No. 856,072. PATENTED JUNE 4, 1907.

J. F. LEHMAN.

CARD GRINDING MACHINE.

APPLICATION FILED MAR. 22, 1907.

Fig. 1.

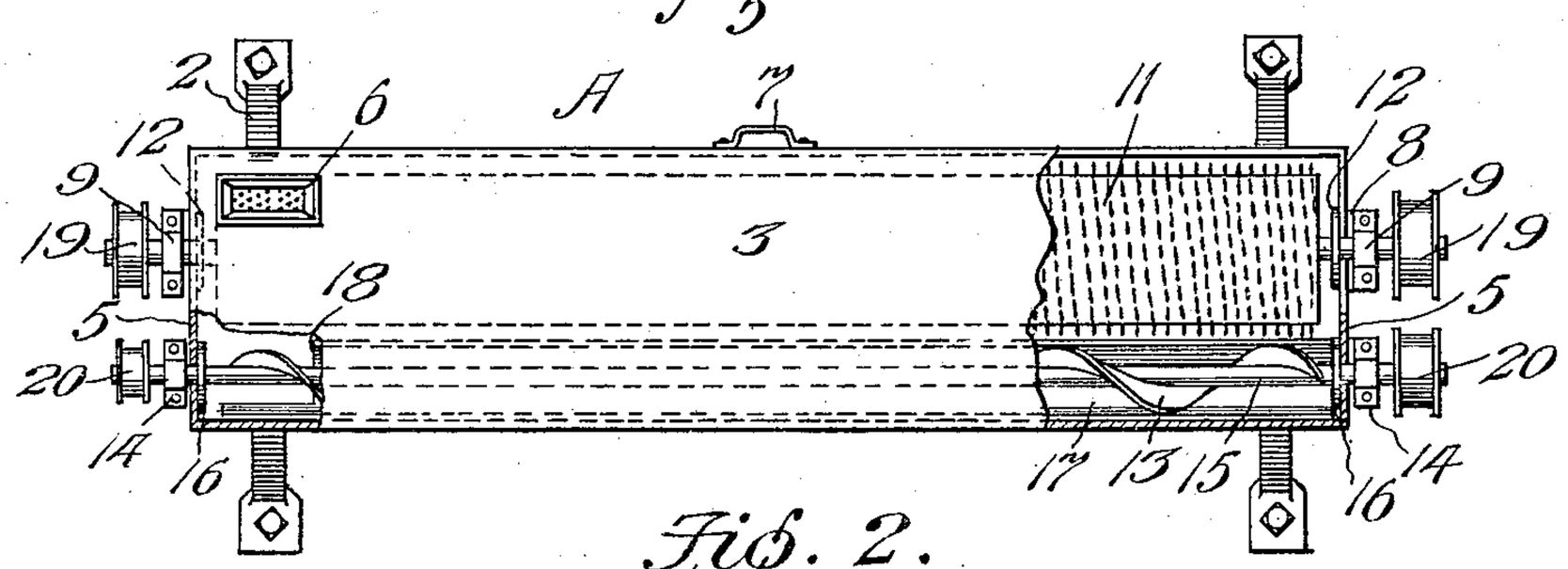


Fig. 2.

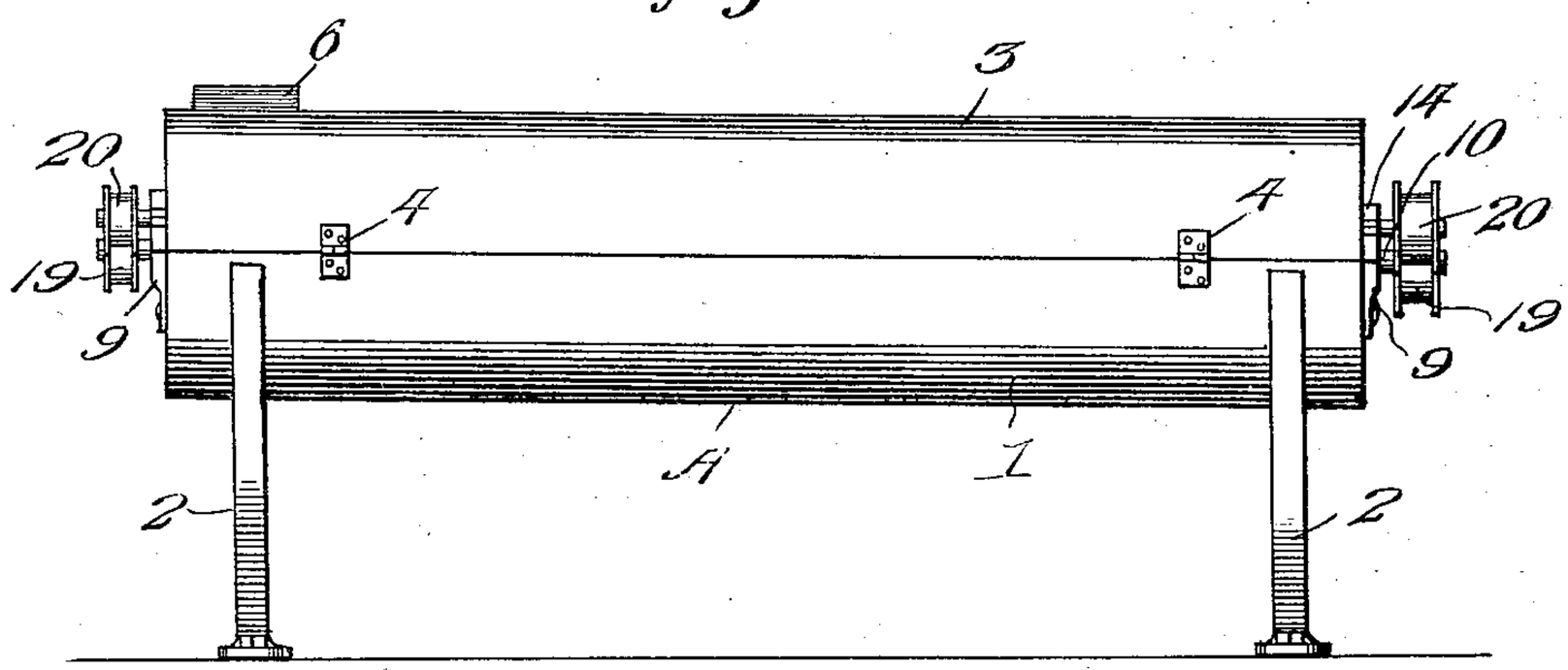


Fig. 3.

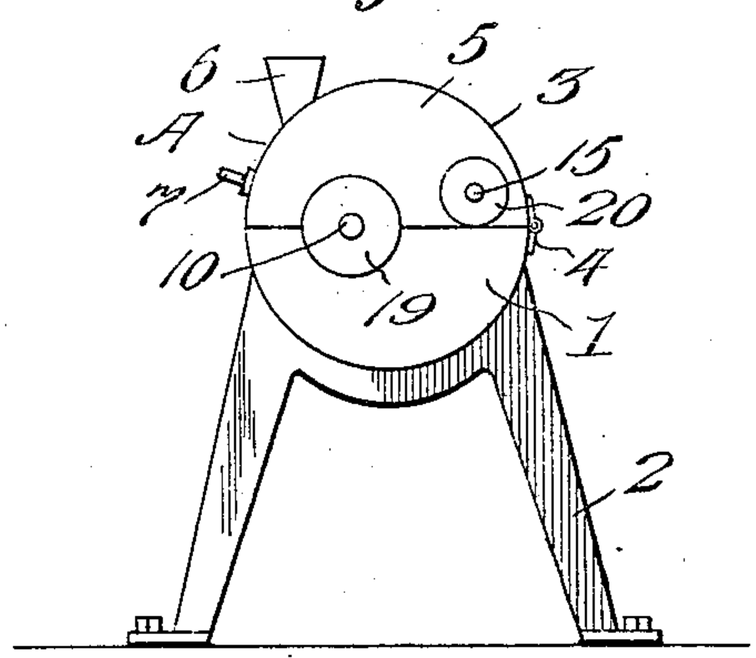
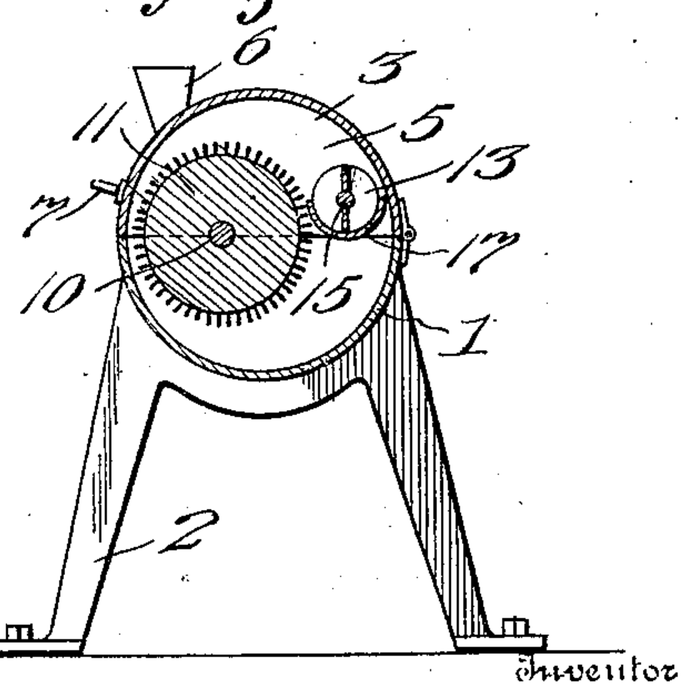


Fig. 4.



Inventor

John F. Lehman

Witnesses

Frank B. Hoffman.

C. Bradway.

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

JOHN F. LEHMAN, OF HUNTSVILLE, ALABAMA.

CARD-GRINDING MACHINE.

No. 856,072. Specification of Letters Patent. Patented June 4, 1907.

Application filed March 22, 1907. Serial No. 363,884.

To all whom it may concern:

Be it known that I, JOHN F. LEHMAN, a citizen of the United States, residing at Huntsville, in the county of Madison and State of Alabama, have invented new and useful Improvements in Card-Grinding Machines, of which the following is a specification.

This invention relates to a machine for grinding cards and relates more particularly to a machine especially adapted for sharpening the teeth of a licker-in of a carding machine.

In the operation of a carding machine, it is of great importance that the teeth of the licker-in be maintained constantly in best condition for the reason that the quality of the yarn to be made of the material carded is largely dependent upon the operation of the licker-in. Heretofore great difficulty has been experienced in maintaining the teeth of the licker-in in its most efficient condition, this being due to the fact that no practical sharpening or grinding machine could operate on the teeth because of their peculiar shape and arrangement.

The principal object of the present invention is to provide a machine whereby the teeth of cards and especially of licker-ins can be quickly and effectively sharpened and thus maintained in best working condition.

A further object of the invention is the provision of a machine of this character whereby the licker-in can be acted on by a suitable abrasive material such as emery by rotatably arranging the licker-in in a drum containing emery so that the teeth of the licker-in are passed through the latter and sharpened.

A further object of the invention is the provision of a feeding device whereby the emery can be fed in such a manner as to be used over and over again for operating on the teeth of the card or licker-in, as the case may be.

With these objects in view and others, as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawing, which illustrates one of the embodiments of the invention, Figure 1 is a plan view of a machine partly broken away. Fig. 2 is a side elevation thereof. Fig. 3 is an end view. Fig. 4 is a transverse section.

Similar reference characters are employed to designate similar parts throughout the several figures of the drawings.

Referring to the drawings, A designates a sheet metal cylinder of suitable length and composed of a semi-cylindrical body 1 stationarily supported on legs or frames 2 and closed by a semi-cylindrical cover 3 adapted to swing on hinges 4. The ends of the cylinder are closed by heads 5 composed of semi-circular plates on the body and cover. At one end of the cover is a hopper 6 that is open at its top for receiving the emery that is supplied to the cylinder. To open the cover, a hand hold 7 is arranged at the center thereof, as shown in Fig. 1.

At the meeting edges of the head sections 5 are semi-circular notches 8 for receiving the shaft of the licker-in or other card to be sharpened. Thus by opening the cover, the licker-in can be placed in position, after which the cover is closed to form a complete inclosure. On the head sections of the body 1 are external bearings 9 in which the shaft 10 of the licker-in 11 bear. These bearings are located outside the cylinder so that none of the emery can work into them and cut the shaft of the licker-in. In order to further protect the shaft 10, washers 12, as shown in Fig. 1, are arranged on the shaft so as to contact with the internal surface of the heads of the cylinder, thus forming a guard around the shaft. Arranged in the cover 3 and extending parallel with the licker-in is a spiral conveyer 13 mounted in external bearings 14 on the head sections of the cover and on the shaft 15 of the conveyer are washers 16 that serve to prevent the emery from working out into the bearings. Under the conveyer 13 is a semi-cylindrical trough 17 that extends somewhat short of one head of the cover, as indicated at 18 in Fig. 1, so that the conveyer can discharge the emery out of the trough into the body of the cylinder. The shafts 10 and 15 are provided with pulleys 19 and 20, whereby they can be driven in any suitable manner. As the licker-in is rotated, the teeth thereof pass through the emery held in the body of the cylinder and are sharpened. As the teeth of the licker-in are arranged in a spiral line, the emery tends to

move toward the end of the cylinder opposite from the hopper as the licker-in rotates. This causes the emery to accumulate at the said end of the cylinder and is conducted into the trough 17 of the conveyer. This conveyer, which is in the form of a screw, causes the emery in the trough to feed toward the hopper end of the cylinder and deposit into the body of the latter, thus enabling the emery to be used over and over again. After the teeth are thoroughly restored to normal condition, the licker-in is taken out by opening the cover 3 and unfastening the bearings 9. Another licker-in is placed in position and its teeth sharpened in the manner just described. It will thus be seen that one machine can be employed for keeping the cards and licker-ins of the various carding machines of a mill in the best possible condition.

In practice, it has been found that a licker-in can be easily maintained in its most efficient condition, and that the carding quality is improved by at least fifty percent. and that the yarn produced is stronger, more uniform and cleaner than usual.

I have described the principle of operation of the invention, together with the apparatus which I now consider to be the best embodiment thereof, but desire to have it understood that the apparatus shown is merely illustrative and that such changes may be made when desired, as are within the scope of the claims.

Having thus described the invention, what I claim is:—

1. In an apparatus of the class described, the combination of a cylinder, bearings at the ends thereof for receiving a licker-in, a hopper for supplying abrasive material to the cylinder, and a conveyer for returning the abrasive material with the receiving end of the cylinder.

2. In an apparatus of the class described, the combination of a casing, a cover therefor, bearings for receiving a licker-in, and a conveyer arranged to receive the abrasive material that is crowded to one end of the casing by the licker-in and arranged to convey the abrasive material to the opposite end of the casing to act again on the licker-in.

3. In an apparatus of the class described, the combination of a body, a hinged cover therefor, bearings at the ends of the body, a trough in the cover, and a screw conveyer in the trough.

4. In an apparatus of the class described, the combination of a semi-cylindrical body, a semi-cylindrical cover for the body, bearings at the end of the body, a hopper in the cover, a trough on the cover extending short of the end having the hopper, and a screw conveyer in the trough, and means for driving the conveyer.

5. In an apparatus of the class described, the combination of a casing containing abrasive material, bearings for rotatably mounting a card roll within the casing, and a device adapted to operate simultaneously with the grinding of the teeth of the roll for conveying the abrasive material from one end of the casing to the other to prevent the said material from accumulating at the said end under the action of the card roll.

In testimony whereof, I affix my signature in presence of two witnesses.

JOHN F. LEHMAN.

Witnesses:
J. R. PRICE,
G. F. SHARP.