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Patented Apr. 11, 1899.

C. MILLS.

APPARATUS FOR GRINDING FLATS FOR ROTARY CARDING ENGINES.

(Application filed Oct. 15, 1897.)

(No Model.)

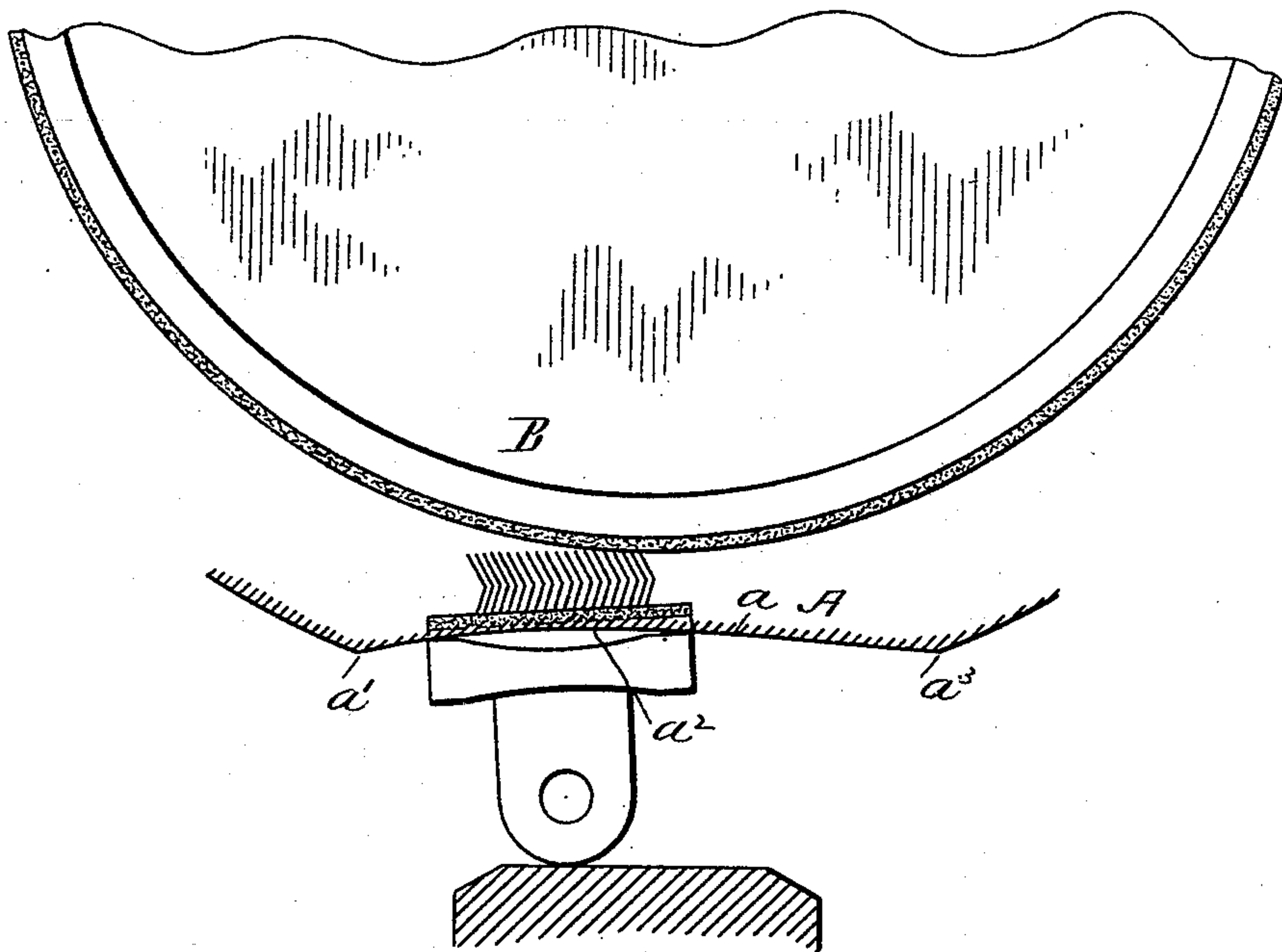


Fig. 1.

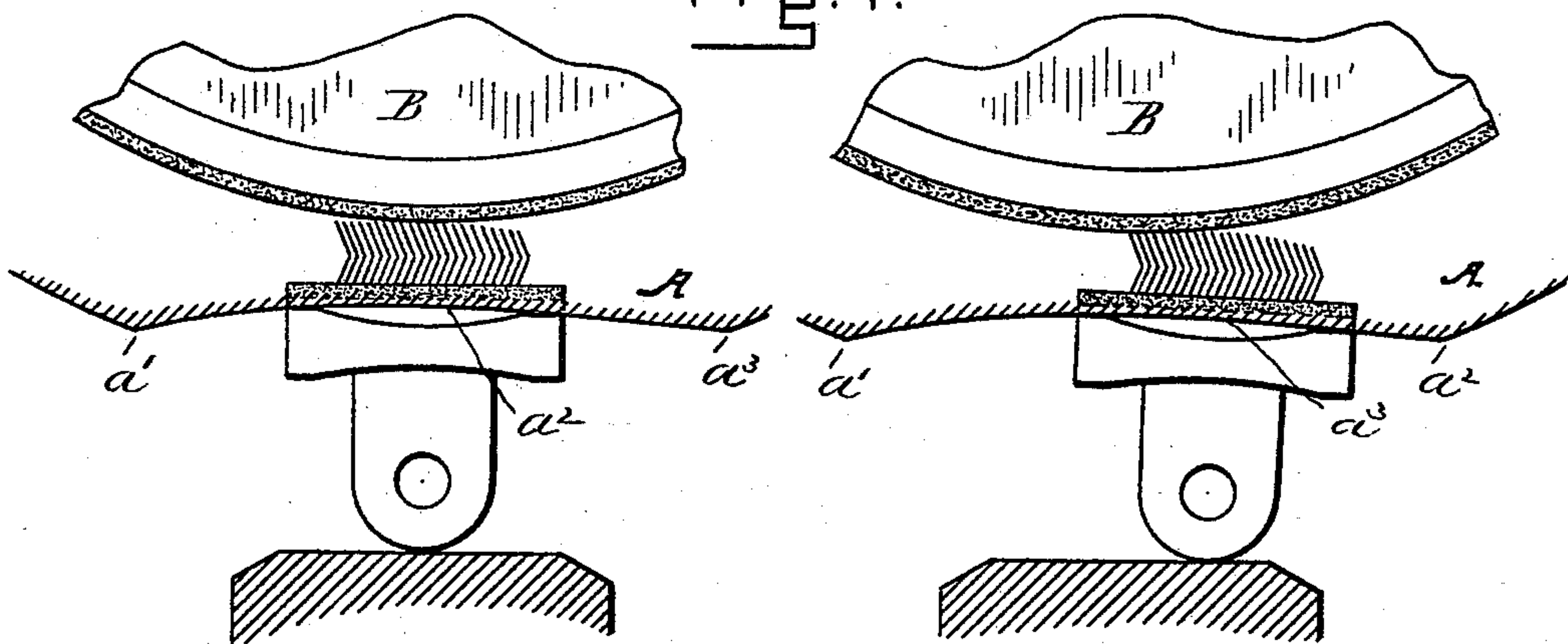


Fig. 2.

Fig. 3.

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# UNITED STATES PATENT OFFICE.

CHARLES MILLS, OF NEWTON, MASSACHUSETTS, ASSIGNOR TO THE PETTEE MACHINE WORKS, OF SAME PLACE.

APPARATUS FOR GRINDING FLATS FOR ROTARY CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 623,095, dated April 11, 1899.

Application filed October 15, 1897. Serial No. 655,360. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES MILLS, a subject of Victoria, Queen of Great Britain, residing in Newton, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Apparatus for Grinding Flats for Rotary Carding-Engines, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part of this specification, in explaining its nature.

The invention relates especially to guides for providing the flat with such a course in respect to the grinding-roll as it is being moved past it as shall give the surface of the wire clothing of the flat a convex form between the heel and the toe.

The guides are adapted to be used with any of the usual types of apparatus for grinding flats. There are used in each apparatus two guiding-surfaces along which the bearing ends of the flats are moved during the grinding of the surface of the wired portion. These guides may be stationary—that is, mounted upon rigid supports, or they may be mounted upon floating supports. To increase the working surface of each flat, it is desirable that it be ground to a form which shall be slightly convex from heel to toe, as this will provide a wider flat working surface in contact with the working surface of the cylinder than where the flat is ground flat from heel to toe, which is its usual shape. The parts of these devices are so well known that it is not necessary for me to show in the drawings anything more than a conventional grinding-roll, a flat, and one of the guides. The structure of that part of the flat end which bears against the guide is well understood.

In the drawings, Figure 1 is a view representing in a conventional way the guide, the grinding-roll, and the relation of the flat to the guide and grinding-roll at the beginning of the grinding operation. Fig. 2 is a view of the same parts, representing the flat as having been moved to about the center of the guide; and Fig. 3 is a view of the same parts, representing the position of the flat in relation to the guide at the end of the grinding operation.

A is the guiding-bar. Its guiding-surface  $\alpha$  is of the shape represented in the figures—

that is, from the point  $\alpha'$  to the point  $\alpha^2$ , which is about one-third of the length of the guiding-surface, the curve is more rapid or the ascent quicker than is the remainder of the curve or drop from the point  $\alpha^2$  to the point  $\alpha^3$ , or for about two-thirds of the remainder of the guiding-surface. This will cause the flat to present the heel of the wired section to the action of the grinding-roll B and the grinding thereof to begin with the heel and from there take such a course as to present the working surface upon an arc in relation to the grinding-roll which will give to its working surface a convex form and maintain the working surface in such convex form.

It will be understood that the working surface of each end of the flat is shaped substantially as represented in the figures—that is, the working surface at the heel is farther removed from the surface of the flat to which the clothing is attached than is the working surface at the toe, and the guiding-surfaces of the guides are shaped, as above described, with especial view to this variation in the levels of these two portions of the working surfaces, the working surfaces and the curve of the guides being so proportioned and shaped as to produce upon the surface of the wired section the convex form or shape from heel to toe which it is desired that the wired surface of each flat should have.

Having thus fully described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a machine for grinding flats, a grinding-roll and fixed guides located in proximity thereto, said guides being concaved on their under or bearing surface, whereby the flat is rocked during presentation to the grinding-roll, as set forth.

2. In a machine for grinding flats, a grinding-roll and fixed guides concaved on their under or bearing surface and located in proximity to said grinding-roll, said surface being formed with a continuous curved surface having an entering pitch which is somewhat shorter and quicker than the retiring pitch, all as set forth.

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Witnesses:

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