Aug. 30, 1932. F. S. CALLOWAY 1,874,442

MECHANISM FOR SORTING BUTTONS OR THE LIKE

Filed Jan. 21, 1930

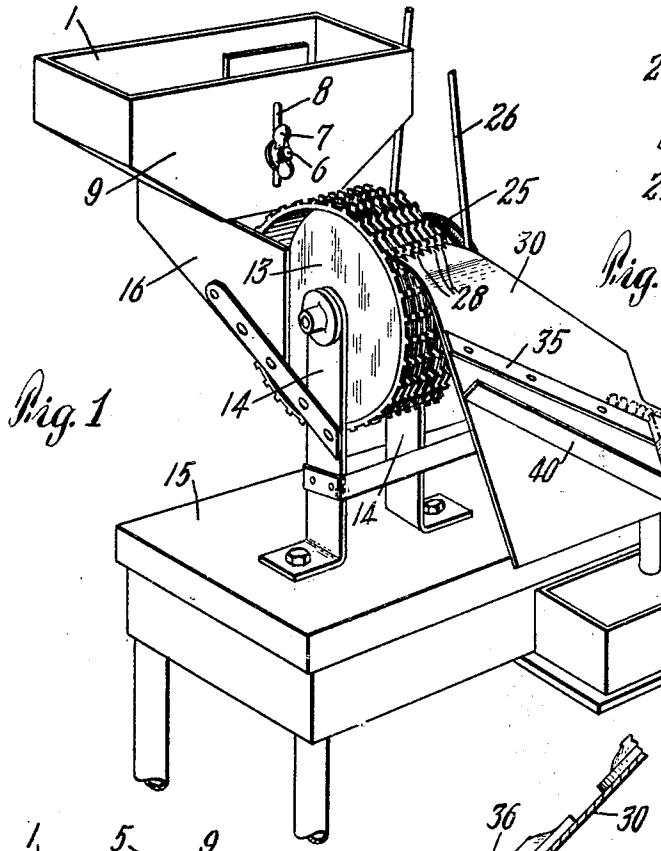


Fig. 1

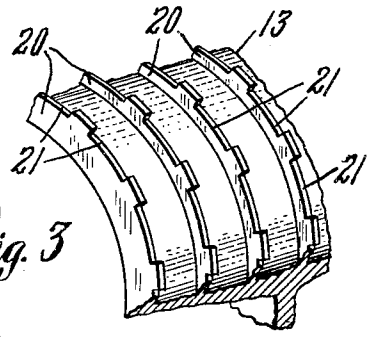


Fig. 3

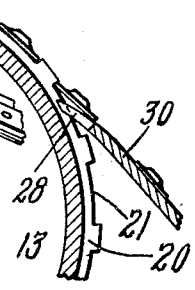


Fig. 4

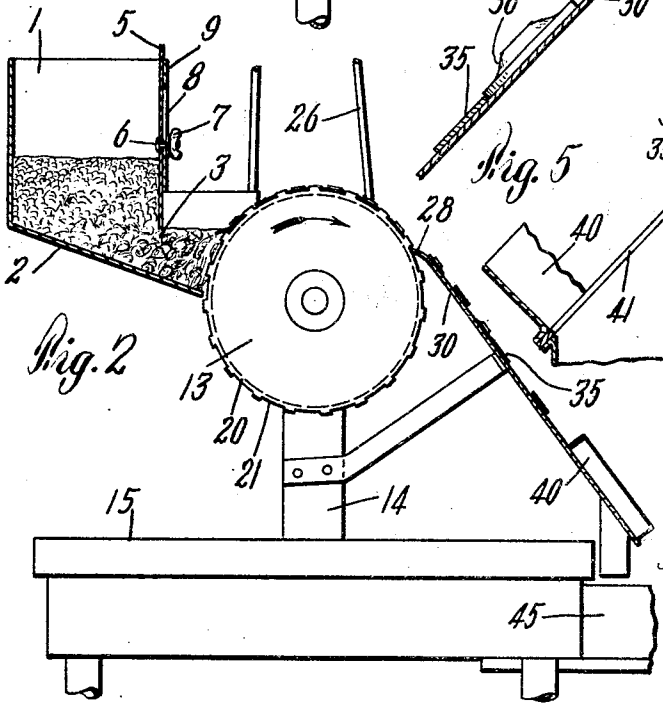


Fig. 2

Fig. 5

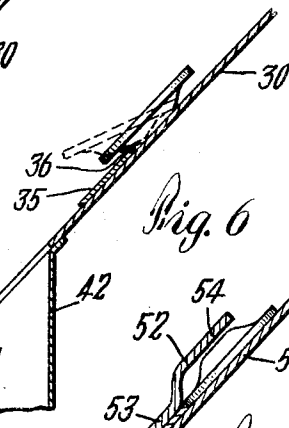


Fig. 6

Fig. 7

Inventor:
Frank S. Calloway.
by Wright Brown Quinby & Way
Attys.

Patented Aug. 30, 1932 1,874,442

UNITED STATES PATENT OFFICE

FRANK S. CALLOWAY, OF FAIRHAVEN, MASSACHUSETTS, ASSIGNOR TO ATLAS TACK CORPORATION, OF FAIRHAVEN, MASSACHUSETTS, A CORPORATION OF NEW YORK

MECHANISM FOR SORTING BUTTONS OR THE LIKE

Application filed January 21, 1930. Serial No. 422,334.

This invention relates to mechanism for sorting articles such as buttons or the like from a mass of indiscriminately positioned articles so as to permit all the articles arranged uniformly in one position to be presented to a raceway along which they may be passed.

One object of the invention is to produce a sorting mechanism wherein substantial agitation and rubbing of the articles against each other is avoided. To this end they are picked up on the periphery of a rotating drum against which the mass of articles engages and which forms a side wall of a receptacle within which they are placed. The articles as they are engaged on the periphery of the drum may be positioned either side up and they are removed from the periphery of the drum by means which separate out those positioned one side up and lead them to a raceway, while the remainder positioned the other side up are conducted to another point.

For a more complete understanding of this invention reference may be had to the accompanying drawing in which

Figure 1 is a perspective of the mechanism.

Figure 2 is a central vertical section through the same.

Figure 3 is a fragmentary perspective to a larger scale of the drum periphery.

Figure 4 is a detail section similar to a portion of Figure 2 but to a larger scale.

Figures 5 and 6 are detail sections showing the manner in which buttons positioned correctly in reverse position are conducted to the desired location.

Figure 7 is a detail section on line 7—7 of Figure 1.

Referring to Figures 1 and 2, at 1 is indicated a hopper to receive the articles such as buttons, this hopper having an inclined bottom wall 2 which leads beyond an opening 3 in one wall thereof which may be more or less closed by a vertically adjustable plate 5 which may be secured in desired vertical position by means of a screw and thumb nut 6 and 7, the screw passing through a vertical slot 8 in the upper wall 9. This bottom plate 2 leads downwardly adjacent to the periphery of a drum 13 which is journaled about a horizontal axis in suitable bearings 14 which are shown as supported on a stand 15. This drum forms a movable wall closing an otherwise open side of a receptacle having its bottom formed by the wall 2 and having side walls 16 which extend beyond the periphery of the drum 13. The plate 5 serves to limit the mass of articles which may engage the drum at one time, thus to limit the pressure with which they engage each other and the drum to a desired small amount to facilitate removal of the articles on the drum periphery. The periphery of this drum is provided with a plurality of spaced circumferential ribs 20 which are cut away across their widths to form portions of reduced diameter at suitable intervals providing recesses 21, the recesses of adjacent pairs of ribs forming seats to receive and hold buttons either side up which may be presented thereto. Means are provided for rotating the drum 13 in a direction to lift the seats with which the buttons are engaged and to this end the drum 13 may have fixed thereto a belt pulley 25 which may be driven by a suitable belt passed thereover as 26. Such buttons as may be presented flat against the drum periphery either side up and these only are then caused to be lifted from the receptacle by the rotation of this drum. The seats, however, are more effective to engage and remove buttons presented with their forward faces positioned toward the drum periphery than those positioned reversely. The buttons which have become sufficiently engaged by these engaging elements are moved upwardly about the drum as the drum rotates until they reach the upper portion of the drum whereupon they begin to move downwardly on the opposite side thereof. Where this downward motion is taking place, means for removing the buttons from the drum is provided. Such means as shown comprises a plate 30 having spaced fingers as 28 at its upper edge which ride between the ribs 20 and thus lift off from the drum onto the plate those buttons which may have been caught in the seats and which are presented above the fingers. The buttons then slide down on the face of this plate

which is downwardly inclined and against a guide strip 35 fixed thereto in a downwardly and a laterally inclined direction. This guide strip is fixed flat against the plate 30 so that buttons which are presented with their forward faces against this plate strike thereon and are retained as shown in Figure 5, while those buttons which are presented facing oppositely present their inclined rear faces 36 to the strip, as shown in Figure 6, in which position the strip is unable to hold the buttons which are dislodged into the dotted line position shown in Figure 6, and slide over the guide strip 35 and against a collector strip 40 positioned below the strip 35 and by which they are guided to an opening 41 through the plate 40 which leads to an escape tube 42. Thus the buttons which are positioned with their back faces against the plate 30 pass over the guide strip 35 and out to a suitable receptacle such as 45 from which they may be taken and returned to the hopper 1 as may be desired. These buttons so escaping are incorrectly positioned for passage from the mechanism and thus may be termed up side down. Those buttons, however, which are stopped by the strip 35 being presented thereto with their forward faces against this strip roll down the edge of the strip and are received by the raceway 50 in a series all positioned the same side up where they may be led to any suitable point for further operations to be performed thereon or for other purposes.

As herein shown the buttons are incompletely formed, having solid bases which must be punched to receive the needle thread and they are in proper position as they leave this sorting operation for the punching operations to be performed. In Figure 7 the raceway 50 is shown as having a base plate portion 51 which may be a continuation of the plate 30 and integral therewith, if desired, and a substantially Z shaped strip 52 fixed thereto along one side as at 53 and having a portion 54 spaced from the plate 51 sufficiently to permit the buttons to pass therebetween with their lower edges riding against the plate 52 above its securement to the plate 51. By this mechanism it will be seen that the buttons or similar articles are sorted and are led therefrom all positioned the same side up by a mechanism which does not cause the articles to be substantially agitated or rubbed one against another during the sorting operation. Substantial agitation and rubbing is found likely to cause damage to such articles.

An embodiment of this invention having thus been discribed it will be evident that various changes and modifications might be made therein without departing from the spirit or scope of the invention as defined by the appended claims.

I claim:

1. In combination, a button receptacle having an open side, a drum having a periphery closing said open side, said periphery having spaced circumferential ribs thereon recessed at intervals to form button-receiving seats for holding buttons positioned either side up, means for rotating said drum in a direction to lift buttons in said seats from said receptacle, a downwardly inclined plate having fingers at its upper edge riding between said ribs to lift the buttons from said seats when said seats are moving downwardly, and a guide strip on said plate inclined downwardly laterally thereof for catching and conducting laterally from said plate only those buttons which are passing downwardly thereover right side up.

2. In combination, a button receptacle having an open side, a drum having a periphery closing said open side, said periphery having spaced circumferential ribs thereon recessed at intervals to form button-receiving seats for holding buttons positioned either side up, means for rotating said drum in a direction to lift buttons in said seats from said receptacle, a downwardly inclined plate having fingers at its upper edge riding between said ribs to lift the buttons from said seats when said seats are moving downwardly, a guide strip on said plate inclined downwardly laterally thereof for catching and conducting laterally from said plate only those buttons which are passing downwardly thereover right side up, a raceway for receiving said buttons from said strip, and means for collecting together the incorrectly positioned buttons which pass over said guide strip.

3. In combination, a receptacle having an open side, a drum having a periphery closing said open side, said periphery having more than two spaced peripheral ribs cut away at intervals across their entire widths to form portions of reduced diameter acting as article-receiving seats whereby an article may be supported by and between any two adjacent ribs, means for rotating said drum to remove articles engaged in said seats from said receptacle, and fingers riding between said ribs in position to lift said removed articles from said drum as said drum rotates.

In testimony whereof I have affixed my signature.

FRANK S. CALLOWAY.