P. EBY AND L. ANGLE.

MACHINE FOR SEPARATING BUTTON BLANKS.

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1,350,794. Patented Aug. 24, 1920.

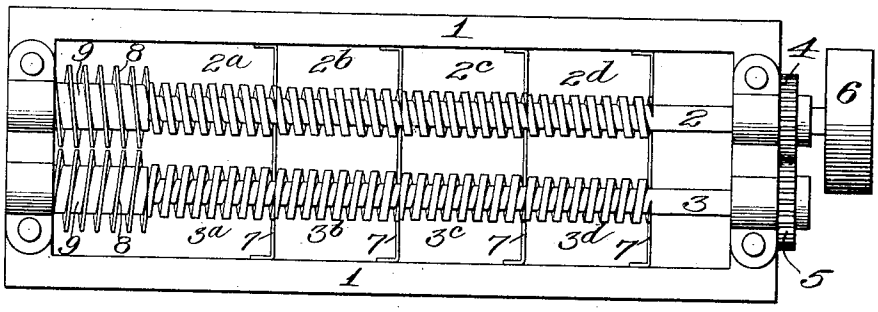


Fig. 1

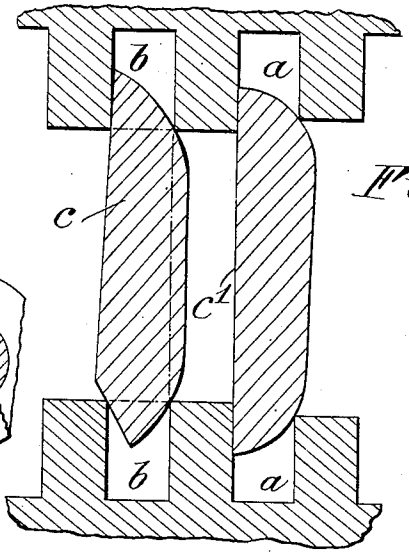
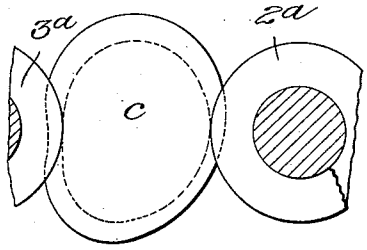


Fig. 4

Fig. 3



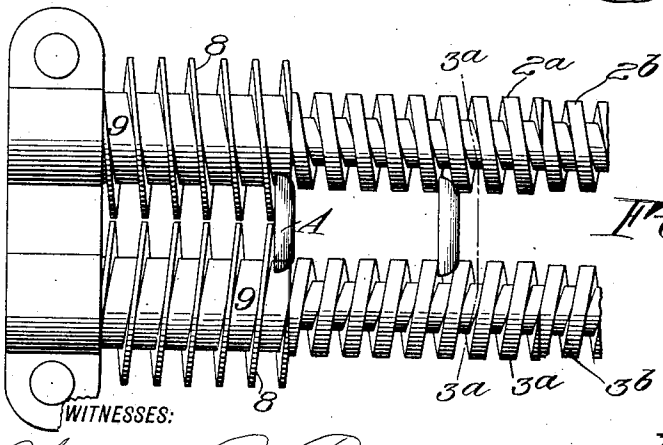


Fig. 2

WITNESSES:

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UNITED STATES PATENT OFFICE.

PHILIP EBY AND LLOYD ANGLE, OF ROCHESTER, NEW YORK, ASSIGNOR TO ART IN BUTTONS, INC., OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR SEPARATING BUTTON-BLANKS.

1,350,794. Specification of Letters Patent. Patented Aug. 24, 1920.

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To all whom it may concern:

Be it known that we, PHILIP EBY and LLOYD ANGLE, both of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Machines for Separating Button-Blanks; and we do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference characters marked thereon.

Our invention has for its object to afford a machine for the separation of blanks such as are used in the construction of buttons and formed by cutting a nut into sections, the object being to select these according to the maximum size of the button that can be formed from a blank. A further purpose of the invention is to afford a mechanism by which blanks can readily be fed thereto and accurately separated in to the various classes desired according to size, all of which is automatically determined by the machine. To these and other ends the invention consists in certain improvements and combinations of parts all as will be hereinafter more fully described, the novel features being pointed out in the claims at the end of the specification.

In the drawings:

Figure 1 is a plan view of an apparatus showing a preferred embodiment of the invention;

Fig. 2 is an enlarged plan view illustrating two blanks in operative position;

Fig. 3 is a sectional view on the line 3^a—3^a of Fig. 2, and

Fig. 4 is a sectional view taken in a horizontal plane and showing a pair of blanks also in section.

Similar reference characters throughout the several views indicate the same parts.

The structure comprises a frame 1 and a pair of rotary separating members designated generally at 2 and 3 and journaled in the frame 1, with their axes in substantially the same horizontal plane whereby to support a blank in a vertical plane in a manner that will appear presently. The rotary members 2 and 3 carry pinions 4 and 5 respectively which are in engagement with each other while the rotary member 2 has fixed thereon the pulley 6 to which power is applied for operating the members 2 and 3.

The separating members 2 and 3 are provided with spirally grooved sections designated at 2^a, 2^b, 2^c, 2^d and 3^a, 3^b, etc., the different spirally grooved sections being separated from each other by walls or partitions 7, forming the different compartments into which the different sized sections are discharged. The grooves of the spirally grooved sections are decreased in depth, in the successive sections from the left hand toward the right hand end of the apparatus, by reducing the diameter of the members, so that there is a smaller space between the separating members at the left hand end for separating out the smaller blanks and a larger space at the right hand end for separating out the larger blanks, while the intermediate sections take care of the corresponding intermediate sizes of blanks. The latter are fed to the machine by a pair of spiral conveyers 8 carried by and arranged at the feeding end of the separating members, and coöperating to form a space or recess that holds the blanks A edgewise in a vertical plane in the manner shown in Fig. 2, the blank resting upon the enlarged portions 9 of the separating members 2 and 3, and being fed along by, and supported against, the conveyers 8 until it reaches the spirally grooved sections 2^a and 3^a at which point the blank falls between the separating members if sufficiently small and otherwise it is carried along the machine until it reaches its proper pocket.

The blanks are separated according to the maximum size of buttons to be cut, which is determined by a substantially rectangular measurement such as indicated by the dotted line in Fig. 4, connecting the four points of the separating members that support the blank, and determine at what point it is discharged. In Fig. 4 there are partially shown two adjacent spirally grooved sections, the groove *a* of the one section being more shallow than the groove *b* of the adjacent section, so that when the blank *c* has proceeded as far as the groove *a*, it will no longer be supported at the four points but is permitted to drop into the compartment underneath. The grooves of the separating members are preferably of rectangular formation in cross section to permit receiving the edge portions of differently formed blanks such as shown in Fig. 4, while at the same time affording engage-

ment for the flat side of a blank as illustrated at c' and for accurately measuring it by engagement at four points, determined by the outermost edges of the grooves in which the blank is positioned. The blank is thus supported by the edges of the groove as shown in Figs. 2 and 4 irrespective of the conformation of the blank whether it be comparatively wide or narrow, thick or thin, and is carried along the spirally grooved sections until it reaches a point that determines by accurate measurement that the blank includes a rectangular portion sufficient for a predetermined size of button and it is accordingly dropped into the particular compartment or pocket of this size.

It will be observed that the button blanks are sorted, by measuring or gaging them to determine their average thickness, thus classifying them according to both the greatest shoulder thickness and largest diameter of a given predetermined size of button which can be subsequently cut from the blank. The blanks are of the general form of segments of a sphere having plane bases. The sorting is done by measuring the thickness of the blank at two separated points along its diameter and the diameter of the blank by the distance between said points.

We claim as our invention:

1. A button blank sorting machine comprising a pair of substantially parallel members spaced from each other and having opposed deep and narrow grooves, the edges of which form gage points for simultaneously defining the diameter and the thickness of a button blank.

2. A button blank sorting machine comprising a pair of substantially parallel rotary members spaced from each other and having opposed deep and narrow grooves, the edges of which form gage points for simultaneously defining the diameter and thickness of a button blank.

3. A button blank sorting machine comprising a pair of rotary members spaced from each other and having opposed spirally deep and narrow grooves, the edges of which form gage points for simultaneously defining the diameter and thickness of a button blank, being carried forward by the rotation of said members.

4. A button blank sorting machine adapted to sort button blanks having the general form of a spherical sector and comprising a pair of rotary members spaced from each other and having opposed spirally deep and narrow grooves, the edges of which form gage points for simultaneously defining the diameter and thickness of a button blank supported in opposed grooves, and means for rotating said members to carry the button blanks longitudinally thereof.

5. In a button blank sorting machine, the combination of a frame, a pair of rollers having deep and narrow grooves, said rollers being spaced from each other and rotably supported thereon and adapted to support and carry forward a button blank in substantially a vertical plane in said grooves, the edges of which form gage points for simultaneously defining the diameter and thickness of said button blank, and means for rotating said rollers.

6. A button blank sorting machine comprising a pair of rotary members spaced from each other and supported with their axes of rotation in substantially the same horizontal plane, and also having spirally grooved sections of successively decreasing diameters, said grooves being deep and narrow and substantially rectangular in cross section and opposed to each other, the edges of which form gage points for defining the diameter and thickness of a button blank, the larger blanks being supported and carried forward in a vertical plane, and means for rotating said members.

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