

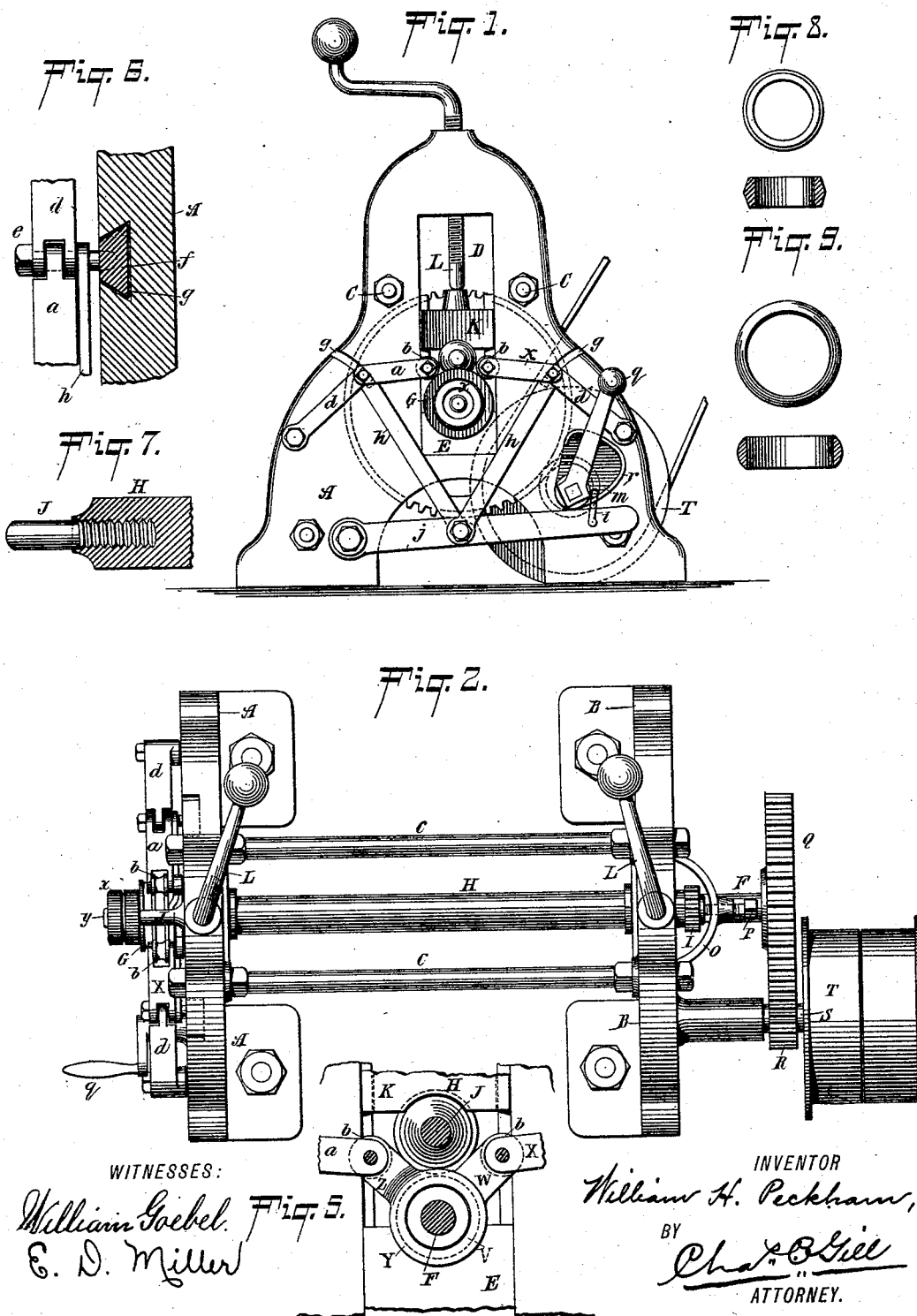
(No Model.)

2 Sheets—Sheet 1.

W. H. PECKHAM.
MACHINE FOR FORMING FINGER RINGS.

No. 455,430.

Patented July 7, 1891.



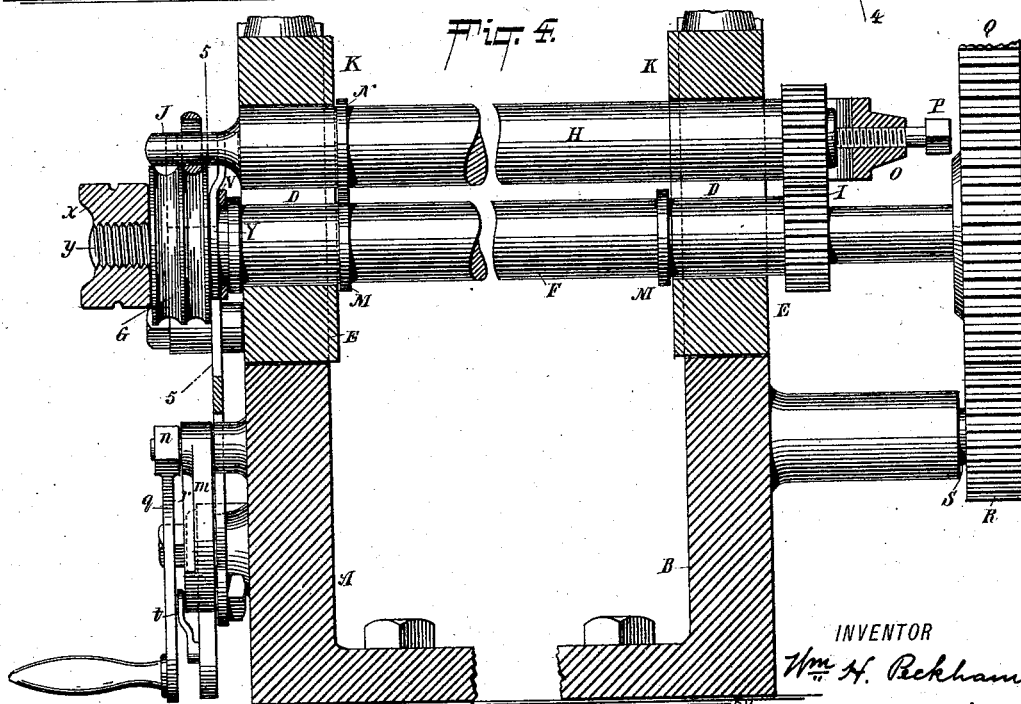
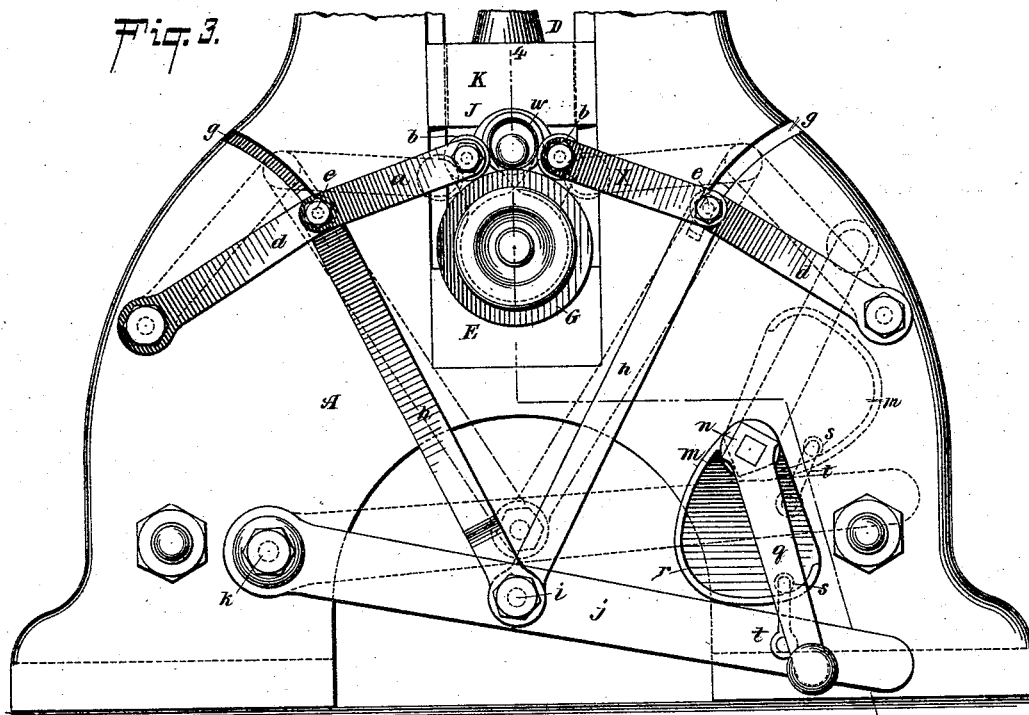
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WITNESSES
William Goebel.
E. D. Miller.

INVENTOR
Wm. H. Peckham
BY
Chas. B. Gill
ATTORNEY.

UNITED STATES PATENT OFFICE.

WILLIAM H. PECKHAM, OF PORT RICHMOND, NEW YORK.

MACHINE FOR FORMING FINGER-RINGS.

SPECIFICATION forming part of Letters Patent No. 455,430, dated July 7, 1891.

Application filed March 16, 1891. Serial No. 385,202. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. PECKHAM, a citizen of the United States, and a resident of Port Richmond, in the county of Richmond and State of New York, have invented certain new and useful Improvements in Machines for Forming Finger-Rings, of which the following is a specification.

The invention relates to improvements in machines for forming finger-rings; and it consists in the novel devices and combination of elements described hereinafter, and particularly pointed out in the claims.

The machine sought to be protected hereby receives the ring or blank formed in the rough by dies or otherwise and transforms it into the completed ring of the outline desired. In the drawings I have illustrated the ring or blank in the rough and also the finished ring. When the blank is submitted to the machine it is held on a spindle and caused to revolve rapidly in contact with and under the direct pressure of grooved rollers, which impart the form and finish to the ring.

The invention will be more fully understood from the detailed description hereinafter presented, reference being had to the drawings, forming a part of this specification.

Referring to the accompanying drawings, Figure 1 is a front end elevation of a machine constructed in accordance with the invention; Fig. 2, a top view of same; Fig. 3, an enlarged front elevation of same, the upper portion being broken away; Fig. 4, a vertical sectional view on the dotted line 4 4 of Fig. 3. Fig. 5 is a detached vertical section on the dotted line 5 5 of Fig. 4. Figs. 6 and 7 are detached sectional views of parts of the machine hereinafter specifically referred to. Fig. 8 is a plan and sectional view of the blank prior to its submission to the machine which is made the subject of this specification, and Fig. 9 represents a plan and section of the finished ring formed by the present machine from the blank illustrated in Fig. 8.

In the drawings, A B respectively designate the ends of the machine, said ends being connected by the tie-rods C and being securely bolted to the floor.

The ends A B of the machine are provided with the vertically-elongated openings D, as illustrated in Figs. 1 and 4, which receive the

bearing-blocks E, in which are journaled the opposite ends of the driving-shaft F, which carries upon its front end, adjacent to the outer face of the end A of the machine, the grooved forming-roller G.

Over the driving-shaft F is arranged within the openings D the supplementary shaft H, which at its rear end is connected by the gearing I with the shaft F, and at its front end is provided with the spindle J, the latter being removable at will, as illustrated in Fig. 7, in which said spindle J is illustrated as having a threaded inner end to engage a correspondingly-threaded socket in the front end of the shaft H. The spindle J is made removable in order that a spindle of appropriate size may be connected with the shaft H for rings of varying diameters.

Over the ends of the shaft H are provided within the elongated openings D the bearing-blocks K, which are caused to firmly bear upon the shaft H by means of the bearing-screws L. It is obvious that by the operation of the screws L the bearing-blocks K may be forced upon the shaft H as firmly as may be desired.

The shaft F is provided at the inner faces of the ends A B of the machine with the collars M, which operate to retain the shaft F in appropriate relation to the ends A B of the machine. The front end of the shaft H is provided with the collar N, which prevents the shaft from moving forward through the end A, while adjacent to the rear end of the shaft H the end B of the machine is provided with the bowed plate O, which passes around the rear end of the shaft H, and is provided with the screw P, the point of which has a bearing against said end of said shaft H, and prevents the same from moving rearward through the opening D in the end B of the machine. By means of the collars M N and the plate O, having the screw P, the shafts F H are retained in appropriate relation to each other and to the ends of the machine. The shaft F extends outward beyond the end of the shaft H, and is provided with the spur-gear wheel Q, which is engaged by the pinion R, mounted upon an auxiliary shaft S, which receives the driving or belt wheels T. The wheels T are adjacent to each other, and the one nearer the pinion-wheel R is rigid with

the shaft S, while the right-hand one of said wheels T is loosely mounted upon said shaft S in the customary manner, the purpose being to provide means whereby the belt may be shifted from the rigid wheel adjacent to the pinion R in order that the operation of the machine may cease without stopping the engine or other motive power. The motion from the pinion-wheel R is imparted through the gear-wheel Q to the driving-shaft F, and this shaft through the medium of the pinion-wheels I causes the rotation of the shaft H.

Upon the front end of the shaft F, adjacent to the outer face of the front end A of the machine, is also provided a collar, and against this collar is arranged upon said shaft the revoluble ring V, which has the arm W to receive the inner end of the link X, and against this revoluble collar V is arranged a duplicate revoluble collar Y, having the arm Z to receive the inner end of the link *a*. The collars V Y correspond in all respects with each other and their arms W Z extend upward and outward on opposite sides of the spindle J, as illustrated on an enlarged scale in Figs. 3 and 5. The collars V Y move easily upon the shaft F under the action of the links X *a*, which also correspond with each other and carry at their inner ends the rollers *b*. The outer ends of the links X *a* are connected, respectively, with the inner ends of the pivotally-secured arms *d* by means of the pins or bolts *e*, which carry the followers *f*, arranged to move in the curved grooves or guides *g*, formed in the front face of the end A of the machine. The jointed ends of the links X *a* and the arms *d* are connected, respectively, with the rods *h*, whose lower ends meet and are secured by means of a bolt *i* with the lever *j*, the latter being secured on the bolt *k* and extending beyond the lower ends of the rods *h* a sufficient distance to afford a bearing for the cam *m*, pivotally secured at *n* and provided with the crank-handle *q*, by which the cam may be operated at will. The cam *m* is provided with the rim *r* to receive the roller *s*, secured upon the upper end of the arm *t*, connected with the lever *j*. During the rotation of the cam *m* the roller *s* travels along the surface of the rim *r*, as indicated by dotted lines in Fig. 3. The purpose of the cam *m* and crank-handle *q* is to afford an adequate means for depressing the outer end of the lever *j* and thereby drawing downward the connecting-rods *h* and forcing inward the inner ends of the links X *a* for the purpose of bringing their grooved rollers *b* against the ring *w* while the latter is under process of treatment, as illustrated by full and dotted lines in Fig. 3.

As above mentioned, the spindle J is removably connected with the shaft H in order that it may be withdrawn and another substituted, according to the diameter of the ring it is desired to finish. The grooved roller G is also removably secured upon the front end of the shaft F in order that it may

be withdrawn and a roller having a groove of different size or form substituted, in accordance with the finish it is desired to impart to the ring. The roller G is grooved to correspond with the exterior form it is desired to impart to the ring and is secured in place by means of the nut *x* engaging the threaded end *y* of the shaft F.

In the operation of the machine the blank illustrated in Fig. 8 is placed upon the spindle J, the shaft H having been elevated sufficiently to permit the insertion of said blank, whereupon the machine is set in motion, the cam *m* being turned downward, as indicated by full lines in Fig. 3, in order to bring the grooved rollers *b* against said blank with sufficient pressure to transform the blank into the finished ring illustrated in Fig. 9. Upon the blank being inserted over the end of the spindle J the screws L are crowded down upon the blocks K, thereby forcing the blank closely against the grooved roller G, while at the same time the operation of the cam *m*, through the medium of the lever *j* and connecting-rods *h*, forces the grooved rollers *b* firmly against the blank at a point above the contact of the same with the grooved roller G. The machine being in motion and the mechanism being in the position just stated, the ring will be caused to rotate rapidly against the grooved roller G and grooved rollers *b*, and be thereby by them duly finished in the form outlined by said rollers. The followers *f* move freely in the guide-grooves *g*, and hence the movement of the cam *m* will readily either elevate or depress the lever *j* and connecting-rods *h*. When the cam *m* is turned upward to the position illustrated by dotted lines in Fig. 3, its rim *r* will, through the instrumentality of the arm *t*, elevate the lever *j* and rods *h*, and thereby force the outer ends of the links X *a* upward and withdraw the rollers *b* from contact with the ring *w*, at which time, the screws L being loosened, the shaft H may be readily tilted upward sufficiently to permit the withdrawal of the finished ring.

The collars V Y are of importance, since, as may be readily seen from Fig. 3 of the drawings, they afford a substantial bearing for the inner ends of the links X *a* and at the same time permit them to be moved toward or from the ring *w*. The collars V Y are close against each other, and hence in Fig. 5 the collar Y appears in full, while the collar V is hidden from view, being directly in rear of the collar Y.

It is apparent that the pressure brought against the ring is entirely under the control of the operator, since the cam *m* may be turned to and held in the position desired. The operation of the cam *m* may be easily performed by the attendant and its action, combined with that of the rods *h*, arms *d*, and links X *a*, is such that a positive pressure may be maintained or quickly varied or released against the ring *w*.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The roller G and spindle J, combined with the links X *a*, rollers *b*, arms *d*, rods *h*, guides *g*, and lever *j*, substantially as and for the purposes set forth.

2. The roller G and spindle J, combined with the revoluble collars V Y, rollers *b*, links X *a*, arms *d*, rods *h*, lever *j*, and cam *m*, substantially as and for the purposes set forth.

3. The roller G and spindle J, combined with the revoluble collars V Y, having arms W Z, the rollers *b* and links X *a*, secured to said arms W Z, and mechanism, substantially as described, for forcing said rollers *b* against the ring under treatment, as set forth.

4. The roller G and spindle J, combined with the revoluble collars V Y, rollers *b*, links X *a*, arms *d*, rods *h*, lever *j*, cam *m*, having rim *r* and handle *q*, and the arm *t*, secured to

the lever *j* and engaging said rim *r*, substantially as and for the purposes set forth.

5. The shafts F H, connected by gearing, the former being connected with the driving mechanism and the latter provided with the bowed plate O and screw P, combined with the spindle J on the end of shaft H, the grooved roller G on the end of shaft F, the rollers *b*, and mechanism, substantially as described, for supporting and moving the rollers *b* toward and from the ring under treatment, as specified.

Signed at New York, in the county of New York and State of New York, this 13th day of March, A. D. 1891.

WILLIAM H. PECKHAM.

Witnesses:

CHAS. C. GILL,
ED. D. MILLER.