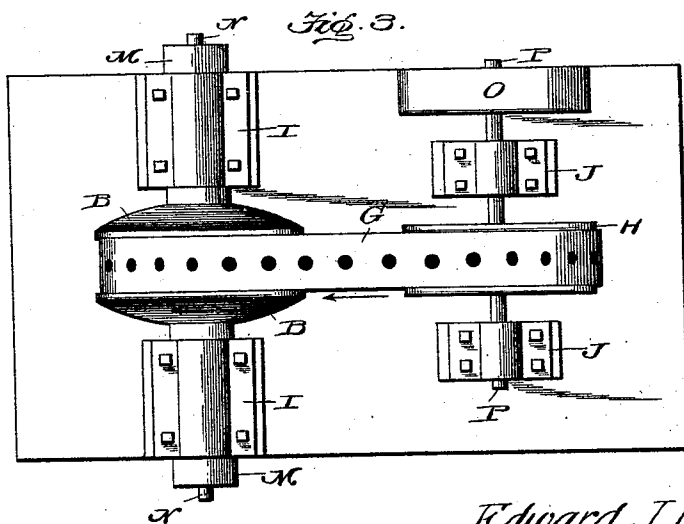
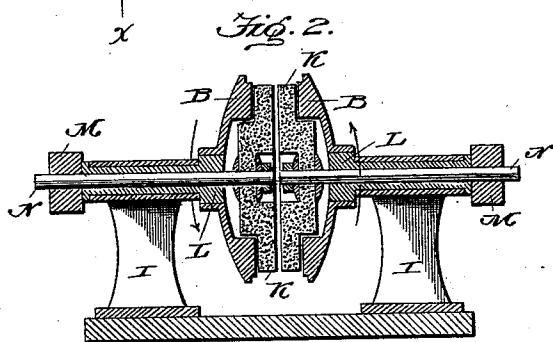
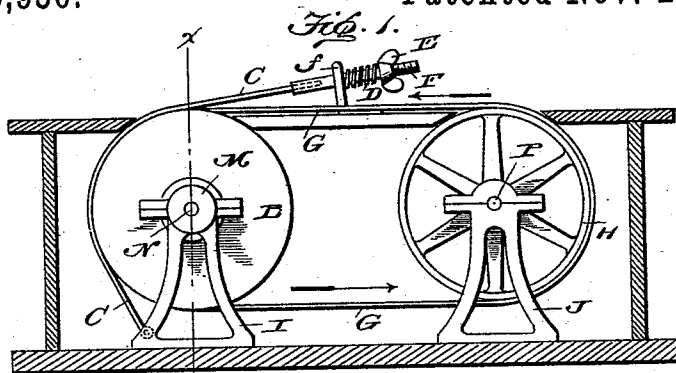


(No Model.)

E. J. POPE.
MACHINE FOR FORMING BUTTON BLANKS.

No. 529,950.

Patented Nov. 27, 1894.



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Inventor.

Witnesses:

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UNITED STATES PATENT OFFICE.

EDWARD J. POPE, OF EAU CLAIRE, WISCONSIN, ASSIGNOR OF THREE-FOURTHS TO THE BADGER PEARL BUTTON COMPANY, OF SAME PLACE.

MACHINE FOR FORMING BUTTON-BLANKS.

SPECIFICATION forming part of Letters Patent No. 529,950, dated November 27, 1894.

Application filed June 9, 1894. Serial No. 514,024. (No model.)

To all whom it may concern:

Be it known that I, EDWARD J. POPE, a citizen of the United States, residing at Eau Claire, in the county of Eau Claire and State of Wisconsin, have invented certain new and useful Improvements in Machines for Forming or Shaping Button-Blanks; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My present invention is a machine for shaping button blanks preparatory to making the buttons, and it is more particularly designed to perform nearly all the difficult and heavy work to be done in making mother of pearl buttons; and the object that I have in view is to provide a simple, easily operated and efficient machine by which a large number of button-blanks can be given the desired shape by passing them through the machine, after which they can be easily and quickly finished.

With these and such other ends in view as pertain to my invention, it consists, broadly stated, in the combination of two oppositely-revolving abrading-disks, and means for carrying the button-blanks to said disks and pressing said blanks upon the surfaces of the disks, whereby the oppositely-revolving disks finish or shape one surface of the blank and impart thereto a rotary motion within the button-feeding mechanism to bring the whole surface of the button-blank to and in contact with the said disks.

My invention further consists in the combination with the oppositely-revolving abrading-disks, of an endless feeding-apron provided with sockets or openings in which the button-blanks can be readily placed as the feeding-apron is slowly moved to the abrading-disks, an idler drum which incloses the abrading-disks and forms the support and guide around which the feeding-apron passes to present the button-blanks therein to the action of said abrading-disks, and a pressure device acting upon the feeding-apron to press the latter and the button-blanks therein against the said disks.

The invention further consists in the combination with suitable bearings arranged in

line with each other, of bushings fitted in said bearings, the idler guide drum made in sections which are carried by the bushings or hollow spindles and said sections arranged relatively to each other to form the support for the endless feeding-apron which passes around the drums, the oppositely revolving arbors fitted in the bushings or hollow spindles and having driving pulleys at their outer ends, and carrying the abrading-disks at their inner ends, and a tension pressure-band fitted to bear against the endless feeding-apron.

The invention further consists in a means for regulating the tension of the pressure-band; and it finally consists in the construction of parts and in the combinations of devices which will be hereinafter fully described and claimed.

To enable others to understand my invention, I have illustrated the preferred embodiment thereof in the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a side elevation of my machine for shaping button-blanks. Fig. 2 is a vertical transverse sectional view through the abrading-disks, the idler drum, and the means for supporting and driving the same, the plane of section being indicated by the dotted line *x x* of Fig. 1. Fig. 3 is a plan view of the machine.

Like letters of reference denote corresponding parts in all the figures of the drawings, referring to which—

J, J, designate the standards which are fixed to a suitable base, or to the floor of a room, and these standards are provided at their upper ends with bearings, in which is journaled the horizontal driving shaft, P. At a point between these spaced standards, J, J, the shaft P is provided with a driving drum H, around which passes the endless feeding-apron, G; and one end of this shaft, P, is extended beyond the bearing of one standard, J, to receive a driving pulley, O, that is rotated by a belt from any suitable source, as for instance a line of shafting or motor.

I, I, designate another pair of standards, situated at a suitable distance on one side of

the standards, J, J, and in bearings on these standards, I, I, are journaled the hollow spindles or bushings, L, L, the inner ends of which carry the sections, B, B, of the idler drum by which the feed-apron, G, is guided to present the button-blanks to the action of the abrading-disks, K, K, shown more clearly in Fig. 2 of the drawings. These abrading-disks are arranged concentric with each other and quite closely together to enable them to act on the button-blank simultaneously, and the edges of the disks are shaped or formed in a manner to impart the proper finish to the surface of the button blank when it is presented to the disks by the endless feed-apron. These disks are clamped, or otherwise suitably secured to the inner ends of the arbors, N, N, which pass or extend longitudinally through the hollow spindles or bushings, L, L; and the outer ends of the arbors, N, N, are provided with pulleys, M, M, around which pass belts for driving the pulleys, arbors and abrading-disks in opposite directions to each other.

The idler drum, B, B, is made in sections as shown by Fig. 2, and these sections are suitably secured or united to the inner ends of the hollow spindles or bushings, L, L. The sections of the idler drum are disposed on opposite sides of the abrading-disks so as to partially inclose the same, and these sections, B, B, are constructed so as to form annular ledges or rims, which are practically concentric with the edges of the abrading-disks, whereby the endless feed-apron is adapted to bear or ride upon the flanges or ledges of the drum sections to be supported thereby and properly present the button-blanks to the edges of the abrading disks.

The endless feed-apron, G, may be made of steel, or other suitable metal or material, and in this endless feed-apron is formed a series of blank-receiving apertures which are properly spaced apart and in which the button-blanks can be easily placed as the apron travels slowly from the driving drum H to the idler drum, B, B. This feed-apron passes around the driving drum, H, and the idler drum, B, B, the latter turning slowly with the said feed-apron and the bushings or hollow-spindles, while the arbors N and abrading disks are rapidly revolved in opposite directions; and beneath the upper side of the feed-apron is arranged a table or bed, indicated at *g* in Fig. 1 of the drawing.

The feed apron, G, and the button-blanks contained in its openings or pockets, are pressed toward the abrading-disks K, K, by means of a pressure device, to cause the button-blanks to be properly presented to the disks to be shaped thereby. This pressure device, in one embodiment of my invention, consists of a band, C, which partially passes around the feed-apron G at the place where the latter is guided around the idler drum, and the lower end of this pressure band, C, passes or recedes from the apron and idler

drum near the lower side of the latter, as shown by Fig. 1, to permit the button-blanks, after they have been shaped or formed by the abrading-disks, to drop out of the apron into a suitable receptacle. This lower end of the pressure-band, C, is fastened to the bed of the machine or to a suitable support in any desirable way, and to regulate the tension or pressure of the band C upon the feed-apron, I connect the upper end of the band, C, to a threaded rod, F, which rod passes through a suitable fixed guide, *f*. See Fig. 1. Around this threaded rod, F, is fitted a coiled spring, D, one end of which bears against the fixed guide, *f*, and the other end bears against the nut, E, which is fitted and adjustable on the threaded rod F to compress the spring, D, more or less according to the tension or pressure desired to be exerted by the band C upon the feed-apron.

The machine is inclosed within a suitable casing, A, which may be of any preferred construction.

The operation may be described as follows: Power is applied to the driving pulley O to rotate the shaft P, and driving drum, H slowly, and thus impart a slow motion to the feed-apron, G, and the idler drum, B, B; and power is also applied to the pulleys, M, M, to rotate the arbors N, N, and abrading-disks, K, K, rapidly in opposite directions. The button-blanks are placed in the openings in the feed-apron, G, as it passes along slowly, and at a point just before the apron reaches the idler drum, B, B, and the abrading disks, K, K. The blanks are carried by the apron to the disks and pressed against the edges thereof by the pressure band, C. As the apron moves slowly around the drum and the disks, and as said abrading disks revolve swiftly in opposite directions, the button-blanks are revolved in the openings in the feed-apron and cut or shaped at the same time by the action of the swiftly revolving disks, K, K, rotating in opposite directions, and the button-blanks are thus shaped or formed, on one surface thereof, by the time they reach the point where the pressure-band, C, recedes from the feed-apron, thus discharging the button-blanks from the feed-apron.

The advantage of my invention is that a large number of buttons can be made and finished in any suitable style within a short time, because it will perform nearly all the difficult and heavy work required to be done in the manufacture of pearl buttons.

The machine is simple and durable in construction, and after the buttons have been shaped by running them through the machine once, they can be easily and quickly finished.

In the drawings I have shown a single set of abrading-disks, but I do not strictly confine myself to the use of only one set of these abrading-disks, as I can add one or more sets of abrading-disks and perform the necessary work on both sides of the button-blanks by passing them through the one machine.

I am aware that changes in the form and proportion or parts and in the details of construction herein shown and described as an embodiment of my invention can be made by a skilled mechanic without departing from the spirit or sacrificing the advantages of my invention, and I therefore reserve the right to make such modifications and alterations as fairly fall within the scope of my invention.

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

1. In a button shaping machine, the abrading disks having their peripheral working surfaces substantially concentric, in combination with means for rotating said disks in opposite directions, and a feed mechanism which presents button-blanks to the peripheral working surfaces of both disks, substantially as and for the purposes described.

2. In a button shaping machine, the combination of abrading disks having their peripheral working surfaces substantially concentric, a feed mechanism arranged to successively present button-blanks to the peripheral working surfaces of both disks, and a pressure device to force the button blanks upon said peripheral working surfaces of the disks and arranged to recede from the disks, to permit said button blanks to be discharged after they have been operated upon by the disks, as and for the purposes described.

3. In a button shaping machine, the combination of a pair of oppositely rotating abrading disks arranged in close juxtaposition to each other and having their peripheral working surfaces substantially concentric, a feed mechanism for presenting button blanks to the peripheral working surfaces of both disks at the same time, and a pressure device for pressing the button-blanks against the working surfaces of the disks, substantially as and for the purposes described.

4. In a button shaping machine, the combination of a pair of abrading disks arranged close together and with their peripheral working surfaces substantially concentric with each other, means for driving the disks in opposite directions, and an endless feed apron or belt passing around the peripheral working surfaces of the two abrading disks and provided with button-blank pockets which are arranged to present each blank to the working surfaces of both disks at one time, substantially as described.

5. In a button shaping machine, the combination of an idler drum, a pair of oppositely-rotating abrading-disks within said idler drum, and an endless feed apron which passes around said idler drum and adapted to carry button-blanks to the edges of the abrading-disks, substantially as and for the purposes described.

6. In a button-shaping machine, the combination of an idler drum, abrading-disks within the same, a feed apron passing around said idler drum, and a pressure device acting

against the feed apron to press the button-blanks thereon upon the edges of the abrading-disks, substantially as and for the purposes described.

7. In a button-shaping machine, the combination of an idler drum, a driving drum, an endless feed-apron passing around said driving and idler drums and provided with apertures to receive button-blanks, a set of abrading-disks arranged to act upon the button-blanks within the apertures of the feed-apron, and a pressure band bearing against the feed-apron to press the latter and the button-blanks therein upon the abrading-disks, substantially as and for the purposes described.

8. In a button-shaping machine, the combination of the hollow-spindles carrying the members of a sectional drum, the arbors passing through the hollow spindles and each provided with a driving pulley, abrading-disks rigid with the inner ends of the arbors and arranged between the members of the idler drum, a driving drum, and an endless apron passing around the driving drum and upon the members of the sectional idler drum, substantially as and for the purposes described.

9. In a button-shaping machine, the combination with a driving drum, and the hollow spindles or bushings, of a sectional idler drum, the members of which are rigid with the inner ends of the hollow spindles and constructed with annular ribs or flanges, the arbors fitted in the spindles, the abrading-disks between the members of the idler drum and rigid with the inner ends of said arbors, and an endless apertured feed apron fitted around the driving drum and upon the flanges or ribs of the sectional idler drum, substantially as and for the purposes described.

10. In a button-shaping machine, the combination of an idler drum, a driving drum, an endless apertured feed-apron fitted upon said driving and idler drums, abrading-disks within the idler drum, means for rapidly revolving the abrading disks in opposite directions, and an adjustable pressure-band fitted upon the feed apron to press the button blanks thereon into contact with the abrading disks, substantially as and for the purposes described.

11. In a button shaping machine, the combination with the idler and driving drums, of a feed apron fitted thereon, a pair of oppositely-revolving abrading-disks within the idler drum to act upon the button-blanks carried by the feed-apron, and a pressure band having its fixed end arranged to recede from the idler drum and feed apron and connected at its other end to an adjustable tension device, for the purposes described, substantially as set forth.

12. In a button shaping machine, the combination of the oppositely rotating arbors, the abrading-disks rigid with the inner ends of said arbors and arranged closely adjacent to each other and substantially concentric at their edges, the hollow spindles in which the

arbors are fitted, the idler drum having its members rigid with the inner ends of the hollow spindles and provided with annular ledges which are concentric with the abrading disks, an endless apertured feed apron fitted upon the annular ledges of the idler drum, a pressure band bearing upon the feed-apron, and means for slowly moving the feed

apron around the idler drum, substantially as set forth. 10

In testimony whereof I affix my signature in presence of two witnesses.

EDWARD J. POPE.

Witnesses:

HAL. H. COLE,

FREDERICK M. MINER.