P. S. Haines.

Carding.

No. 48,059. Patented June 6, 1865.

Fig. 1.

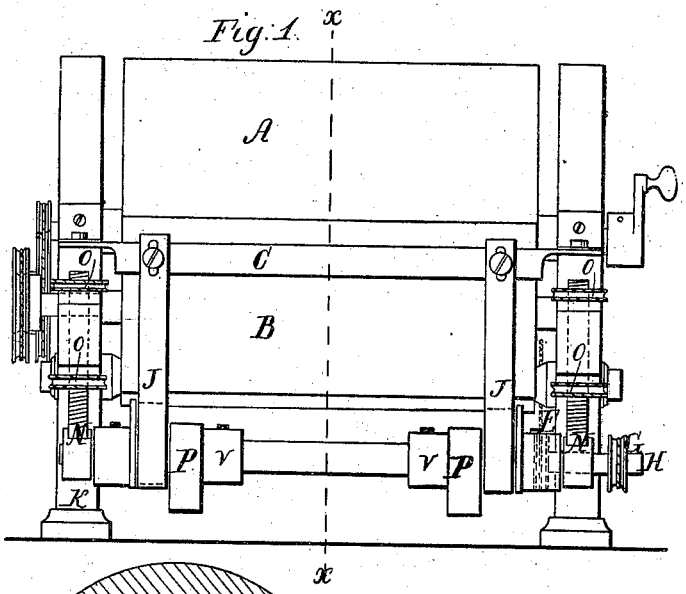


Fig. 2.

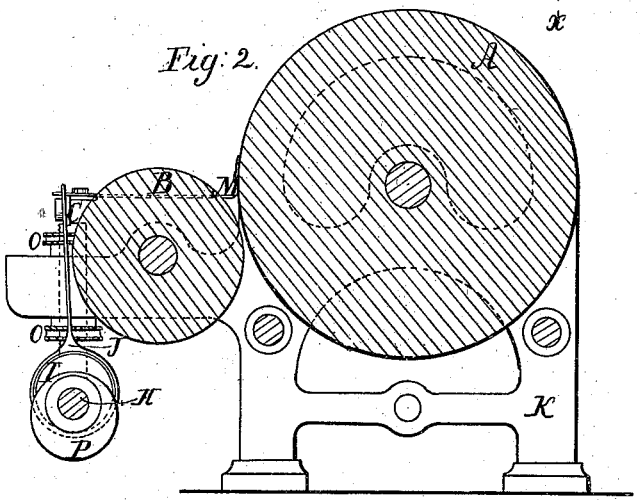
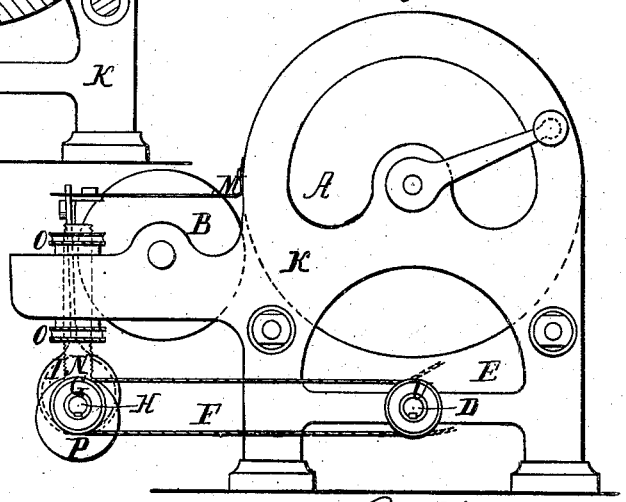


Fig. 3.



Witnesses;
W. Ahearne Jr
Thos. Tuck

P. S. Haines
Inventor;
By Munn & Co.
Attys

UNITED STATES PATENT OFFICE.

P. S. HAINES, OF NEWBURG, NEW YORK.

IMPROVEMENT IN CARDING-MACHINES.

Specification forming part of Letters Patent No. **48,059**, dated June 6, 1865.

To all whom it may concern:

Be it known that I, P. S. HAINES, of Newburg, in the county of Orange and State of New York, have invented a new and useful Improvement in Carding-Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable those skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a rear elevation of a carding-machine to which my invention is applied. Fig. 2 is a vertical cross-section taken on line *x* of Fig. 1. Fig. 3 is a side view of the same parts seen in Fig. 1.

Similar letters of reference indicate corresponding parts.

This invention consists, among other things, in a new mode of operating the doffer-comb of a carding-machine, by which it is reciprocated in a nearly-vertical direction, and caused to strip the doffer-cylinder in a more perfect manner than has hitherto been effected.

K designates the frame, A the main cylinder, and B the doffer-cylinder, of a carding-machine.

C designates the "taker-off" or doffer-comb, which strips the material which is being carded off from the doffer-cylinder B. The said comb consists of a plate with a straight or serrated edge, as desired, placed vertically behind the doffer-cylinder, its ends being carried beyond the ends of the cylinder in order that they may be attached to the outer ends of springs or spring-plates M, which project from any convenient part of the frame. The spring-plates M here shown project horizontally above the journals of the doffer-cylinder. The doffer-comb is carried by rods or plates J, to whose upper ends it is attached, adjustably, by means of set-screws which pass through vertical slots in the said plates J. The lower ends of said plates terminate in straps which encircle eccentrics I, fixed on a shaft, H, running in hanging bearings N, which depend from the rear ends or rails of the frame K. These hanging bearings are adjustable to different heights, so as to elevate or depress the shaft H, as desired, and their shanks are clamped at any determined position by means of nuts O, which hold them to the rails of the frame. The right-hand end of the shaft H, Fig. 1, has a pulley, G, which is driven by a band from a pulley, U, on the outside of the frame, and which pulley U is fixed on a short shaft, D, that extends only a little distance each way from that side of the frame K in which it runs. It carries, also, another pulley on the inside of the frame, as seen in dotted outline in Fig. 1, around which runs a band, E, (indicated in red outline,) from the stripper-shaft.

By this device I dispense with the usual "waste-shaft," which extends beneath the main cylinder, running in bearings in the sides of the frame, and effect the same object for which that shaft was employed—to wit, operating the doffer-comb by means of the short shaft D, which extends only far enough each side of that part of the frame in which it runs to enable it to carry the pulley U outside of the frame, and the pulley seen in dotted outline on the inside thereof.

My object in doing away with the waste-shaft is, first, to enlarge the space below the main cylinder, so that the operatives can have better access to that part of the machine and with less danger to themselves; second, to save that part of the material which is being carded that usually clings to said shaft; and, thirdly, to cheapen and simplify the construction of the machine.

In order to make the shaft H run with steadiness, I have placed thereon two eccentric hubs, P P, each of which has a collar, V, which is fixed to the shaft, and a set-screw. The hubs are so placed on the shaft that their longer radii shall be on the opposite side to the longer radii of the eccentrics I, thereby balancing the shaft. The direction of motion of the shaft H is to be such that when the doffer-comb rises it is carried away from the doffer B, because the greatest throw of the eccentrics is then outward. When the plate is carried downward, their greatest throw is inward toward the doffer-cylinder, thereby causing the comb to approach the same during that part of its movements.

Since the ends of the comb-plate are fixed to the ends of the spring-plates M, it is evident that the comb in its up and down movements describes an arc of which the spring plates or

arms M are radii. It results from this construction that the comb will strike against the cards of the doffer-cylinder with a drawing motion, first advancing toward them, and after having engaged them and seized the cotton or other material carried by them, retiring from them by reason of the eccentric motion given to the rods J. The length of the stroke of the comb or the period of its contact with the teeth of the doffer is determined by the position of the shaft, which is elevated by means of the nuts O for a short stroke.

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

The combination of the shaft H and comb C with the hanging bearings N and clamping-nuts O, substantially as and for the purposes above described.

P. S. HAINES.

Witnesses:
M. M. LIVINGSTON,
C. L. TOPLIFF.