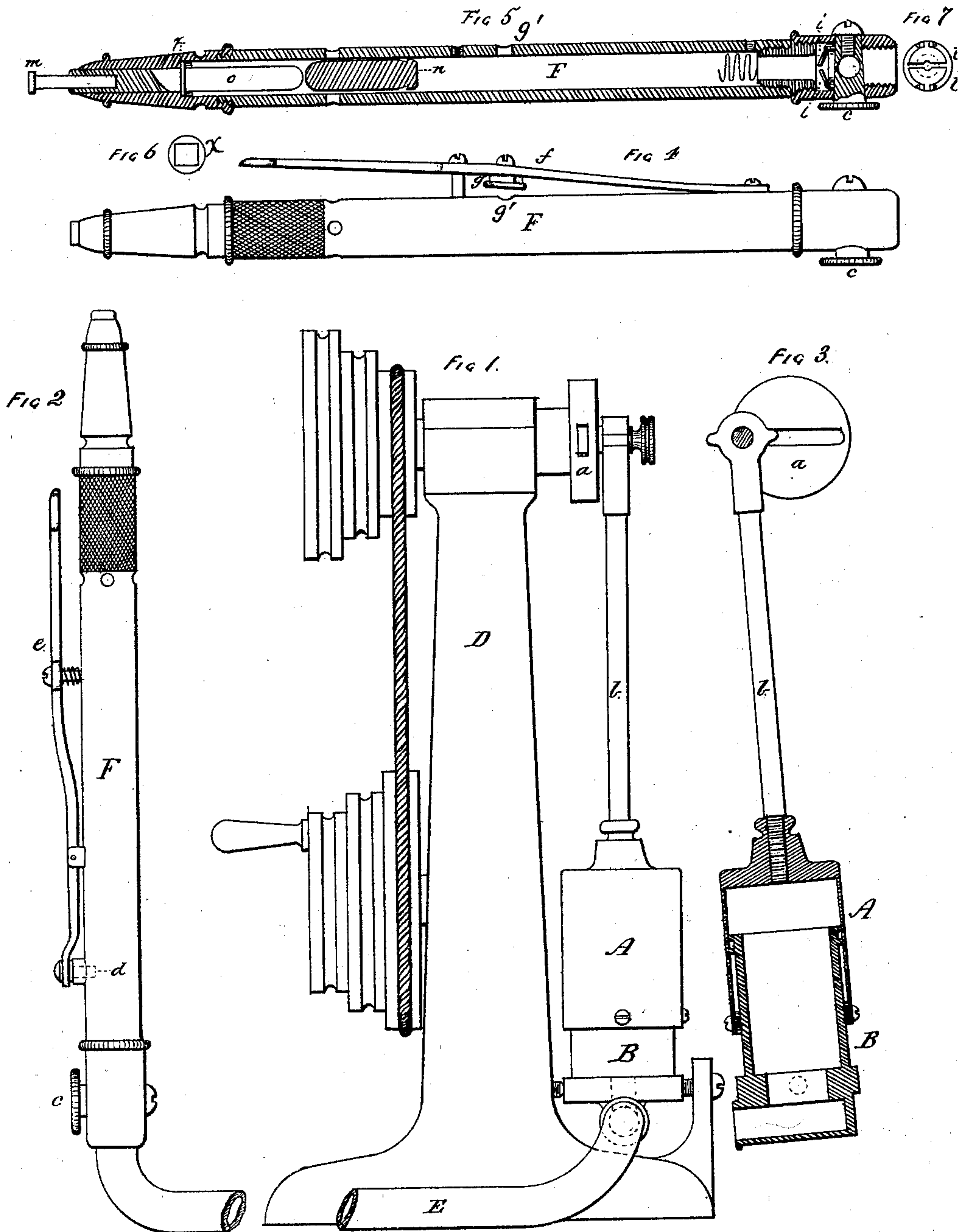


G. M. GRISWOLD.

CHASING OR MATTING MACHINE.

No. 175,860.

Patented April 11, 1876.



Witnesses.  
Rosa M. Sherman  
William F. Hopson

Inventor.  
George M. Griswold  
by George Berry  
Attorney



# UNITED STATES PATENT OFFICE.

GEORGE M. GRISWOLD, OF NEW HAVEN, CONNECTICUT.

## IMPROVEMENT IN CHASING OR MATTING MACHINES.

Specification forming part of Letters Patent No. 175,860, dated April 11, 1876; application filed January 8, 1876.

*To all whom it may concern:*

Be it known that I, GEORGE M. GRISWOLD, of the city and county of New Haven, and State of Connecticut, have invented a certain new and Improved Pneumatic Chasing Machine; 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 it, reference being had to the accompanying drawing, which forms a part of this specification.

My invention relates to pneumatic machines for chasing or matting metal; and it consists in a novel device for condensing and rarefying air, by which a column of air is made to reciprocate, and in contrivances for transmitting such motion to the matting-tool.

Figures 1 and 2 show the exterior of the machine. Fig. 3 is a vertical section of the condensing and rarefying cylinders. Fig. 4 is a view of the tube or tool-handle, provided with a stop or valve arranged on a spring. Fig. 5 is a longitudinal section of the tool-handle and its inclosed parts. Fig. 6 is a view of an isolated piece inclosed in the tool-handle. Fig. 7 is a view of the under side of the air-valves.

D is the standard, supporting the shaft of the driving-pulleys, the circular disk *a* to which the crank-pin is attached, the connecting-rod *b*, and the two cylinders A and B, to the latter of which one end of the flexible pipe E is attached. The cylinder B has a ring attached to its upper end with a groove in its edge to receive packing. A section of the ring is shown in Fig. 3. The bottom of the cylinder B is enlarged, and two pivots enter the enlargement, allowing the cylinders to oscillate. The bottom is also shaped into the form of a pipe, onto which the flexible pipe E fits. The cylinder A has a ring on its inside lower edge, a section of which is shown in Fig. 3. Its upper end is closed, and has firmly attached to it one end of the connecting-rod *b*. The other end of this rod is connected to the crank-pin. This cylinder is constructed to work over the cylinder B with or without packing.

The tool-handle F is made in three parts screwed together, as indicated by the threads

shown in Fig. 5. It is provided with holes, which let the air in and out below the hammer. The chuck *o* is round at its lower end, and square at its upper end. The square part moves through the piece *x*, having a square hole, shown in Fig. 6, which prevents it from turning. This piece *x* is placed on a shoulder in the tool-handle, and is held by the parts of the tool-handle screwed against it. The round part of the chuck *o* is constructed to move back and forth between a shoulder on the handle and the piece *x* about an eighth of an inch. The hammer *n* is a solid cylindrical bar with a channel near its upper end to receive the stop *d*, shown in Fig. 2. A spiral spring, Fig. 5, tends to relieve the jar of the tool-handle as the hammer comes back against it. The valves *i i* serve the same purpose by partially closing the passage, whereby the hammer is brought back with a slower speed than that in which it is forced downward. The valves *i i* are made of flat disks semicircular in form, and they are pivoted to a circular ring or disk secured to the pipe E. They are of such size as only partially to close the hole or passage in the ring or disk as the air in the pipe E is rarefied and the hammer *n* is drawn back, and are instantly thrown wide open the instant the current of air is reversed. The under side of these valves is shown in Fig. 7 partially closing the air-passage. The cock or valve *c* intercepts the communication between the hammer and the cylinders A and B, and is used to stop the hammer while the machine is left running.

The stop *d*, Fig. 2, is a pin working through the tool-handle, and is connected to the lever *e* in the manner shown. This stop allows a single blow, or any number of blows, to be struck without stopping the movement of the cylinders A and B. The valve *g* arranged on the spring *f*, Fig. 4, is another contrivance for the same purpose. By uncovering the hole *g'* the air is admitted above the hammer, which hammer, in consequence, remains at rest.

The movement of the cylinder A over the cylinder B condenses and rarefies the inclosed air, thereby causing the column of air in the pipe E and tube F to oscillate and cause the reciprocation of the hammer *n*, which in its turn acts on the chuck *o* and matting-tool *m*.

I claim as my invention—

1. In a chasing or matting machine, the cylinders A and B in combination with the flexible tube E, tool-holder F, and hammer *n*, the whole constructed and arranged to operate substantially as and for the purpose set forth.

2. The stop *d*, connected to the lever *e*, pivoted to the tool-holder F, in combination with the channeled hammer *n*, substantially as and for the purpose described.

3. The valves *i i*, arranged in the tool-holder F, and constructed to operate substantially as described.

GEORGE M. GRISWOLD.

Witnesses:

GEORGE TERRY,  
WILLIAM F. HOPSON.