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[31] 42/95078

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[54] COIN RECEIVING AND STACKING DEVICE
2 Claims, 3 Drawing Figs.

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138/143
[51] Int. Cl. G07d 9/00
[50] Field of Search 133/1, 1 A;
206/8, 84; 138/143; 193/2, 2 A—D; 264/255, 135

ABSTRACT: The inner wall surface of a tubular coin receiving and stacking device is lined with a metal sheet to provide a passageway of smooth and durable surface for coins passed through it, whereby the coins are smoothly and reliably stacked, flat sides against flat sides, without nonparallel askew or edge-on orientation of the coins.

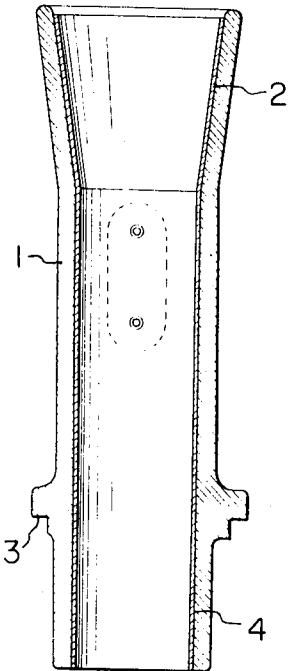


FIG. 1

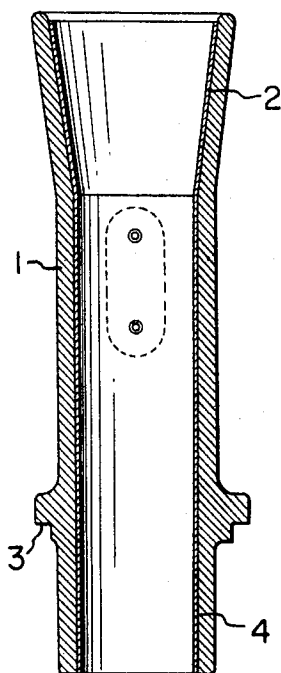


FIG. 2

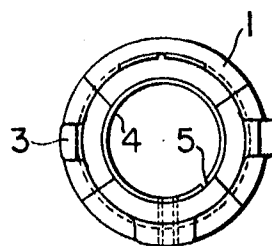
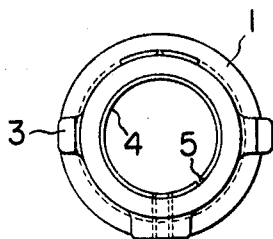


FIG. 3

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COIN RECEIVING AND STACKING DEVICE

BACKGROUND OF THE INVENTION

This invention relates to coin-handling devices and more particularly to a new coin receiving and stacking tube device for use in machines such as coin-packaging machines to receive coins which have been counted and supplied one by one thereto and to stack these coins each in horizontal position.

Coin receiving and stacking tube or chute devices of the above-stated character have heretofore been made by molding synthetic resins, which are readily fabricated and are relatively inexpensive, and which have other desirable characteristics such as light weight. The inner chute surfaces of such tube devices, however, being made of a synthetic resins, are readily scratched or galled by the coins traveling therethrough and, moreover, are easily contaminated by adhesion thereto of dust and grime. As a consequence, in many cases, coins fed into a device of this character do not fall smoothly into a regular stack of coins each in a horizontal position, but some coins tend to assume vertical edge-on or obliquely inclined orientations whereby the succeeding operations to be performed on the coins, such as packaging, are impaired or rendered impossible.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a coin-receiving tube device of the character referred to above having an inner chute surface which is durable against wear and scratching, and on which dust and grime cannot readily adhere, whereby coins can be reliably stacked each in horizontal position without frequent cleaning or replacement of the tubular part of the device.

Another object of the invention is to provide a coin-receiving device of the above-stated character in which the desirable features of synthetic resins are retained.

According to the present invention, briefly summarized, there is provided a coin receiving and stacking device characterized by a construction wherein a tube structure made of a relatively light and easily fabricated material is provided with a metal sheet lining covering its inner wall surface and forming a tubular passageway of such dimensions and shape as to cause coins fed thereto to be smoothly stacked in succession flat sides against flat sides.

The nature, details, and utility of the invention will be more clearly apparent from the following detailed description with respect to a preferred embodiment of the invention when read in conjunction with the accompanying drawing, in which like parts are designed by like reference numerals.

BRIEF DESCRIPTION OF THE DRAWING

In the drawing:

FIG. 1 is a side elevation, in longitudinal section, showing an example of a coin receiving and stacking device embodying the invention;

FIG. 2 is a plan view of the device shown in FIG. 1; and

FIG. 3 is a plan view of a modified device.

Referring to the drawing, the coin receiving and stacking device shown therein has a coin-receiving tube structure 1 made of a synthetic resin and being open at its upper and lower ends. This tube structure 1 is provided on its outer side with a stepped ledge or lug 3 integrally formed therewith and projecting outwardly therefrom for engagement of the tube structure 1 with a supporting part (not shown).

The inner wall of the tube structure 1 at its upper part is flared divergently in the upward direction to form a coin hopper or guide surface 2. The inner wall surface, including the coin guide surface 2 is lined with a metal sheet 4 such as

stainless steel sheet wound into a tubular form and bonded to the inner wall surface of the tube structure 1 with an adhesive. The metal sheet 4 is provided at its seam edges with a slight longitudinal gap 5 therebetween.

The coin-receiving tube device of the above-described organization according to the invention operates in the following manner.

Coins which have been successively counted and fed into the device from a point thereabove drop downward along the metal sheet 4 covering the guide surface 2 formed at the upper part of the tube structure 1. The coins are then received successively by a horizontally or vertically movable receiving member (not shown) confronting the lower open part of the tube structure 1, each coin being stacked horizontally on the preceding coin.

During the above-described operation, there is no possibility of the inner wall surface of the tube device being damaged by the sliding contact of the coins and being contaminated by dust and grime adhering thereto since the inner wall surface of the tube structure 1 is lined with the metal sheet 4 presenting a smooth, hard metal surface. Accordingly, the coins are positively caused to be stacked in horizontal position.

Furthermore, since a gap 5 is provided between the seam edges of the metal sheet 4, damage to the tube structure 1 or separation between the metal sheet and the tube structure due to a difference between the coefficients of thermal expansion thereof is prevented.

While the invention has been described with respect to an example thereof in which the tube structure is of unitary construction, it is also possible in accordance with FIG. 3 to use a tube structure of longitudinal split construction comprising a plurality of separate parts assembled together in the longitudinal direction.

Thus, the present invention provides a coin-receiving tube device which operates smoothly to stack coins positively in horizontal position thereby to assure reliable accomplishment of the succeeding operation such as coin packaging, and which does not require frequent cleaning as such devices known heretofore. Furthermore, there is little possibility of changes in the inner diameter and cross section shape of the tubular coin passageway of the tube structure 1, which has high durability because of the lining of the metal sheet 4.

A further advantageous feature of the device according to the invention is that the above-described various features are attained while the desirable features such as light weight, easy fabrication, and low price of synthetic resins are retained in the tube structure 1.

I claim:

1 A coin receiving and stacking tube comprising an outer tube structure made of synthetic resin which is relatively light and easily fabricated; a corrosion- and abrasion-resistant metal sheet lining substantially completely covering the inner wall surface of said outer tube structure to thereby form a smooth tubular passageway of such dimension and shape as to cause coins fed therein to be reliably stacked in parallel relationship, said tube being of split construction comprising a plurality of separate parts assembled together.

2 A coin receiving and stacking tube comprising an outer tube structure made of synthetic resin which is relatively light and easily fabricated; a corrosion- and abrasion-resistant metal sheet lining substantially completely covering the inner wall surface of said outer tube structure to thereby form a smooth tubular passageway of such dimension and shape as to cause coins fed therein to be reliably stacked in parallel relationship, said metal sheet lining having a longitudinal slit with opposed edges separated by a gap sufficient to prevent damage and deformation due to the differences of thermal expansion and contraction of said metal sheet lining and outer tube structure.