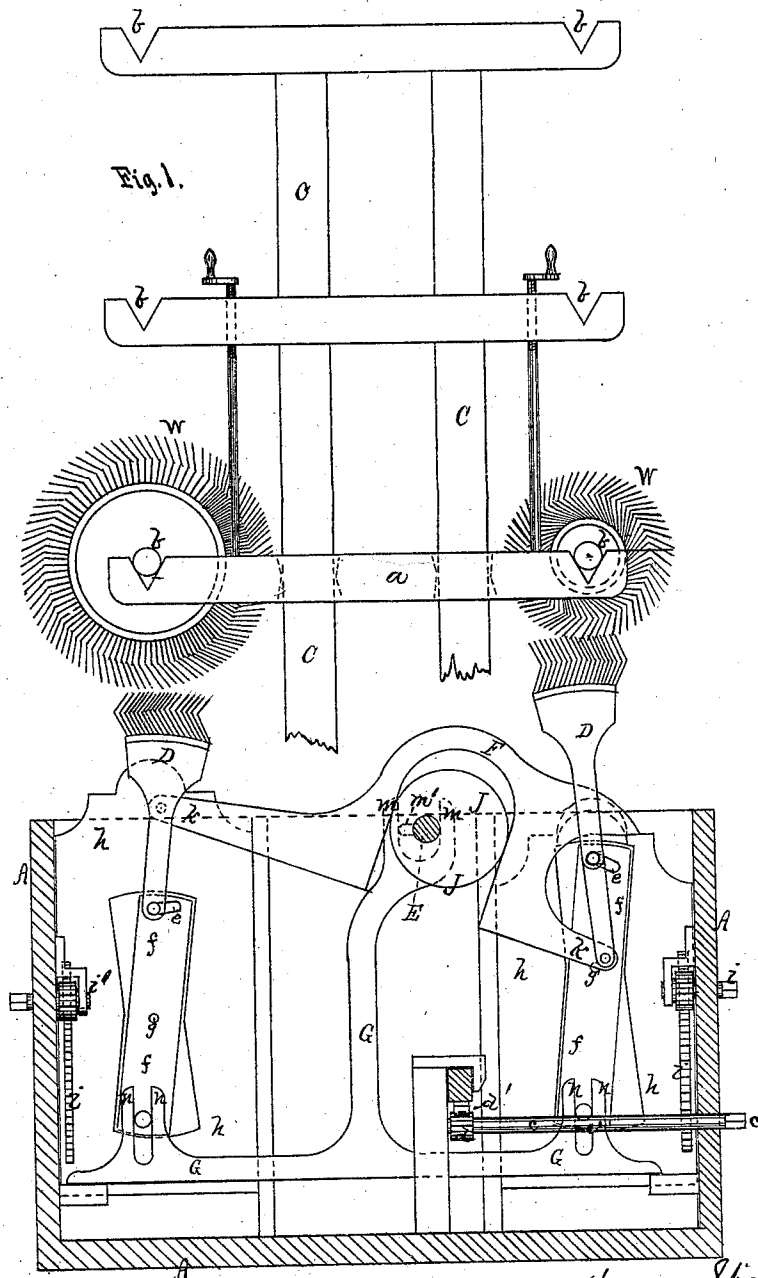


H. SPAULDING.
Machines for Cleaning Card Cylinders.
 No. 150,725. Patented May 12, 1874.



Witnesses
W. Drake
C. H. Woodward

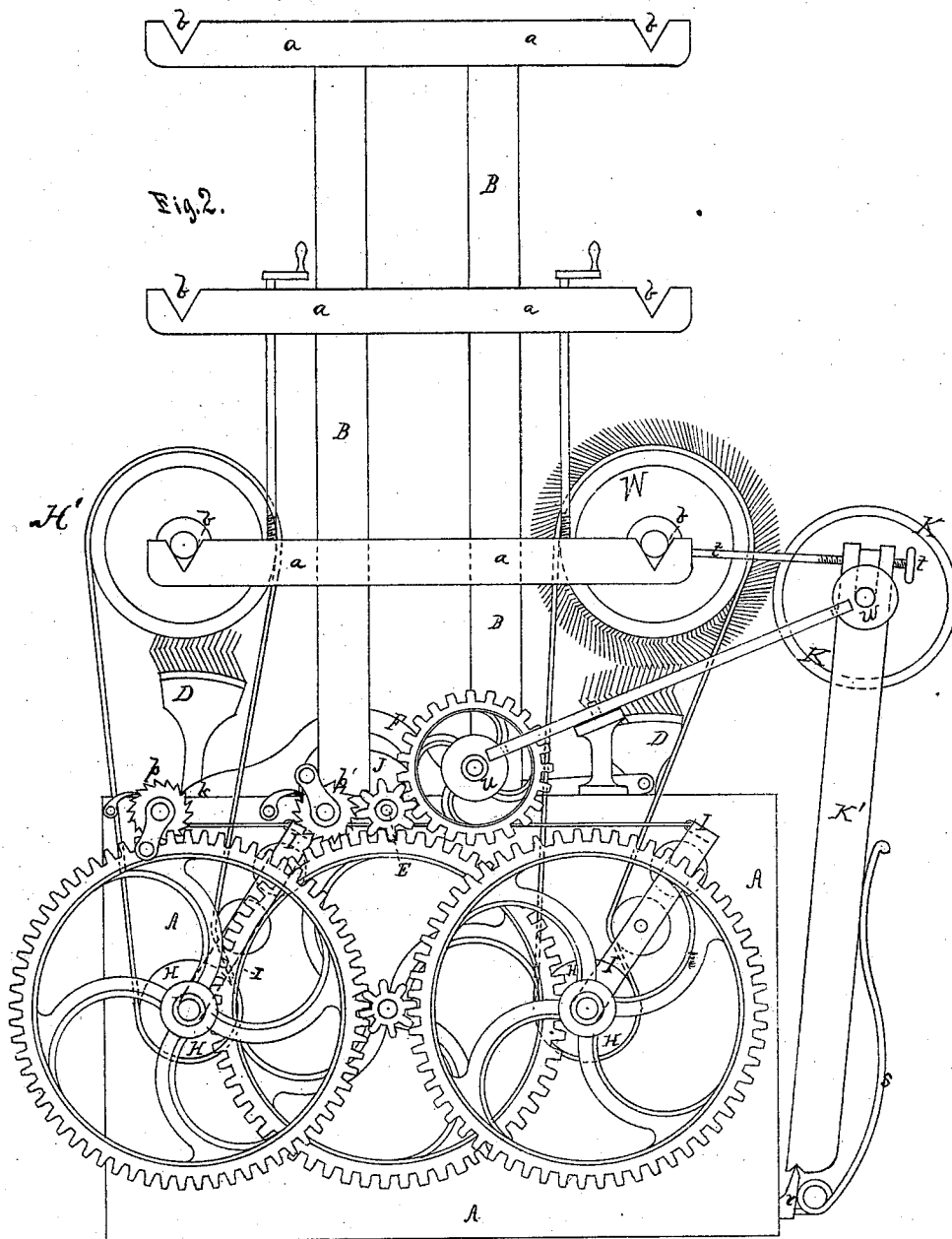
Hervey Spaulding
 Inventor, by
Burke, Frazer & Co
 attys

H. SPAULDING.

Machines for Cleaning Card Cylinders.

No. 150,725.

Patented May 12, 1874.



Witnesses.

J. R. Drake.
C. H. Woodward

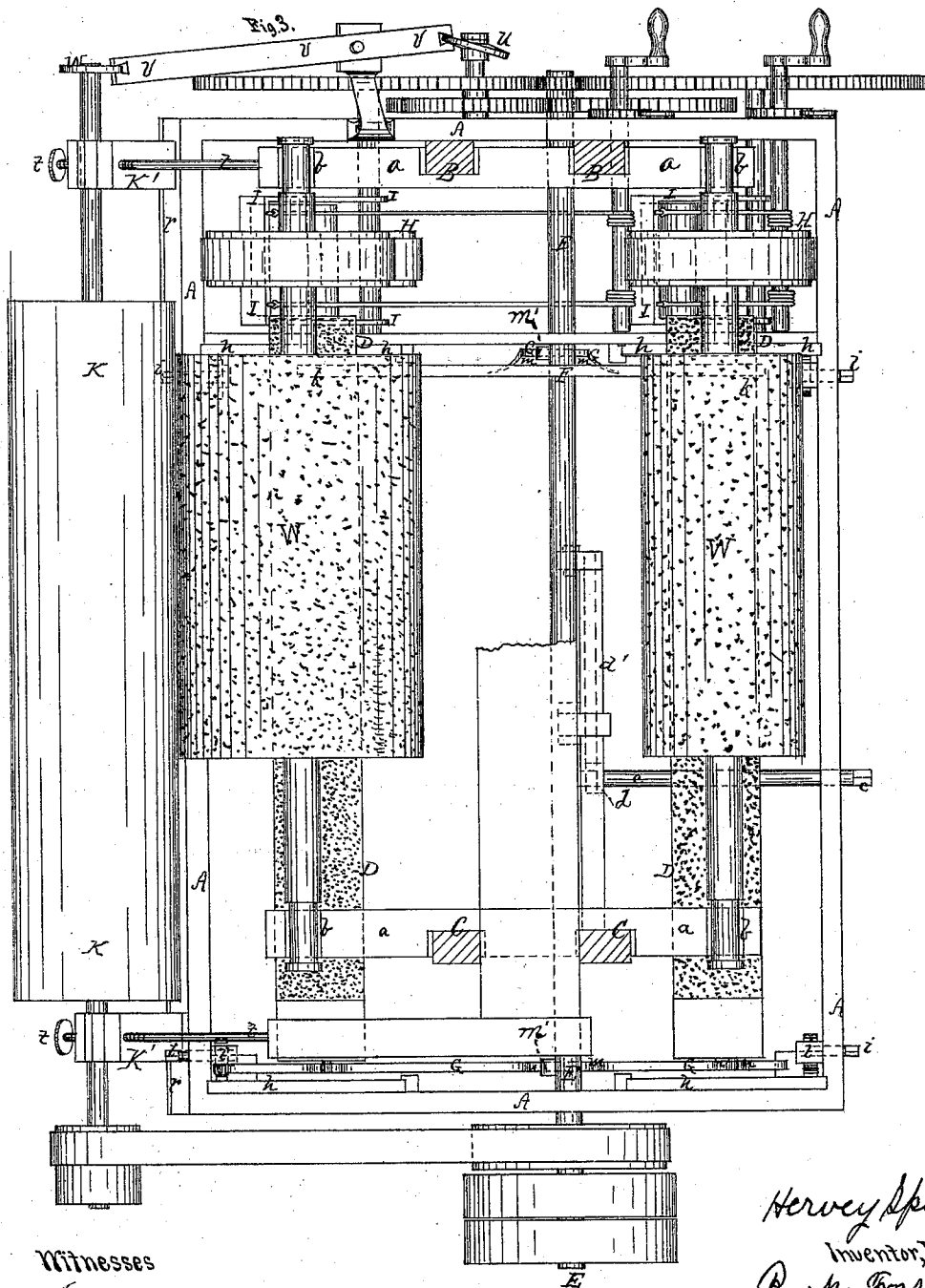
Hervey Spaulding
Inventor, By
Burke, Foster & Co
attys

H. SPAULDING.

Machines for Cleaning Card Cylinders.

No. 150,725.

Patented May 12, 1874.



Witnesses

J. R. Drake.
C. H. Woodward.

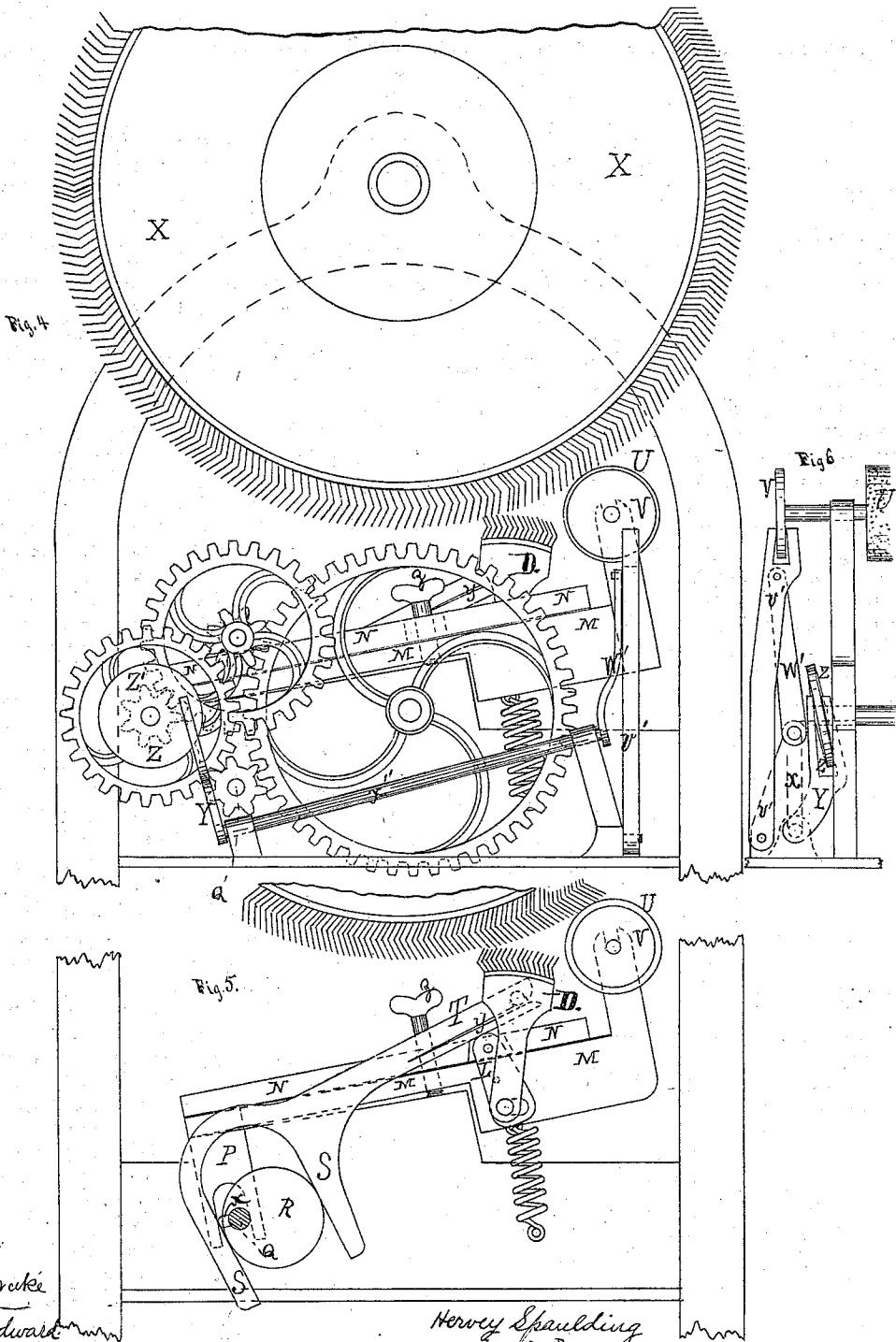
Hervey Spaulding
Inventor, by
Burke Fraser & Co
Attys.

H. SPAULDING.

Machines for Cleaning Card Cylinders.

No. 150,725.

Patented May 12, 1874.



Witnesses,

J. R. Drake

C. H. Woodward

Horcy Spaulding
Inventor, By
Burke Fraser & Co
Attys.

UNITED STATES PATENT OFFICE.

HERVEY SPAULDING, OF SPRINGVILLE, NEW YORK.

IMPROVEMENT IN MACHINES FOR CLEANING CARD-CYLINDERS.

Specification forming part of Letters Patent No. **150,725**, dated May 12, 1874; application filed August 8, 1873.

To all whom it may concern:

Be it known that I, HERVEY SPAULDING, of Springville, in the county of Erie and State of New York, have made certain new and useful Improvements in Card-Cleaning Machines, of which the following is a specification:

This invention relates to devices for cleaning cards of woolen or cotton carding machines by machinery instead of by hand. The improvements are fully hereinafter described and claimed.

In the drawings, Figure 1 is a sectional end elevation of the worker-cleaner. Fig. 2 is an outside end view of the same, showing the machinery used in operating the device. Fig. 3 is a plan view. Fig. 4 is an end view of the device for cleaning the larger or main cylinders. Fig. 5 is a sectional view, and Fig. 6 is an end view, of the same.

In all carding-machines there are two sets of cards—the main or large cylinder, and the workers and strippers, or small cylinders. These are sometimes cleaned by automatic mechanism, but are usually cleaned by hand, which is a tedious and unsatisfactory method, and is injurious to the cards. To obviate this is the object of my invention. To accomplish this I provide a box, A, (see Figs. 1 and 2,) having two upright standards, B B, secured at one end of the box A, supporting cross-pieces *a a*, having notches *b b* near the outer ends, for the reception of the ends of the journals of the worker-cylinders W, as shown. C C are two other upright standards, opposite to B B, and supported in a sliding frame in the bottom of the box, and operated back and forth by a rack and pinion, *d d'*, and rod *e*, by which the two sets of standards may be set to suit any length of worker, which is the object of making one side movable. D D are two cleaners, having a section of card-cloth secured to their upper surfaces, and which are pivoted at either end in inclined slots *e* in flat pieces of metal *f*, which, in turn, are pivoted at *g* to wooden or metal slides *h*, worked up and down from the outside by means of a rack and pinion, *i i'*, upon each, operated from the outside of the box A, by which means the cleaners may be adjusted to clean the workers to any depth. The cleaners D D are operated by means of an eccentric, J, on a shaft, E, working in and moving

a saddle-piece, F, as shown, which is connected to the cleaners D D by attached arms *k k'*, one being connected above and the other below the pivot, so as to cause them to work alternately when cleaning. G G are two metal coupling-pieces—one at either end of the box A—having forks *m m* passing up either side of the shaft E, said shaft having cams or pins *m'* at the points, by which the coupling-pieces are thrown back and forth. The bottoms of these pieces G G branch out toward either side of the box, and are provided with forks or open slots *n n*, which inclose pins in the bottoms of the pieces *f*, as shown, by which means these pieces are oscillated with every revolution of the shaft E, and, by means of the inclined slots *e* in the top of the pieces *f*, elevate the cleaners D D at the beginning of the cleaning movement, and throw them in contact with the cards and drop them at the end of the stroke, thus preventing them from touching or acting upon the cards and dulling them when moving backward. This is a very important feature of my invention, as without it the cards would be injured by the cleaner in its backward movement. These coupling-pieces G may be attached to the pieces *f* above the center pivot and still act the same. Each worker is always supplied with a pulley on one end, by which it is driven when at work. When the workers are placed upon the cross-pieces *a a*, a belt running from H H', placed on suitable shafts in one end of the box A, is put on these pulleys, and connected by gear-wheels and pinions to the shaft E, (see Fig. 2,) by which means the workers are revolved slowly to enable the cleaners to do their work thoroughly. I I are two tighteners, (see Fig. 2,) operated by shafts and cranks *p p'*, with cords attached to their frames, by which means the same set of belts may be used for any-sized worker. As soon as one pair of workers are cleaned they are removed and another put in, thus making a very complete and rapidly-working machine. The box A will be supplied with rollers or casters, by which means the machine may be moved to any part of the factory, or may be run to the carding-machine to have the workers put upon the pieces *a a*, and then run back to the place where the power is to be applied.

The grinding of the teeth of the cards is

accomplished as follows: K is an emery-wheel, suspended in a supplementary frame-work, K' (see Figs. 2 and 3,) the lower end resting upon a knife-edge-shaped piece, r, attached to the bottom of the box A, by which means it may be easily placed in any position desired. To hold it upright in place, I provide two springs, s s, as shown, which serve to keep it pressed against the cards sufficiently firm. t t are two set-screws, which serve to adjust the emery-wheel and regulate the depth of grinding. This grinding-wheel K has a pulley on one end, and is operated by a belt from a pulley on the opposite end of the shaft E; this gives it a rotary motion. It also receives a reciprocating motion by means of a screw or cam-wheel, u, worked from the shaft E by suitable pinions, (see Figs. 2 and 3,) said cam-wheel u working in one end of a forked piece, v, whose other end incloses a disk-wheel, w, on the shaft of the emery or grinding wheel K, as shown. The forked piece v being pivoted in the center, and the screw cam-wheel working it back and forth by means of the fork, causes the emery-wheel to reciprocate slightly, thus securing a more even grinding. Fig. 4 represents a similar cleaner, but which is only for cleaning the larger or main cylinder X. The others clean the "strippers" and "workers."

The operation is as follows: The cleaner D is pivoted at either end in inclined slots similar to e e in flat pieces L, which are pivoted in their centers in a frame, M, and connected by a coupling, N, to a saddle-piece, P, sitting over a shaft, Q, as shown in Figs. 5 and 6; the shaft at these points being supplied with small pins x x, similar to m' in Fig. 1, by which means the coupling N and its connections causes the cleaner to rise and fall with every revolution of the shaft Q, similar to the device for cleaning the workers, before described. R is an eccentric on the shaft Q, working in a saddle-piece, S, which is connected by a bar, T, to the end of the cleaner, as shown, to give it the oscillating motion. The connection is made removable by means of a slit, y, in the coupling-bar T, to enable it to be more easily removed or dropped down when the grinder is used, or when not cleaning.

The grinding is accomplished as follows: Secured in bearings on the ends of the frame M is an emery-cylinder, u, operated by belt and pulley from the shaft Q, and provided with a disk-wheel, V. (See Fig. 6.) This wheel moves in a forked piece, v', which is pivoted at the bottom, (see Figs. 4 and 6,) and connected by a rod, W', to a rock-shaft, X', to which in turn is attached a forked piece, Y, working in connection with a screw-wheel, Z', the whole operated by suitable gears, &c., from the shaft Q. By this means the emery-cylinder is reciprocated back and forth on the face of the carding-cylinder precisely like the one in the worker-cleaner, as hereinbefore described. Z Z are set-screws, by which the

frames M may be set to allow the grinder or cleaner to work at any point. The rock-shaft X' may be lengthened out so as to grind two or more cylinders at a time, if desired. The slides for adjusting the cleaners may be operated by set-screws or other devices, if necessary. To grind the cleaners D D, they are taken out and put in an extensible cleaner grinder-frame, that will be set in the notches b b of the cross-pieces a a on frames B C, and will come in contact with the grinding-cylinder K, the worker W being first removed.

These grinders need be used only once or twice a year. The supplementary grinding-frame K' will be taken out and set away until required.

The worker-cleaners can be adjusted to a left-hand machine by merely changing ends of the cleaner, and running the belt open from the breaker-cleaner to the worker-cleaner, instead of using a crossed belt, as in a right-handed machine, as represented.

The running pulleys are sometimes put on the opposite end of the breaker main cylinder to accommodate the drum, which usually is beneath the floor, the main belt running on it, and which furnishes the power for the machine.

The whole frame under the main cylinder is made adjustable, so that it can be slid out to adjust it to any width of machine or length of grinder, or cleaner, or cards, as follows: The eccentric shaft (the shaft to drive the main cylinder backward) is made in two parts set in a sleeve, and each part held by set-screws at each end, the object being to lengthen out this shaft to accommodate different widths of machines for cleaning and grinding, as stated. The arrangement of the belts for carding, cleaning, or grinding will each be different. A steel comb, instead of sections of cards, can be attached to the cleaners, if found better.

I do not here claim the device for grinding the cards, as they may form the subject of a separate application for Letters Patent; but

I claim—

1. The combination of the cleaners D D, operated by the eccentric J, eccentric arms and saddle F k k, or their equivalents, to give them the oscillating motion, and the coupling-piece G, pin m', and oscillating pieces f f, having inclined slots e e, and suitable pulleys and gears to give the cleaners the rising and falling motion for cleaning the cards of a carding-machine, substantially as described.

2. The adjustable cleaner and worker frame, consisting of the standards B C, cross-pieces a a, with V-shaped journal-boxes b b, the standards C being made to slide by means of the rod c and rack-pinion d d', as and for the purpose specified.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

Witnesses: HERVEY SPAULDING.
J. R. DRAKE,
J. C. WILSON.