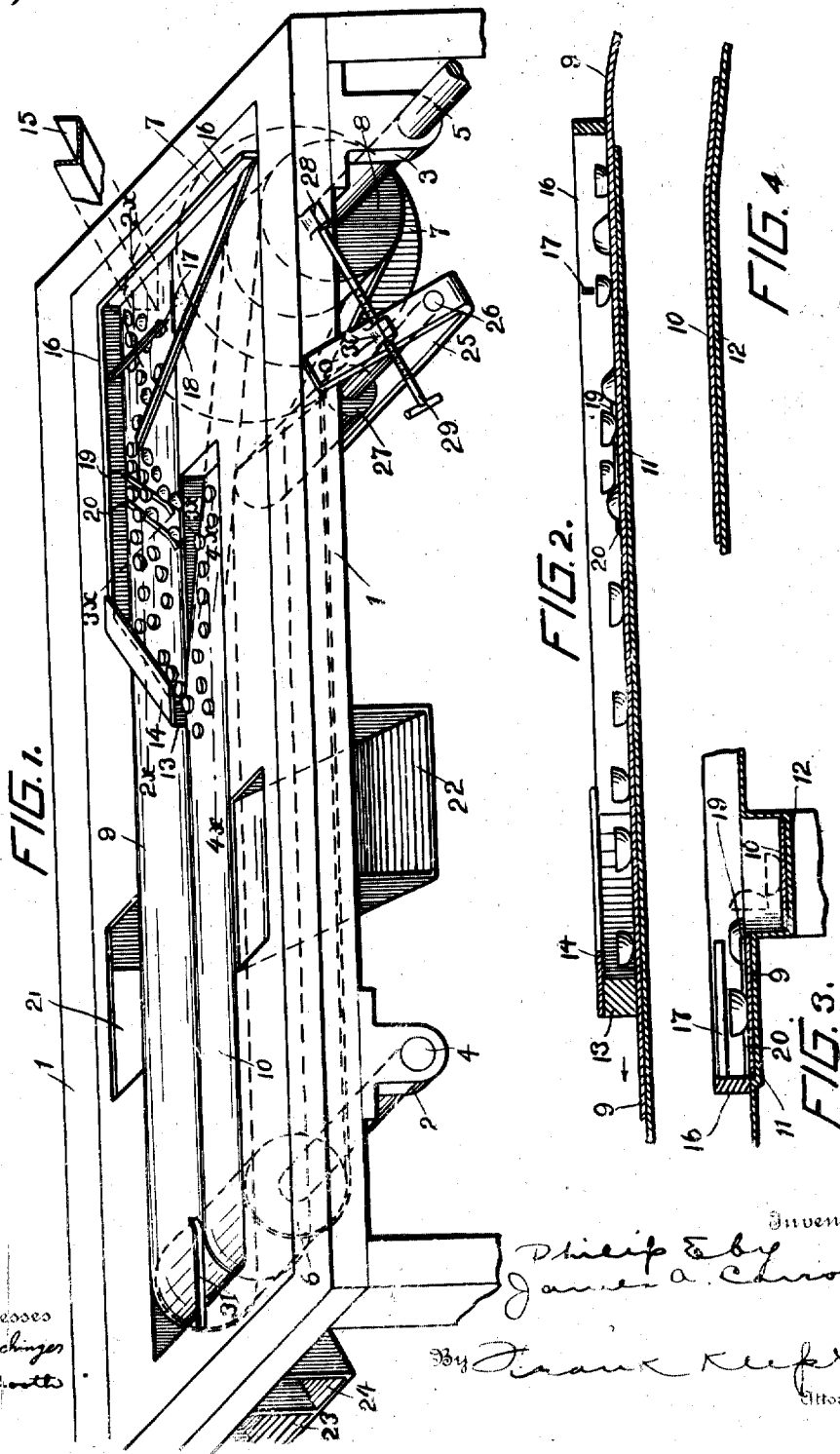


P. EBY & J. A. CARRON.
 BUTTON FEEDING MACHINE.
 APPLICATION FILED FEB. 24, 1914.

1,237,315.

Patented Aug. 21, 1917.



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UNITED STATES PATENT OFFICE.

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BUTTON-FEEDING MACHINE.

1,237,315.

Specification of Letters Patent. Patented Aug. 21, 1917.

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To all whom it may concern:

Be it known that we, PHILIP EBY and JAMES A. CARRON, citizens of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Button-Feeding Machines, of which the following is a specification.

The object of this invention is to provide a machine that will facilitate inspection of buttons or button blanks or the inspection of the stock pieces from which the buttons are to be made.

Another object of the invention is to provide a machine that will receive the blanks or the buttons in a plurality of positions and turn them to a uniform position.

These and other objects of the invention will be fully illustrated in the drawings, described in the specification and pointed out in the claims at the end thereof.

Figure 1 is a perspective view of my improved machine.

Fig. 2 is a vertical section on the line 2-2* of Fig. 1.

Fig. 3 is a vertical section on the line 3-3* of Fig. 1.

Fig. 4 is a vertical section on the line 4-4* of Fig. 1.

In the drawings, like reference numerals indicate like parts.

In the drawings, reference numeral 1 indicates the frame of the machine, having the bearings 2 and 3 at each of the opposite ends thereof in which bearings are supported the shafts 4 and 5. On the shaft 4 is the drum 6 having a uniform diameter which drum is keyed to the shaft and turns with it. On the shaft 5 is the drum 7 keyed to the shaft which drum is of large diameter and adjacent to it is the drum 8 of smaller diameter which drum is mounted to turn loosely on the shaft. Mounted to travel on the drum 7 is the belt 9 which is substantially of the same width as the drum. This belt passes over the drum 6 and drives it. The drum 6 is as long as the combined length of the drums 7 and 8. Also mounted to pass over the drum 6 is the belt 10 which belt is driven by the drum 6. This belt extends to the opposite end of the machine and passes over the drum 8 which is driven thereby. The top portion of the belt 9 travels in a single plane, preferably horizontal, and is held to travel in a single plane by

the plate 11 which is supported from the frame of the machine. The belt 10 is mounted to travel in two planes, one parallel to or coincident with the plane of the belt 9 and the other at an angle thereto and to secure this relation between the belts, the belt 10 is supported by the plate 12 which has an angle therein as is shown in Fig. 4.

Secured to the frame of the machine is the guide 13 having a flange 14 on the top thereof which guide is placed diagonally across the belt 9.

Mounted to feed on the forward end of the belt is the chute 15 from which the buttons or the blanks are fed onto the belt. The flange 16 is placed along the far side of the belt 9 for the purpose of holding the blanks on the belt. Mounted on this flange is a finger 17. This finger is mounted so as to have a fixed amount of clearance between it and the belt sufficient to permit a blank to pass with the belt thereunder in either its upright or inverted position. If two or more blanks are piled on top of each other, the under one will pass through and the upper one will be restrained until the lower one has passed from under when the upper one will drop to the belt and pass through properly. Beyond the finger 17 is placed a guide 18 mounted on the frame of the machine and held nearly in contact with the belt 9. This guide terminates short of the flange 16 so as to have somewhat more than sufficient room for the passage of a blank between the end of the guide and the flange. The guide 18 extends diagonally across the belt and causes the blanks to be moved toward the flange 16 as the belt moves. Mounted on the flange 16 are the fingers 19 and 20 which fingers are preferably of thin strips of metal, the forward side of the fingers 19 and 20 having sharp vertical surfaces. These fingers rest lightly on the belt 9.

The operation of this part of the machine may now be described as follows:

The blanks are fed from the chute 15 onto the belt 9 which belt is moving continuously in the direction indicated by the arrow in Fig. 1. The flange 16 prevents the blanks from flying off the belt. As the belt 9 moves forward it carries the blanks with it. The finger 17 levels off the blanks so that all of them rest directly on the belt in a single layer. The guide 18 moves the blanks to-

ward the flange 16. The blanks are then carried against the fingers 19 and 20. If the blanks are inverted, that is with their flat surfaces up, as is shown in Fig. 2, they will pass over the fingers 19 and 20, keeping their inverted position, displaying their flat surfaces upward. If the flat surface is down, they will be caught by the fingers 18 and 19 and will move toward the left hand side of the belt and away from the flange 16. When they reach the left hand side of the belt they will drop off onto the belt 10 and in dropping off will turn over, as is shown in Fig. 3, so that all of the blanks will then be in inverted position.

The blanks that remain on the belt 9, will be carried against the guide 13 which will deflect them onto the belt 10 leaving them in their inverted position, it being understood that the belts are traveling in the same plane at the end of the guide 13 while they are in different planes, traveling at an angle to each other at the ends of the fingers 19 and 20.

As the belt 10 advances, the blanks are carried forward and are open to the inspection of the operator of the machine.

Buttons are made from stock cut from vegetable ivory nuts, shells of shell fish, bone and many other hard substances. These substances are first cut into blanks and in the case of vegetable ivory, these blanks will ordinarily have a flat side that shows the white interior of the nut and a rounded side that shows the weathered side of the nut. The quality of the material will appear in the flat side of the nut and this machine is for the purpose of turning all the flat sides up so that they can be carried forward under the eye of the operator who can sort them according to their grade or quality. For this purpose the horizontal surface of the belt 9 between the end of the guide 13 and the drum 6, is provided on which surface the blanks are displayed to the operator. On one side of the belt 9 is provided the chute 21 and on the opposite side of the belt 10 is provided the chute 22. The operator will push the blank into the chute 21 or 22 as may be desired or let it rest on the belt 10 or move it to the belt 9. The blanks that are permitted to rest on the belts 9 and 10 will be carried to the end of the belts at the drum 6, from which they will pass off into the chutes 23 and 24. In this manner, the blanks will be separated into four different grades with a very little movement on the part of the operator's fingers, enabling the operator to work with greater speed and efficiency.

It will be understood of course, that a few of the blanks will get to the operator's fingers with the weathered side up, but in the ordinary operation of the machine, these constitute such a small fraction of

the total number of blanks, that the operator can turn them over manually and make the inspection at much higher speed than if the manipulation of these button blanks was entirely manual.

Mounted on the frame of the machine is the yoke 25 in which is mounted the shaft 26 on which is mounted the roller 27. Swiveled on the frame of the machine at 28 is an adjusting screw 29 having a male thread thereon which works in a female thread carried on the yoke 25 at 30. A similar adjusting screw may be provided on the opposite side of the machine. By these screws the yoke 25 may be set at any desired angular position. The swinging of the yoke, carries the roller 27, against the lower side of the belts 9 and 10 and takes up the slack therein.

At the end of the belts 9 and 10 and over the drum 6 is placed the deflecting finger 31 which may be turned to any angle to suit the convenience of the operator so that the blanks from a portion of the belt 10 may be deflected into the chute 23 or the blanks from a portion of the belt 9, may be deflected into the chute 24 or the finger may be set on line with the meeting edges of the belt.

It will also be noticed that the belt 9 is considerably wider than the belt 10. The belt 10 is of such width as to present the blanks conveniently in a single row to the operator. The belt 9 is broad so as to give ample working surface thereon for the mechanical manipulation of the blanks at the forward end of it.

While this machine is described as a machine for working on buttons and button blanks, these terms are used only for convenience, it being understood that the machine can be used for feeding any other substances on which it will work in substantially the same manner.

I claim:

1. In a machine for feeding buttons or button blanks, the combination of a traveling belt of a stationary finger mounted over said belt and in contact therewith, said finger being thin and adapted to let buttons having rounded bottoms pass over it, but arresting those that have flat bottoms.

2. In a machine for feeding buttons or button blanks, the combination of a traveling belt of a stationary finger mounted over said belt and in contact therewith, said finger being thin and adapted to let buttons having rounded bottoms pass over it, but arresting those that have flat bottoms, said finger being placed diagonally to the line of the belt and adapted to move transversely of the belt, all buttons arrested thereby.

3. In a machine for feeding buttons, the combination of a traveling belt, of a series

of stationary fingers mounted over said belt and in contact therewith, said fingers being thin and adapted to let buttons having rounded bottoms pass over them, but arresting those that have flat bottoms.

5 4. In a machine for feeding buttons, the combination of a traveling belt, of a series of stationary fingers mounted over said belt and in contact therewith, said fingers being
10 thin and adapted to let buttons having rounded bottoms pass over them, but arresting those that have flat bottoms, said fingers being placed diagonally to the line of the belt and adapted to move, transversely of
15 the belt, all buttons arrested thereby.

5. In a machine for feeding buttons, the combination of a traveling belt, a stationary
20 finger mounted over the belt and in contact therewith, said finger being arranged diagonally to the line of travel of the belt and extending from one side of the belt to within a short distance of the other side of the belt, and being adapted to move all
25 buttons to the one side of the belt beyond the end of the finger leaving the buttons on the belt to move therewith.

6. In a machine for feeding buttons, the combination of a traveling belt, a thick
30 stationary finger mounted over the belt and in contact therewith, said finger being arranged diagonally to the line of travel of the belt and being adapted to move all buttons to one side of the belt, a second stationary
35 finger mounted over the belt and in contact therewith, said finger being thin and adapted to let buttons having rounded bottoms pass over it, but arresting those that have flat bottoms.

7. In a machine for feeding buttons, the combination of a traveling belt, a thick
40 stationary finger mounted over the belt and in contact therewith, said finger being arranged diagonally to the line of travel of the belt and being adapted to move all buttons to one side of the belt, a second stationary
45 finger mounted over the belt and in contact therewith, said finger being thin and adapted to let buttons having rounded bottoms pass over it, but arresting those that have flat bottoms, said thin finger being
50 placed diagonally to the line of the belt and inclined in the opposite direction to the first finger and being adapted to move to the edge of the belt all buttons arrested thereby.

8. In a machine for feeding buttons the combination of a pair of traveling belts, one
55 of said belts traveling in a single plane and the second belt traveling in two planes, one parallel to and on a level with and the other
60 at an angle to the line of travel of the first named belt.

9. In a machine for feeding buttons the combination of a pair of traveling belts, one
65 of said belts traveling in a single plane and the second belt traveling in two planes, one

parallel to and on a level with and the other at an angle to the line of travel of the first named belt, means for pushing buttons from the first belt to the second belt while the belts are at an angle to each other and when
70 they are parallel to each other.

10. In a machine for feeding buttons the combination of a pair of traveling belts, one
75 of said belts traveling in a single plane and the second belt traveling in two planes, one parallel to and on a level with and the other at an angle to the line of travel of the first named belt, means for pushing buttons having flat bottoms off the first named belt, permitting them to drop on the
80 second belt and turn over while so doing.

11. In a machine for feeding buttons, the combination of a pair of traveling belts, one
85 of said belts traveling in a single plane and the second belt traveling in two planes, one parallel to and on a level with and the other at an angle to the line of travel of the first named belt, means for pushing buttons having flat bottoms off the first named belt, permitting them to drop on the second belt
90 and turn over while so doing, means for thereafter pushing buttons having rounded bottoms from the first belt to the second belt without turning them over.

12. In a machine for feeding buttons, the combination of a shaft, of a pair of pulleys
95 thereon having different diameters, a belt traveling horizontally from the one pulley, a second belt traveling up an inclined plane from the second pulley to a level with the first named belt and then forward parallel
100 to said belt.

13. In a machine for feeding buttons, the combination of a shaft, of a pair of pulleys
105 thereon having different diameters, a belt traveling horizontally from the one pulley, a second belt traveling up an inclined plane from the second pulley to a level with the first named belt and then forward parallel to said belt, means for pushing
110 buttons from the first belt to the second belt, both at an intermediate point of the inclined plane and at the end of the inclined plane.

14. In a machine for feeding buttons, the combination of a shaft, of a pair of pulleys
115 thereon having different diameters, a belt traveling horizontally from the one pulley, a second belt traveling up an inclined plane from the second pulley to a level with the first named belt and then forward parallel
120 to said belt, means for pushing buttons from the first belt to the second belt, both at an intermediate point of the inclined plane and at the end of the inclined plane, chutes arranged at the sides and ends of said belts.
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15. In a machine for feeding buttons, the combination of a shaft, of a pair of pulleys thereon having different diameters,
130 a belt traveling horizontally from the one

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 pulley, a second belt traveling up an inclined plane from the second pulley to a level with the first named belt and then forward parallel to said belt, means for
 5 pushing buttons from the first belt to the second belt, both at an intermediate point of the inclined plane and at the end of the inclined plane, a deflecting finger at the end of the belts for dividing the buttons carried
 10 by the belts.

16. In a machine for feeding buttons, the combination of a shaft, of a pair of pulleys thereon having different diameters, a belt traveling horizontally from the one pulley,
 15 a second belt traveling up an inclined plane from the second pulley to a level with the first named belt and then forward parallel to said belt, means for pushing buttons from the first belt to the second belt, both at an
 20 intermediate point of the inclined plane and at the end of the inclined plane, a deflecting finger at the end of the belts for dividing the buttons carried by the belts, a chute on each side of said deflecting finger.

17. In a machine for feeding buttons the combination of an endless belt, a finger projecting across said belt at approximately the height of a single layer of blanks, a second finger projecting diagonally but partially across said belt, said second finger being held
 25 close to the upper surface of said belt to deflect the blanks to one side of said belt, a series of thin fingers projecting diagonally but oppositely to said second fingers across
 30 said belt and held close to the surface thereof to deflect part of the blanks back to the other side of said belt; a guide for guiding the blanks not deflected by said series of fingers to the first named side of said belt, a second
 35 endless belt to receive and convey all of the blanks so deflected to a predetermined place.
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In testimony whereof we affix our signatures in presence of two witnesses.

PHILIP EBY.
 JAMES A. CARRON.

Witnesses:
 S. PARK HARMAN, JR.,
 MILTON NOYES.