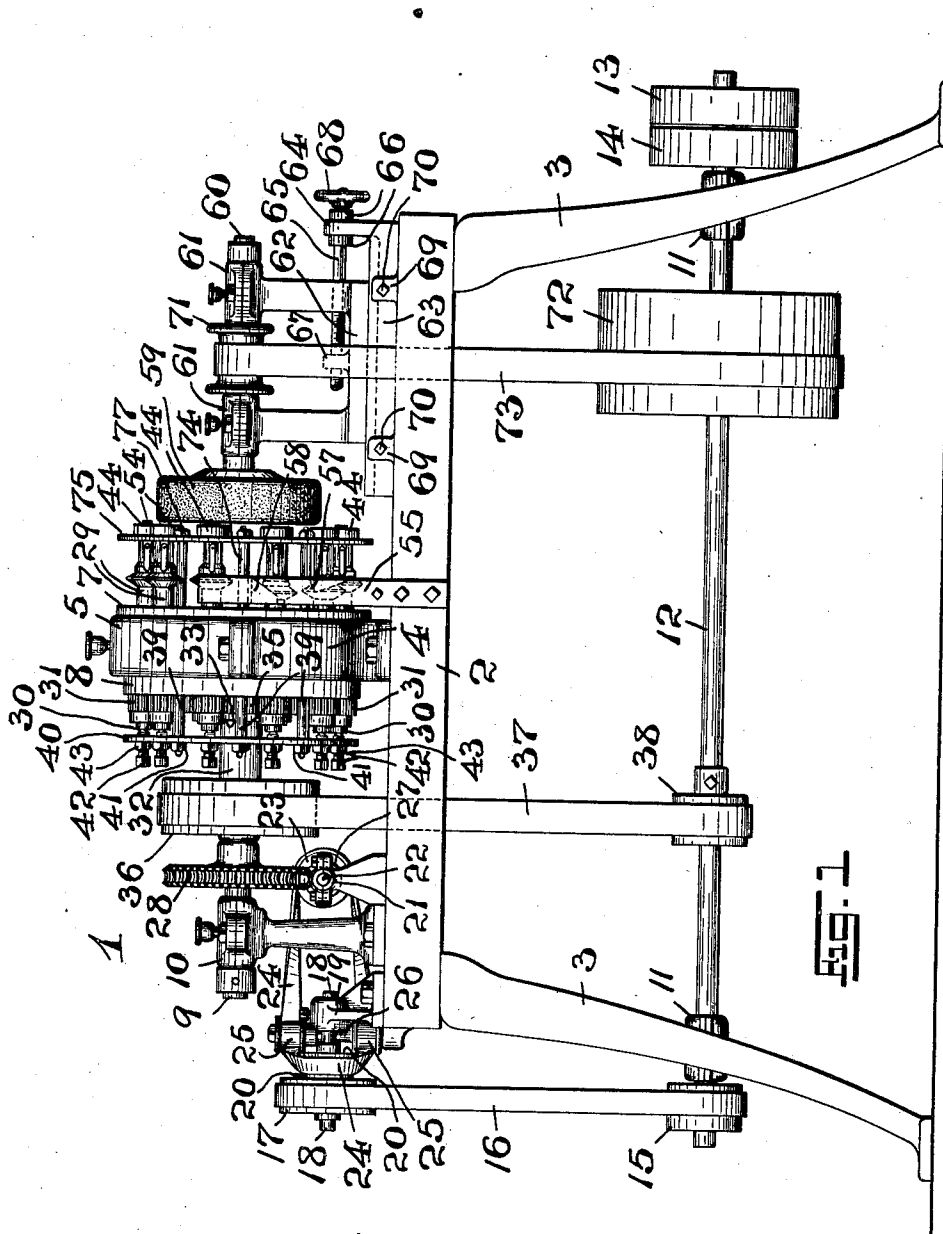


H. J. SKIPP.
 BUTTON MACHINE.
 APPLICATION FILED MAY 29, 1911.

1,029,238.

Patented June 11, 1912.

3 SHEETS-SHEET 1.



WITNESSES:
Frank H. W. Fraentzel
Anna H. Alter

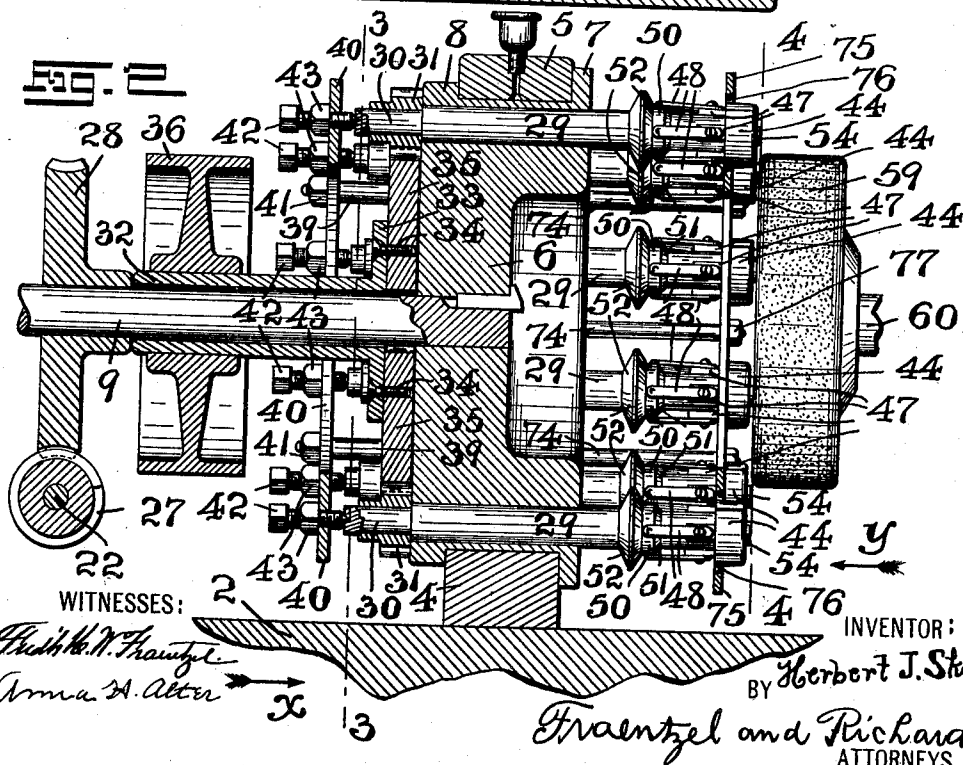
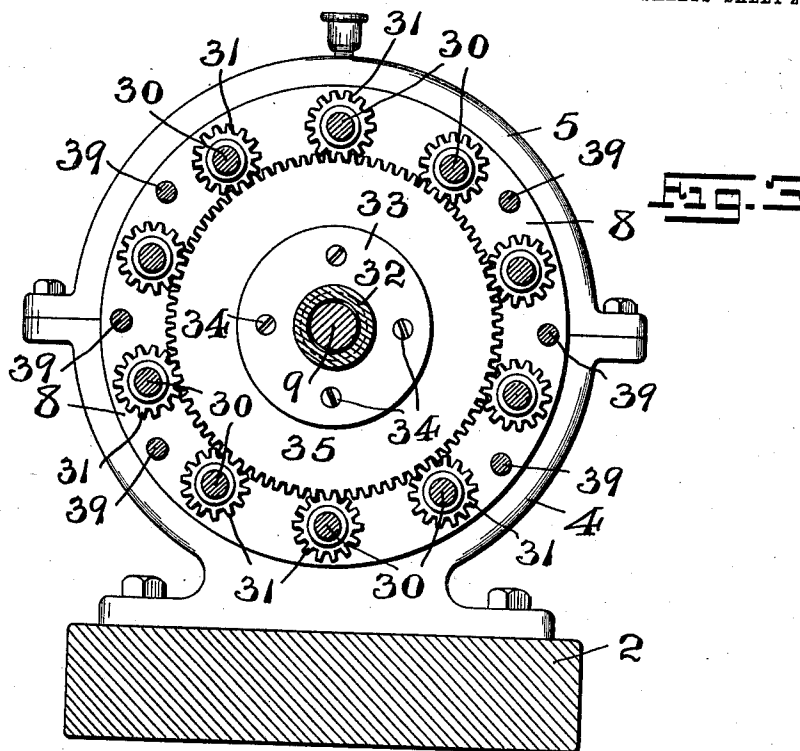
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3 SHEETS-SHEET 2.

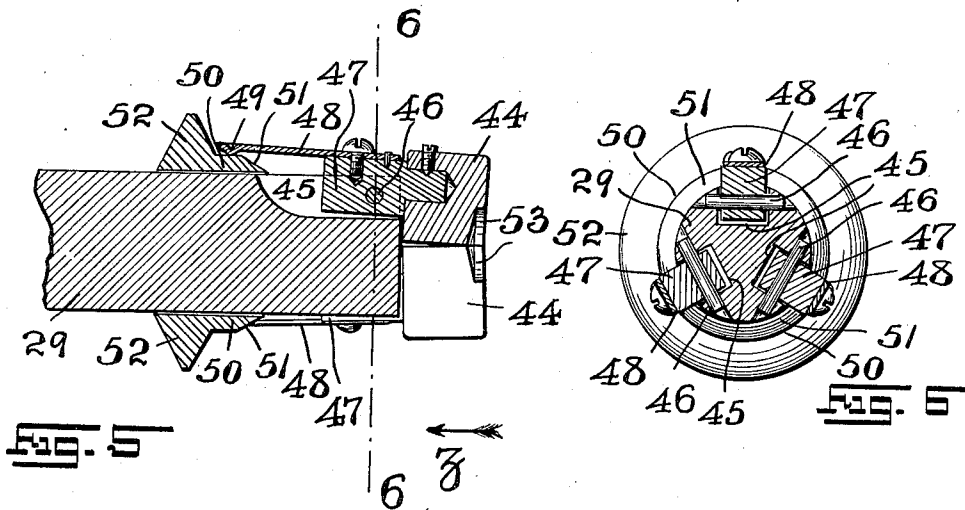
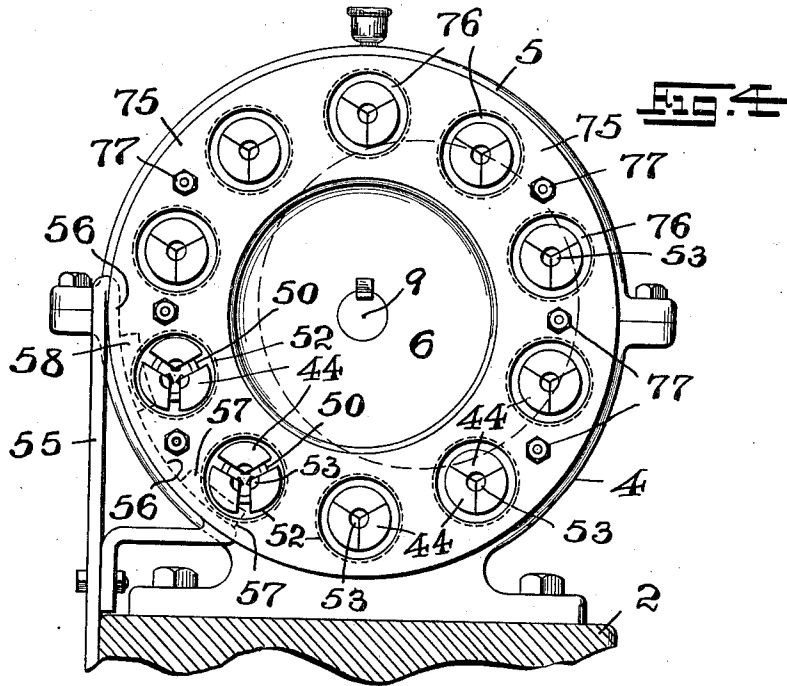


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3 SHEETS—SHEET 3.



WITNESSES:
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UNITED STATES PATENT OFFICE.

HERBERT J. SKIPP, OF NEWARK, NEW JERSEY.

BUTTON-MACHINE.

1,029,238.

Specification of Letters Patent.

Patented June 11, 1912.

Application filed May 29, 1911. Serial No. 630,002.

To all whom it may concern:

Be it known that I, HERBERT J. SKIPP, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Button-Machines; 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, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

The present invention has reference, generally, to improvements in machines used in the manufacture of buttons, and the like; and, the invention relates, more particularly, to a novel construction of machine for grinding or facing off button-blanks, or similar articles.

The present invention has for its principal object to provide an automatic machine for grinding or facing off button-blanks, the same comprising a revolving table carrying a plurality of rotating chucks for receiving and presenting the button blanks to the grinding element, and means for automatically opening and closing said rotating chucks for the purpose of releasing the button blanks already ground or faced off, and permitting the insertion of other button-blanks to be ground or faced off.

The invention has for a further object to provide a novel means for driving said revolving table and rotating said chucks carried thereby.

Other objects of the present invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the present invention.

With the various objects of this invention in view, the same consists, primarily, in the novel construction of machine for grinding or facing off button-blanks, or the like, hereinafter set forth; and furthermore, this invention consists in the novel arrangements and combinations of the various mechanisms and their parts, as well as in the details of the construction thereof, all of which will be hereinafter more fully described in the following specification, and then finally embodied in the clauses of the claim which is appended to and which forms an essential part of this specification.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of the novel construction of button blank grinding machine made according to and embodying the principles of the present invention. Fig. 2 is a detail longitudinal vertical section of the same, said view being drawn upon an enlarged scale. Fig. 3 is a detail transverse section taken on line 3—3 in said Fig. 2, looking in the direction of the arrow *x*. Fig. 4 is another detail transverse section taken on line 4—4 in said Fig. 2, looking in the direction of the arrow *y*. Fig. 5 is a large detail longitudinal section of one of the rotating chucks employed in said novel button grinding machine; and Fig. 6 is a transverse section of the same taken on line 6—6 in said Fig. 5, and looking in the direction of the arrow *z*.

Similar characters of reference are employed in all of the hereinabove described views to indicate corresponding parts.

Referring now to the said drawings, the reference-character 1 indicates the complete novel button-blank grinding or facing machine made according to and embodying the principles of the present invention, the same comprising a bed-plate 2 supported upon suitable legs or standards 3. Secured in a proper location upon said bed-plate 2 is bearing 4 provided with a bearing-cap 5. Supported by said bearing 4 and adapted to revolve therein is a table 6, the same being provided at each end with the respective flanges 7 and 8 which prevent any longitudinal movement of said table 6, when the same is properly assembled with its supporting bearing 4. Said table 6 is rotated by means of a shaft 9, one end of which is secured to said table 6 and the other end of which is mounted in a standard bearing secured upon said bed-plate 2. Mounted in bearings 11, which are secured to said legs or standards 3, is a longitudinally extending driving shaft 12, to one end of which are secured a fast pulley 13 and a loose pulley 14 by means of which power may be operatively applied to said driving shaft 12. Secured upon the other end of said driving shaft 12 is a pulley 15, which is connected, by means of a driving belt 16, with a pulley 17 rotatably mounted on a stud-shaft 18, the latter being supported in connection with said bed-plate 2 by means of a bracket-member 19 secured in a convenient location upon

said bed-plate 2. Connected with said pulley 17, so as to be rotated by and with the same, is another pulley 20. Secured upon said bed-plate 2, in a convenient location, are bearing-members 21, in which is rotatably mounted a counter-shaft 22. Secured in connection with said counter-shaft 22 is a pulley 23 for driving the same. Said pulley 23 is driven from said pulley 20 by means of a driving belt 24 which passes around the mule-pulleys 25 loosely mounted on the vertical stud-shaft 26 which is secured, in any desirable manner, to said bed-plate 2, said mule-pulleys 25 being necessary, in view of the fact that it is preferable to arrange said pulley 20 and said pulley 23 with their respective shafts at right angles to each other. Secured upon said counter-shaft 22 is a worm 27 which meshes operatively with a worm-gear 28 secured upon said shaft 9, whereby the power to revolve said shaft 9, and the table 6 connected therewith, is transmitted. Mounted rotatably in said table 6 are a plurality of chuck-spindles 29, the same being provided with tail-pieces 30 to which are secured their respective pinions 31, said pinions 31 registering against the rear face of said table 6. Rotatably mounted upon said shaft 9, so as to turn or revolve independently thereof, is a sleeve 32, provided at one end with a flange 33 to which is secured, by means of screws 34, or any other suitable fastening means, a driving gear 35, which meshes operatively with each of said pinions 31 so as to rotate the same and the chuck-spindles 29 to which they are respectively secured. Said sleeve 32 is provided with a pulley wheel 36 secured thereto, the same being driven by a driving belt 37 connecting the same with a driving pulley 38 secured upon said driving shaft 12.

Secured to said table 6 and extending from the rear face thereof are a plurality of supporting studs or arms 39 which are adapted to support a carrier-plate 40 in connection with said revolving table 6, securing said carrier-plate 40 in its fixed relation to said studs or arms 39. Adjustably supported by said carrier-plate 40 are a plurality of set-screws 42, which, respectively, engage with the tail-pieces 30 of said chuck-spindles 29 to retain the latter against rearward longitudinal movement in said table 6, and serve to keep the same in a properly adjusted position. Each of said set-screws 42 is provided with a lock-nut 43, which serves to lock the same in their desired adjusted position with relation to said chuck-spindles 29. The said chuck-spindles 29 project beyond the forward face of said revolving table 6, and the same carry on their free ends automatic chuck-members adapted to receive and carry a button-blank, or the like, to the grinding or fac-

ing element of the machine for releasing the said button-blank, or the like, so as to drop the same after it has been ground or faced off by said grinding element. Said chuck members comprise a plurality of chuck-jaws 44 radially disposed at the free end of each chuck-spindle 29. Each chuck-spindle is provided with a plurality of receiving grooves 45 in which are pivotally disposed, by means of fulcrum-pins 46, journaled in the ends of said chuck-spindles 29, the pivot-blocks 47. Said pivot-blocks 47 may be formed as an integral part of said chuck-jaws 44, or said chuck-jaws 44 may be separably connected therewith, as desired. Secured to each of said pivot-blocks 47, by any suitable fastening means, is a rearwardly extending spring-arm 48, the same being provided, preferably with a downwardly projecting teat 49. Slidably mounted upon each chuck-spindle 29 is a movable wedge-ring 50 provided at its free end with a chamfered or inclined marginal edge 51. Connected with each wedge-ring 50 is an annular shoulder 52. When said wedge-rings 50 are moved forwardly upon said chuck-spindles 29, the chamfered or inclined marginal edges 51 thereof engage the teat 49 of said spring-arms 48, the same being caused to ride up upon the said wedge-rings 50, thereby swinging outwardly said spring-arms 48 and consequently oscillating said pivot-blocks 47 to cause the chuck-jaws 44 to move together or toward each other. Each chuck-jaw 44 is provided with a suitable depression or cutout portion 53, the walls of which are caused to grip and hold upon the periphery of a button-blank 54, or other article. The spring-like nature of said spring-arms 48 provides a gripping-tension to said chuck-jaws. When said wedge-rings 50 are moved rearwardly upon said chuck-spindles 29, by the means to be subsequently described, the operating pressure of the same upon said spring-arms 48 is released and the centrifugal force due to the rotating chuck-spindle causes said chuck-jaws to move outwardly and away from each other, thereby releasing their grip upon the said button-blank 54, or similar article.

The means for controlling and causing the operative sliding movements of said wedge-rings 50 comprises the following devices:—Secured, in a proper location, upon said bed-plate 2 is a bracket-member 55 which projects upwardly adjacent to said revolving table 6. Said bracket-member 55 is provided with a curved member 56, corresponding in its curve to the line of movement or path of said rotating chuck-spindles 29, as the same are carried around by said revolving table 6. Secured in proper position upon said curved member 56 of said bracket-member 55 are a pair of cam-blocks

57 and 58, respectively. Said cam-block 57 is provided with an inclined surface or portion which engages the said annular shoulder 52 of each wedge-ring 50, as the same is carried past and in contact with said cam-block 57 by said revolving table 6. This inclined surface of said cam-member 57 operates to move each wedge-ring 50 rearwardly upon its respective chuck-spindle 29, with the result of releasing or opening said chuck-jaws 44, as above described, and dropping the button-blank thereupon. Said cam-block 58 is provided with an oppositely extending or directed inclined surface or portion which again engages said annular shoulder 52 of each wedge-ring 50, as the same are carried past and in contact with said cam-block 58 by said revolving table 6. The inclined surface of said cam-member 58 operates to move each wedge-ring forward upon its respective chuck-spindle 29, and into operative engagement with said spring-arms 48, whereby said chuck-jaws 44 are caused to close upon a button-blank fed thereto by the operator of the machine. The button-blanks thus held by said chuck-members are carried around by the revolution of said table 6 and presented to a revolving grinding stone, emery-wheel, or the like 59, the said button-blanks being themselves at the same time rotated by the independent rotation of said chuck-spindles 29 and the respective chuck-members carried thereby. Said grinding stone, or the like, 59 is secured upon a shaft 60 mounted in the standard-bearings 61, which are secured to or carried by a longitudinally adjustable carriage 62. Said longitudinally adjustable carriage 62 is slidably supported in turn upon a laterally adjustable carriage 63 slidably supported upon said bed-plate 2. The means for adjusting said longitudinally adjustable carriage comprises an upwardly extending arm 64 in which is rotatably mounted the shank of an adjusting-screw 65, said adjusting screw 65 being provided with a pair of collars 66, one on either side of said arm 64, the same serving to prevent longitudinal movement of said adjusting screw 65 in its bearing. The screw-threaded end of said adjusting screw 65 engages operatively a nut-piece 67 which is rigidly connected with said longitudinally adjustable carriage 62, thereby permitting the longitudinal movement of the latter as said adjusting screw 65 is turned. Said adjusting-screw 65 is also provided with a hand-wheel 68 for operating the same. The means for adjusting said laterally adjustable carriage 63 comprises a plurality of lugs 69 secured upon said base-plate 2 at each side of said carriage 63. Said lugs 69 are provided with screw-threaded perforations adapted to receive set-screws 70, by means of which the lateral movements of said carriage 63 are

consummated. It will thus be apparent that said grinding-stone, or the like, 59 may be set up in any desirable adjusted relation with reference to said revolving table 6 and the rotating chuck-members carried thereby, thereby permitting the stone or the like 59 to be adjusted to evenly distribute the "wear" of the same, as will be clearly evident. Said shaft 60, upon which said grinding stone, or the like, 59 is mounted, is provided with a pulley 71, the same being driven from a pulley 72, secured upon said driving shaft 12, by means of a suitable driving belt 73.

It will be noticed by a reference to Fig. 4 of the drawings, that the position of said grinding stone 59 (as indicated by the broken circular line shown in connection with said Fig. 4) is eccentric to, or to one side, of the center or axis of said revolving table 6, this arrangement permitting said revolving table 6 to carry said rotating chuck-members, and the button-blanks held thereby, into and out of contact with said grinding stone, or the like, said chuck-members moving away from said grinding stone or the like in a portion of the path of their movement, so as to allow said chuck-members to release the button-blanks which have been ground or faced off, and at the same time give access to said open chuck-members so that the operator may insert an unground button-blank therein. It will of course be understood, that the operator keeps supplying the button-blanks to said chuck-member as the same are carried around by said table 6, and as the same are opened and closed in the manner above described. Secured upon the forward face of said revolving table 6 are a plurality of studs or outwardly projecting arms 74 adapted to support on their free ends a guard-plate 75. Said guard-plate 75 is provided with suitably disposed holes or openings 76 through which project the chuck-jaws 44. Said guard-plate is maintained in its relation to said studs or arms 74 by means of the nuts 77, or any other suitable fastening means. Said guard-plate 75 serves to prevent the operator's fingers from contact with the operating mechanism of said chuck-jaws 44, while permitting free access to the clamping or holding portions of said chuck-jaws themselves.

The operation of the machine, constructed as above set forth, will be readily understood from an inspection of the accompanying drawings, as well as from the above detailed description of the construction of the same.

I claim:—

1. In a machine of the kind described, the combination with a revolving table, of rotating chuck-spindles, chuck-members carried by said chuck-spindles, said chuck-

members being formed by pivotally mounted chuck-jaws, a rearwardly extending spring-arm connected with each chuck-jaw, a wedge-ring slidably mounted on each chuck-spindle, means for reciprocating said wedge-rings at a certain point of the table's revolution to automatically open and close said chuck-members, comprising a pair of stationary cam-members adapted to engage said wedge-rings, one of said cam-members having an inclined face extending in one direction and the other of said cam-members having an inclined face extending in the opposite direction, and a perforated guard-plate carried by said table through which said chuck-jaws project.

2. In a machine of the kind described, a revolving table, rotating chuck-spindles journaled therein, chuck-members carried by said chuck-spindles, said chuck-members comprising a series of pivotally mounted chuck-jaws, rearwardly extending spring-arms connected with each chuck-jaw, a wedge-ring slidably mounted on each chuck-spindle, an annular shoulder connected with each wedge ring, a pair of stationary cam-members adapted to engage said annular shoulders of said wedge-rings at a certain point in said table's revolution to move said wedge-rings successively away from and into contact with said spring-arms to open

and close said chuck-jaws, and a perforated guard-plate carried by said table through which said chuck-jaws project.

3. In a machine of the kind described, a revolving table, rotating chuck-spindles journaled therein, chuck-members carried by said chuck-spindles, said chuck-members comprising a series of pivotally mounted chuck-jaws, rearwardly extending spring-arms connected with each chuck-jaw, a wedge-ring slidably mounted on each chuck-spindle, an annular shoulder connected with each wedge-ring, a stationary cam-member having an inclined face adapted to engage said annular shoulder of each wedge-ring to move the same away from contact with said spring-arms to open said chuck-jaws, a second cam-member having an oppositely inclined face adapted to engage said annular shoulder of each wedge-ring to move the same into contact with said spring-arms to close said chuck-jaws, and a perforated guard-plate carried by said table through which said chuck-jaws project.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 23rd day of May, 1911.

HERBERT J. SKIPP.

Witnesses:

FREDK. C. FRAENTZEL,
FREDK. H. W. FRAENTZEL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."