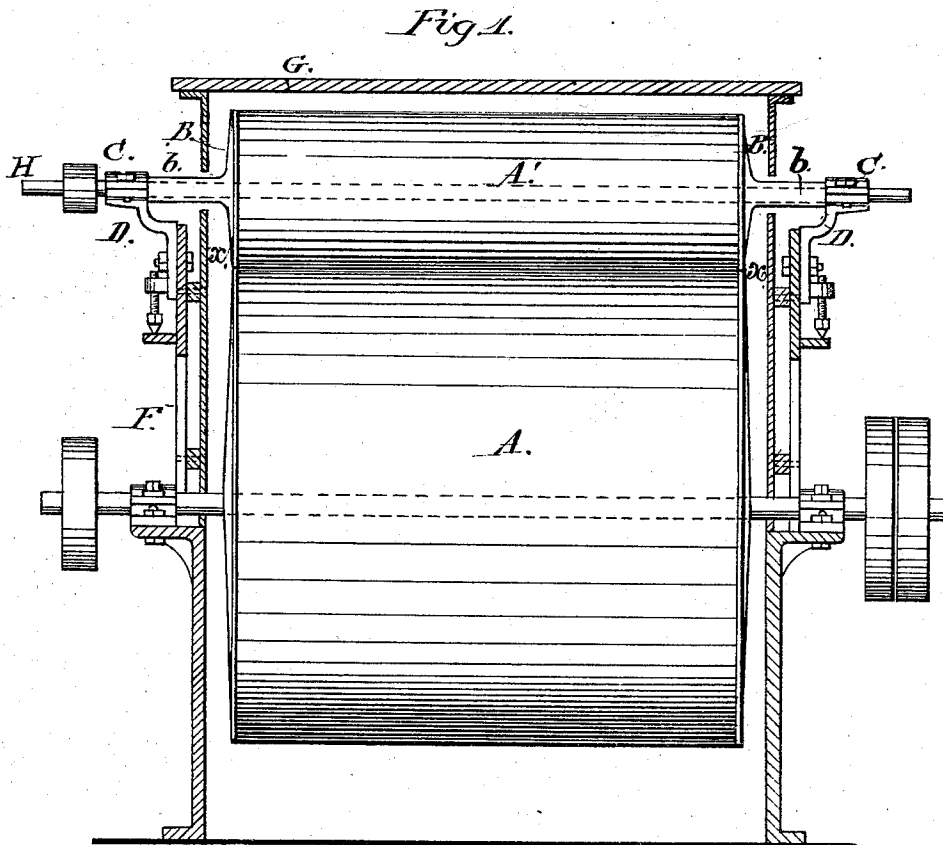
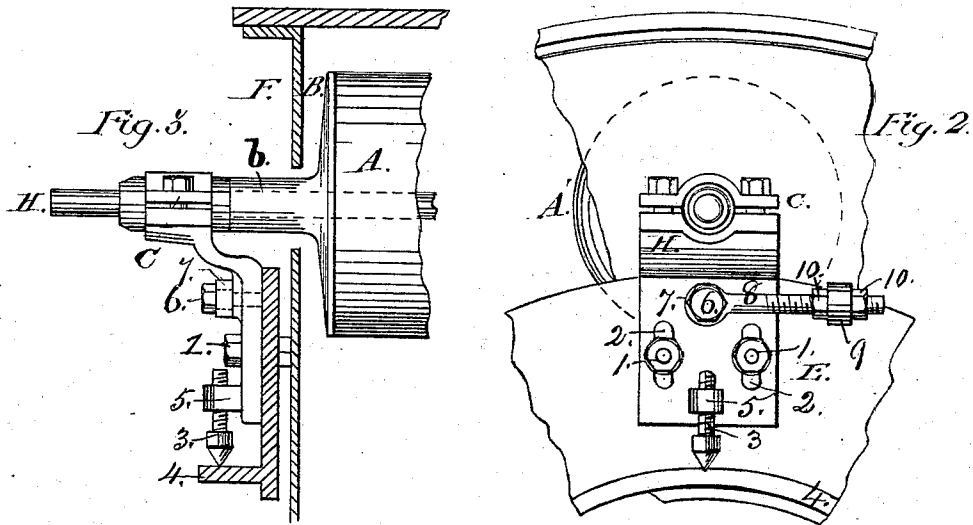


C. D. MILLS.
Carding-Machines.

No. 147,779.

Patented Feb. 24, 1874.



Witnesses
John F. Halsted,
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UNITED STATES PATENT OFFICE.

CHRISTOPHER D. MILLS, OF JERSEY CITY, NEW JERSEY.

IMPROVEMENT IN CARDING-MACHINES.

Specification forming part of Letters Patent No. **147,779**, dated February 24, 1874; application filed January 20, 1874.

To all whom it may concern:

Be it known that I, CHRISTOPHER D. MILLS, of Jersey City, State of New Jersey, have invented an Improvement in Carding or similar Engines for Treating Fiber, of which the following is a specification:

My improvement is designed to avoid the risk of setting fire to a factory, by preventing the accumulation of loose fiber at those points where heat is generated between the cylinder-heads and the frame, or at the axis or joints of the cylinder; also, to avoid the waste of power and waste of fiber by preventing the gathering of the latter at such journals and becoming soiled with oil and matted and ground up at that point; also, to lessen materially the quantity of oil needed for lubricating the journals. While avoiding these ends, my invention also serves to utilize in the process of the carding (or similar operation) a considerable percentage of the fiber hitherto wasted from the above-named causes, and to cause it to become incorporated in the body of the carded material or bat, and this without breaking, shortening, or in any way destroying the character of the fiber, the remainder of the loose fiber not so incorporated being also undamaged by oil or otherwise.

Heretofore the cylinder-heads have been provided with rims reaching very close to the inside face or edge of the cover, a slight space only being between them to permit the revolution of the cylinder, but yet quite sufficient to admit considerable quantities of loose floating fiber. Such fiber thus served not only to choke and clog, and to require more power to drive the machine, and to increase friction and heat, but it also became saturated with and wasted the oil used for lubrication, and in the revolutions of the machine became ground up and comminuted, so as to be of little or no value. Besides, this construction, in connection with the immediate juxtaposition of the journal-box to these frictional surfaces, brought, and to a considerable degree detained, these most combustible materials at and near the axes of the cylinders, where they are likely to take fire from an overheated journal.

In my construction, which I will now proceed

to describe, I combine with the cylinder a head having no rim or ribs, and having an extended sleeve projecting considerably beyond the outside of the cover, the journal being placed still outside of such sleeve; and I so make and apply the head of the cylinder as to leave a broad clear space between such head and the side of the cover, so that the floating fiber is free from possibility of clogging or of collecting at the journal, or of being injured or ground; while, also, through this open space, during the revolution of the cylinders, an unbroken current or blast is created, which carries forward a large percentage of such loose fiber from the first to the last or delivering one of these series of cylinders, each of which in turn takes up and utilizes a part of it.

In the drawings, Figure 1 represents a carding-engine having thereon a "worker" constructed according to and serving to illustrate my invention; and Fig. 2, a partial end view of the same, a portion of the end plates being broken away to display a part of the worker-cylinder. Fig. 3 is an enlarged view in elevation of the parts shown in Fig. 2.

My improvement is, however, intended for application to doffers, fancys, strippers, willows, devils, fans, and to any other cylinders wherever available.

A, a main cylinder; A', a worker, having my invention applied thereto; B *b*, my improved head and long sleeve, the sleeve extending about two inches, more or less, beyond the sides or ends of the cover; C, the journal-box; D, a bracket adjustably secured to the frame E, and bent considerably outward to support the journal, its outer end forming or having on it a part of the journal-box; F, one of the metallic ends of the cover, and G the wooden portion of the cover. H is the shaft, to which the cylinder is keyed. The portion B of the head, as also its sleeve portion *b*, is made with a highly-polished surface, and the face of the part B is preferably made with a gradual taper from center to circumference, so as to give a gradually-increasing space between the head and the ends of the cover, the better to facilitate the intended movement of the loose fibers; and this face has no break or projection or rib, thus offering no

obstruction to making practically no friction on any fibers which may fall within the open clear space *x*, between B and the end F, the sleeve, for the purpose of giving this space, extending a sufficient distance within the end F.

It will now be evident that if the journal become overheated its distance is too far from any fiber within the case to cause any risk of fire, because fiber could not accumulate at the journal, but, like the dust, falls off the polished sleeve whenever it drops upon it. It will also be seen that no fiber can be destroyed by being ground up between the heads and the end covers, and that there is no chance for fiber and oil to mat together, nor for the lubricating-oil to be taken up by the waste, and so needlessly consumed. It will also be seen how the rapid revolutions of the cylinders will create currents through the free space between the heads and the end covers, and thus tend to throw the uninjured floating fibers up within the range of the card-clothing, &c., where they may drop and be worked into the bat.

About one-half the oil usually required for the journals is also saved by my invention.

My improvement is applicable in machines for the treatment of cotton, wool, silk, hair, and fibers generally.

The bracket C is held by bolts 1 1, passing through slots 2 2, and the screw 3, resting, by its pivotal point, on the flange 4; and being turned in either direction in its nut 5 on the bracket, this screw will raise or lower the bearing.

To adjust the shaft laterally, I employ a pivotal bolt, 6, to support the bracket, and beneath the head of this bolt is held the eye 7 of a screw-bolt, 8, which passes through a fixed staple, 9, having adjustable screw-nuts 10 10 on each side of it and upon the bolt 8. Now, by first slightly

loosening one or both of bolts 1 1, to permit the bracket to be moved on its centering-bolt 6, and by adjusting the nuts 10 10 as desired, the bracket may be slightly shifted to the right or left and secured to its adjusted position.

The journal-boxes I provide with the customary oil-holes.

In treating oakum I find it is not necessary to apply the smooth heads and sleeves to the main cylinder, because the operation of these heads which are upon the other cylinders effectually draws the fiber away from the journals and toward the center of the face of the main cylinder. I reserve the right, however, under my invention, to apply such heads and sleeves to the main cylinder in any case wherever found desirable, whatever may be the fiber under treatment.

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

1. The combination, with a cylinder, cylinders, or fan of a carding, combing, or kindred engine, of even-surfaced heads, applied as described, so as to leave a free open space between them and the ends of the cover, and having a sleeve projecting considerably beyond the outside of such ends, so that the journal shall be beyond such sleeve and far removed from the fibers falling from the cylinder or fan, substantially as and for the purposes set forth.

2. The combination, with the slotted bracket, its detaining-screws, and the pointed jack-screw 3, of the laterally-adjusting screw 8 and its locking-nuts, substantially as and for the purpose set forth.

CHRISTOPHER D. MILLS.

Witnesses:

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