E. D. & A. S. WILCOX.
Flock-Cutting Machine.

No. 198,440. Patented Dec. 18, 1877.

Fig: 1.

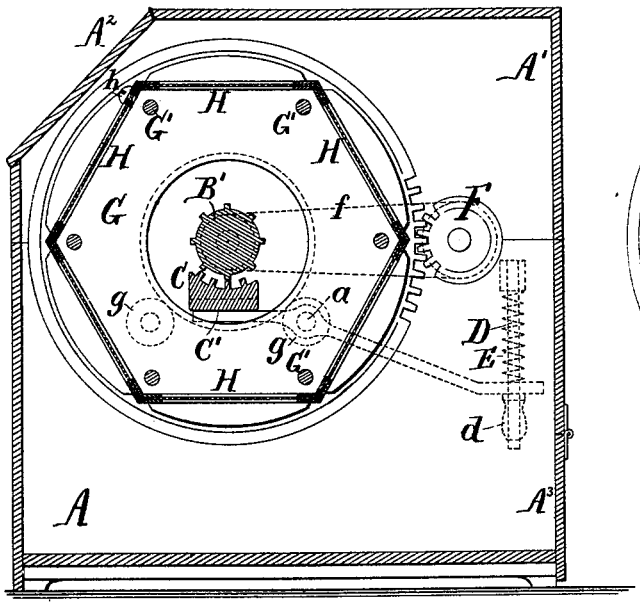


Fig: 3.

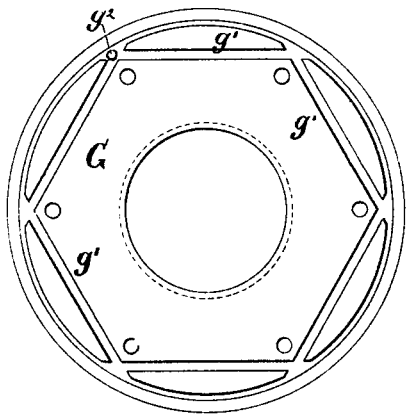
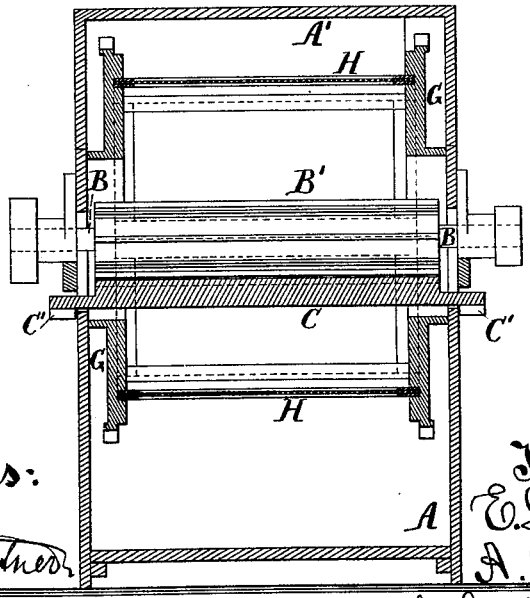


Fig: 2.



Witnesses:
A. Henry Gentner.
Chas. C. Stetson

Inventor:
E. D. Wilcox
A. S. Wilcox
by their attorney
C. C. Stetson.

UNITED STATES PATENT OFFICE.

ELIJAH D. WILCOX AND AUGUSTUS S. WILCOX, OF MILLVILLE, MASS.

IMPROVEMENT IN FLOCK-CUTTING MACHINES.

Specification forming part of Letters Patent No. **198,440**, dated December 18, 1877; application filed September 28, 1877.

To all whom it may concern:

Be it known that we, ELIJAH D. WILCOX and AUGUSTUS S. WILCOX, of Millville, Worcester county, in the State of Massachusetts, have invented certain new and useful Improvements relating to Flock-Cutting Machines, of which the following is a specification:

It has been customary heretofore to grind the material within a revolving case, which causes the material to be tumbled and continually presented to the grinding mechanism. We employ a peculiarly-constructed case of wire-gauze or other foraminous material.

It is common to designate the revolving part which effects the sifting or bolting as a "bolt." We will use the same term in this specification. We have devised means for rendering the bolt readily changeable from coarser to finer, and the reverse, at will.

As the material escaping might cause serious inconvenience in the bolting, and much loss of the finest particles, we incase the whole—that is to say, the grinding mechanism, and also the revolving bolt which surrounds it—within another case, which is stationary, and of sufficient size to hold a liberal quantity of the fine material, to be removed only at long intervals.

The following is a description of what we consider the best means of carrying out the invention.

The accompanying drawings form a part of this specification.

Figure 1 is a vertical section of the entire structure. Fig. 2 is a section at right angles to Fig. 1. Fig. 3 is an inside view of one of the end plates of the bolt detached.

Similar letters of reference indicate corresponding parts in all the figures.

A is a bin or case, which may be portable or stationary, as preferred, but should be of sufficient size to contain a large quantity of fine flock. A^1 is a removable cover, which allows access to the internal mechanism when desired. A^2 is a hinged cover, which may be elevated to allow the introduction of fresh material; and A^3 is a hinged door, which may be opened to allow the removal of the fine flock. B is a shaft, driven by a belt, (not represented,) operated by a steam-engine or other suitable power, and running in bearings in the case A. This turns a grinding or cutting cylinder, B′, which is provided with knives in any approved form, for cutting or grinding the stock.

C is a concave, equipped also with knives, and bolted on levers C′, which turn on fixed centers *a*, and are adjustable by means of screws D and nuts *d*. Spiral springs E hold the levers C′ in contact with the nuts *d*, but with capacity to yield, if required, under extraordinary conditions, as an unusual quantity of stock or some hard object getting between the cutting-surfaces.

G G are the two ends of a bolt surrounding the grinding mechanism, and supported on anti-friction rolls *g*. A slow rotatory motion is imparted to the bolt through the means of a jack-wheel, F, which is turned by a belt, *f*, running from a pulley on the main shaft B. (Indicated in Fig. 1.)

The bolt is not cylindrical, but hexagonal. The interiors of the faces G G are grooved, as indicated by g^1. Into these grooves are fitted panels H, adapted to be introduced and removed by a sliding motion, and to fit with tolerable tightness to each other and to the heads. These panels H are each formed of rectangular frames of metal, with wire-gauze stretched across the interior, making a sifting-surface of the required fineness.

We propose to have two or more sets of these removable panels H stored in the mill, ready to be applied at any moment. In case it becomes expedient to make the flock finer, or in case of wearing out or other failure of one or more of the panels, it is easy to remove the whole or any part of the set which is now in use, and substitute new panels H.

The ends G G are connected by six substantial longitudinal pieces, G′, which come in the angles of the bolt. In inserting the panels the corners of the first abut against pins g^2, serving as stops in the respective ends or heads G G. The front edge of the next abuts against the rear edge of the first one, and so to the last, which is secured by a screw, *h*, the head of which overhangs the edge of the last panel, and holds the whole firmly until the screw *h* is withdrawn.

Our invention allows the grinding to be conducted rapidly and very perfectly. When a lot of material is first introduced, little or

none will escape through the bolt; but as the work proceeds, and portions of the flock are reduced to the proper fineness, the agitation and tumbling will rapidly present those particles to the surface, and they will escape through the wire-cloth of the bolt, and be retained in the interior of the casing A. The work will proceed until the partially-ground stock within the bolt is reduced to a small quantity, when the machine may be stopped, the lid A^2 raised, the bolt turned until it presents the screw *h*, which can then be removed, and the last panel H drawn partly or entirely out. Through the aperture thus produced a fresh supply of stock may be inserted, and all the parts being again restored to their proper condition, the machine is ready to be again run.

Many modifications may be made in the details by any good mechanic. For example, the grinding or cutting parts B′ C may be varied in dimensions and in construction within wide limits, the motion may be reversible by any ordinary or improved means, so as to make the cutters self-sharpening, the knives may be straight or spiral, and the means for setting the grinding-surfaces together may be varied indefinitely.

We claim as our improvements in flock-cutting machines—

1. In combination with the cutting means B′ C and their connections, and a revolving bolt surrounding the same, the exterior case A, with means for allowing access to the interior, as herein specified.

2. In connection with a revolving bolt arranged to surround the cutter, and to perform the double functions of presenting the material to the cutting mechanism and sifting out the fine material by a continuous operation, the removable panels H, supported in the grooved end pieces of the bolt, and adapted to allow the ready exchange of the sifting-surfaces, as herein specified.

In testimony whereof we have hereunto set our hands this 22d day of September, 1877, in the presence of two subscribing witnesses.

ELIJAH D. WILCOX.
AUGUSTUS S. WILCOX.

Witnesses:
JOHN C. SCOTT,
ORLANDO SCOTT.