

UNITED STATES PATENT OFFICE.

JOSEPH AUDETTE, OF DETROIT, MICHIGAN.

GRINDING ATTACHMENT FOR CARDING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 700,164, dated May 20, 1902.

Application filed May 22, 1901. Serial No. 61,360. (No model.)

To all whom it may concern:

Be it known that I, JOSEPH AUDETTE, a citizen of the United States, residing at Detroit, county of Wayne, State of Michigan, have invented a certain new and useful Improvement in Grinding Attachments to Carding-Machines; and I declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention is designed to provide a grinding attachment to a carding-machine.

Heretofore in order to grind the carding-cloth upon the main cylinder of the carding-machine it has commonly been found necessary to remove at least two rollers adjacent to the cylinder in order to get access to the carding-cloth upon the cylinder, when a grinding-roller may be applied or a long emery-board held adjacent to the grinding-cloth. The operation of grinding the carding-cloth in this manner necessitates throwing the machine out of work while it is being ground for a very considerable period, and inasmuch as the operation must take place often it will be seen that the machine is in consequence thus thrown out of work, greatly to the disadvantage of the carder, owing to the loss of time of the machine and the labor involved.

My invention contemplates means whereby the carding-cloth upon the cylinder may be ground while the machine is actually turning out work, dispensing with the necessity of throwing the machine out of work.

I accomplish my purpose and effect the grinding of the cloth without any loss of time and without any additional labor by the operation of the machine itself, all the labor involved being simply that of adjusting the grinding mechanism or gaging it to the cylinder, which may be done in a very simple and expeditious manner, as by simply turning a couple of set-screws, requiring but a few seconds to move the grinding mechanism toward and from the cylinder.

I carry out my invention as hereinafter described and claimed, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation showing the cylinder and related parts of the machine,

portions of the frame being removed. Fig. 2 is a horizontal section on the line 2 2, Fig. 1. Fig. 3 is a view in longitudinal section, showing a traveler grinding mechanism. Fig. 4 is a view in section on the line 4 4, Fig. 3.

In the drawings the numeral 1 denotes a cylinder, 2 being its shaft. 3 is the "doffer." 4 is the "fancy-roller." 5 is a worker. 6 is a stripper. 7 is a worker. 8 is a stripper, and 9 is a worker. 10 is another stripper. 14 is a worker. 11 is the tumbler. 12 and 13 are feeders. Some machines, however, have no workers and no strippers. These features constitute no principle of my invention.

A horizontal bed of the frame of the machine is indicated at *a*. The carding-cloth on the cylinder is indicated at *b*.

My invention consists in combining with the frame of the machine and with its driving mechanism, which may be of any desired construction, a grinding device which may be mounted in bearings *c*, having a sliding connection upon bearing-blocks *d*. The set-screws *e* connect the sliding bearings with the blocks, so that the grinding mechanism may be adjusted toward and away from the cylinder, as required.

My invention contemplates the use of an emery wheel or roller, a roller being indicated in Figs. 1 and 2 at *f*, having its shaft *g* mounted in sliding bearings *c*. Where a roller is thus employed, I prefer that it should be made to vibrate longitudinally by any suitable mechanism—as, for example, by a lever *h*, actuated by a cam *i* upon the shaft of the doffer.

Where an emery-roller is employed and made vibratory, it is obvious that the roller should exceed in length the width of the cylinder, so as to be kept in contact with the carding-cloth the full width of the cylinder at all times while grinding. I prefer that the vibration of the grinding-roller should be slow, the grinding-roller moving endwise back and forth any suitable distance. Instead, however, of using an emery-roller to contact with the carding-cloth the whole width of the cylinder a traveling grinding-wheel might be employed, (indicated more particularly in Figs. 3 and 4 at *j*,) the grinding-wheel *j* being caused to travel by a feed-screw *k*, rotated by pulleys *l m* in a customary manner, *n* denoting a loose pulley. The

grinding-wheel is mounted upon the shaft *p*, rotated in any suitable manner, as by a belt *q*. The grinding wheel or roller may be of any suitable construction.

5 In attaching my grinding mechanism to different makes of machines the grinding roller or traveler may be placed anywhere under the cylinder between the doffer 3 and tumbler 11 as may be most convenient. It
10 will be understood that between the doffer and the tumbler the grinding-cloth is practically free of the cotton or other material being carded, and therefore the grinding mechanism is located between the doffer and the
15 tumbler underneath the cylinder.

My invention also contemplates the rotation of the grinding roller or traveler in the same direction as the rotation of the cylinder, as indicated by the arrows in Fig. 1, the
20 grinding roller or wheel being driven at a higher speed than that of the cylinder, so that the surface of the grinding roller or wheel will gain upon the surface of the carding-cloth upon the cylinder. By rotating the
25 grinding device in the same direction as the carding-cloth is moving the surface of the grinder is traveling in the same direction as the lay of the teeth of the carding-cloth, which is obviously essential. In grinding the card-
30 ing-cloth by hand, as has heretofore been common, it has been necessary to reverse the rotation of the cylinder in order that the lay of the teeth on the carding-cloth may come properly against the grinding device. By
35 my improved device I accomplish the same result without the necessity of reversing the direction of rotation of the cylinder.

It will be evident that by my invention, therefore, I am enabled to grind the carding-
40 cloth while the machine is actually turning out stock. Heretofore it has never been found possible to grind the carding-cloth of the cylinder while turning out stock. It will be evident that inasmuch as by my invention
45 the carding-cloth can be ground while the machine is in operation the cloth may at all times be kept in prime condition so as to do the most efficient work, as the grinding-cloth need never become dull. Heretofore it has
50 been so expensive to stop the machine and throw it out of work while grinding the cloth that often the cloth has been permitted to get very dull before stopping the machine to grind it; but by my invention this difficulty
55 is entirely overcome. While my invention is principally intended to grind the carding-cloth, as above described, the operation of grinding will also clean the cloth.

It is well known that in the protection of
60 fabrics next to quality of material used is the quality of the work performed, and of the whole process in manufacturing the product no part is so essential as the carding, inasmuch as no first-class work can be achieved
65 in any other part of the process unless the carding has been well done. The difference in the quality of the work turned out by a

carding-machine corresponds with the condition of the machine when it is turning out the work. The quality of the work turned out a few days after the machine has been ground is never so good as when the machine has been newlyground. By my grinding attachment the condition of the machine may be kept constantly at its best, so that the machine
75 will always turn out first-class work.

It is obvious that the equipment of a machine with my improved grinding attachment is inexpensive, while the capacity of the machine and the quality of the work produced
80 are increased greatly over that which can be accomplished in the ordinary manner. The usefulness and desirability of my improved attachment are therefore obvious.

What I claim as my invention is—

1. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder covered with carding-cloth, a doffer, a tumbler, and a grinding device permanently located between the doffer and
90 the tumbler and on the tumbler side of the cylinder and therebelow, and means to rotate said grinding device in the same direction with the cylinder, whereby the carding-cloth may be ground while the machine is doing
95 its work.

2. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder covered with carding-cloth, a doffer, a tumbler, and a grinding device
100 permanently located between the doffer and the tumbler and therebelow, whereby the carding-cloth may be ground while the machine is doing its work, said grinding device movable to and fro longitudinally of the cylinder, and
105 toward and away from said cylinder.

3. The combination with a carding-machine provided with a horizontal bed, of a main carding-cylinder, a doffer, a tumbler, a rotatable grinding device located between the
110 doffer and the tumbler and therebelow, sliding bearings upon said bed carrying the shaft of said grinding device, bearing-blocks located beneath the sliding bearings, means to adjust the sliding bearings upon said blocks,
115 and means to rotate said grinding device in the same direction with said cylinder, whereby the carding-cloth may be ground while the machine is doing its work.

4. In a carding-machine, the combination
120 with a main carding-cylinder provided with a doffer and with a tumbler, of a grinding device permanently located adjacent to the portion of the cylinder free from the material being carded, between the doffer and the tum-
125 bler and therebelow, whereby the cylinder may be ground while the machine is doing its work.

In testimony whereof I sign this specification in the presence of two witnesses.

JOSEPH AUDETTE.

Witnesses:

N. S. WRIGHT,
M. HICKEY.