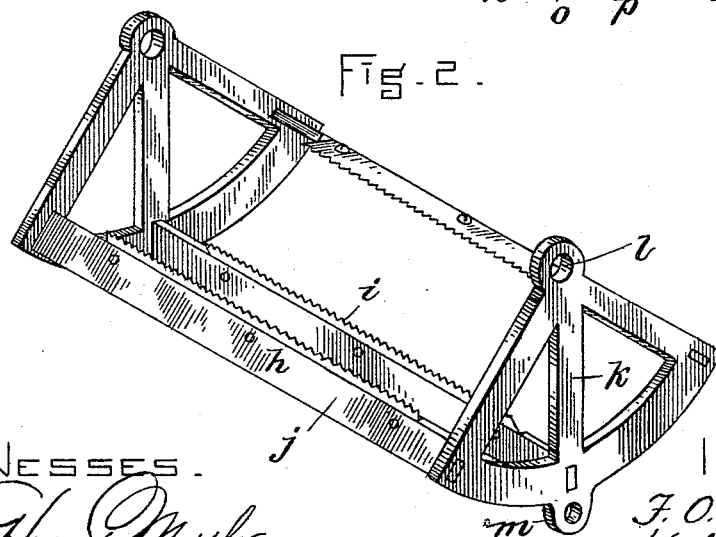
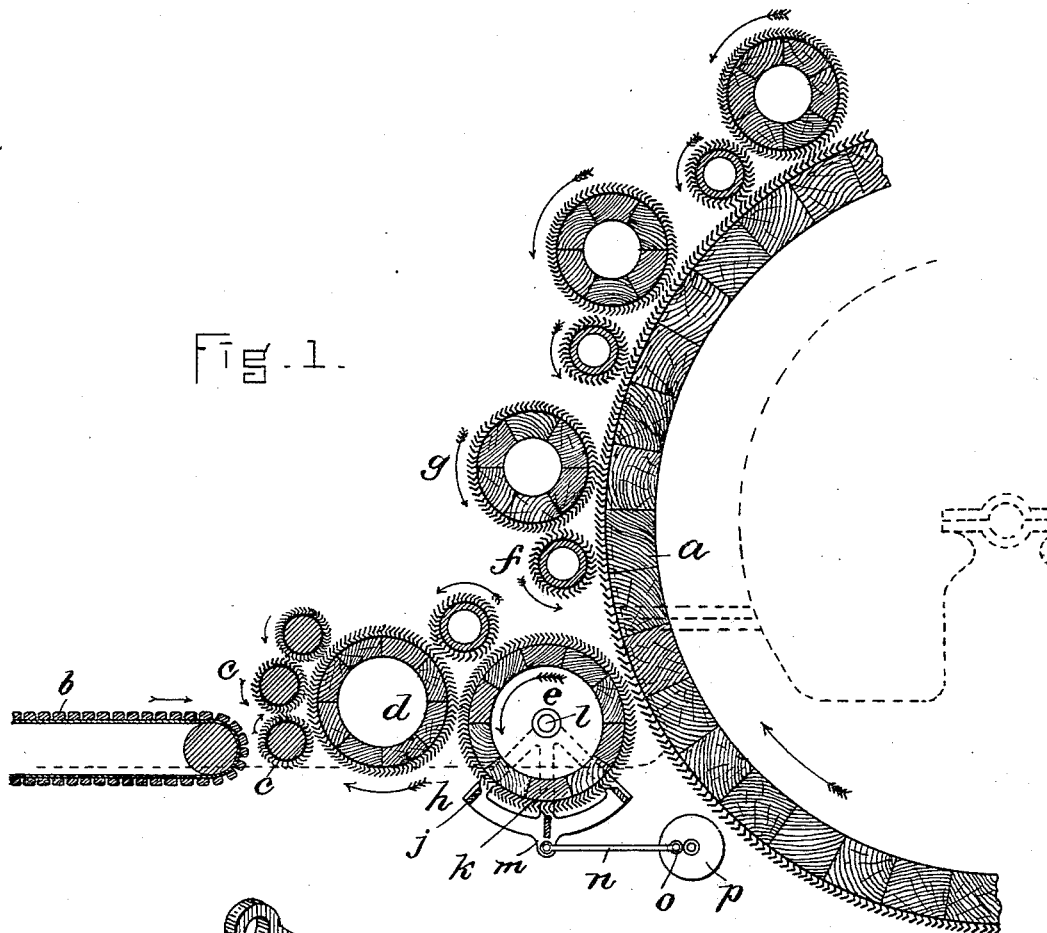


(No Model.)

F. O. & H. H. GROVES.
SHIVE EXTRACTOR FOR CARDING MACHINES.

No. 457,512.

Patented Aug. 11, 1891.



WITNESSES.

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SHIVE-EXTRACTOR FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 457,512, dated August 11, 1891.

Application filed March 9, 1891. Serial No. 384,226. (No model.)

To all whom it may concern:

Be it known that we, FURGUS OSWAL GROVES and HENRY HUNT GROVES, of Newton, (Lower Falls,) in the county of Middlesex
5 and State of Massachusetts, have invented certain new and useful Improvements in Shive-Extractors for Carding-Machines, of which the following is a specification.

The invention has relation to carding machines or engines; and it has for its object
10 the provision of means whereby the fragments of burrs or shives which were not taken out by the burring-machine or first breaker may be removed before the staple passes into the
15 finishing-machine.

As is well known, it is quite impossible to remove all the vegetable matter from burr wool before the staple is made up into cloth with machines as at present constructed, and
20 it is necessary to expend a great deal of labor in burling the goods before the same are considered suitable for the market. By the present invention the work last mentioned is obviated, we having discovered that by reciprocating a comb or serrated blade in contact
25 with the surface of the tumbler of the finishing carding-machine such burrs or shives as have not been removed by the burring-machine or first breaker may readily be knocked
30 off or combed out of the wool before being passed to the carding-cylinder.

The invention consists of one or more reciprocating combs arranged to operate upon the face of the tumbler—preferably, though
35 not necessarily, below the tumbler—so as to comb or knock out the fragments of burrs, shives, or other vegetable matter which may remain in the wool when the same is fed to the tumbler by the lick-in.

Reference is to be had to the annexed drawings, and to the letters of reference marked thereon, forming a part of the specification, the same letters designating the same parts
40 or features, as the case may be, wherever they occur.

Of the said drawings, Figure 1 is a vertical sectional view of so much of a carding-engine as is necessary to illustrate the invention. Fig. 2 is a perspective view, drawn to an enlarged scale, of the reciprocating combs or
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blades employed to remove the burrs or shives from the staple upon the tumbler.

In the drawings, *a* designates the carding-cylinder. *b* designates the feeding-apron employed to convey the wool to the feed-rolls *c*
55 *c*, by which it is taken and delivered to the lick-in *d*, which passes it to the tumbler *e*, whence it is passed or licked into the carding-cylinder *a* and operated upon by the strippers *f* and workers *g*.
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The parts thus far described may be of usual construction and constitute no part of my invention, except in so far as the tumbler *e* co-operates with the medium comprising
65 our improvement, whereby the burrs or shives are removed from the wool.

The essential element of our improvement consists of a reciprocating comb adapted to operate in contact with the surface of the
70 tumbler *e*. This comb may be constructed in various forms and operated by various means, and in some instances it may be found expedient to employ two or more combs to operate as before mentioned.

As herein shown, the combs *h* consist of
75 blades of metal having serrated or saw-toothed edges *i*. These combs are mounted upon bars *j*, which bars are secured at their ends to the outer portions of quadrants or spiders *k*, which are at their inner ends or centers hung upon
80 the journal-shaft *l* of the tumbler *e*. At the lower end or circumference of one of the quadrants *k* there is an ear *m*, in which is pivoted one end of a rod or pitman *n*, the opposite end of which is journaled upon a wrist-pin *o*, connected with a rotating disk *p*, so that in the
85 operation of the machine the quadrant *k* may be vibrated or reciprocated to reciprocate the combs *h* in contact with the surface of the tumbler *e*, which operation will effect the removal of burrs, shives, and other vegetable
90 matter from the staple in the tumbler before the same passes to the carding-cylinder. The disk *p* may be rotated by means of a belt and pulleys (not shown) from the shaft of the
95 worker *g*, though sometimes I have extended the pitman *n* toward the feeding-apron and provided the shaft of the disk *p* with a gear, which was driven by a gear on the shaft of the lower feed-roll *c*. Other suitable means
100

may, however, be provided for reciprocating the combs.

We have herein represented three combs or blades *k* as arranged to operate in contact with the tumbler; but, as before stated, a single comb or two or three or more may be employed, as circumstances may require.

We have found from experience that the burrs or shives which have not been removed by the first breaker or burring devices will lie upon the surface of the wool upon the tumbler and more readily be removed by a reciprocating comb such as we have described, so that the staple may pass to the finishing-cards quite free from vegetable matter.

The reciprocating motion imparted to the combs is an important feature of the invention, since it not infrequently happens that shives, straws, burrs, &c., are caught on the points of the comb-teeth and would remain there lodged were it not for the movement of the comb against the direction of motion of the card-teeth of the tumbler, which serves to free the teeth of the comb from foreign substance, which is knocked off upon the floor or into a receptacle.

By placing the reciprocating combs below the tumbler, as represented in the drawings, the vegetable matter combed or knocked out by the said combs may be allowed to fall upon the floor or into any suitable receptacle beneath the tumbler, though the said combs might be made to operate at other points upon the tumbler than directly beneath the same, and any suitable means may be employed for reciprocating the same. Hence we do not confine ourselves to the precise form and arrangement of parts herein shown.

Having thus explained the nature of the invention and described one of the ways of constructing and using the same, though without attempting to describe all of the forms in which the device may be made, we declare that what we claim is—

1. The combination, with the tumbler of a carding-machine, of a comb and means for reciprocating or vibrating it, the said comb being constructed and arranged to operate upon the surface of the tumbler to knock off or remove the shives or burrs from the staple, as set forth.

2. The combination, with the tumbler of a carding-machine, of a plurality of vibrating combs or blades having serrated or saw-toothed edges constructed and arranged to operate upon the surface of the tumbler, and means for actuating the combs, as set forth.

3. The combination, with the tumbler of a carding-machine and its journal-shaft, of quadrants or spiders hung upon said journal-shaft, and a comb and means for reciprocating or vibrating it, the said comb being supported by the said segments and arranged to operate upon the surface of the tumbler, as set forth.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses, this 14th day of February, A. D. 1891.

FURGUS OSWAL GROVES.
HENRY HUNT GROVES.

Witnesses:

EDWARD J. JONES,
J. S. CORDINGLEY.