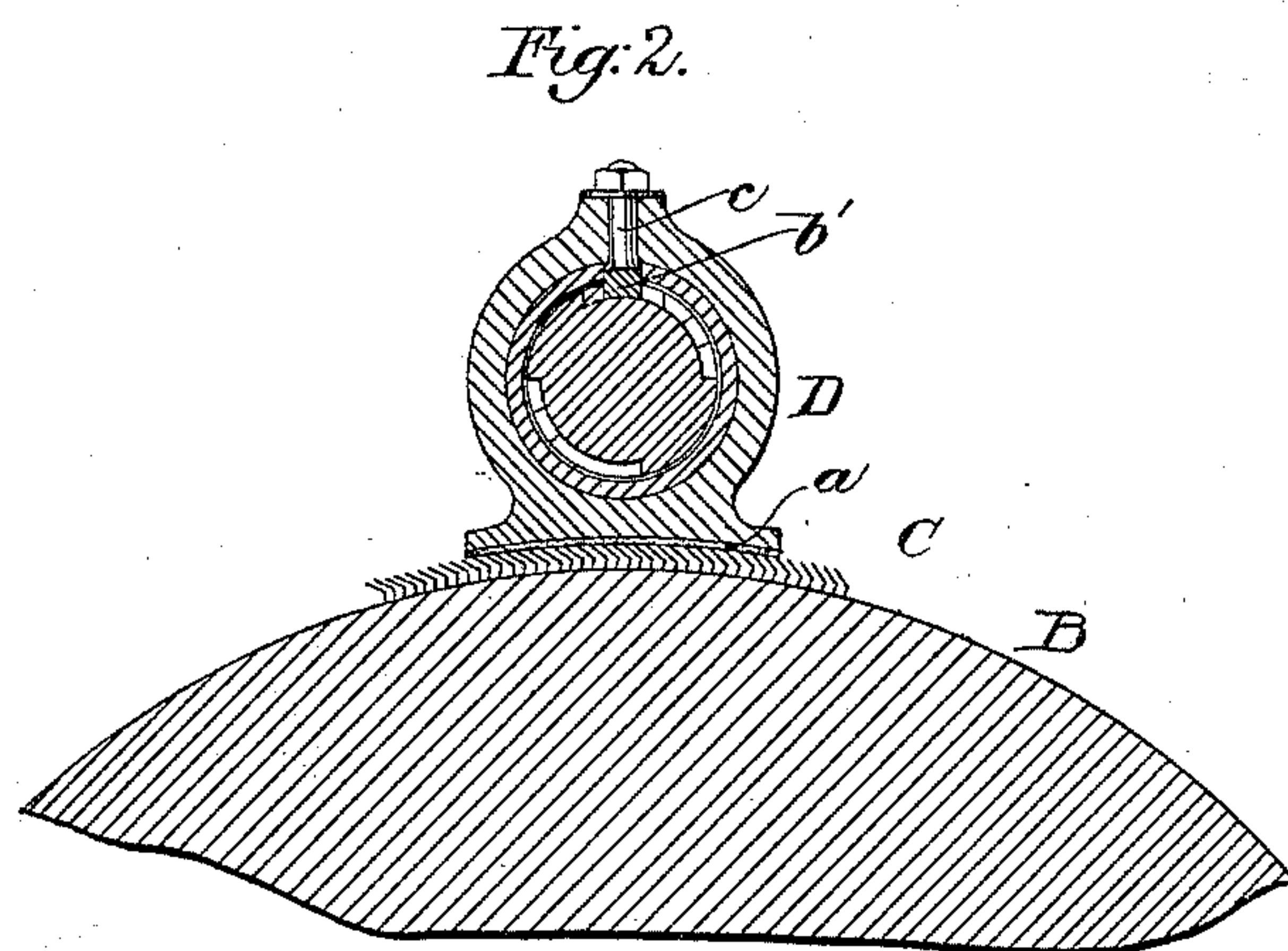
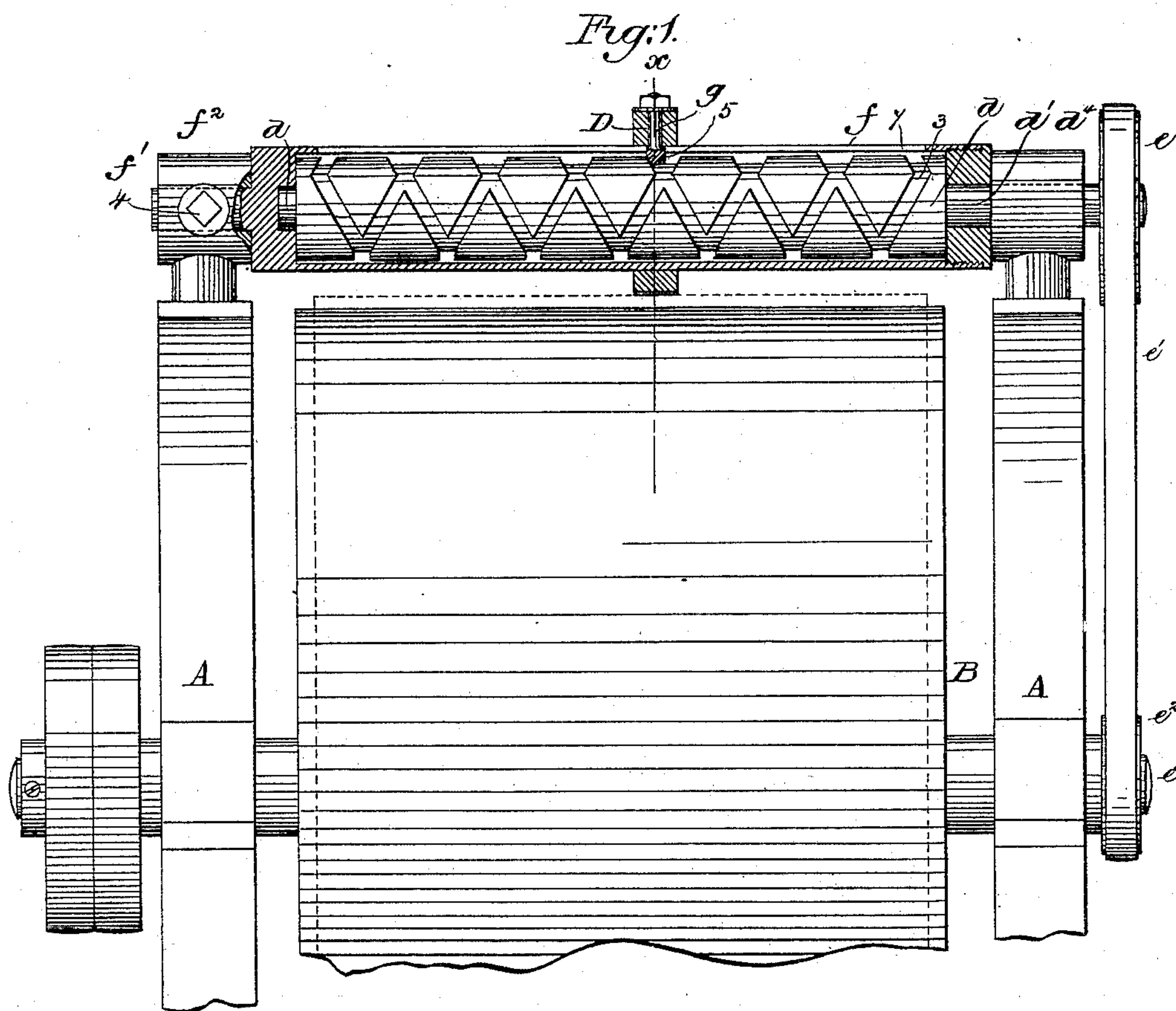


(No Model.)

W. H. RANKIN.
CARD GRINDING APPARATUS.

No. 426,545.

Patented Apr. 29, 1890.



Witnesses:

Ezra A. Goddard
Frederick L. Emery-

Inventor:

William H. Rankin.
by Lemmy Gregory Atty.

UNITED STATES PATENT OFFICE.

WILLIAM H. RANKIN, OF LAWRENCE, MASSACHUSETTS.

CARD-GRINDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 426,545, dated April 29, 1890.

Application filed July 27, 1889. Serial No. 318,830. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. RANKIN, of Lawrence, county of Essex, State of Massachusetts, have invented an Improvement in
5 Card-Grinding Apparatus, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention has for its object the pro-
10 duction of a novel apparatus for grinding the teeth of cards used in machines for treating cotton and other fiber.

In card-grinding apparatus as now commonly constructed a rotating wheel, having
15 an emery or other usual abrasive or cutting surface, is employed to act against the teeth of the card-clothing, the said wheel being reciprocated by a screw-shaft or other equivalent means and traveling across the surface
20 along the teeth to be ground—as, for instance, in United States Patent No. 301,922, granted to me. A grinding-wheel of the kind referred to meets as a tangent the convex surface of card-clothing to be ground, and the
25 grinding operation is slow; and to enable the teeth of the card-clothing to be ground more rapidly I have dispensed with the said grinding-wheel, and in its place I have employed a grinding-shoe, having a concaved face,
30 which, as shown, is of substantially the same curvature as the surface to be ground or to be left after the grinding operation. The grinding-shoe may have combined with it a screw-shaft to reciprocate it in one and then
35 in a reverse direction.

I have herein shown my invention as applied to a part of the frame of a carding-machine to grind the card-clothing on the said cylinder; but I desire to state that my im-
40 proved grinding apparatus may be used for any and all purposes for which the so-called "Hardy grinder" may be or is commonly used.

Figure 1 represents part of a carding-machine and part of a card-clothed cylinder
45 shown with my improved grinding apparatus applied for use, the grinding apparatus being in longitudinal section; and Fig. 2 is a partial section in the line *x*, Fig. 1.

50 The frame-work A and the cylinder or sur-

face B mounted therein, and having card-clothing as C, (but partially shown,) is supposed to be part of a carding-machine.

My improved grinding apparatus contains a grinding-shoe D, having a concaved grind- 55 ing-face composed of emery or other usual material commonly used for grinding card-clothing, the concaved face of the shoe fitting the surface to be ground for a considerable distance, as best shown in Fig. 2. The shoe 60 D, as shown in Figs. 1 and 2, surrounds a hollow stationary sleeve or guide *f*, located parallel to the shaft of the cylinder having the card-clothed surface which is to be ground, the said sleeve or guide having, as shown, 65 suitable bearings for the journals *d d'* of a screw-shaft *d*, having a double or crossing groove 3 of usual construction, the journal *d'* also entering a bearing *d⁴*, and having at its outer end a pulley *e*, which, as shown, re- 70 ceives a belt *e'*, driven from a pulley *e²* in the shaft *e³* of the cylinder B, driven or rotated in any usual manner. The sleeve or guide *f* at one end has a journal *f'*, which is held by a set-screw 4 in a stand or bearing *f²* like the 75 stand *d⁴*. The shaft *d* having the double or crossing groove 3 receives in it a loose dog or follower 5, at the end of a stud *g* extended from the shoe D, through a longitudinal slot 7 in the sleeve or guide *f*, and as the said 80 shaft is rotated the shoe is reciprocated on the sleeve and made to pass from end to end of the card-clothed surface to be ground.

I do not desire to limit my invention to the exact form of mechanism by which to cause 85 the shoe to be reciprocated from end to end of the card-clothed surface to be ground, for, instead of the screw-shaft, which I prefer, I might use an endless belt or a chain, as such devices have heretofore been used to recipro- 90 cate grinding-wheels to grind card-clothed surfaces, as in United States Patent No. 173,872.

I claim—

1. A grinding-shoe having a concaved face adapted to fit a convexed card-clothed sur- 95 face, and an upwardly-extended guide-receiving portion, and a guide parallel to the axis of the cylinder having the teeth which are to be ground, and extended through said guide-receiving portion of the shoe, combined with 100

means to automatically reciprocate said shoe and cause it to traverse the said guide in a straight line, to thus grind the said card-clothed surface, substantially as described.

- 5 2. The combination, with the sleeve or guide *f*, parallel to the axis of the cylinder the surface of which is to be ground, and the screw-shaft located in the said guide, of a grinding-shoe *D*, having a concaved face and surround-
10 ing the said guide, and devices intermediate

the shoe and screw-shaft to reciprocate the said shoe, to operate substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

WILLIAM H. RANKIN.

Witnesses:

E. K. KENT,

JOHN C. SANBORN.