(No Model.)

M. WOODS.

BUTTON TURNING MACHINE.

No. 490,937. Patented Jan. 31, 1893.

Fig. 1.

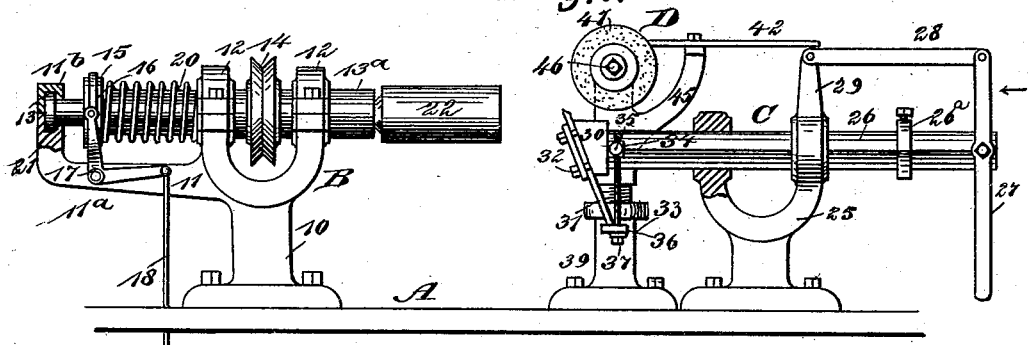


Fig. 5

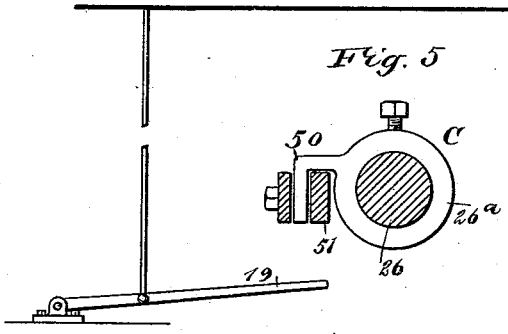


Fig. 6

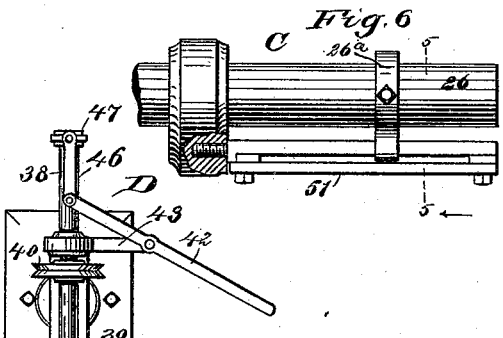


Fig. 2.

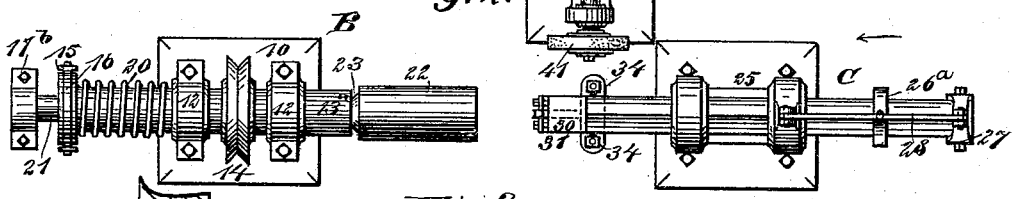
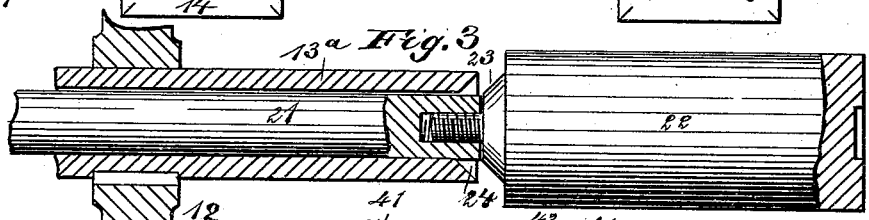


Fig. 3



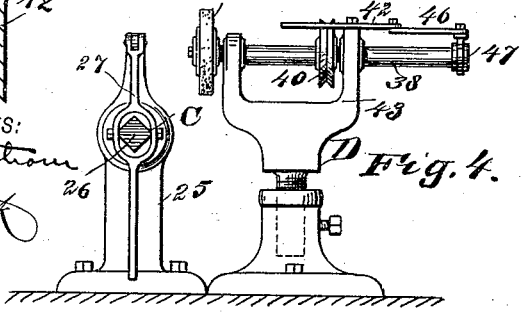


Fig. 4.

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MARTIN WOODS, OF NEWARK, NEW JERSEY.

BUTTON-TURNING MACHINE.

SPECIFICATION forming part of Letters Patent No. 490,937, dated January 31, 1893.

Application filed July 12, 1892. Serial No. 439,806. (No model.)

To all whom it may concern:

Be it known that I, MARTIN WOODS, of Newark, in the county of Essex and State of New Jersey, have invented a new and Improved Button-Turning Machine, of which the following is a full, clear, and exact description.

The invention consists in the novel construction and combination of the several parts, as will be hereinafter fully set forth and pointed out in the claim.

Reference is to be had to the accompanying drawings forming a part of this specification, in which similar figures and letters of reference indicate corresponding parts in all the views.

Figure 1 is a side elevation of the machine, a portion of one of its chucks being broken away; Fig. 2 is a plan view; Fig. 3 is an enlarged sectional view of the chuck-carrying spindle and its operating sleeve or shaft; Fig. 4 is an end view of the machine. Fig. 5 is a section on the line 5—5 of Fig. 6, and illustrates a locking device for a round cutter spindle; and Fig. 6 is a side elevation of a round spindle and locking device.

Upon a suitable table A, the parts of the machine are located, and these parts while they are adapted to coact are independent in themselves, and comprise a chuck-carrying mechanism B, a tool-carrying mechanism C and a grinding mechanism D.

With reference to the chuck-carrying mechanism B, the said mechanism consists of a standard 10, bifurcated at its upper end and provided with an arm 11, projected therefrom at one side between the bottom and top, which arm is of somewhat angular construction, as it comprises a horizontal member 11^a and an upwardly-extending member 11^b. In the members of the standard 10 boxes 12, are formed, and a bearing 13, is created in the vertical member of the arm 11, the bearings or boxes being practically in horizontal alignment. In the boxes 12 a hollow or sleeve like shaft 13^a, is held to rotate. This shaft extends beyond both sides of the standard 10, as shown in Fig. 1, and the shaft 13^a, is capable of being carried laterally in through its boxes. Between the members of the standard 10, the shaft 13^a has a pulley 14 splined or otherwise rigidly attached thereto, and at the rear end of the hollow or sleeve shaft 13^a a collar 15, is formed. This collar is provided with a clutch 16, of any approved construction, the clutch being pivotally connected with one member of an elbow lever 17, the said member being fulcrumed upon the horizontal member of the arm 11, as is likewise best shown in Fig. 2; and this lever may be operated by means of an attached hand lever, or by direct application of power to one of its members. Preferably at one end of the elbow lever a rod 18, is pivotally attached, which is carried down through a suitable opening in the table A, to a connection with a treadle 19, pivoted upon the floor or other support below the table. Between the collar 15 and the opposing box 12 of the standard 10 a spring 20 is wound around the sleeve shaft 13^a, and by bearing downward upon the treadle the sleeve shaft is forced inward through its boxes against the tension of the spring 20, and when pressure is removed from the treadle the spring restores the sleeve shaft to its normal position, which position is illustrated in Fig. 1. The sleeve shaft 13^a turns around a shaft 21, the said shaft 21, being journaled at its outer end in the vertical member of the standard arm 11. The inner end of the inner shaft has secured thereto a chuck 22, of any approved construction, the said chuck being adapted to hold the material from which the button is to be formed.

The chuck is ordinarily screwed into the shaft 21, as shown in Fig. 3, and the end of the chuck which engages with the shaft is provided with a conical surface 23, as is likewise best shown in Fig. 3; and the inner end of the sleeve shaft 13^a is reamed or otherwise manipulated to create an inner conical beveled surface 24, and this surface is adapted to engage with the conical exterior surface 23 of the chuck when the sleeve shaft is forced inward by the action of the treadle 19. When the sleeve shaft has engaged with the chuck as above set forth, the chuck is revolved by reason of its frictional engagement with the sleeve shaft and likewise the inner shaft 21, as the power belt is carried over the pulley 14, which as has heretofore been stated, is attached to the sleeve shaft.

In front of the chuck mechanism a tool-carrying mechanism C, is located. This tool-carrying mechanism consists of a standard 25,

bifurcated at its upper end, and the members of the standard are provided with openings in their sides, extending through them; and in said openings a horizontally-located bar 26, is loosely mounted; therefore the bar is capable of being laterally reciprocated in the standard. The bar is preferably made polygonal or rectangular in cross section, as shown best in Fig. 4, and the openings in the standard are of corresponding shape. Between the standard and the outer end of the bar a stop sleeve 26^a, is attached to the latter, it being adjustable thereon by means of a set screw; and this sleeve limits the movement of the bar when it is thrust inward in direction of the chuck. The movement of the bar is accomplished through the medium of a lever 27, which is fulcrumed upon its outer end, the lever being shown in side elevation in Fig. 1; and the upper end of this lever is connected by means of a link 28 with an arm 29, projected upward from one of the members of the standard 25. At the inner end of the bar 26, a head 30, is secured, comprising a body section and a plate connected with the body, the cutting tool 31, being located between the plate and the body and connected with both by means of set screws 32. Thus by loosening the set screws the cutting tool may be adjusted vertically as the set screws pass through elongated openings in the tool.

The vertical adjustment of the cutting tool is accomplished through the medium of adjusting rods 33, one of which is located at each side of the shaft back of the head and extends downward therefrom. The threaded ends of the rods pass upward through extensions or lugs 34, located upon opposite sides of the sliding bar 26, which extensions or lugs are provided with apertures having threaded walls through which the threaded portions of the rods pass, and the rods are prevented from being turned, when suitable adjustment of the cutting tool has been obtained, by set screws 35, passed through the lugs or extensions to an engagement with the screws. The lower end of the cutting tool rests upon a plate 36, and through this plate the tool adjusting rods 33, are loosely passed, the plate being supported by resting upon the heads 37 of said adjusting rods. Thus by loosening the set screws 32 in the heads and turning the heads of the adjusting rods by means of a wrench or other tool, the cutting tool 31 may be raised or lowered to suit the character of work to be performed.

From the above description it is obvious that by the manipulation of the lever 27 the cutting tool may be carried toward or away from the chuck, and by means of the adjusting mechanism connected with the cutting tool the latter may be elevated or depressed.

The grinding mechanism D, consists of a shaft 38, located at one side of the tool-carrying bar 26, near the head of said bar, and the shaft 38, stands at a right angle to the bar, as shown in the plan view in Fig. 2. This shaft is held to turn in a standard 39, the upper end of which is bifurcated, the shaft being journaled in boxes located in the members of the standard, and the standard is of such height that the shaft is at a greater elevation than the bar 26 from the table A. The standard is also made in two sections adjustable one upon the other to admit of lowering the grindstone when worn. The shaft carries a driving pulley 40, belted to any suitable power, the pulley being located between the ends of the shaft; and at the inner end of the shaft an emery wheel 41, or any other equivalent grinding or sharpening device, is secured in any approved manner. The shaft may be adjusted laterally to or from the cutting tool 31, by means of a lever 42, which is usually fulcrumed upon an arm 43, projected from one member of the standard, the said lever being connected by a link 46, with a clutch 47, engaging the shaft near its outer end.

The above machine is exceedingly simple, and by its use buttons, or articles of like character may be expeditiously and conveniently turned; and whenever the cutting tool becomes dulled it may be sharpened in a short time by simply carrying the sharpening device over and in engagement with the cutting surface of the tool, which is readily accomplished by the manipulation of the lever 42.

In Figs. 5 and 6, I have illustrated a cutter or tool shaft of the tool carrying mechanism C as round in cross section and a means for preventing the shaft from turning; which means consists in providing the stop sleeve 26^a with an angular arm 50 and said arm is made to enter a stationary slotted guide bar 51 attached to the box in which the shaft has movement.

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

In a machine for turning buttons and like articles, the combination, with a hollow shaft, a support for the shaft in which it is capable of movement endwise and of revolving, one end of the hollow shaft being provided with an interior beveled surface, a clutch connected with the end of the shaft opposite that having the beveled surface, and a spring having bearing at one end upon a fixed support and at the other end against the clutch, of a shaft held to turn in the hollow shaft and extending through it, a chuck located at one end of the interior shaft, the said chuck being provided with an essentially conical surface to engage with the beveled surface of the hollow shaft, and a lever connected with the clutch, whereby by the manipulation of the lever the hollow shaft, which is the drive shaft, will be carried into frictional engagement with the chuck, substantially as shown and described.

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Witnesses:
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