

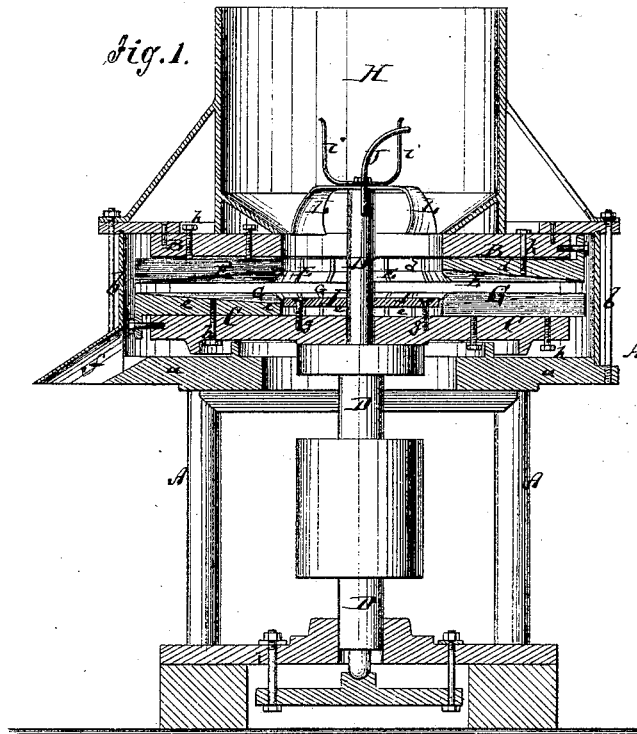
M. MORSE & C. H. MORSE.

Improvement in Flock-Cutting Machines.

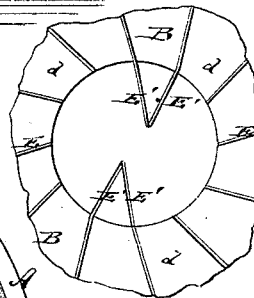
No. 114,588.

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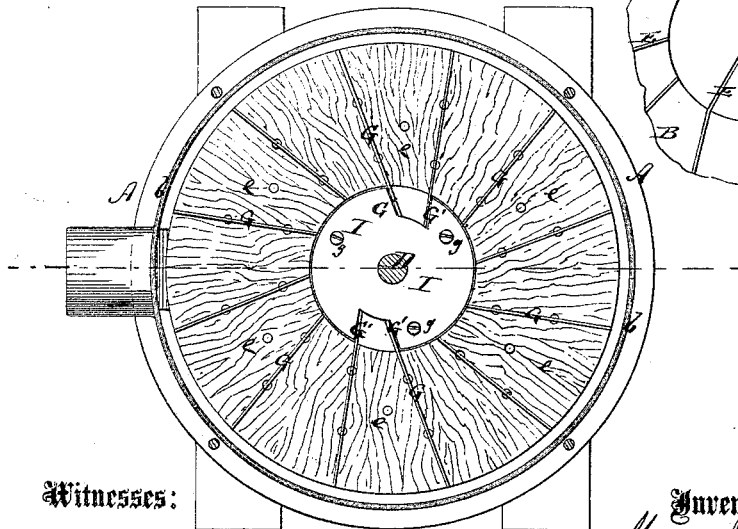
*Fig. 1.*



*Fig. 2.*



*Fig. 3.*



Witnesses:

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# United States Patent Office.

MONROE MORSE AND CHARLES H. MORSE, OF FRANKLIN,  
MASSACHUSETTS.

Letters Patent No. 114,538, dated May 9, 1871.

## IMPROVEMENT IN FLOCK-CUTTING MACHINES.

The Schedule referred to in these Letters Patent and making part of the same.

### *To all whom it may concern:*

Be it known that we, MONROE MORSE and CHARLES H. MORSE, of Franklin, in the county of Norfolk and State of Massachusetts, have invented a new and improved 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, in which—

Figure 1 represents a vertical central section of our improved flock-cutting machine.

Figure 2 is a detail inverted plan view of the upper cutter-head, showing the central portion of the same.

Figure 3 is a plan or top view of the machine, the hopper and upper cutter-head being removed.

Similar letters of reference indicate corresponding parts.

The object of this invention is to construct a machine for cutting flock to any desired degree of fineness from suitable material, and consequently to obtain facilities for adjusting the cutting and feeding mechanisms to the different degrees and materials.

The invention consists, first, in the employment, in two circular cutter-heads, of radial adjustable cutting-blades, the edges of which are in parallel planes, to be readily adjusted any distance apart, and retained at the proper distances when worn.

The invention also consists in the employment on some of said blades of inward extensions, which enter the central feed-compartment to serve as feeders for the material, throwing the same by centrifugal force outwardly between the cutters.

The invention consists further in the application to the lower rotary cutter-head of a vertically-adjustable feed-table, which, when lowered or raised, makes the aforesaid projecting blades more or less effective, as may be found necessary, for the various kinds of fabric to be cut.

The invention consists also in the application to the rotary shaft of a spiral yielding presser, which holds the fabric to the feeders; of a stirrer, which prevents its clogging in the throat of the mill; and of a thread or fiber-separator, which will remove from the fabric in the feed-throat any strings, threads, or fiber useless or hurtful to the production of flock.

A in the drawing represents the frame-work of our improved flock-cutting machine.

The same supports a circular table, *a*, from which a cylindrical flange, *b*, projects upwardly, the upper edge of said flange sustaining an annular cover, *B*.

A cylindrical stationary box is thus produced by the parts *a*, *b*, and *B*.

Within this box is arranged the rotary cutter-head *C*, mounted upon a vertical shaft or spindle, *D*, which is revolved by suitable mechanism. The upper end of said spindle projects somewhat beyond the upper face of the rotary head *C*, as shown.

The cover *B* constitutes the upper stationary cutter-head. To its lower face is secured a series of wedge-shaped plates, *d d*, fastened by screws, bolts, or other means; and so shaped that between their several edges the steel blades or cutters *E E* can be conveniently interposed. The said cutters are clamped in their places by the wedges *d*, which, when forced inwardly, will the more lock the same. It is, therefore, advisable to make the wedges *d* adjustable toward the center of the machine.

To the face of the rotary head *C* are secured steel blades *G G*, in similar manner as those to *B*, by means of wedge-shaped blocks or plates *e e*. The cutters in *B* extend from the outer part of the head to the inner edge of the same. The cutters *G* are of equal length.

The fibrous matter put between the cutter-heads will be cut to flock by the action of the knives *G* against the blades *E*, the cutting being shear-like.

The rotary motion of the head *C* causes the material to be fed outwardly by centrifugal force, and to be finally thrown off the edge of *C* into the aforesaid box, whence it is discharged through a suitable spout, *f*.

*H* is a hopper placed upon the plate *B* to feed the material to the mill. This hopper is in line with the central opening in the plate *B*, which constitutes the throat of the mill.

Into this throat extend four, more or less, of the cutting-blades *E*, marked *E'*; an equal number of blades *G*, marked *G'*, project inwardly in similar manner, as shown. These blades *E' G'* serve to feed the material from the throat to the cutters.

The plates *d* and *e* are made tapering vertically—that is to say, are thinner at their inner ends than outwardly, as in fig. 1, so that the annular cutting-space is flaring toward the throat. This shape of space will admit larger pieces than are discharged, and, consequently aid in the general operation and object of the machine. The opposite edges of the cutters are not flaring, but quite parallel to each other, as shown.

The head *C* is, under the mill-throat, provided with a central plate, *I*, which is made vertically adjustable by means of screws *g*, or otherwise. It is grooved to receive the projecting blades *G*, as shown. When set upwardly it will serve to partly embrace the feeding-arms *G'*, and therefore reduce their feeding effectiveness. When set down they will make the feeders larger and more operative.

The degree of fineness to which the machine is set

is regulated by screws *h h*, which adjust the several cutters apart in their heads.

*J* is a projecting arm or rod, or set of such, on the upper part of the spindle. It serves, by revolving in the throat, to disturb and separate the material fed to the mill, and prevents the clogging of the same.

From the upper part of the shaft project also a pair or more of slightly-spiral yielding plates, *L L*, which, as they revolve, serve to gently force the material downwardly.

From the upper end of the shaft projects a pair of fingers, *i i*, which will wind up any threads or strips contained in the material to be fed, and prevent the same, therefore, from interfering with the functions of the machine.

The arms *E' G'*, instead of being part of the cutters, as stated, may in other suitable manner be secured to the cutter-heads.

Having thus described our invention,

We claim as new and desire to secure by Letters Patent—

1. The cutter-heads *B* and *C*, containing the adjust-

able radial cutter-blades *E* and *G*, whose cutting-edges are set parallel to each other, as set forth.

2. The plates *d* and *e*, made tapering, to constitute flaring spaces between the cutters, as specified.

3. The inwardly-projecting feeders *E' G'*, applied to the cutter-heads *B C*, substantially as and for the purpose herein shown and described.

4. The vertically-adjustable feed-table *I*, arranged in the center of the rotary cutter-head *C*, to operate in conjunction with the arms *G'*, as set forth.

5. The plates *L*, made slightly spiral and yielding, and attached to the shaft so as to project downward to force the material toward the cutters, substantially as shown and described.

6. The projecting arms *i i*, secured to the rotary spindle of a flock-mill to separate threads and strings from the material to be cut, as specified.

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Witnesses:

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