

C. O. WOOD.

Machine for Forming the Chambers of Fire-Arms.

No. 219,336.

Patented Sept. 2, 1879.

FIG. 1.

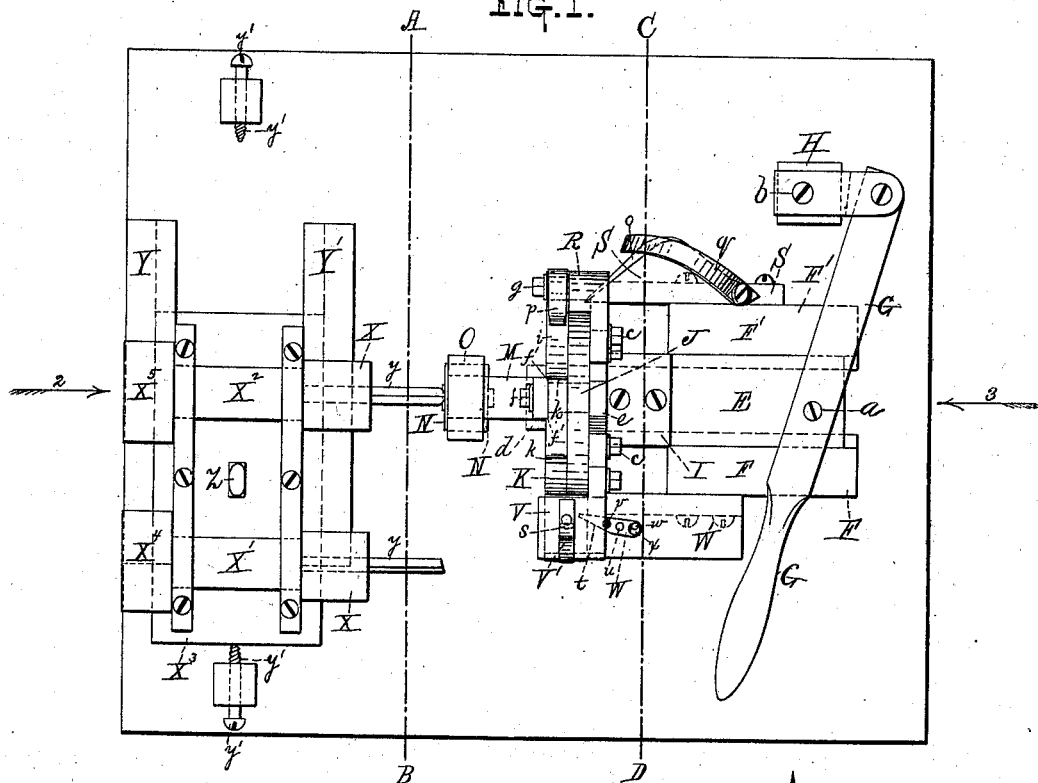
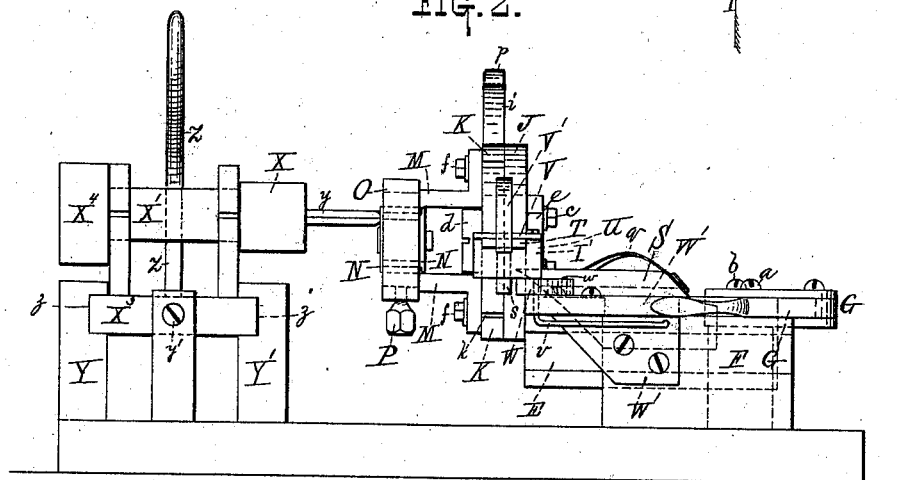


FIG. 2.



Witnesses;

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FIG. 3.

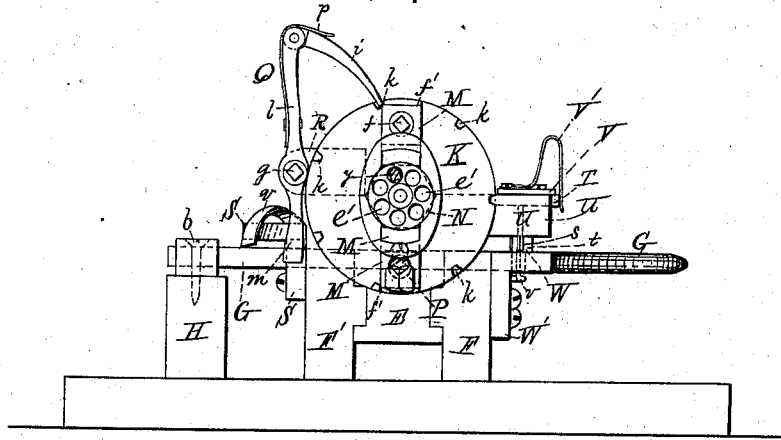
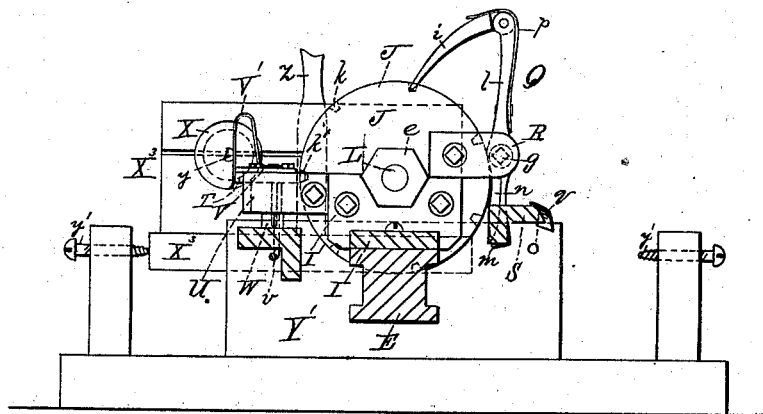


FIG. 4.



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UNITED STATES PATENT OFFICE.

CORBIN O. WOOD, OF WORCESTER, MASSACHUSETTS.

IMPROVEMENT IN MACHINES FOR FORMING THE CHAMBERS OF FIRE-ARMS.

Specification forming part of Letters Patent No. **219,336**, dated September 2, 1879; application filed March 28, 1879.

To all whom it may concern:

Be it known that I, CORBIN O. WOOD, of the city and county of Worcester and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Drilling and Reaming Cartridge-Chambers for Revolving Fire-Arms; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 represents a top or plan view of my said improved drilling and reaming machine. Fig. 2 represents a front-side view of the same, looking in the direction indicated by arrow 1, Fig. 1. Fig. 3 represents a vertical transverse section through the machine, taken on line A B, Fig. 1, looking in the direction indicated by arrow 2 of the same figure; and Fig. 4 represents a vertical transverse section taken on line C D, Fig. 1, looking in the direction indicated by arrow 3 of the same figure.

To enable those skilled in the art to which my invention belongs to make and use the same, I will proceed to describe it more in detail.

In the drawings, E represents a sliding frame or carriage, which slides back and forth upon suitable ways formed or secured upon supports F F', being operated by means of a jointed crank-lever, G, pivoted to said sliding frame or carriage E at *a*, and at *b* to an upright standard, H. Sliding frame or carriage E supports the cylinder holding and turning mechanism of the machine, which is arranged and constructed in the following manner: An angular plate, I, is secured to the top of sliding frame or carriage E, to which, in turn, is secured, by means of bolts *c c*, a circular stationary plate or wheel, J. Upon the inside of circular plate J is supported another circular plate, K, which is arranged to turn upon a central bolt or journal, L, which passes through said circular plates J and K, the latter being retained in position by the bolt or journal head *d*, upon one side, and against stationary plate J, upon the other side, by means of a nut, *e*, on the end of bolt or journal L. Nut *e* is locked and prevented from turning off of the

end of bolt L by the upright part I' of angular plate I, which is formed to fit the lower half of said nut, as represented in Fig. 4 of the drawings.

Upon revolving plate K is secured, by means of bolts *f f*, two cylinder-holding arms, M M, which are arranged to fit over the cylinder N. A cap, O, is also fitted over the ends of holding-arms M M and the sides of cylinder N; and said cap is further provided with a set-screw, P, by means of which the holding-arms and cap O are all securely clamped to the cylinder N, thereby holding it stationary and secure and in a proper position during the operation of drilling and reaming the cartridge-chambers in the same. In this instance, revolving plate K is turned one-seventh of a revolution, so as to bring the cylinder N in the right position to ream each of its succeeding cartridge-chambers *e'*, by means of a jointed dog or pawl, Q, fulcrumed at the point *g* upon a rectangular-shaped piece, R, secured to stationary plate J. Said dog or pawl Q is constructed and operated to turn revolving plate K and cylinder N in the following manner: The end of the forward circular part *i* is arranged so as to catch into notches *k* cut in the periphery of revolving plate K, while the part *l* is extended down, as represented at *m*, and cut out upon one side, as shown at *n*, (see Fig. 4,) so as to fit upon the beveled side *o* of angular part S, secured to carriage-support F'.

It will therefore be seen that by now drawing sliding frame or carriage E back by means of its operating-lever G, the side *n* of pawl Q is brought to bear against the side *o* of the angular part S, which, acting as a cam, forces the end *m* back and the end of the circular part *i* forward as the carriage is drawn back, thereby rotating revolving plate K and cylinder N a sufficient distance to bring the latter into the right position to drill and ream the next cartridge-chamber.

In order that the end of hinged part *i* of pawl Q may not slip out of notches *k*, a spring, *p*, is provided, which bears down upon the top of said circular part *i* and holds it in position. Another spring, *q*, is also arranged upon the angular part S, to prevent the lower end, *m*, of pawl Q from moving out of its proper course

in sliding back over the angular beveled surface *o* of said angular part *S*, and also for the purpose of insuring the withdrawal of the end of the hinged part *i* from the notches *k*.

After each one-seventh of a revolution of revolving plate *K* during the operation of drilling and reaming the chambers of cylinder *N* said plate is held stationary by means of a locking piece, *T*, which is forced forward into one of the notches *k* (which comes at the right point for that purpose) and another notch, *k'*, upon a line with said notch *k*, which is formed in stationary plate *J*, thereby effectually preventing plate *K* and cylinder *N* from turning during the operation of drilling and reaming any one of the chambers *e'*.

The arrangement and operation of aforesaid locking device is as follows: A block, *U*, secured to stationary plate *J*, is provided upon its upper side with a slot just sufficient in size to receive and allow locking-piece *T* to slide back and forth in the same, said locking-piece *T* being retained in position by a plate, *V*, secured to block *U* upon its upper side, and a spring, *V'*, secured to the top of plate *V*, which prevents its slipping out endwise, and at the same time serves the purpose of producing a constant pressure to force it into the notches *k*, as they come in line with the notch *k'* in the stationary part *J* and said locking-piece *T*. (See Figs. 3 and 4.)

Locking-piece *T* is provided with a downwardly-projecting flange, *s*, and block *U* with a suitable opening, in which said flange may work back and forth.

A cartridge-chamber having been drilled and reamed out, locking-piece *T* is then forced back out of notches *k k*, when the device is drawn back by lever *G*, as before explained, by flange *s* coming in contact with the beveled side *t* of a swivel latch or dog, *W*, hinged at the point *u* upon the part *W'*, secured to carriage-support *F*.

The forward beveled end of latch or dog *W* is kept inclined toward the center of the machine by means of a spring, *v*, so that flange *s* will be sure to strike upon the beveled side *t*.

The swing of said latch or dog *W* is governed by a pin, *w*, secured in the part *W'*, which is arranged in an opening, *x*, in said latch.

The drills and reamers *y* of the machine are secured in suitable holding-chucks *X*, upon the end of horizontal shafts *X¹ X²*, which are

arranged to turn in suitable bearings formed in a sliding carriage, *X³*, which is supported and slides back and forth in slots *z*, formed in carriage-supports *Y Y'*. Upon the outer ends of shafts *X¹ X²* are secured driving-pulleys *X⁴ X⁵*, by means of which, through belts connected with any suitable and convenient driving mechanism, driving-power is imparted to turn the drills and reamers *y*.

Sliding carriage *X³*, which is operated in this instance by means of an upright lever, *Z*, alternately strikes against stop-adjusting screws *y'* when run back and forth to the extent of its motion, whereby the drills and reamers *y* can be brought alternately upon a line with each succeeding cartridge-chamber *e'*, to be finished in cylinder *N*.

In ordinary practice my said improved machine is designed to be used for finishing the chambers *e'* of cylinder *N* after they have been drilled; and, if preferred, the carriage which supports the finishing-reamers *y* may be so arranged as to carry more than two, in which case it would have to have combined with it suitable stops to hold the frame in the proper position for each of the respective drills and reamers to enter the chamber to be finished.

Having described my improvements in machines for drilling and reaming chambers in cylinders of revolving-fire arms, what I claim therein as new and of my invention, and desire to secure by Letters Patent, is—

1. The combination, with the notched movable plate *K*, of the sliding stop *T*, swivel-dog *W*, and operating spring *V'*, substantially as and for the purposes set forth.

2. The combination, with rotating notched plate *K* and angular cam-piece *S*, of pawl *Q* and springs *p* and *q*, substantially as and for the purposes set forth.

3. The combination, with hinged dog *W*, of spring *v* and stop-pin *w*, substantially as and for the purpose set forth.

4. The combination, with sliding frame or carriage *E*, stationary plate *J*, and rotating plate *K*, of hinged lever *G*, hinged dog *W*, and angular stationary cam-piece *S*, substantially as and for the purposes set forth.

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Witnesses:

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