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Cleaner for Carding Mach.

N<sup>o</sup> 6,758.

Patented Oct. 2, 1849.

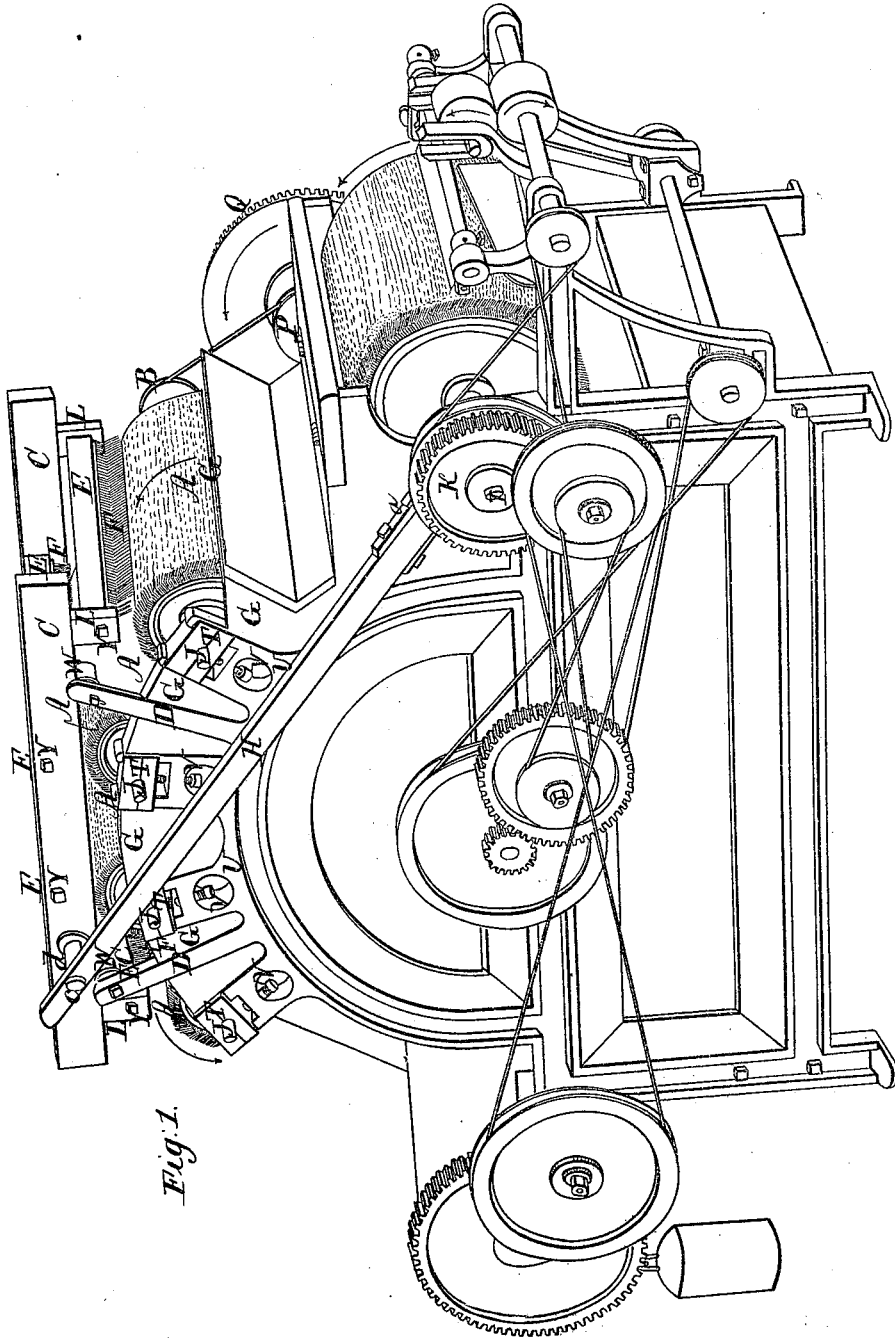


Fig. 1.

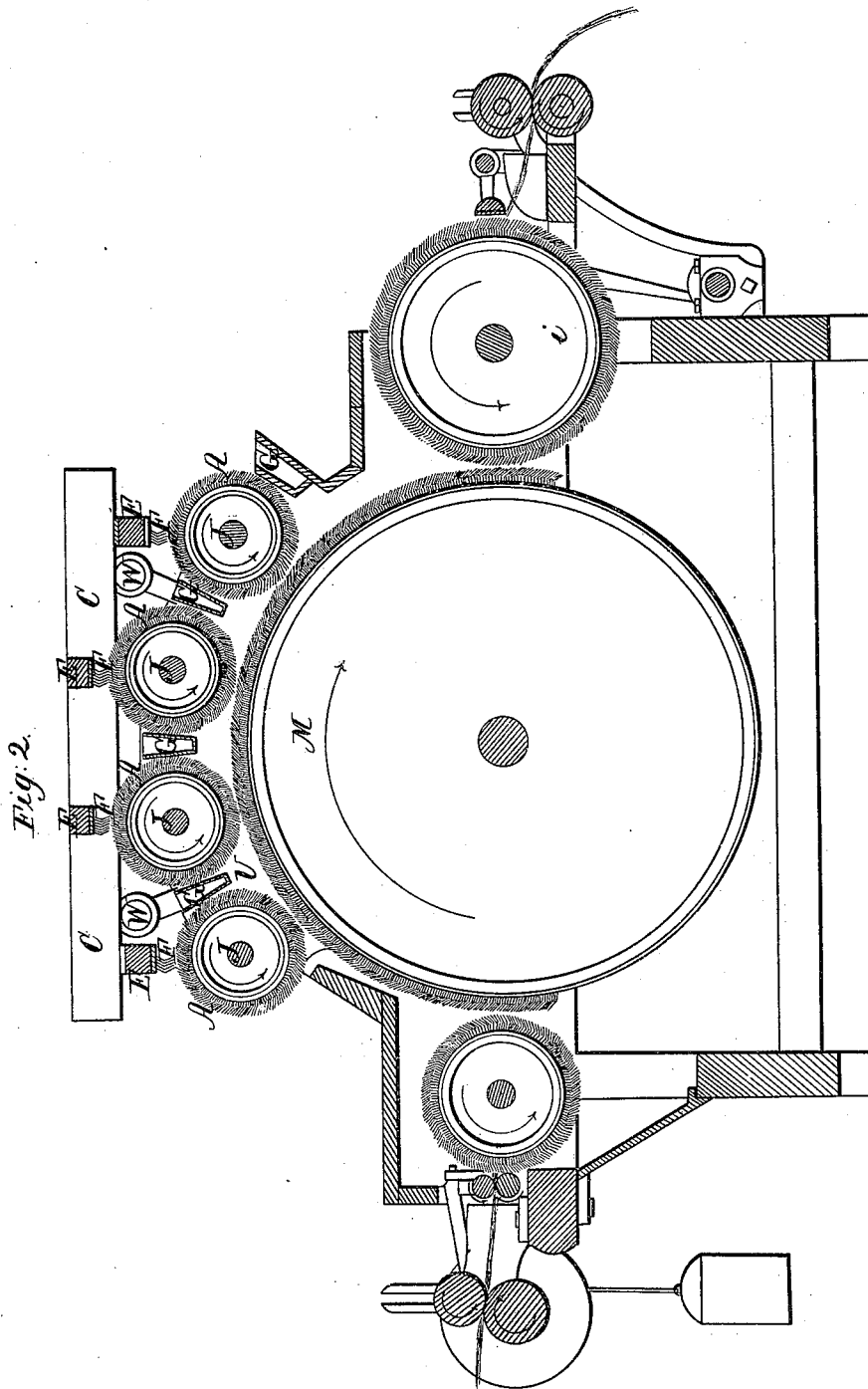
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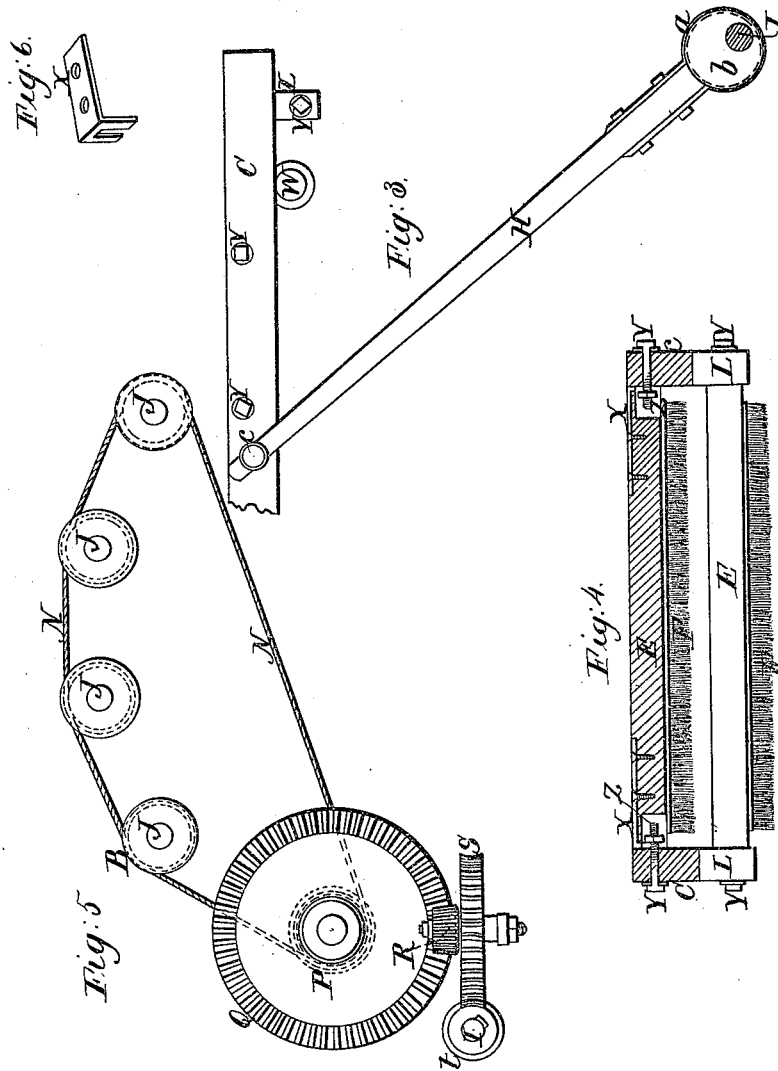


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# UNITED STATES PATENT OFFICE.

DANIEL W. HAYDEN, OF WINDHAM, CONNECTICUT.

## IMPROVEMENT IN CARDING-MACHINES.

Specification forming part of Letters Patent No. 6,758, dated October 2, 1849.

*To all whom it may concern:*

Be it known that I, DANIEL W. HAYDEN, of the town and county of Windham, and State of Connecticut, have invented a new and useful Improvement in Carding-Machines, being the addition of cylindrical top cards and vibrating strippers to the main cylinder, called "Hayden's Self-Acting Card-Stripper," which is described as follows, reference being had to the annexed drawings of the same, making part of this specification.

Figure 1 is a perspective view of the carding-machine arranged for operation. Fig. 2 is a vertical longitudinal section. Fig. 3 is a sectional view showing the eccentric on the doffer-shaft, to which the connecting-rod is attached leading to the vibrating frame of strippers. Fig. 4 is a longitudinal section through one of the central transverse stripping-cards. Fig. 5 is an elevation of a portion of the gearing for turning the top cards. Fig. 6 is a perspective view of one of the right-angled forked plates secured to the stripper-bar.

Where the same letters of reference occur in the several figures of the drawings they indicate like parts.

The arrow will show the direction of the turning of the several carding cylinders and rollers.

The nature of my invention and improvement consists in the application to the carding-engine in common use of several rotating cylinders or top cards and a frame of vibrating cards or combs, by means of which vibrating cards or combs the said revolving top cards or cylinders are constantly and uniformly stripped, the strippings being deposited in contiguous boxes or troughs for removal, thus presenting continually clean surfaces of the said top cards to the main card-cylinder and producing a uniform delivery of work and causing the machine to deliver a more uniform sliver or strand continually and uninterruptedly, the several cards being so arranged that they can be adjusted with great exactness without any danger of the teeth of the additional or top cards touching the teeth of the main cylinder and vibrating cards.

To accomplish the objects I attach to the carding-engine constructed after any of the known forms any convenient number of re-

volving cylindrical top cards A of the same length as the main cylinder M and about six inches in diameter, or of any convenient diameter, driven by means of a belt or chain N, said belt leading around the pulleys, one of which is seen at B, and a pulley P on the axle of the bevel-wheel Q, which gears into a small bevel-pinion R, connected with a worm-gear S, driven by a worm *t* on the doffer-shaft I. These cylindrical top cards, however, may be turned by gear-wheels or other means faster or slower, as may be desired, by substituting a larger or smaller bevel-pinion on the worm-gear, with which the large bevel-wheel Q matches.

The cylinders around which the cards A are wound and to which they are secured are made of metal and hollow. Their axles J turn in sliding boxes T, placed in rectangular notches or grooves made in radial arms of the cast side plates U of the frame, said arms serving as standards for the axles of the top cards. The boxes are adjusted in the grooves of the standards by the set-screws V. The centers of the axles of all the cylindrical top cards A are equidistant on a circle concentric with that of the main cylinder M, and the centers of the boxes are on lines radiating from the center of the main cylinder. Above these cards I place a vibrating frame of stripping-cards composed of two parallel side bars C, resting upon anti-friction rollers W, said bars being connected together by transverse bars E, to which the stripping-cards F are secured, there being as many of these bars and cards as there are cylindrical cards A, whose surfaces they are designed to clean. The central transverse bars are attached to the side bars by means of metallic plates X, bent in the form of a right angle and secured to the ends of the transverse bars E, the vertical portions of said plates being notched, so as to admit horizontal screws Y, passed through the side bars and screwed into nuts Z, placed against the inner sides of the plates, so that by turning the screws, say, to the right the said plates will be clamped and held firmly against the side bars of the frame, and by turning them to the left the plates will be unclamped, which will admit of the stripping-cards being adjusted to a higher or lower level, according to the position of the sur-

faces of the revolving top cards. The transverse bars E of the strippers F, next the ends of the vibrating frame, are attached to the hanging posts L in the same manner as the middle strippers. The hanging posts are inserted into the under sides of the side bars C and are necessary on account of the end cylinders being hung lower than those in the middle. The adjustment of these vibrating cards is in relation to the revolving cylindrical cards. These vibrating cards may be adjusted by raising or lowering the anti-friction rollers W, which will elevate or depress the whole frame. The frame C is connected to an eccentric on the axle of the doffer-cylinder by means of a connecting-rod H, having on its lower end a clasp or ring *a*, that encircles the eccentric *b*, and a cap *c* on its upper end, which connects with a stud *d*, inserted into the side of the frame, or by any other more convenient and suitable mechanical means.

A trough G or box for the reception of the refuse cotton and foreign matters stripped from the top carding-cylinders by the aforesaid vibrating strippers F is placed in front of each carding-cylinder, and so near as to receive and retain the strippings.

Operation: The carding-engine being put in motion in the usual manner at the rate of one hundred and twenty-five revolutions per minute for the main cylinder, two hundred revolutions per minute for the leader-in, seven revolutions for the doffer, and the same number of motions for the vibrating stripper-cards, and only one revolution in one hundred and twenty minutes for the several revolving top cards, the cotton lap or other fibrous substance to be carded is delivered to the main cylinder by the leader-in and is carried forward and brought in contact with the revolving cylindrical top cards A, where it is

in part carded and carried to the doffer *i*. The revolving cylindrical top cards receive the refuse cotton and foreign matter from the main cylinder and carry it around to the vibrating strippers, which take it off and deposit it in the troughs G.

The operations of the other parts of the engine are performed in the usual manner.

The aforesaid revolving top cards and vibrating stripper-cards may be arranged and operated in any convenient way, so that the general principle of the combination be not altered. For instance, the vibrating stripper-card frame may be inclined instead of horizontal, if preferred, and yet perform the operation of stripping the cylindrical cards equally well. The gearing may also be varied, so as to change the motions of the several parts to suit different kinds of cotton to be carded; but it will be found in practice that the proportions and velocities above stated are the most advantageous for carding the common short cotton. The top cards should have a slow motion, while the strippers should vibrate quickly in order to perform their required operation effectually.

This card-stripper is applicable to machines for carding wool and other fibrous substances.

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

The employment of the cylindrical top cards A, in combination with the vibrating strippers E F and the main cylinder M, the parts being arranged and operated substantially as herein set forth.

In testimony whereof I have hereunto signed my name before two subscribing witnesses.

DANIEL W. HAYDEN.

Witnesses:

WM. P. ELLIOT,  
A. E. H. JOHNSON.