(No Model.) 3 Sheets—Sheet 1.

A. E. JOHNSON.

MACHINE FOR TURNING SPECTACLE TEMPLES.

No. 576,067. Patented Jan. 26, 1897.

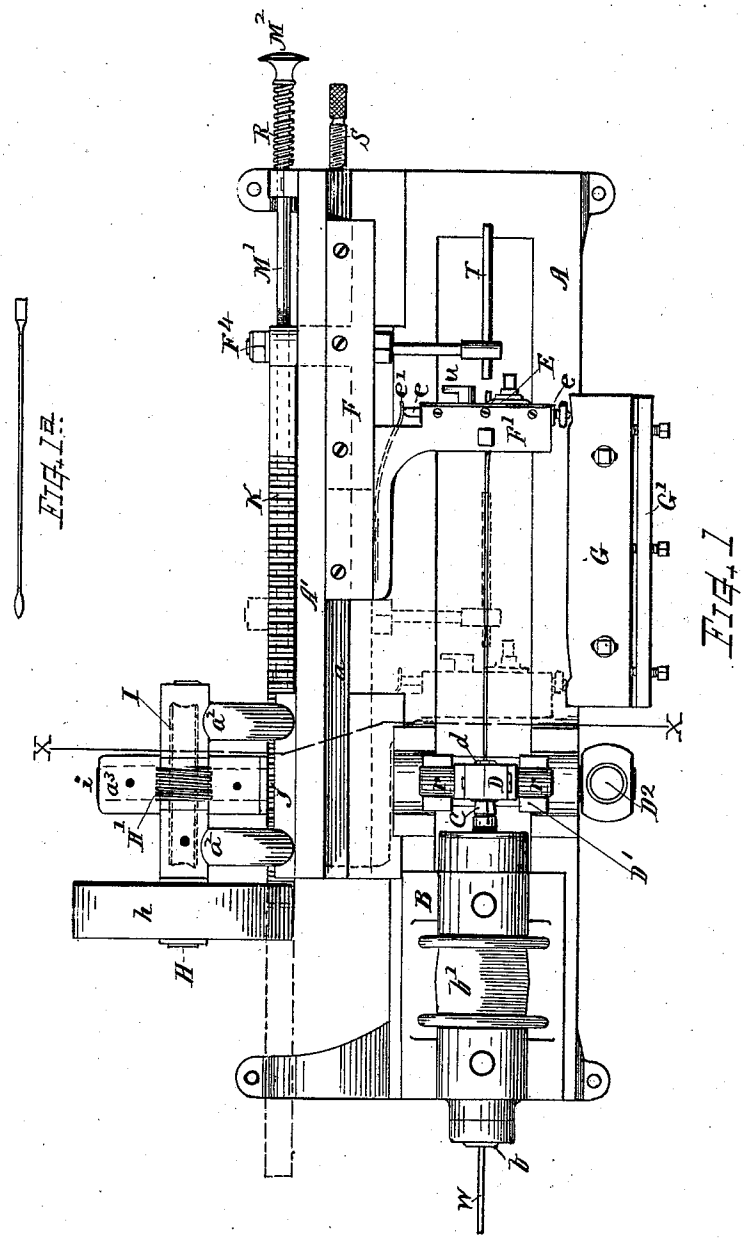

Fig. 1.

Fig. 2.

Witnesses.

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W. B. Buck

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Albert E. Johnson

By Chas. A. Burleigh

Attorney

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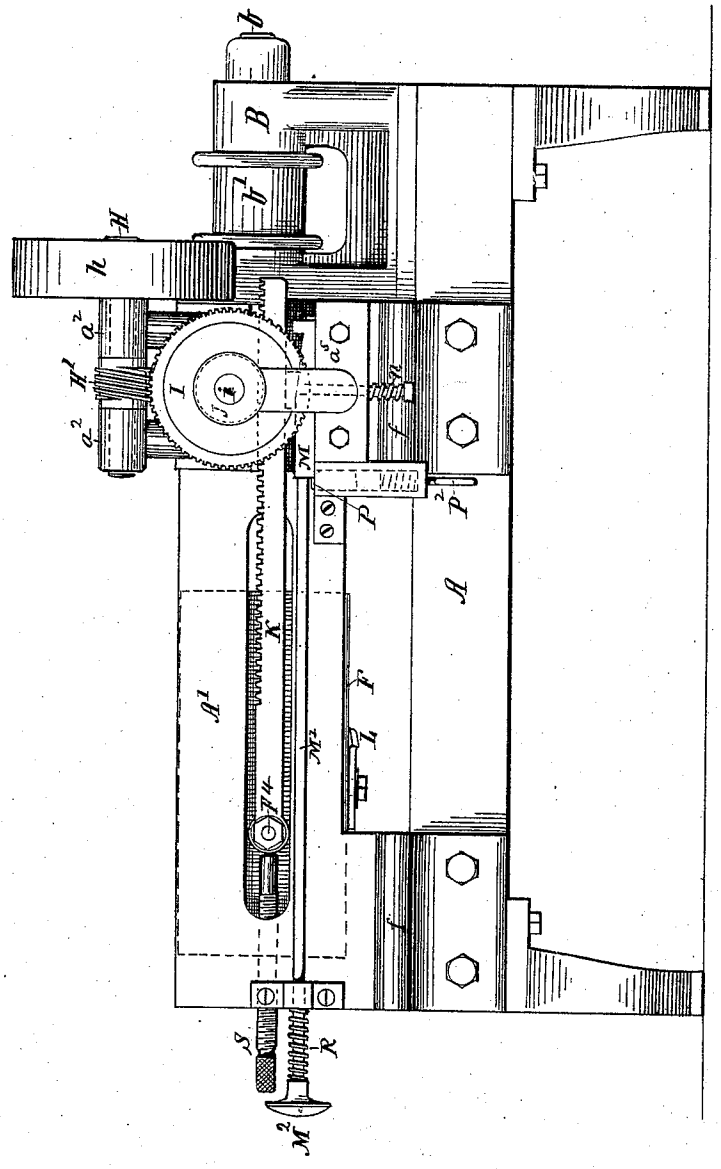

Fig. 2.

Witnesses.

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(No Model.) 3 Sheets—Sheet 3.

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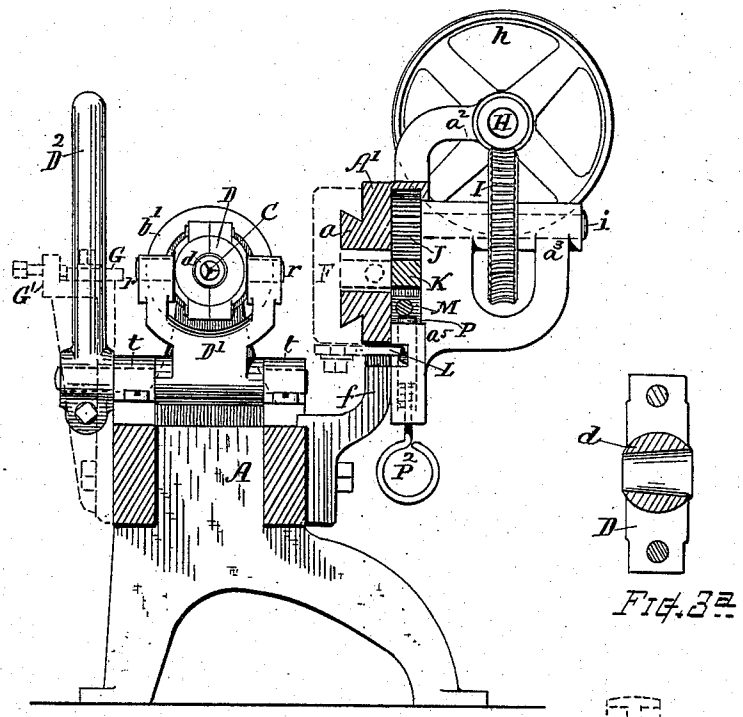

FIG. 3

FIG. 3a

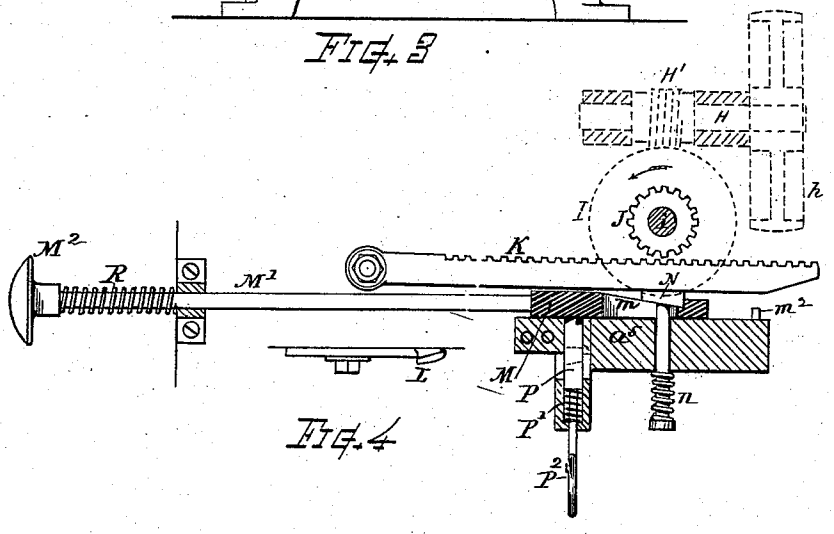

FIG. 4

Witnesses.

Charles A. Bacon

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UNITED STATES PATENT OFFICE.

ALBERT E. JOHNSON, OF SOUTHBRIDGE, MASSACHUSETTS.

MACHINE FOR TURNING SPECTACLE-TEMPLES.

SPECIFICATION forming part of Letters Patent No. 576,067, dated January 26, 1897.

Application filed August 27, 1896. Serial No. 604,080. (No model.)

To all whom it may concern:

Be it known that I, ALBERT E. JOHNSON, a citizen of the United States, residing at Southbridge, in the county of Worcester and State of Massachusetts, have invented new and useful Improvements in Machines for Turning Spectacle-Temples, of which the following, together with the accompanying drawings, is a specification sufficiently full, clear, and exact to enable persons skilled in the art to which this invention appertains to make and use the same.

My invention relates to the construction and combination of the parts for supporting and operating the cutter-carrying head, also to the improved means for operating the wire-holding chuck, the objects being to provide a more efficient and serviceable temple-turning machine, and in which the guideway or support for the cutter-head slide is disposed in lateral upright relation at the back of the machine to render the machine free from accumulation of chips in the guides and to bring the bearing-surfaces into more direct opposition to the pressures for obviating side strains and inequalities in wear and irregularities in operation; also to provide a temple-turning machine with a feed-controlling mechanism that will positively throw off or stop accurately and that will operate with practical efficiency and convenience.

Another object is to provide a machine for the purpose specified with a chuck-closing appliance that will fall true upon the jaws, wear well and accurately, and avoid side strains on the running spindle.

These objects I attain by the mechanism illustrated in the drawings, wherein—

Figure 1 is a top plan view of a temple-turning machine embodying my invention. Fig. 1^a is a view of a temple. Fig. 2 is a back view of the temple-turning machine. Fig. 3 is a transverse section at line X X on Fig. 1. Fig. 3^a is a vertical section of the chuck-closer, and Fig. 4 is a sectional rear view showing parts of the feed-operating mechanism.

Referring to parts, A denotes the horizontal bed-frame; B, the head-stock supported thereon and having in its bearings the rotatable hollow spindle or arbor *b*, with driving-pulley *b'* arranged thereon. C indicates the chuck, having the usual externally-tapered slitted end for closing upon and holding the wire W, which is inserted in through the hollow spindle *b* in well-known manner.

Along the back of the bed-frame A, above and parallel therewith, I arrange in lateral upright position a guideway-frame A', having upon its front side the dovetailed guide *a*, supporting the slide or carrier F, upon which the cutter holder or head F' is fixed, while upon the rear side of this guideway-frame I provide an improved mechanism for effecting the operation of the cutter-carrier, as hereinafter explained. The guideway-frame A' is connected with the bed-frame A by strong standards *f*, that maintain it firmly in upright position, the respective parts A and A' standing longitudinally parallel with the axial line of the spindle *b* and transversely with their planes at right angle to each other, as indicated in Fig. 3. The cutter-head F', its cross-slide *e*, the cutter E, and its adjusting devices are of well-known kind. The cross-slide E is pressed forward by a spring *e'*, arranged as shown on Fig. 1. The cutter-guiding pattern G and its support G' are also constructed and arranged to effect the control of the cutter substantially as heretofore employed.

My improved mechanism for operating the cutter-head slide is organized as follows: A shaft H, having an operating-pulley *h* and a worm-screw H', is mounted to turn in bearings a^2 a^2, supported by a bracket on the end of the guideway-frame A'. A worm-gear I and a shaft *i*, carrying a spur-pinion J, are mounted in bearings a^3 below the shaft H, said worm-gear engaging with and operated by the worm-screw H' when said shaft is rotated by a belt runing on the pulley *h*.

A toothed rack K is pivotally connected with the cutter-carrier slide F by a stud F^4, that projects through a long slot or opening in the guideway-frame, and said rack extends adjacent to the pinion J, as shown, it being adapted to be thrown into and out of engagement therewith, as occasion requires.

Beneath the pinion-gear and underlying the rack K there is an endwise-movable bar or quoin M, supported upon a stationary ledge a^5, formed upon or attached to the frame, said

quoin having a vertical slot therein and an inclined or wedging top surface, as at *m*. Combined with the quoin there is a vertically-movable drop-piece N, its head resting upon the inclined surface *m* and supporting the rack and its shank extending downward through the slot and an opening in the ledge a^5 and having a downwardly-pressing spring *n* upon its shank. A stop pin or lug m^2 is fixed in the ledge for limiting the forward movement of the quoin. The quoin or bar M has connected therewith a rod M′, that extends beyond the end of the frame A′ and is provided with a knob or handle M^2 for the convenient movement of the parts. A coiled-wire spring R is arranged upon the rod M for giving retractive impulse to the quoin M. A latch-bolt P, having a spring P′, is arranged in a suitable guideway adjacent to the ledge a^5, said latch-bolt being adapted for automatically shooting upward to intercept and prevent retraction of the quoin when thrown inward and for holding the mechanism with the rack K in gear with the pinion J.

The latch-bolt is best provided with a handle or loop P^2, by which it can be retracted by hand for releasing the quoin and drop mechanism at any time.

A detent or trip-finger L is attached to the cutter-carrier slide F, the end of which finger is adapted to engage an incline upon the latch-bolt P for automatically throwing off the latch and releasing the parts for stopping the feed mechanism when the cutter has reached the finishing-point on the work. Endwise adjustment of the trip-finger L varies the instant of throw-off. A back stop or screw S is provided at the end of the guideway for adjustment of the starting-point at which the cutter commences its work, the slide F being moved back to the stop after each operation. A tubular support T of well-known form is provided upon the cutter-carrier slide for supporting the turned portion of the temple as the cutter-head moves forward toward the head-stock.

For closing and releasing the chuck-jaws I have devised the improved means illustrated, which comprises a rocker-arm D′, carrying a pivotally-supported socket D, embracing a hollow ball or externally-spherical ring *d*, having an opening therethrough that is inwardly tapered to fit over the slitted end of the chuck C. Said ball is confined and supported to turn freely within the partable socket or casing D, the parts of which are rigidly connected by screws, said socket having projecting trunnions or centering-supports *r* at its opposite sides axially in line with the center of the ball *d*, and the socket is supported upon the two arms of the upwardly-projecting bifurcated rocker D′, the lower end of which is pivotally supported in bearings *t*, fixed upon the bed-frame A, as shown, or in a manner to facilitate the swinging of its upper end, with the closing device, onto and from the chuck-jaws C. The rocker D′ is provided with a suitable lever or handle D^2 for its convenient operation.

The operation is as follows: The trip-finger being adjusted so that the distance of carriage movement will correspond with the length of the pattern-surface, the cutter-head slide is moved back against the back-stop. The wire is then passed in through the hollow spindle *b*, chuck C, and cutter-head bushing, the end of the wire projecting through to a distance as may be regulated by the usual swinging gage-finger *u*. The lever D^2 is then pressed back, swinging the rocker D′ and forcing the ball *d* upon the slitted end of the chuck, which ball, self-centering itself thereon, closes the chuck upon the wire and puts it into rotary action with the spindle, the ball revolving on its spherical surface within its casing. The knob M^2 is then pressed inward, compressing the spring R and sliding the incline of the quoin M under the piece N, causing the latter to raise the rack K into gear with the pinion J, which latter is in rotative action through the operation of the worm gear and screw driven by belt on the pulley *h*. As the quoin M moves forward the latch-bolt P shoots up past the angle of said quoin and retains the parts with the rack in gear. The movement of the pinion is then transmitted to the rack and the cutter-carrier is moved forward, while the cutter E reduces the wire to the form required by control of the pattern-surface in well-known manner. When the finish-point is reached, (see dotted lines, Fig. 1,) the finger or lug L strikes the latch-bolt P and forces it downward, thereby releasing the quoin M, which is instantly thrown back by the spring R, shifting the incline from beneath the drop-piece N, and the latter being depressed by its spring *n* allows the rack K to fall from engagement with the pinion J, positively stopping the movement of the cutter-carrier slide at the same instant that the cutter severs the wire at the end of the finished temple. The cutter-carrier slide can then be moved back to its first position, the clutch-closer thrown off, and the operation again repeated for turning another temple.

If it is desired to throw off the feed at any intermediate position in the work, the operator by the handle P^2 pulls down the latch P, thereby releasing the parts and allowing the rack to fall out of gear with the pinion.

What I claim as of my invention herein, to be secured by Letters Patent, is—

1. In a temple-turning machine, the combination as hereinafter described, of the horizontal bed-frame having the head-stock and spindle supported thereon, the guideway-frame arranged above the rear part of the bed-frame in upright position along the back of the machine with its guides parallel with the bed and spindle-axis and rigidly supported upon said bed-frame, and the forwardly-projecting cutter-carrier having its sliding base supported on said guideway-frame, and its cutter-holding devices overhanging the

bed-frame in line with the head-stock axis, and means for controlling said cutter-holding device, substantially as set forth.

2. In a temple-turning machine, the combination as described, of the bed-frame having the head-stock with hollow rotating spindle mounted thereon, the pattern-support and pattern-plate at the front of said bed-frame, the guideway-frame supported in lateral upright position at the back of said bed-frame, the cutter-carrier mounted on said guideway-frame, and projecting forward opposite said pattern-plate, the horizontally-reciprocating cross-slide having the cutter thereon, mounted in the forwardly-projecting part of said carrier, and engaging said pattern, and mechanism for effecting and controlling the movement of said cutter-carrier arranged upon said guideway-frame.

3. In a temple-turning machine, and in combination, the guideway-frame, the cutter-carrier slide mounted thereon and carrying a cutter and cutter-adjusting devices, the rack connected with said slide, the pinion matching said rack, the worm-gear on the pinion-axis, an operating-shaft with the worm-screw thereon engaging said worm-gear, and means for putting said rack into engagement with said pinion, and for automatically releasing the rack from the pinion, for the purpose set forth.

4. The combination with the upright guideway-frame, the cutter-carrier slide mounted thereon, the rack pivotally connected with said slide, the pinion and worm-wheel, the operating-shaft having a worm-screw that meshes with said worm-wheel, the drop-piece supporting said rack, the endwise-movable quoin having an incline engaging said drop-piece, the starting-rod and its reaction-spring, the spring-pressed latch for engaging said quoin and a trip-finger attached to said cutter-carrier slide, for the purposes set forth.

5. In a temple-turning machine, the combination with the head-stock, the spindle and pattern appliances, of the guideway-frame, the cutter-carrier slide movable thereon; the rack pivoted to said slide, the pinion matching said rack, means for rotating said pinion, a quoin or wedge-bar supported upon a stationary ledge beneath the rack, the spring-pressed drop-piece supporting the rack upon the incline of said quoin, the starting-rod connected with said quoin and provided with a handle and the reacting spring, a spring-pressed lock-bolt intercepting for said quoin and the trip-finger adjustably attached to said carrier-slide and adapted for throwing off said lock-bolt, substantially as set forth.

6. In a machine of the character described, in combination with the tubular externally-tapered slitted chuck; a chuck-closer ring having an internal opening to fit over the end of the chuck, and formed with a spherical outer surface, revolubly supported within a partable socket having side pivots or trunnions axially in line with the center of said ring, a support having bearings for said socket and movable for carrying said socket and ring onto and from the end of the chuck, substantially as set forth.

7. In a temple-turning machine provided with the hollow revoluble head-stock spindle carrying the tubular slitted chuck; and in combination therewith as described, the chuck-closing mechanism comprising the externally-spherical closing member, or ball, having the tapered opening therethrough, the spherically-chambered socket consisting of two connected sections embracing said ball, and having opposite side trunnions thereon, the bifurcated rocker with upwardly-projecting arms carrying said trunnions, its lower end pivotally supported in bearings on the bed-frame transversely to the spindle-axis, and the hand-lever rigidly connected with said rocker for operating the same, all substantially as set forth.

8. In a temple-turning machine, the combination with the cutter-carrier slide, of its operating rack and gearing, a spring-pressed starting-rod provided with a quoin for holding the rack in engagement with the gearing, a spring-pressed latch for locking the starting-rod and a latch-tripping device; said latch being provided with a ring or handle for actuation by hand.

Witness my hand this 24th day of August, A. D. 1896.

ALBERT E. JOHNSON.

Witnesses:
CHAS. H. BURLEIGH,
ELLA P. BLENUS.