JAMES PITTS, ROBERT ALDRICH & E. T. MARBLE.

Improvement in Reversible Flock Cutting Machines.

No. 121,415. Patented Nov. 28, 1871.

Fig. 1.

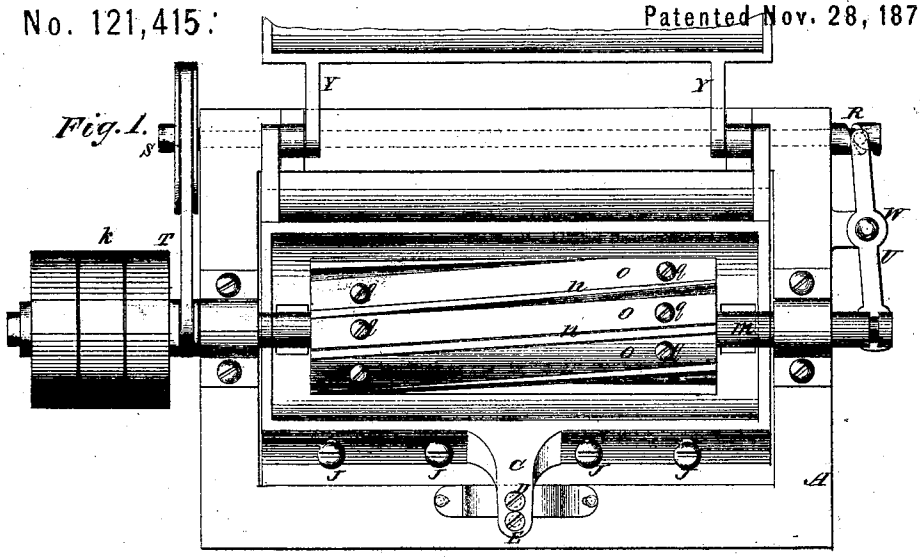


Fig. 2.

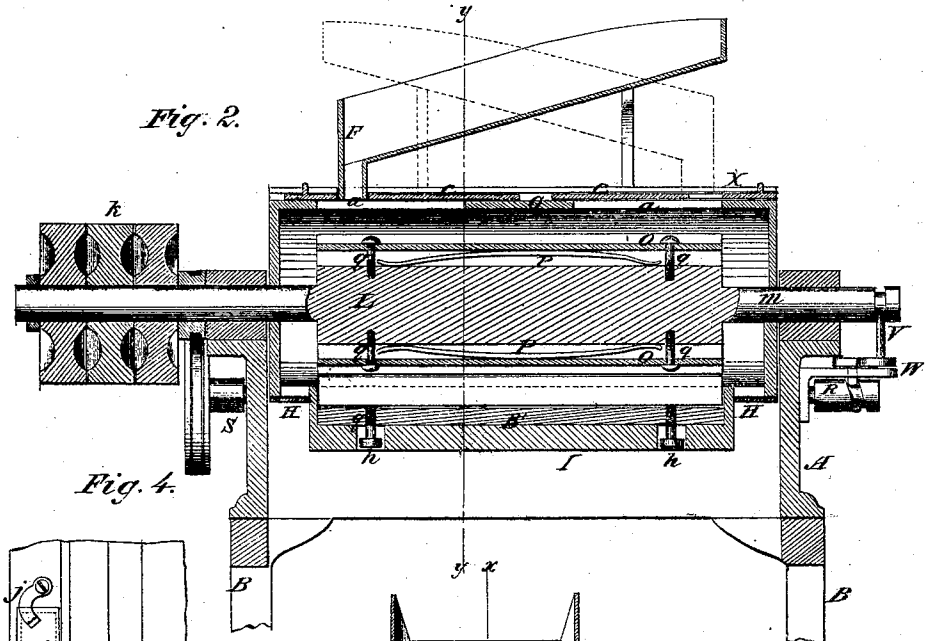


Fig. 4.

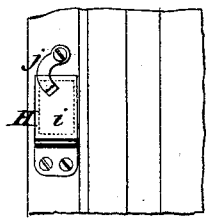
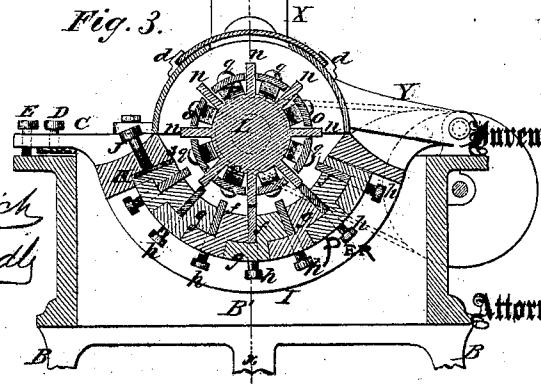


Fig. 3.



Witnesses:

Gustave Dieterich

Francis McArdle

Inventors:

JAS. PITTS.

ROBT ALDRICH.

E. T. MARBLE.

per

Munn & Co

Attorneys.

AM. PHOTO-LITHOGRAPHIC CO. N.Y. (OSBORNE'S PROCESS.)

# UNITED STATES PATENT OFFICE.

JAMES PITTS, OF MILLVILLE, MASSACHUSETTS, ROBERT ALDRICH, OF SLATERSVILLE, RHODE ISLAND, AND EDWIN T. MARBLE, OF WORCESTER, MASS.

## IMPROVEMENT IN REVERSIBLE FLOCK-CUTTING MACHINES.

Specification forming part of Letters Patent No. 121,415, dated November 28, 1871.

*To all whom it may concern:*

Be it known that we, JAMES PITTS, of Millville, in the county of Worcester and State of Massachusetts, ROBERT ALDRICH, of Slatersville, in the county of Providence and State of Rhode Island, and EDWIN T. MARBLE, of Worcester, in the county of Worcester and State of Massachusetts, have invented a new and useful Improvement in Reversible Flock-Cutting Machine; and we do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to a new and useful improvement in machine for cutting "flock;" and consists in means for making the cylinder reversible and the blade self-sharpening; in the arrangement for feeding in the stock and vibrating the cylinder; and in the mode of holding and adjusting the blades of the bed; as will be hereinafter more fully set forth and described.

In the accompanying drawing, Figure 1 represents a top or plan view of the machine with the cover or cap of the cylinder off. Fig. 2 is a vertical longitudinal section of the machine taken on the line *x x* of Fig. 3. Fig. 3 is a vertical cross-section of Fig. 2 taken on the line *y y*. Fig. 4 is a detail view of one of the discharge-orifices through the bed of the machine.

Similar letters of reference indicate corresponding parts.

A is the frame or casing elevated on legs or stands B, which support the bed and cylinder. B′ is the bed or concave which receives the cylinder, and is hinged by means of ears to the top of the casing A, as seen in Fig. 3, so that it can be raised or lowered and adjusted to the cylinder, as may be desired. The bed opposite the hinge laps onto the top of the casing, as seen at C, where it is provided with an adjusting-screw, D, and a stop-screw, E, by means of which the bed may be adjusted to the cylinder in the nicest manner. *f* represents the blades of the bed. *g* are the lags, which are rabbeted so as to lap onto each other while the blades are confined between them, as seen in the drawing. *h* are set-screws, which pass through the lags and engage with the back edge of the blades so that each separate blade may be set up and adjusted separately by the screws, as well as collectively, by means of the hinged bed. The lags *g* are supported on the bottom I of the bed, and the blades are clamped between the lags by means of screws J, which pass through the upper edge of the bed and bear against a metallic plate, K, as seen in Fig. 3. L is the cylinder, composed of a shaft, *m*, supported in journal-boxes on top of the frame A, as seen in Fig. 1, and spirally-arranged blades *n*, which are fixed in an enlarged portion of the shaft. O are adjustable plates between the blades, which rest upon the springs P. These plates are adjusted with regard to the edges of the blades by means of the set-screws *q*. R is a cam-groove on the end of the longitudinal shaft S. The shaft is revolved by means of the belt T from the cylinder-shaft. U is a horizontal cam-lever, with a finger at one end which engages with the cam-groove R, and an arm, V, at the other end which engages with a groove in the cylinder-shaft, as seen in Figs. 1 and 2. W is the fulcrum of the lever U. By this means a vibrating motion is given the cylinder. The cylinder-shaft is given a reciprocating motion and slides in its boxes as it revolves, which prevents grooves being worn in the blades. *x* is the cover or cap of the cylinder, which is hinged by means of the arms *y y* to the top of the frame or casing A. This cap is in the form of a hollow semi-cylinder, with openings *a a* in its top. *c c* are shutters, which slide from each end of the cylinder, confined by groove-pieces *d d*. (See Fig. 3.) Each slide has an opening, *e*, which receives the mouth of the hopper F, as seen in Fig. 2. The hopper is reversible, so that the stock to be cut may be fed to either end of the cylinder, or to any part of its surface with the exception of the central part G of the cap. This is done by sliding the shutter which carries the hopper toward the center. The cylinder, by virtue of the spiral arrangement of its blades, will carry the material horizontally in either direction, according to the direction it revolves There is a discharge-orifice, H, at each end of the bed. Each orifice is provided with a door, *i*, which is closed by a button, *j*, when the opposite orifice is open. This arrangement is seen in the detached Fig. 4. By means of the driving-belt or belts on the pulleys *k* of the cylinder-shaft the motion of the cylinder is reversed or made to revolve in either direction at will. When a flock-cutting cylinder

is revolved continually in one direction the natural consequence is that each of the blades is dulled at one angle or cutting-edge and sharpened at the other. The only remedy in such a case is to grind or sharpen the blades, which, of course, consumes much time and involves considerable expense and trouble. By means of our reversible feeding device and arrangement of the discharge-orifices we render our machine self-sharpening. We can reverse the motion of our cylinder at will, and carry the flock in either direction and discharge it at either end of the machine. As the blades of the cylinder wear away the spring plates O are adjusted to allow more or less of the blades to be exposed, either to compensate for the wear or govern their action upon the stock. As the blades of the bed wear they are adjusted from time to time either separately or collectively, as may be desired; but the reversal of the motion of the cylinder renders all the blades in both cylinder and bed self-sharpening. The central portion of the blades is iron, covered on each side with a plate of steel, so that the central portion will readily wear away and leave a steel cutting-edge on each side.

We do not limit or confine ourselves to the precise form or arrangement of any of the parts described, as they may be varied in many ways without departing from our invention.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. In combination with a cylinder for cutting flock, the cover or cap *x*, with openings *a a* and slides *c c*, (or their equivalents,) by means of which the stock may be fed to either end or part of the cylinder, substantially as and for the purposes described.

2. The discharge-orifices H H, arranged with respect to the openings *a a* in the cap *x*, and the hopper F, as and for the purpose specified.

3. The combination of the cam-groove R, shaft S, lever U having fulcrum W, cylinder L, and bolt T, all constructed, arranged, and operating as shown and described, for the purpose specified.

4. In combination with the bed B′, the adjusting-screw D and stop-screw E, as and for the purposes shown and described.

5. The lags *g* and set-screws *h*, in combination with the blades *f*, as and for the purposes described.

6. The clamp-screws J and plate K, in combination with the lags *g* and blades *f*, as described.

7. The adjustable plates O and springs P, in combination with blades *n* of a flock-cutting cylinder, substantially as and for the purposes described.

8. In combination with a flock-cutting cylinder, the reversible hopper F and the cap *x*, when the same are constructed and arranged substantially as and for the purposes described.

JAMES PITTS.
ROBERT ALDRICH.
EDWIN T. MARBLE.

Witnesses for PITTS and MARBLE:
T. L. NELSON,
T. C. BATES SMITH.

Witnesses for ALDRICH:
H. W. DANA,
ELMER M. RAY.

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