

No. 639,910.

Patented Dec. 26, 1899.

D. B. SHANTZ.
MACHINE FOR TURNING BUTTONS, &c.

(Application filed July 20, 1896.)

(No Model.)

3 Sheets—Sheet 1.

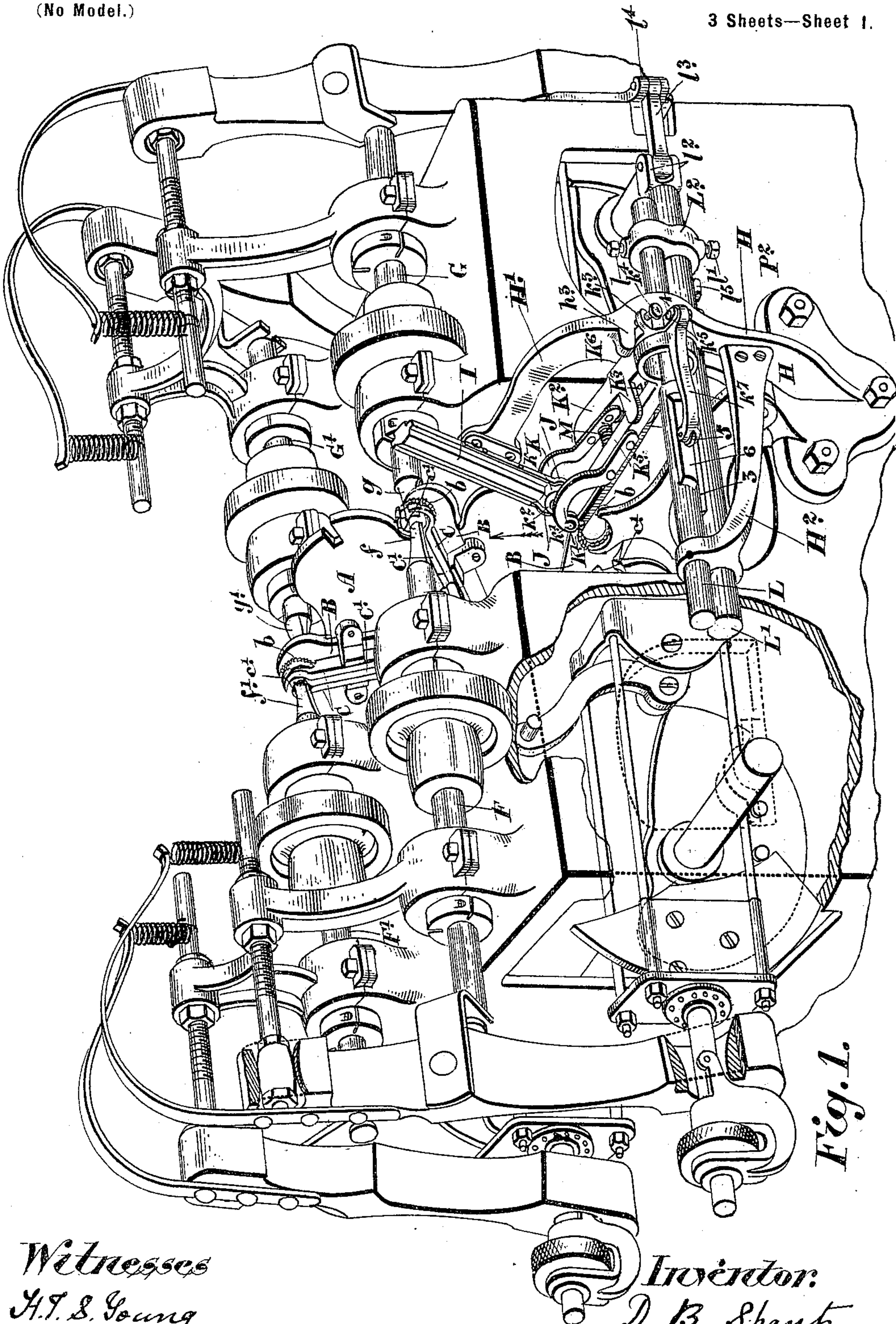


Fig. 1.

Witnesses
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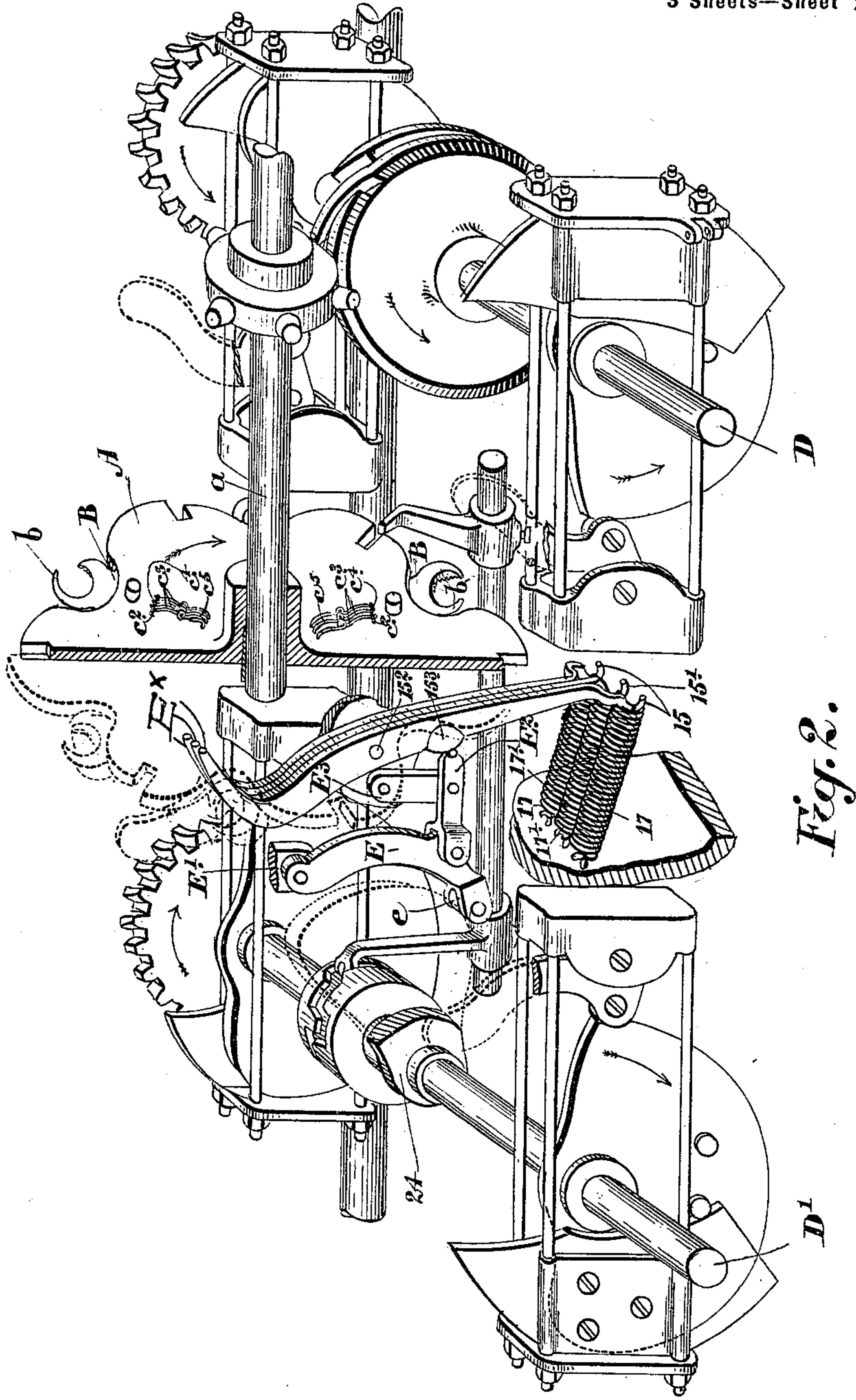


Fig. 2.

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3 Sheets—Sheet 3.

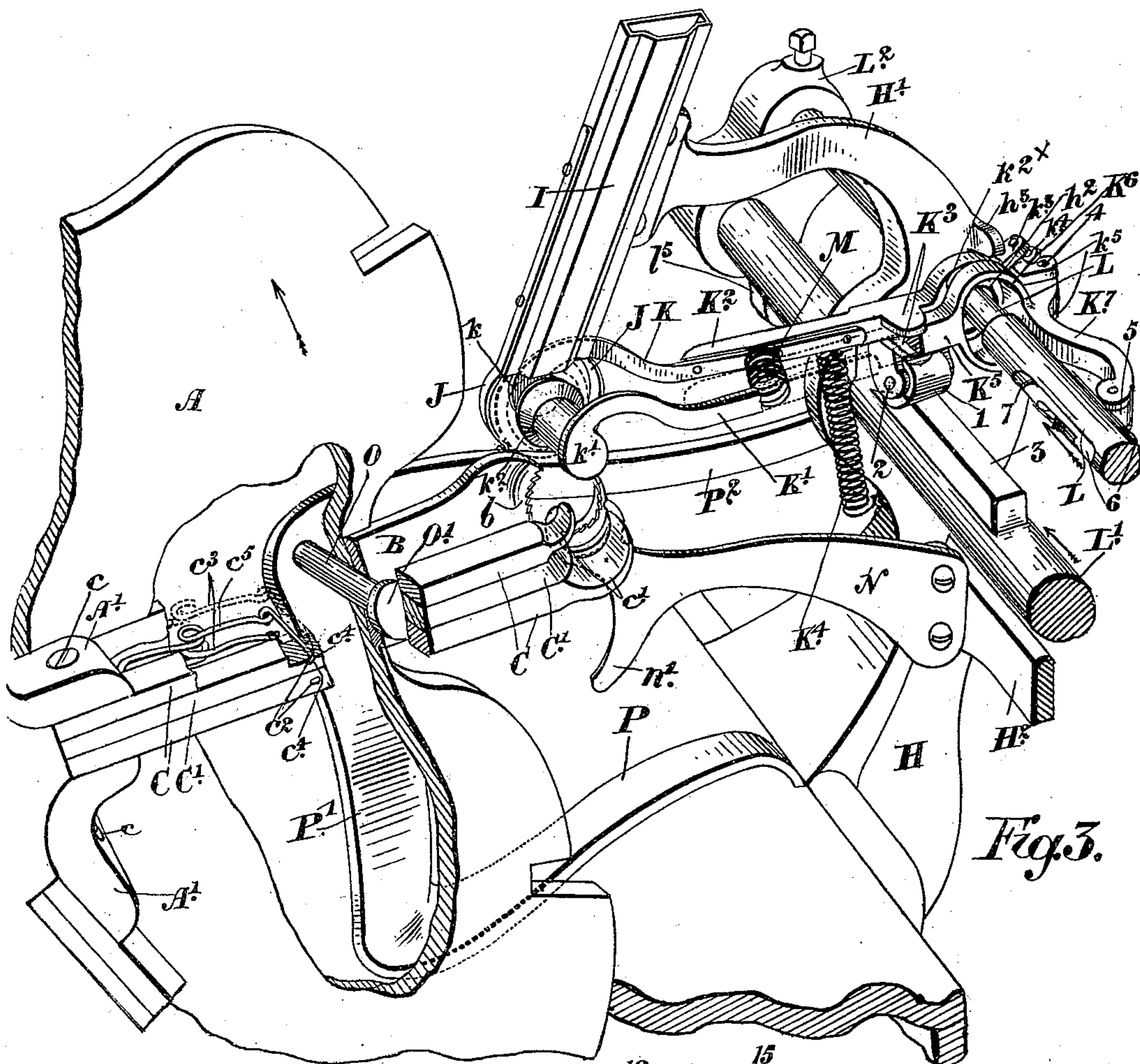


Fig. 3.

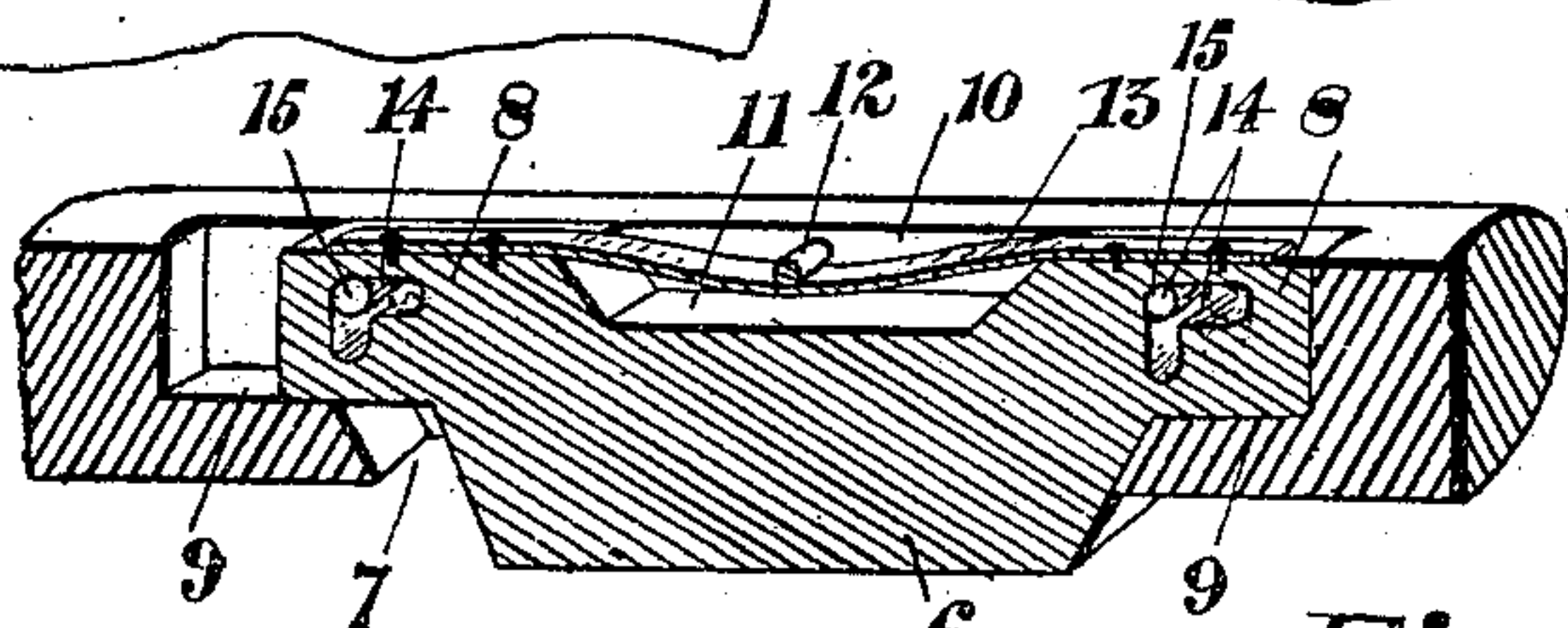


Fig. 4.

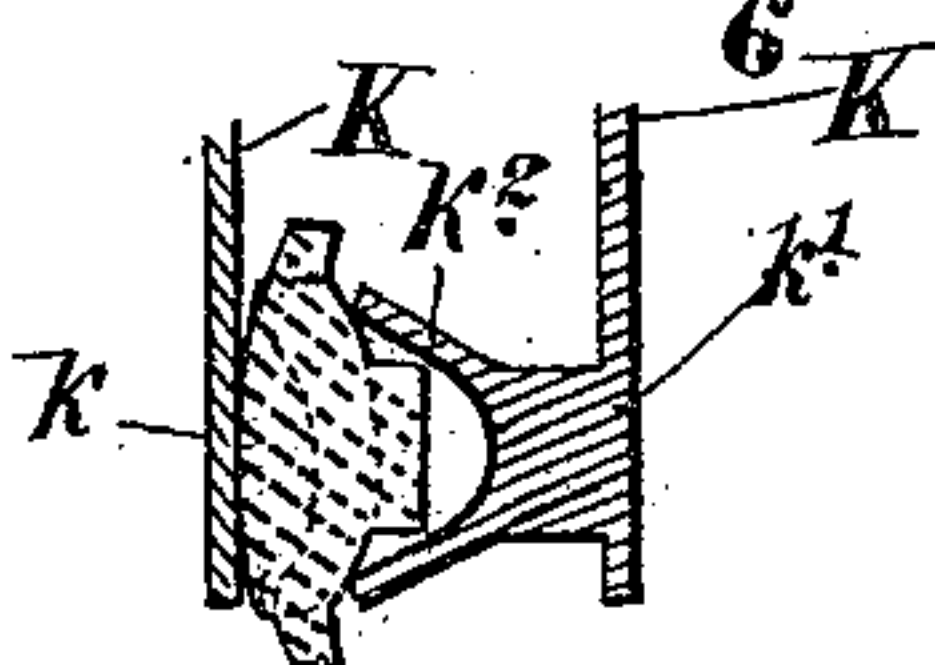


Fig. 5.

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UNITED STATES PATENT OFFICE.

DILMAN BRUBACHER SHANTZ, OF BERLIN, CANADA.

MACHINE FOR TURNING BUTTONS, &c.

SPECIFICATION forming part of Letters Patent No. 639,910, dated December 26, 1899.

Application filed July 20, 1896, Serial No. 599,945. (No model.)

To all whom it may concern:

Be it known that I, DILMAN BRUBACHER SHANTZ, manufacturer, of the town of Berlin, in the county of Waterloo, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Machines for Turning Buttons and Like Articles, of which the following is a specification.

My invention relates to improvements in machines for turning buttons and like articles patented to me in Canada under No. 39,928 on the 20th day of August, 1892, and in the United States of America under No. 497,349 on the 16th day of May, 1893; and the objects of my present invention are, first, to effect the production of a perfect button with less loss of material, time, and less wear of the tools, and, secondly, to provide a simple means for automatically feeding the button into the chucks; and it consists, essentially, first, of two sets of cutter-spindles which are journaled upon one frame in juxtaposition and are designed to coact with a rotating disk provided with suitable chucks, the one set of spindles being provided with coarse tools to roughly shape out the blank and the other set with fine tools to finish it previous to its being cut, and, secondly, of a chute which is held in proximity to the coarse tools of the cutter-spindles, the chute being designed to be filled with blanks and such blanks being carried by peculiarly-operated mechanism connected to a cage and cam described in my former patent above referred to, the parts being otherwise constructed and arranged in detail, as hereinafter more particularly explained.

Figure 1 is a general perspective view of my machine, showing in the central and lower right-hand portion of the view the parts more particularly involved in my invention. Fig. 2 is a skeleton view showing the disk, but with the spindles and upper portion and frame of the machine removed. Fig. 3 is a perspective view of a portion of the disk and the chute and parts operating on the blank to place it in position in the chucks of the disk. Fig. 4 is a sectional perspective view of portion of the spindle and spring-actuated block for separating one of the gripping-fingers from its fellow. Fig. 5 is a sectional detail of the ends of the gripping-fingers.

In the drawings like letters and numerals

of reference indicate corresponding parts in each figure.

It may be stated as a premise to this specification that this machine is intended to finish a blank such as shown in Fig. 5, such blank having been previously formed in a machine in which it is cut out circularly and with face-cuts in the form shown in this figure.

The main driving-shaft, the worms, worm-gears, cutter-spindles, means for driving the cutter-spindles, the disk, the cages, and the cams are practically identical with those shown and described in detail in my former patent. It is sufficient in this specification to refer to only such parts as are required to fully understand the operation of the parts involved in my invention.

F and G are one set of cutter-spindles which are suitably driven and are provided with tools *f* and *g*, which are preferably made heavier, coarser, and therefore necessarily stronger, so as to circularly rough-hew the blank shown in cross-section in Fig. 5 into the cross-sectional form indicated by the dotted lines in the same figure.

F' and G' are a second set of cutter-spindles which are provided with finer tools *f'* and *g'*, which are designed to finish the rough-hewed button previously acted upon by the tools *f* and *g*.

A is a rotatable disk which is secured on the end of the spindle *a* and is provided with suitable stationary gripping-jaws B, provided with an open circular end *b*, serrated around the edge, as shown.

C C' C are a series of movable gripping-levers which are pivoted at *c* on the bracket A', forming part of the disk A. There are a series of these sets of levers C C' C, and each lever in each set lies in juxtaposition, the outer levers C C having arc-shaped ends *c'*, with serrated inner edges. The uppermost lever, as to direction of rotation, has the arc-shaped end *c'* turned backwardly, so as to admit of the shank end of the blank being passed down into position. The inner end is roughened, as indicated. The end of the central portion of the lever C' has a roughened end also.

*c*² are hooked stems which extend through the outer gripping-levers C and the disk A. The ends which extend through the disk A

have hooks formed on them which extend into the looped ends of the springs c^3 , the other ends of which are securely fastened in the disk. It will thus be seen that the normal tendency of the springs and stems is to hold the gripping-levers C C so that their jaw-shaped ends are in close proximity to serrated ends of the open stationary jaw b .

c^4 is a hooked stem which extends through the central gripping-lever C'. The hooked end, which extends through the disk A, is inserted into the loop-shaped end of the spring c^5 , the other end of which is securely held in the disk. The normal tendency of the spring c^5 is for a similar purpose as the spring c^3 .

In order to hold an uneven blank in position during the period that it is being held by the jaws b and c' and is being turned, I provide the following mechanism.

D is one of the cam-arbors, and D' is the other, as referred to in my former patent.

24 is a cam on the arbor D'. The cam 24 is mostly shown in dotted lines in Fig. 2, which I now particularly wish to refer to.

E is an arm which is pivoted on a lug E', forming a portion of the frame, and has journaled in its lower forked end a friction-roller e , which is designed to coact with the cam 24.

E² is a supplemental arm which is pivotally connected by jaws formed on its end to the arm E and is pivotally connected intermediately to a hanger E³, which is suspended from a portion of the frame, as indicated, the frame being necessarily mostly broken away.

15 are two outer levers, and 15' the intermediate levers, which are pivoted at 15² on a portion of the frame. The upper ends of the levers are curved, as shown, forming integral plungers E^x, which are designed to come in contact with the outer edges of the three gripping-levers C C' C. The ends of the curved levers are designed to come into contact with the gripping-lever at the point where the blank is operated upon by the coarse tools. The lower portions of the levers are connected by springs 17 and 17' to a portion of the frame. Beneath the pivoted point the outermost levers have preferably bosses 15³ formed on them which are designed to come in contact with the widened end of the supplemental arm E². It will thus be seen that the normal tendency of the springs is to control each lever separately, so that when the pieces or blanks having inequalities of surface are placed between the jaws b and c' , as hereinafter described, such springs will serve by their pressure to hold the gripping-levers C, C', and C against the blank no matter what inequality of surface it may be.

When the mechanism for separating the gripping-levers from the jaws, hereinbefore referred to, operates, the cam 24 slightly before this period will operate upon the friction-roller e , thereby throwing the supplemental arm E² against the levers 15 15' 15, so as to tilt them on their pivot and throw the hold-

ing curved ends of such levers back from contact with the gripping-levers, and thus permit of the blank dropping, as hereinafter described. This releasing of the blank only takes place after it has been cut by the first set of tools.

I shall now describe the mechanism whereby the blanks are fed between the aforementioned gripping jaws and levers as the disk is caused to revolve.

H is a bracket secured to the front of the machine. The upper end H' of the bracket H extends inwardly to a point nearly radially opposite the gripping jaw and levers.

I is a chute which is in interior cross-sectional form, the same as the cross-section of the blank which is designed to be placed therein. The chute I is secured to the end H' of the bracket H and is designed to come directly opposite the center of the open ends of the jaws and gripping-levers. J are curved extension-fingers which are designed to receive the button after it leaves the chute and to hold it temporarily previous to its being deposited between the upper ends of the jaws and gripping-levers, as presently explained. The curved ends of these fingers lie in the path of the blank as it emerges from the chute, and they are adapted to yield to allow the placing-fingers to move the blank to the transferring-fingers.

K K' are curved gripping-fingers with circular ends $k k'$. The end k' , however, is peculiarly formed in that it has a socket k^2 , with a conical recess into which is designed to fit the button-blank, as indicated in Fig. 5. The shank end of the button-blank fits within such socket and touches the outer edge of the socket circumferentially only. By this means the blank is centralized, so as to be in proper position to be deposited between the gripping jaws and levers.

L L' are two rods which extend through holes in an enlargement in the bracket H and holes in the end of the arm H². The rods L' are designed to be moved together longitudinally, and for this purpose are connected together by the double collar L², having set-screws l and l' , which extend through the collar into or against the rods L and L', respectively. The end of the rod L' has a jaw l^2 formed on it, which is connected by a link l^3 to a jaw l^4 at the outer end of one of the cages, which are operated by the cams, as described in my former patent.

K² is a lever to which the curved finger K is attached. The lever K² has a circular opening k^{2x} , which fits on a circular boss h^2 , through which the rod L extends, such boss forming part of the bracket H.

h^3 is a lug formed on the bracket H, and k^3 is a lug formed on a circular portion of the lever K².

k^4 is a set-screw which extends through the lug k^3 and is designed to come in contact with the lug h^3 .

k^5 are jaws on the outer end of the lever K².

K^3 are guiding-jaws extending laterally from the lever K^2 , inside of its pivot.

K^4 is a spiral spring connected at the bottom of the lever K^2 to the bracket H.

1 is a roller which is pivoted in hangers 2, attached to or forming part of the lever K^2 .

3 is a longitudinal projection having one end inclined, as indicated in dotted lines in Fig. 3, and the remainder of such projection parallel. The roller 2 is designed to raise and lower the lever K^2 as it rises and falls from the projection 3 during the period that the arm L' is deriving a longitudinal movement.

K^5 is a lever to which the curved gripping-finger K' is attached. The lever K^5 is pivoted at 4 on the lugs k^5 and has a circular enlargement K^6 intermediate of its length, so as to admit of it having a free swinging movement on the rod L, which extends through such enlargement. The outer end of the lever K^5 is provided with a lateral extension K^7 , in which is pivoted a roller 5, which is designed to come in contact with and ride upon the block 6. The block 6 extends through a slot 7 in the rod L and is provided with extension ends 8 8, which rest upon the ledges 9 9 of the recess 10. The block 6 has a depression 11 at the inner end thereof, and a pin 12, which extends across the recess 10 through such depression 11.

13 is a flat spring which is secured to the ends 8 8 of the block 6, the central portion of such spring extending underneath the pin 12.

14 14 are L-shaped slots extending directly across the block 6 in the ends 8 8. 16 16 are pins which extend through such recesses 14 14.

M is a spiral tension-spring which is designed to hold the fingers K K' together.

N is an arm forming a temporary support for the blank, which is secured to the bracket H and has an arc-shaped recess formed in its outer end, which is designed to extend slightly underneath the jaws b and c' , so as to prevent the blank from dropping down farther than into its proper position between these jaws.

O is a pin provided with an enlarged end O' , which is of sufficient diameter so as to press against the three levers C C' C. The pin O extends through the disk A transversely to the inside of each gripping-jaw b .

P is a spring which is suitably secured to the frame at one end and is twisted at P' , so as to present a flat inclined surface inclining from the bottom bend toward the disk at the top bend, in order that when the disk passes around in the direction indicated by arrow the pins O as they come onto the portion P' will gradually force the gripping-levers C C' C outwardly until the ends of the pins pass the bent upper end of the portion P' . The spring P has a forwardly-extending end P^2 from the portion P' , which projects outwardly to underneath and in close proximity with the rod L' .

L^5 is a lug secured on the rod L' . The lug L^5 as the rod is caused to be moved longitudinally in the opposite direction to that indicated by arrow presses upon the outwardly-extending end P^2 of the spring P and forces it down, so as to throw the end P' downwardly, and thereby permit of the gripping levers and jaws to securely grasp and hold the blank in position.

Having now particularly described the principal parts involved in my invention, I shall briefly describe the operation.

The blanks are placed in the chute I, and as they pass down through such chute they pass into the fingers J. As each blank is deposited between these spring-fingers the rods L and L' are caused to move in the direction indicated by arrow by reason of their connection to the cage and cam at the right-hand side of Fig. 1. The rods L and L' are coupled together, as described. As the rod L moves in the direction indicated by arrow the roller 5 moves upwardly upon the block 6, which is thrown to the opposite side of the recess 10 from that shown in Fig. 4, so that the pins 15 are within the narrow portion of the slot 14. The consequence is that the roller 5 will rise upon the block 6 and tilt the lever K^5 on its pivot, thereby throwing the ends k and k' apart, so that the button may readily be received between them. When the end of the block 6 has been passed by the roller 5, the tension of the spring M serves to draw the ends k and k' together and hold the blank between the recessed end k^2 and the flat end k . During the period that the roller 5 is being operated by the block 6 to swing the lever K^5 , as described, the rod L' , of course being coupled to the rod L, moves also forward, bringing the roller 2 at the bottom of the lever K^2 upon the top of the projection 3, thereby serving to hold the curved gripping-fingers K and K' in proper position, so that the ends k and k' come opposite the center between the arc-shaped gripping-fingers J J. Upon the rods L and L' being given their backward movement by the cage, operated through the cams, as described in my former patent and as referred to in Fig. 1, the block 6 is thrown toward the end of the recess 10, (shown in Fig. 4,) the result being that the block becomes a yielding block, the pins 15 being permitted to pass downwardly in the widened end of the slots 14. The result of this is that the lever K^5 will not be affected during the backward movement of the rods L and L' . Neither will the position of the gripping-fingers K K' be affected until the roller 2 reaches the end of the projection 3, whereupon, such roller being relieved, the spring K^4 will draw down upon the combined levers K^2 and K^5 , so as to bring with them their end-gripping fingers K and K' and carry the blank down into the position between the jaws c of the gripping-levers C C' C on the one side and the jaw b on the opposite side. The curved arc-shaped end of the arm N now serves as a stop for the blank to

prevent it going down any farther. At this period the roller 5 has again started to ascend upon the block 6, which is now held rigid, so that the gripping ends k k' are separated and the blank left in position. These gripping ends now remain open momentarily until the roller 2 has ascended upon the projection 3 and the block 6 passes the end of such roller, whereupon the blank is gripped again and the operation hereinbefore described repeated. Of course when the blank is carried down between the jaws the disk is being caused to move around at the same time, and the pin O has been gradually forced by the portion P', so as to force the gripping-levers C C' C outwardly to receive the blank. After the blank has been deposited between the jaws b and c' the end P² of the spring P comes in contact with the projection b^5 on the rod L', and the pin O is caused to spring over the end of the portion P', and the jaws c' of the gripping-levers C C' C are caused to close upon the blank by the springs c^3 and c^5 and securely hold it in position. As the disk, with the held blank, reaches the position shown by one of the gripping-jaws in the dotted lines at the top of Fig. 2 the levers 15 15' 15 are brought so that each individual lever presses against its corresponding lever C C' C, and thereby holds the blank no matter how unequal in surface in position during the period that it is being turned.

In order to insure the gripping-jaws being entirely relieved from the blank or any portions thereof which might stick therein after the button is turned, I extend the arm N down into a curved finger n' , which as the disk revolves in the direction indicated by arrow serves to free the space between the gripping levers and jaw as they rise up to their proper position.

The end of the arm N lies in line with the space between the jaws c' and the jaw b and in line also with the space between the feeding fingers or jaws, so that the said arm will engage the periphery of the button-blank to hold the same in accurate position while the holding or transferring jaws close upon it.

What I claim as my invention is—

1. In a machine for turning buttons and like articles, in combination a pair of revolving spindles, rough-hewing tools secured in their ends, a supplemental pair of revolving spindles located in proximity thereto and finishing-tools secured in their ends, means for automatically reciprocating the cutting-tools, a set of transferring-grips designed to carry the blank from between the set of rough-hewing tools to between the set of finishing-tools and a movable placing-grip operated to feed the blank into the transferring holding-grip as and for the purpose specified.

2. The combination with the cutters and the revolving disk, of the stationary jaws, the spring gripping-levers, the pin extending through said disk and engaging said gripping-levers, and the means for pressing said pin

against said levers to hold the same against the tensions of their springs, and the means for automatically releasing said pin-engaging means from the pin, substantially as described.

3. The combination with the disk and cutting-tools, of the stationary jaws carried by said disk, the spring gripping-levers, the pin extending through said disk, the spring having a flat face adapted to bear on said pins to press the same against said gripping-levers to hold said levers away from said disk against the tension of their springs, the blank-carrier, the reciprocating rods with means for operating the same, the extension of said flat spring and the projection carried by one of said rods adapted to engage with said extension to automatically remove the same from engagement with said pins, substantially as described.

4. In combination, a pair of holding-jaws, placing-jaws with means for operating them toward and from the holding-jaws and means for centering the blank in relation to the holding-jaws consisting of an arm or bearing arranged in the path of the blank and in line with the space between the open jaws, substantially as described.

5. In combination, the rotary disk, a plurality of holding-jaws carried thereby, placing-jaws with operating means therefor and means for centering the blanks in relation to the holding-jaws, said means extending in line with the space between the holding-jaw members and fixed in relation to the rotary carrier to act with the several jaws as they are brought around in succession thereto, substantially as described.

6. In combination in a button-machine, a pair of holding-jaws adapted to hold the blanks and movable toward and from each other a fixed centering-bearing in line with the space between said jaws to form a support for the blank when fed between the opened jaws and means for moving the jaws to carry the blank away from the bearing, substantially as described.

7. The combination with the gripping-jaw and gripping-levers of the gripping placing-fingers designed to grasp the face of the blank means for carrying such fingers down into the open gripping-jaws and the temporary support adapted to receive the blank as and for the purpose specified.

8. The combination with the gripping-jaws and gripping-levers of the pair of placing-fingers adapted to be clamped against the blank, one of said fingers having a conical centering-socket in the face thereof opposite to the face of the opposite finger adapted to receive and center the blank, substantially as described.

9. The combination with the gripping-jaws and gripping-levers of the pair of placing-fingers, the face of one of said fingers being flat and a boss extending from the inner face of the opposite finger, said boss having a socket therein, substantially as described.

10. The combination with the gripping-jaw and gripping-levers having the sides open, of the gripping placing-fingers, one finger of which is flat and the opposite finger of which is provided with a socket having a conical recess and automatic means for operating the fingers and a chute suitably held in position and depending curved spring-fingers extending down from the sides of the chute and permanently fixed thereto, said fingers being adapted to wholly support the blank when delivered from said chute, as and for the purpose specified.

11. In combination the disk, the stationary jaws secured to the disk having open sides, the coacting gripping-levers provided with open sides, a chute, the bracket supporting the chute, the curved gripping-fingers connected together by a spiral tension-spring and means for forcing the levers apart against the tension of such spring as and for the purpose specified.

12. In combination, the disk, the stationary jaws secured to the disk having open sides, the coacting gripping-levers provided with open sides, a chute, the bracket supporting the chute, the curved gripping-fingers adapted to be oscillated in unison and connected together by a spiral tension-spring, a longitudinal adjustable rod extending through the bracket, an outward extension-lever to which one of the gripping-fingers is connected and means between the lever and a longitudinally-adjustable rod for throwing the gripping-finger away from its fellow as and for the purpose specified.

13. In combination, the disk, the stationary jaws secured to the disk having open sides, the coacting gripping-levers provided with open sides, a chute, the bracket supporting the chute, the curved gripping-fingers connected together by a spiral tension-spring, a longitudinally-reciprocating rod extending through the bracket, an outward extension-lever to which one of the gripping-fingers is connected, an enlarged opening in the end of the lever through which the longitudinal reciprocating rod extends, a pivot to the outside of such opening and a right-angular extension provided with a friction-roller designed to have a rolling contact against a block extending through the rod and collapsible when moved in its recess in one direction and non-collapsible when moved in the other direction through contact with the roller as and for the purpose specified.

14. In combination, the chuck, the chute, the bracket supporting the same, the rod reciprocating in an opening in said bracket, said rod having a recess therein, a block shiftable in said recess, a pin extending across the same, a spring held beneath said pin, said spring having its end secured to the block, said block having right-angular slots in each end thereof, the pins fixed in said rod and passing through said slots, the gripping-fingers, the lever carrying the same and the

extension of one of said levers adapted to bear on said block, substantially as described.

15. The combination with the gripping-fingers and levers to which they are connected held so as to swing together and a spiral spring connected at one end to a suitable portion of the frame and at its opposite end directly to one of said levers and having a normal tendency to pull downward upon them, of means whereby the levers with their fingers are raised against the tension of such spring as and for the purpose specified.

16. The combination with the gripping-fingers and levers to which they are connected held so as to swing together and a spiral spring connecting them to a suitable portion of the frame and having a normal tendency to pull downward upon them, of a roller journaled in suitable bearings attached to one of the levers and a longitudinally-reciprocating rod and a block on such rod designed to coact with such roller as and for the purpose specified.

17. In combination, the two gripping-levers, a common pivot about which the levers move, means for exerting a downward pressure on the levers and the lugs K^3 on one lever embracing the other lever, substantially as described.

18. In combination in a button-machine with the chute, a pair of pivotally-supported gripping-jaws arranged to grip the blank on its faces between them, said gripping-jaws having movement toward and from each other axially of the blank, means for giving such movement to the jaws and means for giving the jaws oscillating movement toward and from the chute, substantially as described.

19. In combination, a pair of gripping-jaws arranged to grip and carry the blank between them, one of the jaws being movable toward and from the other in a direction axially of the blank and means for giving the jaw its movement and for giving both jaws their carrying movement and holding-jaws to receive the blank, substantially as described.

20. In combination, the chute, and the gripping-jaws movable toward and from the same, said gripping-jaws being carried by parallel levers one of which is movable toward and from the side face of the other lever and said jaws being arranged to grip the side faces of the blank, the holding-jaws toward and from which the gripping-jaws move and means for giving the jaws their movement, substantially as described.

21. In combination, the chute, the gripping-jaws, means for reciprocating the jaws toward and from the chute and means for moving one of the jaws toward and from the other in a plane at right angles to the plane of movement toward and from the chute, said jaws lying and operating in planes on opposite sides of the chute.

22. In combination the gripping-fingers, levers attached to or forming part of the same, the spiral spring connected to the levers and

to a portion of the frame to normally exert a downward pressure upon such lever, a pivotal connection between the levers at their outer ends, longitudinal rods extending through and supported upon suitable brackets, openings in the bracket and levers for the passage of the rods and means between the rods and levers whereby the levers are separated, closed together and carried upwardly by the longitudinal movement of the rods as and for the purpose specified.

23. In combination the gripping-fingers, levers attached to or forming parts of the same, the spiral spring connected to the levers and to a portion of the frame to normally exert a downward pressure upon such levers, a pivotal connection between the levers at their outer ends, longitudinal rods extending through and supported upon suitable brackets, openings in the bracket and levers for the passage of the rods and means between the rods and levers whereby the levers are separated, closed together and carried upwardly, a binding connection for the rods, the cage, cam and link connecting the ends of the rods to the cage as and for the purpose specified.

24. In combination, the rotatable disk, the plurality of gripping-jaws carried thereby, the blank-carrier, and the arm extending in the path of said jaws, said arm being adapted to act as a temporary support for the blank and as a clearer to remove the finished blank from between said jaws, substantially as described.

25. In combination, the chute, the vertically-swinging gripping-fingers, the rotatable disk and the plurality of gripping-jaws carried thereby and adapted to be brought into alinement with and below the ends of said gripping-fingers said jaws having openings in their sides adjacent to said fingers, when brought into position to receive the blank, substantially as described.

26. In a machine for turning buttons and like articles, the combination with the chute, of the laterally-gripping fingers having a centering end coacting with the pressure end of the adjacent finger to center the blank accurately said fingers acting axially of the blank and being movable in unison to carry the blank as and for the purpose specified.

27. In combination, in a button-machine, two pairs of gripping-jaws, one member of each pair being movable toward and from the other axially of the blank and one pair having movement to and from the other pair to place the blank therein, substantially as described.

28. In combination, in a button-machine, two gripping-jaws one of which has movement toward and from the other in a direction axially of the button-blank, said jaws being formed to engage the side faces of the blank and one of them being of segmental form leaving one open side for the placing of the blank and automatically-operating means for plac-

ing the blank therein, substantially as described.

29. In combination, the holding-jaws arranged to grip the side faces of the blank and one of them having an open side to receive the blank and placing-jaws arranged to grip the side faces of the blank, one of said placing-jaws having movement toward and from the other, substantially as described.

30. In a button-machine, a vertically-arranged carrier and automatically-operating grips for feeding the blanks thereto, said grips engaging the side faces of the blank to move and place the same with their axes horizontal.

31. In combination, the two gripping-jaws, one of which has movement toward and from the other axially of the button-blank to clamp the blank between them, both jaws having a carrying movement in unison, a sliding cam for moving the one jaw toward and from the other and a sliding cam for controlling their carrying movement in unison, substantially as described.

32. In a button-machine, the combination of a revolving disk carrying holding-jaws, the feed gripping-jaws one of which is movable toward and from the other to grip the button on its side faces and means for operating the feed gripping-jaws toward and from the holding-jaws, substantially as described.

33. In a button-machine, the carrier having holding-grips, a device for placing the blanks in the open grips, means for operating the said device and automatic means for closing the holding-grips while the carrier is at rest, substantially as described.

34. In a button-machine, holding-jaws for the blanks, a movable carrier for the jaws, means for holding the jaws open while the carrier is at rest, said means operating automatically to allow the jaws to be closed after receiving the blank and while the carrier is at rest in combination with a device for placing the blank in the open jaws and means for operating the device, substantially as described.

35. In a button-machine, a carrier, holding-jaws thereon, and plungers for firmly pressing said holding-jaws against the blank in combination with a device for placing the blanks in the jaws and means for operating the device, said device comprising jaws gripping the side faces of the blank, substantially as described.

36. In a button-machine, a carrier, holding-jaws thereon, a device for placing the blanks in the open jaws, means for operating the said device, means for closing the holding-jaws while the carrier is at rest, and plungers for pressing the jaws firmly against the blanks, said device comprising jaws gripping the side faces of the blanks, substantially as described.

37. In a button-machine, the carrier having holding-grips, a chute from which the blanks are delivered into the holding-grips and automatic means for closing the holding-grips

while the carrier is at rest, substantially as described.

38. In a button-machine, the carrier having a plurality of holding-grips, a device for placing the blanks in the open grips in succession, means for operating the device and automatic means for closing the holding-grips while the carrier is at rest, substantially as described.

39. In a button-machine, the carrier having a plurality of holding-grips, a device for placing the blanks in the grips as they are brought thereto in succession, means for operating the device, automatic means for closing the holding-grips while the carrier is at rest and means for pressing the grips as they are brought in succession thereto, substantially as described.

40. In a button-machine, the carrier having the grips, automatic means whereby the grips are opened and then closed during the period that the cutters are operating upon a preceding blank in combination with a device for placing the blanks in the open grips, substantially as described.

41. In combination, holding-grips, movable placing-grips, a carrier for the holding-grips and automatically-operating means for releasing the holding-grips while the carrier is at rest, substantially as described.

42. In a button-machine, a carrier having holding-grips thereon, means for releasing the holding-grips, the means for pressing the grips firmly upon the blanks in combination with movable placing-grips, said releasing means and pressing means operating automatically when the carrier is at rest, substantially as described.

43. In combination, a cam-block and a carrier therefor having bearings to prevent yielding movement of the cam-block, said block being arranged to be shifted on the carrier whereby the bearings will be thrown out of action and the block allowed to yield, substantially as described.

44. In combination, a cam-block, a carrier upon which the cam-block may shift, said cam-block having slots with pins passing there-through, arranged to hold the block against yielding laterally when said block is in one position and to allow the block to yield when it is shifted to another position, substantially as described.

45. In combination, a cam-block and a carrier therefor, said block being arranged to shift on the carrier to be yielding in one position and rigid in another position, substantially as described.

46. In combination in a button-machine, the holding gripping-jaws, one of which has movement toward the other, the placing gripping-jaws, one of which has movement toward the other, means for opening the holding gripping-jaws, a sliding cam for opening the feeding gripping-jaws and for operating said jaws from the holding-grips, and a sliding cam for controlling the means for opening the holding-grips, substantially as described.

47. In combination, in a button-machine,

the means for holding the blank comprising two or more jaws arranged to press on different parts of the blanks and two or more plungers, one for each jaw, said plungers being rigidly carried by pivoted levers, substantially as described.

48. In a machine for turning buttons and like articles, the combination of a rotating and reciprocating cutting-tool and means for actuating the same, and a rotating disk carrying transferring-grips and means for actuating the same, with a placing-grip, means for actuating the same for carrying the article to place within said transferring-grips, and automatically-operating means for closing the transferring-grips while the carrier is at rest, for the purpose specified.

49. In a machine for turning buttons and like articles, the combination of a rotating and reciprocating cutting-tool and means for actuating the same, and a rotating disk carrying transferring-grips and means for actuating the same, with a chute calculated to carry one or more blanks, a placing-grip comprising jaws gripping the side faces of the blank and means for actuating the same for carrying said blanks from said chute to place within said transferring-grips, for the purpose specified.

50. In a machine for turning buttons and like articles, a pair of revolving spindles, rough-hewing tools secured in their ends, a supplemental pair of revolving spindles and finishing-tools secured in their ends, means for reciprocating said spindles, in combination with a rotating disk carrying transferring-grips and means for actuating said grips, placing-grips comprising jaws gripping the side faces of the blank, and means for actuating the same to carry and place the blank in position within said transferring-grips, for the purpose specified.

51. In a machine for turning buttons and like articles, a pair of revolving spindles, rough-hewing tools secured in their ends, a supplemental pair of revolving spindles and finishing-tools secured in their ends, means for reciprocating said spindles, in combination with a rotating disk carrying transferring-grips, and means for actuating said grips, a placing-grip comprising jaws gripping the side faces of the blank, and a feeding-chute designed to hold one or more blanks, and means for actuating said placing-grip to carry the blanks from said chute to place within said transferring-grips, for the purpose specified.

52. In combination, a pair of holding-jaws, placing-jaws arranged to grip the side faces of the blanks, with means for operating them toward and from the holding-jaws and centering means carried by the placing-jaws, substantially as described.

53. The combination with the gripping-jaws and gripping-levers, of the gripping placing-fingers designed to grip the face of the blank, and means carrying such fingers down into

the open gripping-jaws as and for the purpose specified.

54. In a button-machine, a carrier having holding-jaws, an automatic feed for the blanks
5 to deliver them into the open jaws and automatically-operating means for closing the holding-jaws while the carrier is at rest.

55. In combination, a pair of holding-jaws having open sides, placing-jaws with means
10 for operating them toward and from the holding-jaws and centering means carried by the placing-jaws, substantially as described.

56. The combination with the gripping-jaws having open sides and gripping-levers,
15 of the gripping placing-fingers designed to grip the face of the blank and means carrying such fingers down into the open gripping-jaws as and for the purpose specified.

57. In a machine for turning buttons and
20 like articles, in combination a pair of revolving spindles, rough-hewing tools secured in their ends, a supplemental pair of revolving spindles located in proximity thereto, and finishing-tools secured in their ends, means for

automatically reciprocating the cutting-tools, 25 holding-grips to present the blanks to the tools and a movable placing-grip for feeding the blanks into the holding-grips.

58. In a machine for turning buttons and like articles, a pair of revolving spindles, 30 rough-hewing tools secured in their ends, a supplemental pair of revolving spindles and finishing-tools secured in their ends, means for reciprocating said spindles, in combination with a rotating disk carrying holding- 35 grips, and means for actuating said grips, a placing-grip, comprising jaws gripping the side faces of the blanks, and a feeding-chute designed to hold one or more blanks, and means for actuating said placing-grip to carry 40 the blanks from said chute to place them within said holding-grips, for the purpose specified.

DILMAN BRUBACHER SHANTZ.

Witnesses:

B. BOYD,

E. R. CASE.