

(No Model.)

R. W. WELCH.
GRAIN CLIPPING MACHINE.

No. 401,667.

Patented Apr. 16, 1889.

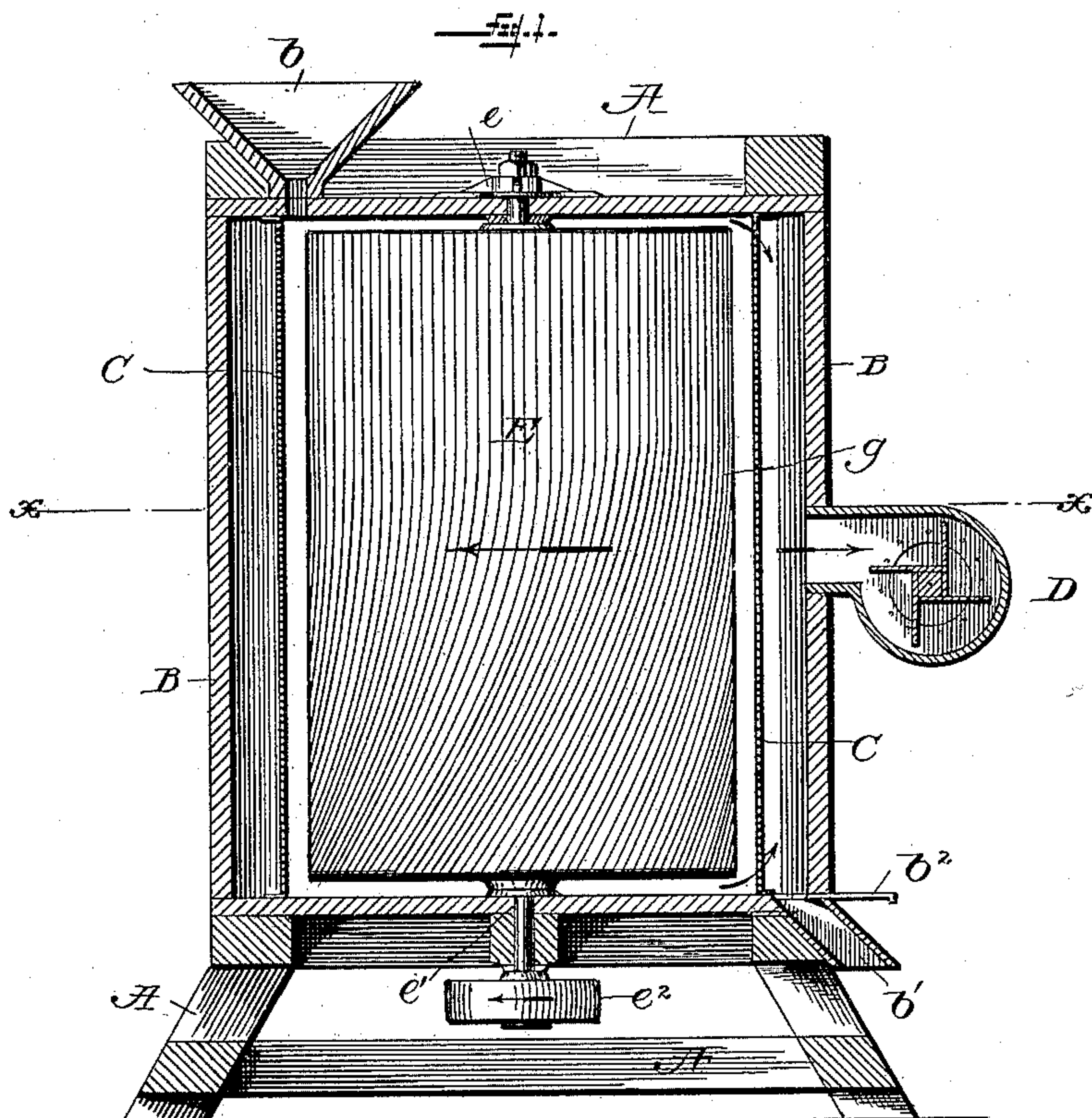


Fig. 2.
ON LINE X—X

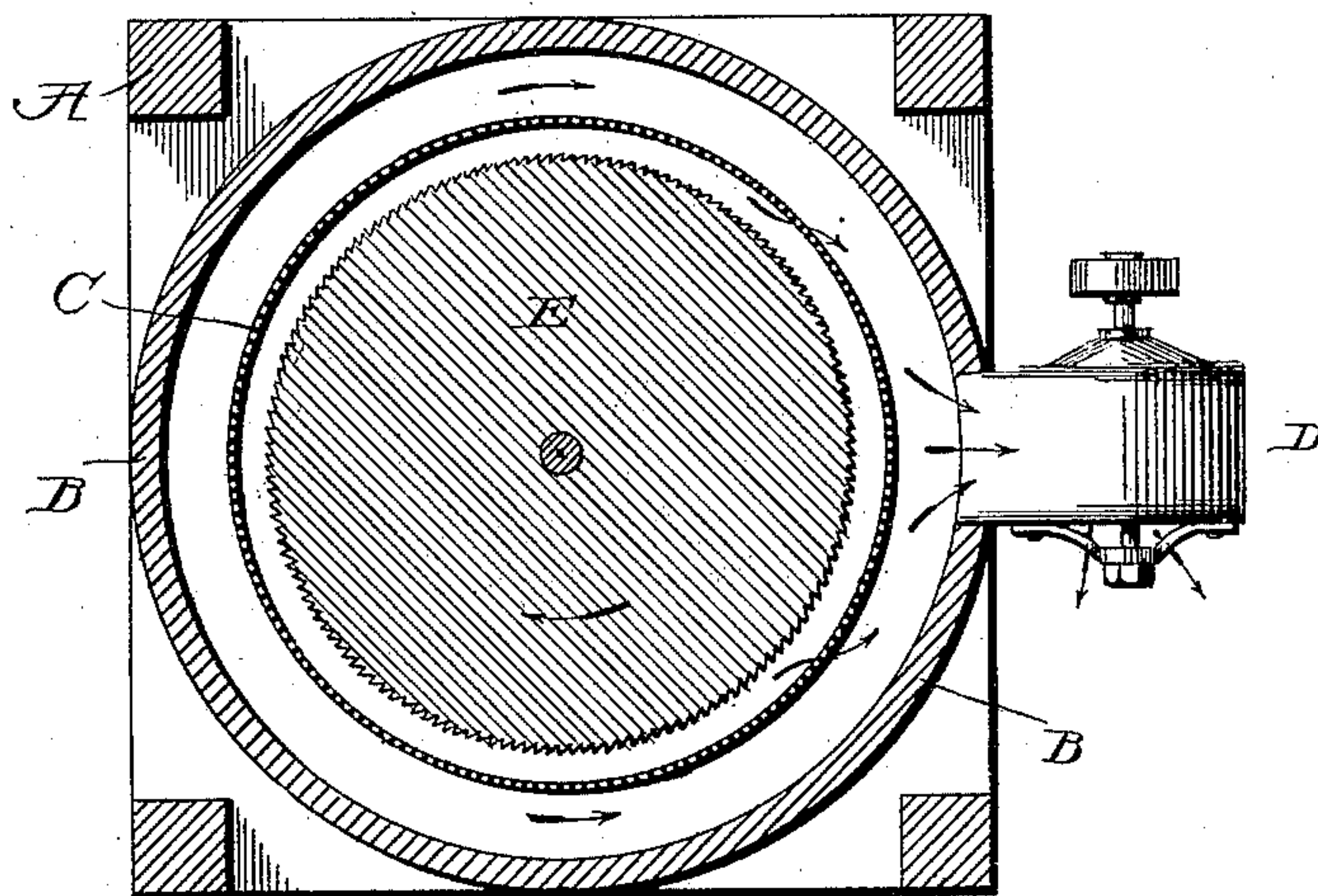


Fig. 3.
ON LINE X—·—X

Witnesses,
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UNITED STATES PATENT OFFICE.

ROSIA W. WELCH, OF BALTIMORE, MARYLAND, ASSIGNOR OF ONE-HALF
TO JOHN M. KNIGHT, OF SAME PLACE.

GRAIN-CLIPPING MACHINE.

SPECIFICATION forming part of Letters Patent No. 401,667, dated April 16, 1889.

Application filed July 31, 1888. Serial No. 281,535. (No model.)

To all whom it may concern:

Be it known that I, ROSIA W. WELCH, of Baltimore, in the State of Maryland, have invented certain Improvements in Grain-Clipping Machines, of which the following is a specification.

At the present time there are in general use certain grains having rough fibrous jackets, which render it exceedingly difficult to properly treat them in the milling operations and to feed them in seeding-machines. The present machine is designed for the treatment of these grains, and particularly for the treatment of the so-called "Southern" or "rust-proof" oats, and for the treatment of those wheats which have long fibers at one end, the purpose being to remove these extraneous fibers without otherwise affecting the grain; and to this end it consists, essentially, in the combination, with an external jacket, of an internal rotary drum having its surface provided with ribs of peculiar form, as hereinafter explained.

In the accompanying drawings, Figure 1 is a vertical central section through my machine. Fig. 2 is a horizontal cross-section of the same on the line $x x$. Fig. 3 is a section on the same line, showing a portion of the ribbed surface on an enlarged scale.

Referring to the drawings, A represents a rigid main frame, which may be of any form and construction adapted to sustain the other parts hereinafter described.

B represents an outside jacket or casing provided at the top with a feed-hopper, b , and at the bottom with a discharge-spout, b' , and a gate or valve, b^2 , to vary the discharge-opening.

C is a vertical cylinder secured within the casing at a distance of two inches, more or less, therefrom. This cylinder is constructed of perforate sheet metal, wire-gauze, or other suitable material adapted to sustain the external column of grain, but permit the air and dust to pass freely through it.

D is an exhaust-fan, which may be of any suitable character, communicating with the space between the external casing and the perforate cylinder for exhausting the dust-laden air.

E is a vertical central drum or cylinder, having its journals mounted in bearings $e e'$ on the main frame, and provided with a driving-pulley, e^2 , or other suitable means by which it may be given a rapid rotation. The surface of this cylinder is located commonly at a distance of an inch or more from the inner surface of the perforate jacket, and is clothed with iron plates, having on their outer surface a series of ribs or teeth, g . The ribs present in horizontal section a substantially radial or perpendicular surface on the forward side, but an inclined or sloping face on the rear side, as shown in Fig. 3. Each rib is commonly continuous from the upper to the lower end of the cylinder. Starting at the upper end, it extends downward about one-third of the length of the cylinder in a vertical direction, after which it trends in a forward direction around the cylinder, as plainly shown in Fig. 1. This peculiar formation of the ribs—that is to say, with a considerable portion of their upper ends in vertical lines and with their lower ends curved forward in the direction of rotation—is of the essence of my invention.

In operating the machine, the ribbed cylinder is given a rapid rotation in the direction indicated by the arrow and the grain introduced through the hopper b and permitted to descend rapidly and freely through the interior of the machine. In its passage it is confined between the perforate cylinder C and the central drum or cylinder, subject to the action of the air-currents flowing outward in a manner indicated by the arrows. The ribs or teeth of the cylinder act violently upon the grain to fracture and loosen the projecting fibers.

In practice it has been found that the vertical position of the ribs at their upper end is of special importance in that it permits the grain to enter freely, and also in that the ribs are enabled at this point to act the more effectively in breaking and loosening the fiber. As the grain descends, the spiral or curved portions of the ribs act with a shearing or clipping effect, which is found to be peculiarly advantageous.

While the size and proportions of the ma-

chine may obviously be varied within reasonable limits, I recommend an inner cylinder of a length of thirty inches and a diameter of twenty inches, and a working speed of about
5 six hundred revolutions per minute.

Having thus described my invention, what I claim is—

1. In a grain-clipping machine, the combination of an external vertical cylinder, and
10 an internal rotary cylinder having on its surface a series of ribs, the upper ends of which extend vertically, while the lower ends are curved forward in the direction of rotation.

2. In a grain-clipping machine, the combination of the following elements: a stationary
15 external casing, an internal perforate cylinder,

an exhaust-fan communicating with the space between said cylinder and casing, and an internal vertical rotary cylinder provided with ribbed plates, each rib extending from
20 the upper end of the cylinder downward in a vertical direction about one-third of its length, and trending thence forward in the direction of rotation to the lower end of the cylinder.

In testimony whereof I hereunto set my
hand in the presence of two attesting witnesses.

ROSIA W. WELCH.

Witnesses:

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