

April 7, 1931.

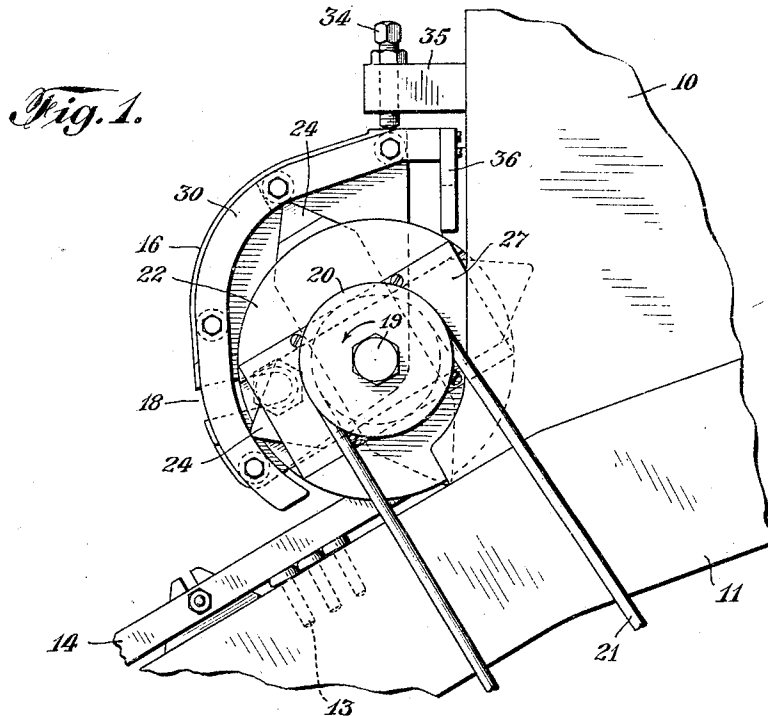
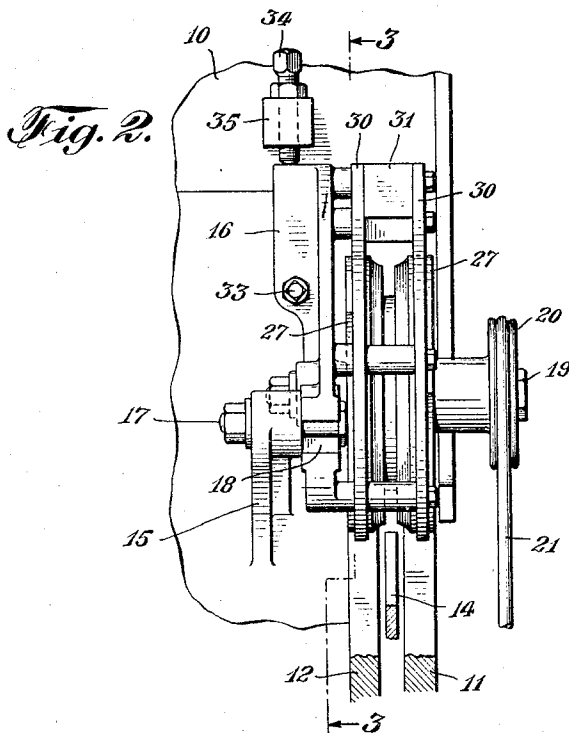
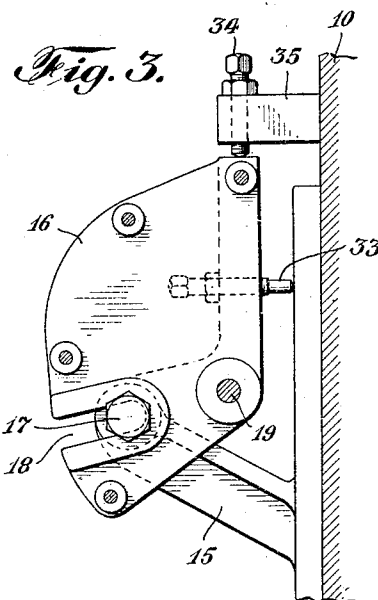
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1,799,342

CLEARANCE MECHANISM

Filed Jan. 24, 1929

2 Sheets-Sheet 1



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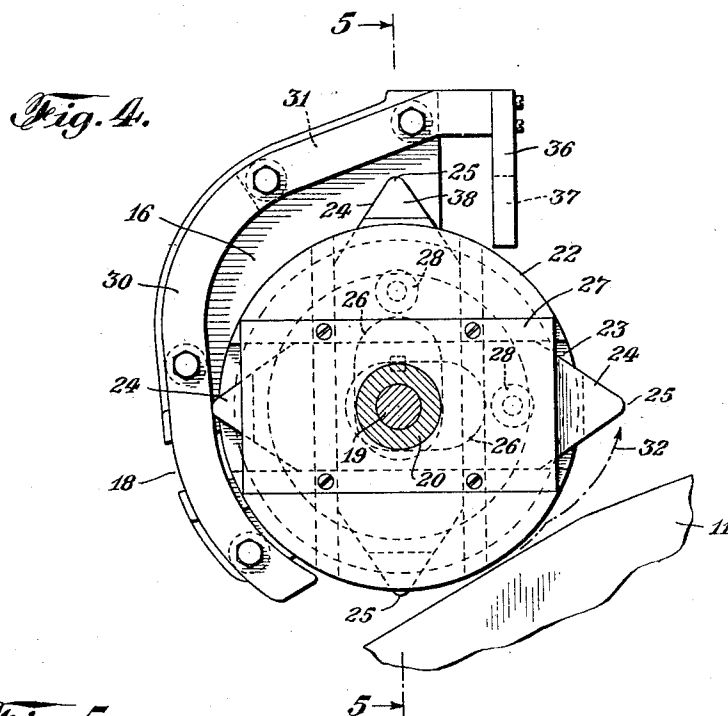
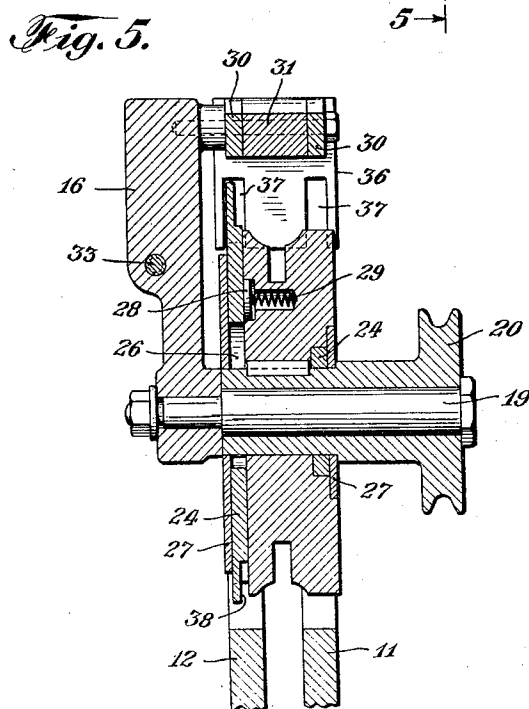
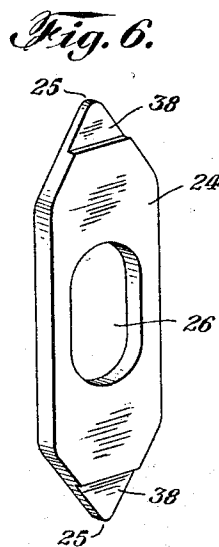
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CLEARANCE MECHANISM

Filed Jan. 24, 1929

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

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CLEARANCE MECHANISM

Application filed January 24, 1929. Serial No. 334,702.

This invention relates to a new and improved clearance mechanism of the type associated with a chute or the like for clearing misaligned blanks thereon.

It is the object of this invention, among other things, to provide a positively actuated mechanism of this character that will clear all misaligned blanks and follow the path of the parts that receive the blanks for a portion of its travel, to eliminate the use of springs and/or like parts, and produce a clearance mechanism that will be simple in its construction, and will operate at high speeds with the maximum efficiency.

The arrangement and detail of the several parts will be apparent from an inspection of the accompanying drawings, wherein like characters of reference indicate like parts in the several figures; and

Figure 1 is a side view of my improved clearance mechanism and so much of the adjacent parts as are essential to a full understanding thereof;

Figure 2 is a front view;

Figure 3 is a side view of the wheel bracket and adjacent parts, those in section being taken generally upon line 3—3 of Figure 2;

Figure 4 is an enlarged side view showing the fingers in a different relative position than in Figure 1, the parts in section being taken generally upon line 3—3 of Figure 2;

Figure 5 is a sectional view thereof taken generally upon line 5—5 of Figure 3; and

Figure 6 is a perspective view of one of the stripper fingers.

In the embodiment of my invention as shown herein, 10 indicates a portion of the hopper, into which blanks or articles are assembled in an indiscriminate mass, and from which, by suitable mechanism, they are taken and placed onto a chute mechanism. This latter mechanism, as shown, comprises companion plates 11 and 12 that are arranged with an open space therebetween, into which project the shanks of the blanks 13 and the heads rest upon the top of the plates, substantially as shown in Figure 1. The space for the heads is limited by the cover plate 14 that is secured in any of its adjusted positions in a manner well known to the art.

Associated with the hopper is a fixed lug 15 that supports the bolt 17, and upon which is the wheel bracket 16. As the bolt 17 passes through the slot 18 in the wheel bracket, provision is thus made for varying the relative position of the bracket.

Fixed in the wheel bracket is the shaft 19, upon which is rotatably mounted the sheave wheel 20 that is driven by a belt 21. Secured on the hub of the sheave wheel 20 is a clearance wheel 22, in each side of which is a recess 23, containing a clearance finger 24, having rounded ends 25. The slots 26 in these fingers are provided so as to permit the fingers to straddle the hub of the wheel 20. Each clearance finger 24 is held against lateral movement within its recess by a cap 27 that is fixed to the side of the clearance wheel with its outer face substantially flush with the side of said wheel.

A friction plate 28 engages the inside face of each clearance finger under pressure of the spring 29, which pressure is sufficient to prevent the clearance fingers from moving under centrifugal force.

Secured to the wheel bracket 16 are the companion cams 30 which are spaced apart by the block 31 and the like so that there is a cam in the path of each clearance finger. These cams are shaped so that as the clearance wheel 22 rotates, one end 25 of a clearance finger 24 engages the cam and the same is positively moved within the clearance wheel and the opposite end 25 approaches the top of the chute plates and is maintained in contact therewith until it has passed thereby, during which time any misaligned blank is struck by the finger with sufficient force to knock it away from the clearance wheel. It then either falls back into the hopper for representation to the chute or slides along the top of the chute plate or plates, and may, and in most cases does, fall into proper alignment with the other blanks and pass down the chute.

The cam 30 causes the end of the finger opposite the cam to move outwardly after it has passed over the chute plate and into a position to again engage the cam 30. A por-

tion of the path of the end of each of the fingers is indicated by the broken line 32.

A screw 33 in the wheel bracket which impinges against the hopper or other adjacent mechanism forms an adjustable limiting stop for the bracket and the screw 34 in the poppet 35 provides for an adjustment of the bracket and through it the position of the clearance wheel toward and away from the chute plates and also prevents the same from being forced outwardly from such position.

A stripper plate 36 is fixed to the block 31 and provided with slots 37, through which the clearance fingers 24 pass during their rotation. As these slots are only sufficiently wide to permit the fingers to pass there-through any article or blank that might be caught in the fingers is stripped therefrom and prevented from passing thereby. This plate also prevents a blank from passing over the clearance wheel if it should be thrown thereagainst by the action of some part in or about the hopper.

One face of each finger is cut away at 38 so as to provide means to accommodate blanks with heads of various widths or diameters. The fingers are positioned in the clearance wheel so that the cut-away portions 38 are toward or away from each other as may be desired. When toward each other, as shown in Figure 5, a blank with a larger head can pass therebetween than if the same are reversed. Thus, by merely reversing the position of the fingers, the clearance wheel will accommodate blanks with heads of various diameters and sizes.

Aside from the suggestions herein contained as to modifications of my improved mechanism others will readily suggest themselves to those versed in the art, and therefore, I do not limit myself to the exact construction herein shown and described, but claim all that falls fairly within the spirit of the appended claims.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a chute clearance mechanism; a rotary member; a finger of greater length than the diameter of the rotary member that is slidably connected therewith; and positive means for actuating the finger so that the opposite ends thereof will successively engage and travel over the chute and have contact therewith.

2. In a chute clearance mechanism; a rotary member; a finger of greater length than the diameter of the rotary member that is slidable therein; and cam means for actuating the finger so that the opposite ends thereof will successively engage and travel over the chute, the path of movement of each end of the finger being such that it is nearest the center of rotation thereof when traveling over the chute and thereafter project-

ed outwardly from the center of the rotary member.

3. In a chute clearance mechanism; a rotary member having a recess in one face coincident with one diameter thereof; a finger longer than the recess and slidably mounted therein; means for preventing lateral movement of the finger within the recess; and positive means for moving the finger in the recess so that the opposite ends thereof will successively travel over the chute and remove therefrom misaligned articles thereon.

4. In a clearance mechanism; a rotary member having a recess in each of the opposite faces thereof; a finger movably mounted in each recess; means for preventing lateral movement of the finger within the recess; and means for successively and positively actuating the finger, in each recess in opposite directions at different points in the revolution of the rotary member.

5. In a clearance mechanism; a rotary member having a recess in each of the opposite faces thereof; a finger movably mounted in each recess; means for preventing lateral movement of the finger within the recess; and means for successively and positively actuating the finger in each recess in opposite directions at different points in the revolution of the rotary member, the fingers being upon opposite sides of the rotary member at substantially a right angle to each other.

6. In a chute clearance mechanism; a rotary member; a finger movably connected therewith and adapted to be reversed relatively thereto; and positive means for moving the finger within the rotary member in either of its reversed positions, the finger being cut away on one side adjacent to the outer end thereof whereby the said finger is of less thickness at the outer end than at the intermediate portion.

7. In a chute clearance mechanism; a rotary member having a recess in one face thereof; a finger longer than the recess and slidably mounted therein and adapted to be reversed relatively thereto; means for preventing the lateral movement of the finger within the recess; and positive means for moving the finger in the recess so that the opposite ends thereof will successively travel over the chute and remove therefrom misaligned articles thereon.

8. In a clearance mechanism; a rotary member having a recess in each of the opposite faces thereof; a finger movably mounted in each recess; means for preventing lateral movement of the finger within the recess; and cam means outside of the rotary member for successively and positively actuating the finger in each recess in opposite directions at different points in the revolution of the rotary member.

9. In a clearance mechanism; a rotary

member; a finger movable therein; a fixed cam in the path of the finger and engaged thereby during a portion of each revolution of the rotary member, the cam, by reason of such engagement, moving one end of the finger beyond the periphery of the rotary member; and means for preventing motion of the finger by centrifugal force, comprising a spring pressed friction plate.

10. In a clearance mechanism; a rotary member having a recess in one face thereof; a finger slidably mounted in the recess; and cam means for moving the finger within the recess by first projecting one end of the finger beyond the periphery of the rotary member to follow a defined path and continuing the movement until such end is at a greater distance beyond said periphery.

11. In a clearance mechanism; a rotary member having a recess in one face thereof; a finger slidably mounted in the recess; and cam means for moving the finger within the recess by first projecting one end of the finger beyond the periphery of the rotary member to follow a defined path and continuing the movement until such end is at a greater distance beyond said periphery, the timing of the movement being such that the finger end travels over a chute adjacent to the rotary member when in the position nearest to said periphery.

12. In a clearance mechanism; a rotary member having a recess in each of the opposite faces thereof, said recesses being at an angle to each other; a finger movably mounted in each recess; cam means for separately and independently actuating each of the fingers, whereby the end of one finger is projected beyond the periphery of the rotary member and adjacent to a chute fixed relatively to the rotary member and one end of the other finger is at a greater distance beyond said periphery.

13. In a clearance mechanism; a rotary member; a finger movably connected and rotatable therewith, having an overall length greater than the diameter of the rotary member and cut away upon one side adjacent to the outer ends whereby the finger is thinner at the ends thereof; and means independent of the rotary member for imparting relative movement to the finger, said finger being adapted to be reversed relatively to the rotary member.

14. In a clearance mechanism; a rotary member having a recess in one face thereof perpendicular to the axis; a closure member secured to the rotary member and covering said recess; a finger longer than the diameter of the rotary member that is slidably mounted in the recess and held against lateral movement in one direction by said closure member; and cam means for moving the finger within the recess by first projecting one end thereof beyond the periphery of the

rotary member to follow a defined path and continuing the movement until such end is at a greater distance beyond said periphery.

15. In a clearance mechanism; a rotary member having a recess in one face thereof perpendicular to the axis; a closure member secured to the rotary member and covering said recess; a finger longer than the diameter of the rotary member that is slidably mounted in the recess and held against lateral movement in one direction by said closure member; and cam means for moving the finger within the recess by first projecting one end thereof beyond the periphery of the rotary member to follow a defined path and continuing the movement until such end is at a greater distance beyond said periphery, said finger having cut away portions at its opposite ends whereby said ends are thinner than the intermediate portion of the finger.

16. In a clearance mechanism; a rotary member having a recess in one face thereof perpendicular to the axis; a closure member secured to the rotary member and covering said recess; a finger longer than the diameter of the rotary member that is slidably mounted in the recess and held against lateral movement in one direction by said closure member; and cam means for moving the finger within the recess by first projecting one end thereof beyond the periphery of the rotary member to follow a defined path and continuing the movement until such end is at a greater distance beyond said periphery, said finger being thinner at its outer ends and adapted to occupy reverse positions within the recess whereby the interior face thereof may occupy varying positions relative to the longitudinal center of the chute and the clearance range of said fingers extended or lessened according to the relative position of the fingers.

17. In a clearance mechanism; a power driven member; a rotary member fixed therein having a recess in one face thereof; a finger of greater length than the diameter of the rotary member and slidably mounted in the recess, said finger having an opening through which the power driven member projects; and cam means for moving the finger within the recess so that the opposite ends thereof will successively travel in a defined path relative to an adjacent chute.

18. In a clearance mechanism; a rotary member; a finger slidably connected therewith; positive means for actuating the finger; a closure member connected with the rotary member to prevent lateral movement of the finger; and friction means within the rotary member for applying a limited pressure to the finger to prevent movement thereof by centrifugal force.

19. In a chute clearance mechanism; a rotary member; a finger movably connected therewith; and positive means for moving the finger within the rotary member, said finger

being capable of assembly with the rotary member in various positions whereby the extent of the open space between the face thereof nearest the horizontal center of the chute and said center may be varied.

In testimony whereof, I have hereunto affixed my signature.

RICHARD LESTER WILCOX.

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