

W. B. Ingram.

Grinding and Cleaning Cards.

N<sup>o</sup> 88,635.

Patented Apr. 6, 1869.

Fig. 1.

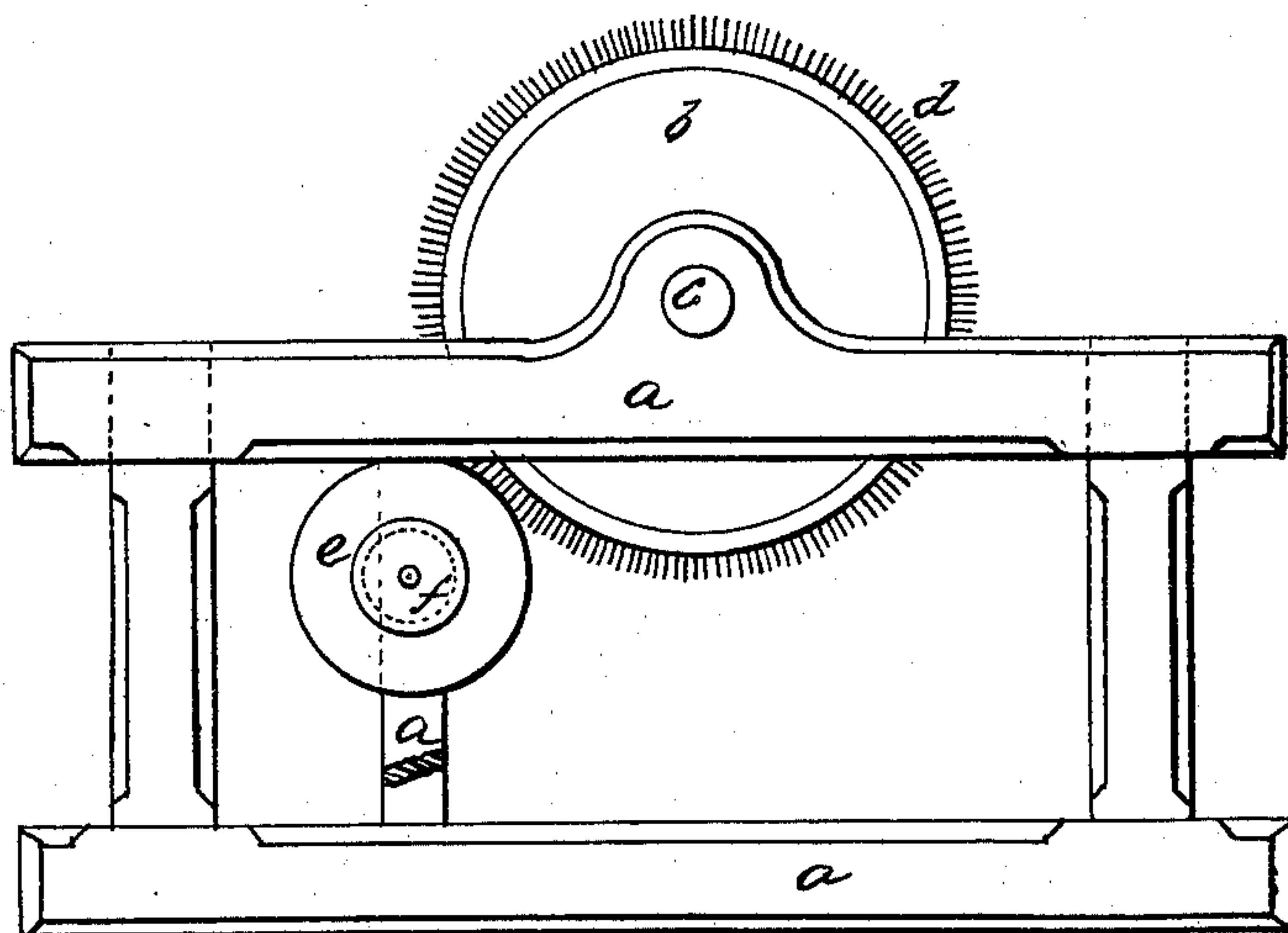
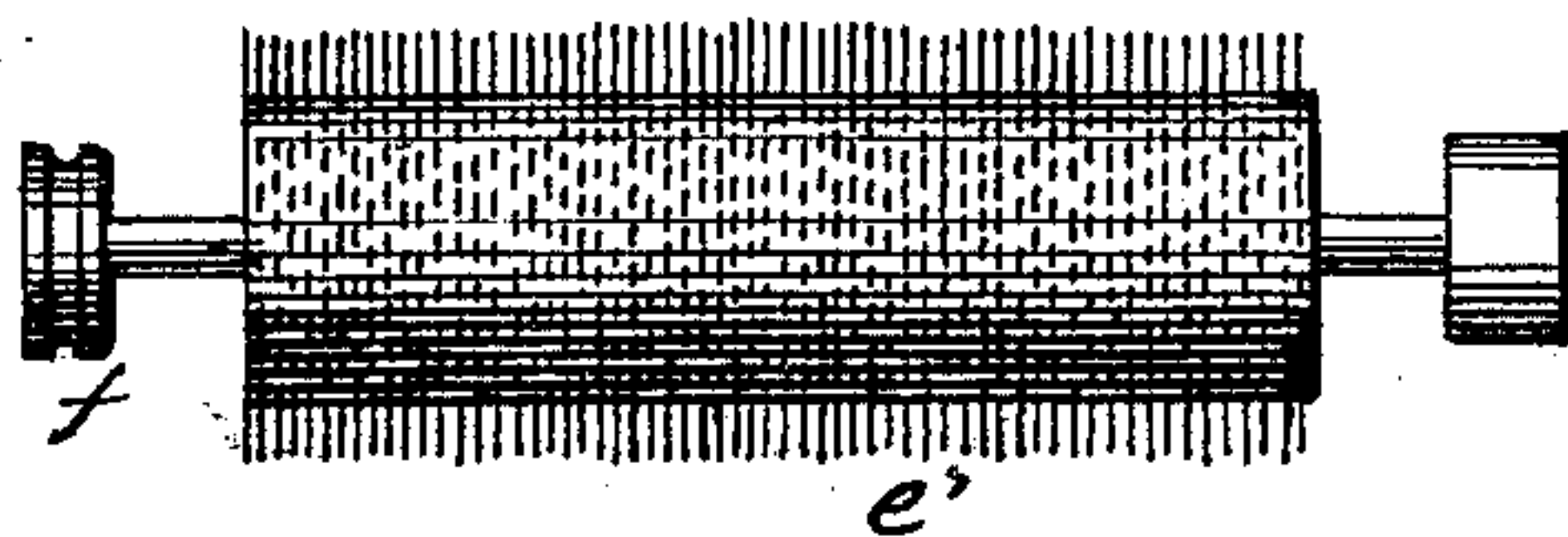


Fig. 2.



Witnesses:

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By Attorney

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# United States Patent Office.

WARREN B. INGRAM, OF MANCHESTER, CONNECTICUT, ASSIGNOR  
TO HIMSELF AND KEENEY BROTHERS, OF SAME PLACE.

*Letters Patent No. 88,635, dated April 6, 1869.*

## IMPROVEMENT IN GRINDING AND CLEANING CARD-CYLINDERS.

The Schedule referred to in these Letters Patent and making part of the same.

*To all whom it may concern:*

Be it known that I, WARREN B. INGRAM, of Manchester, county of Hartford, and State of Connecticut, have invented certain new and useful Improvements in Grinding and Cleaning Cards upon Carding-Machine Cylinders, while they are in full operation of carding; and to enable others skilled in the art to make and use the same, I will proceed to describe, by referring to the drawings, in which the same letters indicate like parts.

The nature of this invention consists of a cylinder, coated with a grinding-material, as emery, &c., and arranged under, or nearly so, a carding-machine cylinder, and rotating in the same direction, the grinding, or cleaning-cylinder surface rotating about one-fourth, more or less, faster than the carding-cylinder surface, and while the carding-operation is being performed.

The object of this grinding-cylinder, located as stated, is, first, to grind the card-teeth, whenever they may need grinding, whilst the carding is being performed, and without any stopping of the carding-operation; and, second, to clean the cards at the same time, both of these functions being performed by the use of the grinding-cylinder alone.

In the accompanying drawings—

Figure 1 is a side elevation of a frame-work.

*a* is the frame-work of the machine.

*b* is the carding-cylinder, supported by and revolving upon a shaft, *c*.

Said cylinder is covered with card-clothing *d*, in the usual way, and is operated by pulleys and belts, not necessary to be shown.

*e* is a grinding and cleaning-cylinder, of quite small diameter compared with the card-clothed cylinder, but of equal length, or nearly so, and it is secured upon a shaft, and has its bearings in the frame-work, and in such relative position to the cylinder *b*, that the action of grinding the teeth in vibrating them, shall loosen the dust, motes, fibres, and other matter which clog the teeth, and cause the same, as well as the metallic particles ground off, to fall, by gravitation, to the floor. These metallic particles are also thus prevented from lodging in the spaces between the teeth, to the damage and discoloration of the goods to be produced, as must be the case when the grinder is located toward the top of the doffer, main cylinder, or other cylinder to be ground.

The grinder, when in practical operation under my improvement, is adjusted to its desired position, relatively to the cylinder to be ground, by means of set-

screws, not necessary to be shown, or by any other well-known means, by which one piece of mechanism may be shifted to or from another.

This cylinder is coated with emery, or other grinding-material, in any well-known manner.

The relative-surface speed of the cylinder *e*, is one-fourth, more or less, faster than that of the cylinder to be ground, and both of them revolve in the same direction, but the relative velocities, or direction of revolution of the grinding-cylinder may be varied, without departing from my invention.

If desired, a reciprocating-endwise motion may be given to the shaft of the grinding-cylinder, by any of the common devices employed for such purpose.

Figure 2 represents a card-clothed cylinder, *e'*, which it is designed to use in the place of and in the same locality and in the same bearings of the cylinder *e*, whenever it may be desirable, merely for the purpose of cleaning, but not for the purpose of grinding; but it is believed, from present experience, that the grinding-cylinder will prove so efficient as a cleaner, as well as a grinder, that it will fully accomplish the desired objects, without the need of employing the brush-cylinder *e'*, or any other auxiliary cleaner.

To keep the card-clothed cylinders of a carding-engine ground and cleaned, and in perfect working order, while the machine is in full carding-operation, without the need of stopping either to grind or clean, results in a great saving of time, and economy of expense, as compared with machines which must be stopped for one or both purposes; and further, by my invention, cleaner and better work is done, insuring a better and more marketable fabric from the same material.

I believe I have thus shown the nature, construction, and advantage of this invention, so as to enable others skilled in the art to make and use the same therefrom.

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

A grinding-cylinder, arranged, in relation to the card-clothed cylinder to be ground and cleaned, to operate as set forth, and so as to be brought into action, at will, whilst the carding-machine is in the act of carding.

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Witnesses:

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