity 72, a 1¢ piece;

and cavity 73, a 10¢ piece. Partition 60 cooperates with flange 27*a* and wall 47 of section 21A, shown in dotted lines in FIG. 7, to form a large cavity 74 which is adapted to accommodate a 50¢ piece. Partition 64, as seen in FIG. 7 cooperates with side wall 27*b* and wall 47 of section 21A to form a large compartment or cavity 75, which, as will be hereinafter discussed, is adapted to accommodate folding currency. The upper ends of the cavities 70, 71, 72, and 73 are interconnected by an elongated downwardly sloping flange 76. The upper edge 76*a* of flange 76 also has a downward inclination which parallels the inclination of the double grooves 52.

At the upper end of each compartment is formed a bracket-like projection 77, the function of which will be described more fully hereinafter. Also formed in surface 58 and substantially aligned with the inclined upper edge 76*a* of flange 76 are a pair of small openings 78. Spaced laterally of openings 78 are a pair of projections 80. Projections 80 extend inwardly from the interior surface of wall 58 and are positioned adjacent the marginal edge of the wall 58, see FIG. 6. The openings 78 and projections 80, as well as projections 77, are of importance in locating the various sections 21A–C when the housing is assembled.

Housing section 21C is shown more clearly in FIGS. 8 and 9, and comprises a pair of spaced substantially parallel partitions 81 and 82. The upper edge of each partition is interconnected by a segment 83, which is provided with a plurality of strengthening ribs 84. The upper free edge 85 of segment 83 is bevelled, see FIG. 9, and is adapted to contact the inside surface of wall 58 just above flange edge 76*a*, when the housing sections are assembled. Projecting upwardly from bevelled edge 85 are a pair of spaced lugs 86 which are adapted to be inserted in openings 78 formed in wall 58 of section 21B. When section 21C is assembled with the other sections 21A and B, the strengthening ribs 84 will contact the upper sloping flat surface of flange 76 of section 21B. The lower free edges 81*a* and 82*a* of partitions 81 and 82 are adapted to contact the upper and lower grooves, respectively, of the double grooves 52 formed in the interior surface of wall 47 of section 21A and cooperate therewith to form a second coin guideway II.

It will be noted in FIG. 8 that the lower edge of partition 82, which forms the lower wall of guideway II, is stepped. The stepped portions 83, 84, 85, and 86 are adapted to overlie compartments 73, 72, 71, and 70, respectively, formed in section 21B. Partition 82 is engaged by a substantially flat side of the coin C_2 when the latter is rolling down guideway II, as shown in FIG. 2.

Partition 81, as seen in FIG. 8 has the left-hand edge 81*b* thereof in contact with flange 27*a* of section 21A. The opposite, or upper, edge 81*c* of partition 81 is spaced from the corresponding edge 82*a* of partition 82. The spacing between edges 81*c* and 82*a* forms the infeed end of guideway II. The wide, right-hand portion 87 of partition 82 is of such configuration that it will completely overlie the upper end of compartment 75 and thus prevent any coin from finding its way into said compartment. The stepped edge segments 83–86 cooperate with surface 47 of section 21A and thus form apertures in partition 82 which are of such size as to only permit coins of a certain peripheral configuration to pass therethrough. The spacing between partitions 81 and 82 is such that a coin will readily pass therebetween. It will be noted that the left-hand end edge 82*b* of partition 82 is spaced a substantial distance from the corresponding edge 81*b* of partition 81. This spacing between the two corresponding partition end edges provides a large infeed aperture for compartment 74.

Because of the sloping disposition of partition 82, when section 21C is assembled with sections 21A and B, the rolling axis of the coin, while disposed in guideway II will be inclined with respect to the horizontal thus causing one flat side of the coin to be in constant engagement with partition 82 until the coin reaches the appropriate size opening whereupon by reason of gravitational force the coin will automatically fall into the appropriate compartment 70, 71, 72, 73, or 74.

The bracket-like projections 77 formed in the upper portions of the coin compartments serve an additional function in that they prevent a coin from being removed through the upper end of a compartment once the coin has been deposited therein. The underside of each projection 77 is angularly disposed so that when the edge of a coin contacts same the coin will assume an askewed position whereby the coin will bind within the spacing between partitions 81 and 82 and thus not pass therebetween.

Projections 80 formed in the marginal portions of wall 58 of section 21B contact the underside of the opposite ends of section 21C and thus aid in supporting section 21C in its proper position between the walls 47 and 58 of sections 21A and B, respectively.

Once a coin C_1 is deposited through opening 26 it will first roll down guideway I and upon reaching the bottom thereof will automatically fall upon partition portion 87 and make an abrupt change in its direction of roll and commence rolling down guideway II until it reaches the appropriate size aperture. When such aperture is reached, the coin will automatically fall by gravity into the compartment, the upper end of which is in registration with said aperture.

Thus, by reason of the transparency of housing sections 21A–C and the tortuous path followed by each deposited coin prior to its coming to rest in the appropriate compartment, the bank provides a fascinating animated effect enjoyed by young and old alike.

When a deposit of folding currency is to be made, the bill is folded in such a manner that it may readily pass through the slot 55 formed in the wall 47 of section 21A. Slot 55 provides the only access to compartment 75, when base piece 23 is in place at the bottom of housing 21.

The location, shape and size of the compartments formed in the housing interior may be varied from that shown without departing from the scope of this invention. Likewise the angles of inclination of the guideways may also be varied from that shown as well as a greater number of compartments could be provided.

Thus, it will be seen that a toy bank has been provided which is of simple, yet sturdy construction, attractive in appearance, and possessed of a fascinating appeal to persons of all ages. The bank will automatically segregate and count the deposited coins which may vary widely in peripheral size. Furthermore, the improved bank is of such a shape as to be readily packaged for shipment or storage and is capable of assuming a stable position when placed on a substantially horizontal surface.

While a specific embodiment of the invention has heretofore been disclosed and claimed, the invention is not intended to be limited thereto as further modifications are contemplated, and the submitted claims are deemed to be of sufficient scope to cover such further modifications.

I claim:

1. A coin bank comprising an upright housing having at least one transparent side, said housing being provided with a coin infeed opening formed in the upper portion thereof, an element removably mounted exteriorly on the base of said housing for permitting access to the lower interior portion of said housing, and means for locking said element on said housing exterior; the interior of said housing including an inclined first coin guideway means wherein the upper end thereof communicates with said infeed opening whereby a single coin inserted through said opening is directed to roll downwardly along said guideway means while the axis of roll of the coin remains substantially horizontal, an inclined second coin guideway means having the upper end thereof communicating with the lower end of said guideway means

whereby the coin subsequent to leaving said first guideway means rolls in a second direction down said second guideway means while the axis of roll of the coin is disposed at an angle with respect to the horizontal, one wall of said second guideway means, against which the substantially flat side of the coin engages while rolling down said second guideway means, being provided with a plurality of longitudinally spaced apertures, the areas of said apertures, starting with the uppermost aperture, progressively increasing in size, the configuration of each aperture being sized to accommodate a coin of a given denomination, and a plurality of coin-receiving means depending from said apertured wall and arranged in side by side relation, the upper end of each said coin-receiving means communicating with a wall aperture whereby the coin while rolling down the second guideway means will fall by gravity into a said coin-receiving means upon reaching the appropriately sized aperture; the lower end of each said coin-receiving means being closed off by said removable element.

2. The bank recited in claim 1 wherein the coin is observable through said transparent side while rolling down said first and second guideway means.

3. The bank recited in claim 1 wherein the said first and second guideway means delimit an acute included angle with respect to each other.

4. The bank recited in claim 1 wherein the housing has a substantially square prismatic configuration and said first guideway means extends substantially across the width of said transparent side.

5. The bank recited in claim 1 wherein one wall of each coin receiving means is formed by said transparent side, said wall of said coin receiving means being provided with vertically arranged calibrated indicia.

6. The bank recited in claim 5 wherein the housing has a substantially square prismatic exterior configuration and said coin infeed opening is formed in the top surface of said housing.

7. The bank recited in claim 5 wherein a compartment for accommodating folding currency is provided adjacent to but separated from said coin receiving means and said wall apertures; an exterior wall of said housing being provided with an elongated slot communicating with said compartment.

References Cited by the Examiner

UNITED STATES PATENTS

539,885	5/1895	Taylor	133—3
3,135,270	6/1964	Arnold	133—3
3,180,781	5/1965	Randall et al.	46—3 X

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R. F. CUTTING, *Assistant Examiner.*

UNITED STATES PATENT OFFICE

CERTIFICATE OF CORRECTION

Patent No. 3,313,477 April 11, 1967

Gustave Brown

It is hereby certified that error appears in the above numbered patent requiring correction and that the said Letters Patent should read as corrected below.

Column 6, line 75, after "said" insert -- first --;
column 8, line 24, for "3,180,781" read -- 3,181,781 --.

Signed and sealed this 14th day of November 1967.

(SEAL)
Attest:

Edward M. Fletcher, Jr.
Attesting Officer

EDWARD J. BRENNER
Commissioner of Patents