

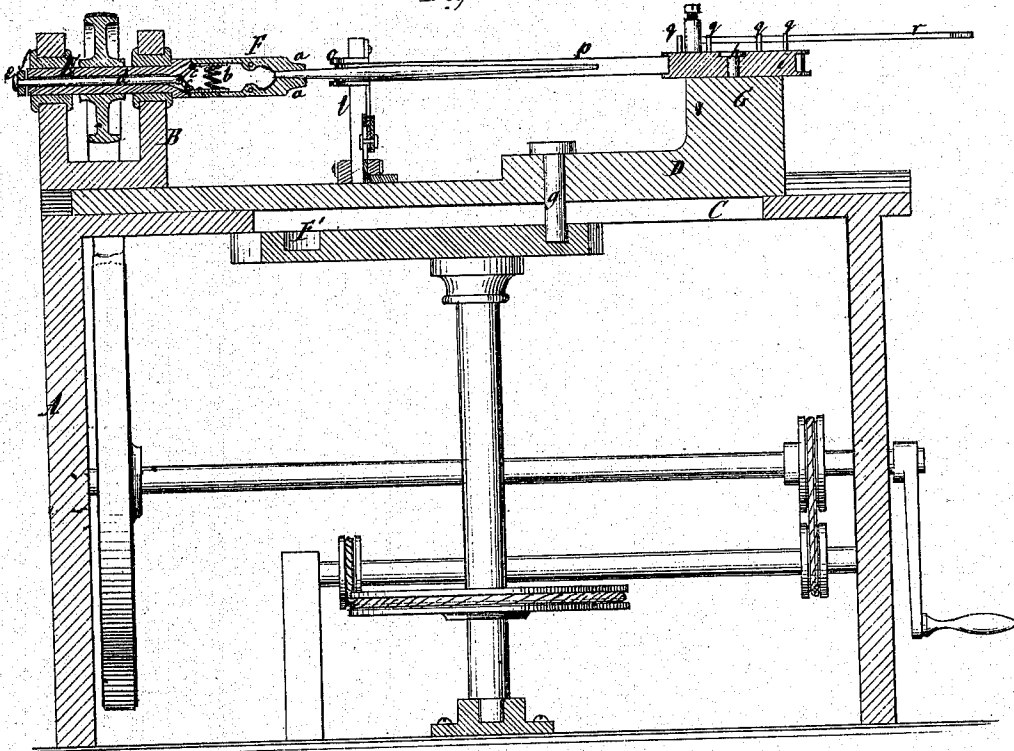
*P. Hafeland,*

*Sand Papering Machine.*

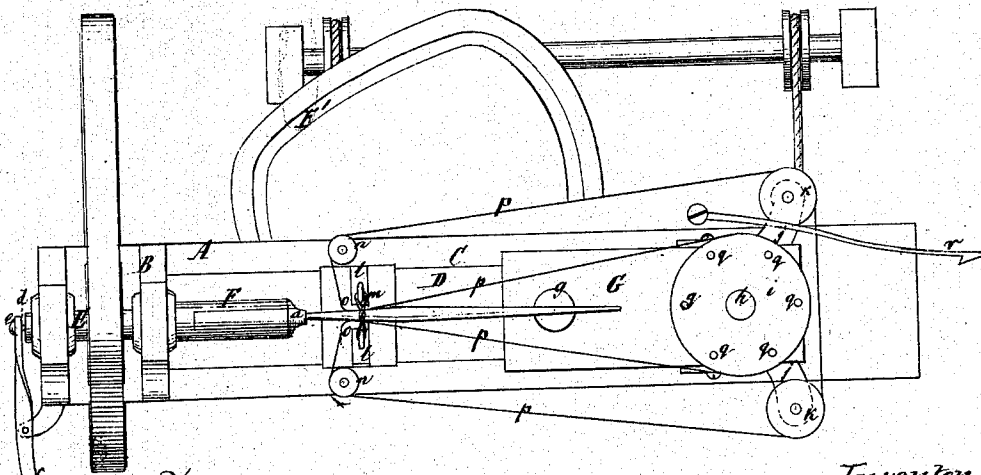
*No. 103,191.*

*Patented May 17, 1870.*

*Fig. 1.*



*Fig. 2.*



*Witnesses.*  
*E. F. Kastenhuber*  
*b. Mahler*

*Inventor.*  
*Philip Hafeland*  
*by Mansueti & Co*  
*his att*

# UNITED STATES PATENT OFFICE.

PHILIP HUFELAND, OF NEW YORK, N. Y.

## IMPROVEMENT IN SANDPAPERING-MACHINES.

Specification forming part of Letters Patent No. 103,191, dated May 17, 1870.

*To all whom it may concern:*

Be it known that I, PHILIP HUFELAND, of the city, county, and State of New York, have invented a new and Improved Sandpapering-Machine; and I do hereby declare the following to be a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawing, forming part of this specification, in which drawing—

Figure 1 represents a longitudinal vertical section of this invention. Fig. 2 is a plan or top view of the same.

Similar letters indicate corresponding parts.

This invention relates to a machine intended to sandpaper the surface of pieces of wood or other material of a cylindrical or irregular form.

The article to be sandpapered is secured in the end of a revolving spindle or chuck, the mouth of which is provided with spring-jaws, which can be opened simultaneously by the action of a hand-lever.

The sand-paper is employed in the form of an endless band, which runs over pulleys and through between hinged standards, which are compressed by the action of a spring, so as to cause the strips of sand-paper to bear from opposite sides against the surface of the article under treatment, and to allow said jaws, together with the strip of sand-paper, to adapt themselves to the varying thickness of the article to be sandpapered.

The rollers over which the strip of sand-paper is stretched, and also the spring-standards, are secured on a sliding head, which moves back and forth, so as to bring the sand-paper to act on every part of the article to be sandpapered, and one of said rollers is acted on by a stationary pawl, so that the strip of sand-paper advances a short distance for every stroke of the sliding head, thereby changing the working portion of the sand-paper and bringing a fresh surface of the same in operation after every stroke of the sliding head.

Two or more of the rollers over which the strip of sand-paper is stretched are mounted in adjustable brackets, so that the proper tension of the strip can be preserved.

In the drawing, the letter A designates a frame which forms the support for the head-stock B, and also for the guideway C of the

reciprocating carriage D. The head-stock is firmly secured to the frame, and it forms the bearings for the spindle E, to which a rapid revolving motion is imparted by a belt or any other equivalent means. On the end of this spindle is secured a chuck, F, which is provided with three (more or less) jaws, *a*, subjected to the action of springs *b*, (see Fig. 1,) which have a tendency to keep the jaws closed. The inner ends of said jaws connect by links *c* with a rod, *d*, that extends through the center of the spindle E and terminates in a head, *e*, against which bears a lever, *f*. (See Fig. 2.) This lever has its fulcrum on a bracket attached to the head-stock, and by turning it in the direction of the arrow marked near it in Fig. 2 the rod *d* is drawn back and the jaws *a* are opened, so that the article to be sandpapered can be inserted into the chuck, and by releasing the lever the jaws close down upon said article and retain it, as indicated in the drawing.

The carriage D receives a reciprocating motion by the action of a cam-groove, *F'*, on a pin, *g*, secured in the carriage, the cam-groove being made in a disk, which is mounted on a vertical spindle, and to which a slow reciprocating motion is imparted by belts and pulleys or by other suitable means. The reciprocating motion of the carriage may, however, be produced by other means besides the cam-groove, and I do not wish to confine myself in this respect to the precise mechanism shown in the drawings. To said carriage is firmly secured a head-block, G, in the top of which is fastened a pin, *h*, that forms the bearing for a pulley, *i*, and to the sides of said head-block are attached two brackets, *j*, which form the bearings for pulleys *k*.

On the carriage D are also secured two hinged standards, *l*, which are drawn toward each other by a spring, *m*, and each of which carries a guide-pulley, *n*, and a curved stationary guide, *o*.

An endless strip of sand-paper, *p*, is stretched over the pulleys *i*, *k*, and *n* and made to pass through the guides *o*, and the proper tension of this strip is insured by means of the brackets *j*, which are provided with slots, so that they, together with their pulleys, can be moved in and out as may be required.

The guides *o* of the standards *l* are in line

with the center of the spindle E, so that the strip of sand-paper passing through said guides is pressed from opposite sides against the surface of the article fastened in the chuck F.

From the pulley *i* rises a series of studs, *g*, and as the carriage approaches the outer end of its stroke one of these studs strikes a pawl, *r*, fastened in a standard which rises from the frame A, and thereby a partial revolution is imparted to said pulley, and the strip of sand-paper is caused to advance a short distance, once for every stroke of the carriage, so that a fresh surface of said strip is brought into action.

As the spindle and the article fastened in the chuck are caused to revolve and the carriage D assumes a reciprocating motion, the standards *l* with the sand-paper passing through their guides *o* are drawn along over the entire length of the article to be sandpapered, and during this motion said standards accommodate themselves to the varying thickness of the article under treatment, so that the entire surface of said article is exposed to a uniform action of the sand-paper. A few strokes of the carriage are thus sufficient to sandpaper the article, when the same is removed and replaced by another without stop-

ping the machine, and, since the strip of sand-paper is made to advance a short distance for every stroke of the carriage, its entire surface is gradually brought into action, and the operation can be continued for a long time without renewing the strip of sand-paper; and, furthermore, irregular pieces, such as penholders, can be sandpapered with the same ease as parallel cylindrical sticks.

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

1. The combination of the reciprocating carriage D, carrying a strip of sand-paper and two spring-jaws, with the revolving spindle E, substantially as shown and described.

2. The chuck F, provided with spring-jaws *a*, acted on by a rod, *d*, and lever *f*, in combination with the strip of sand-paper and with the reciprocating carriage D, substantially as set forth.

3. The pawl *r* and studs *g*, in combination with the endless strip of sand-paper and with the reciprocating carriage D, substantially as described.

PH. HUFELAND.

Witnesses:

PHILIP SCHRAG,  
HENRY WINTER.