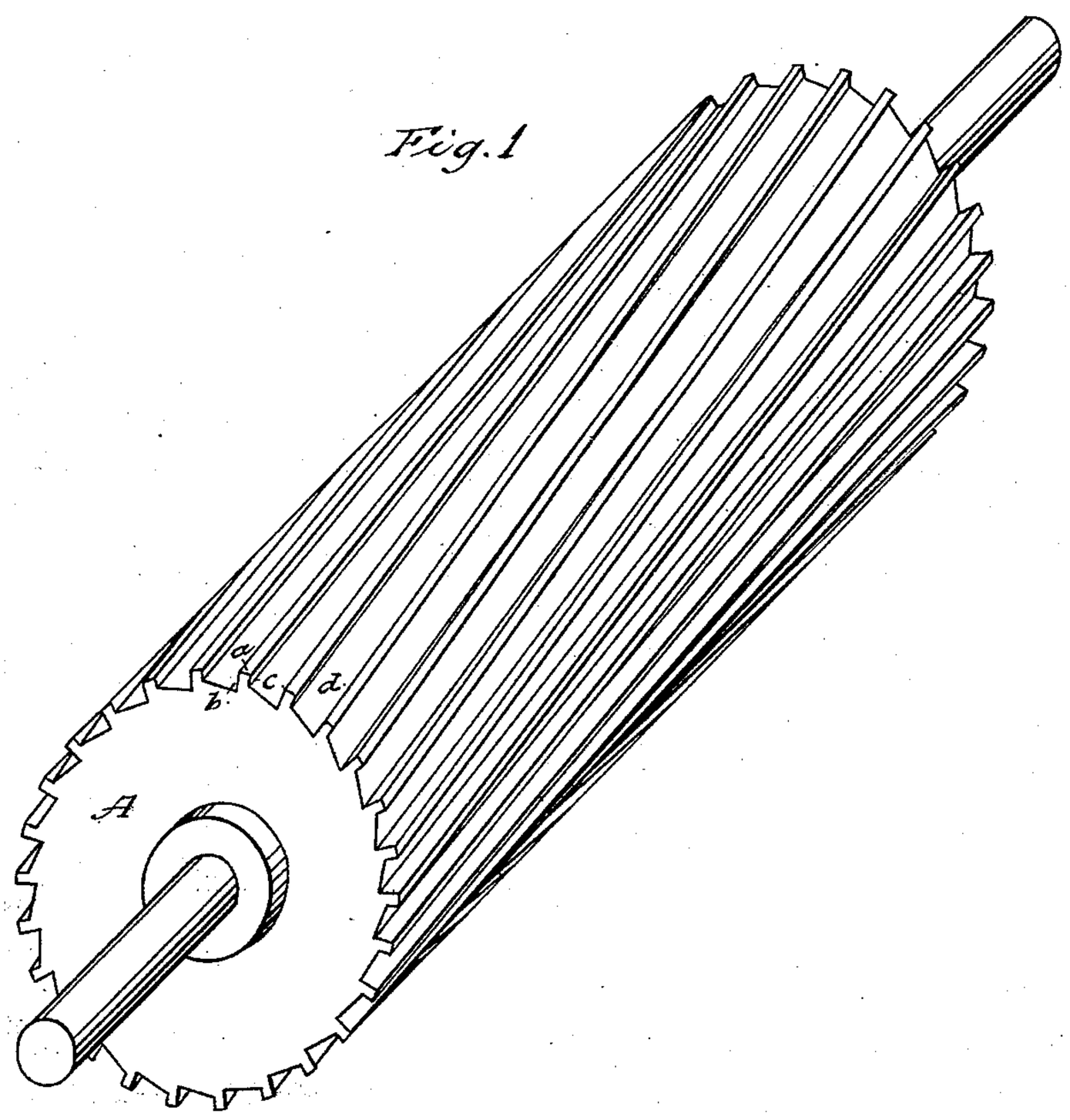
(No Model.) 2 Sheets—Sheet 1.

S. B. RICKERSON.

ROLLER MILL.

No. 278,272. Patented May 22, 1883.

Fig. 1



Attest;
F. W. Howard
J. H. Blackwood

Inventor;
Sherman B. Rickerson
by W. H. Doolittle
Attorney

(No Model.) 2 Sheets—Sheet 2.

S. B. RICKERSON.

ROLLER MILL.

No. 278,272. Patented May 22, 1883.

Fig. 2

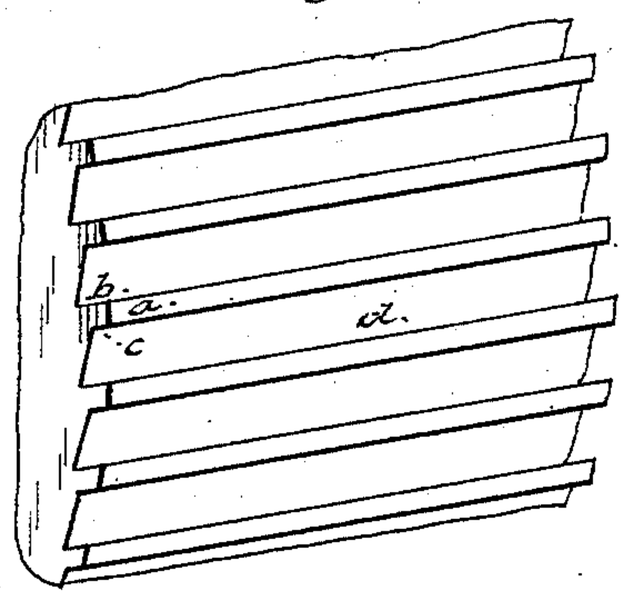


Fig 3

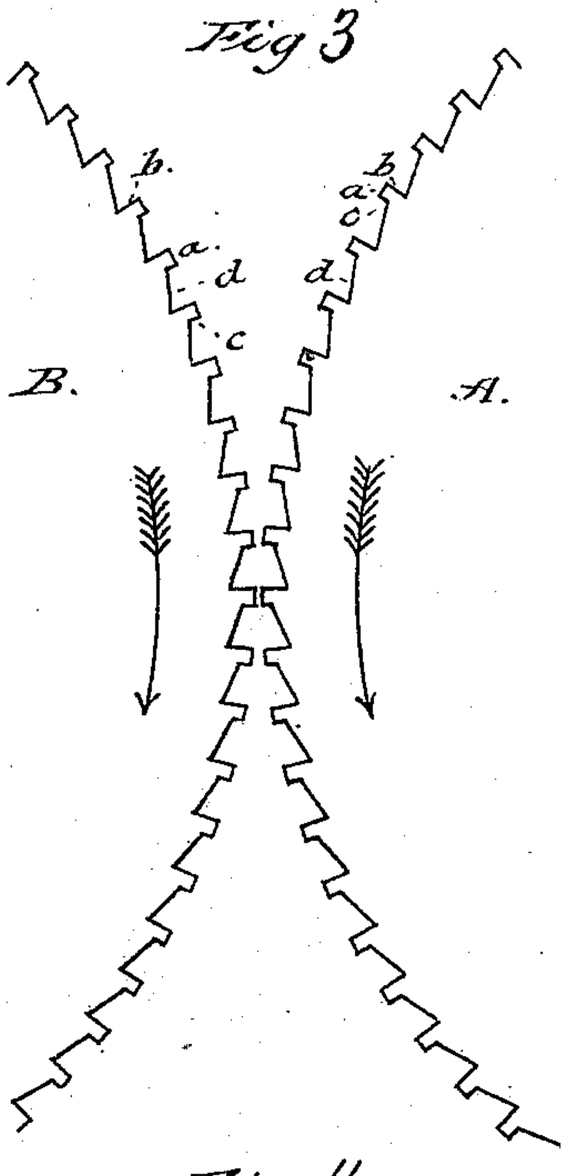
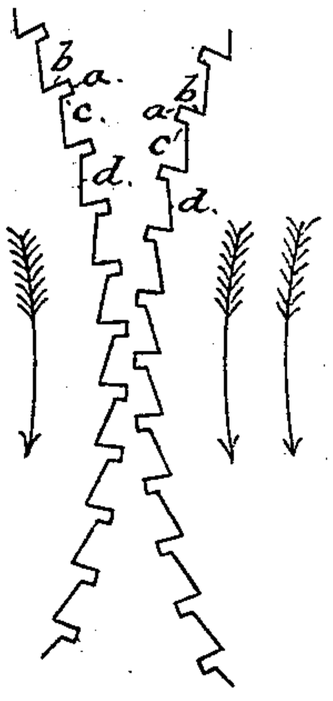


Fig. 4



Attest;
F. W. Howard
J. H. Blackwood

Inventor;
Sherman B. Rickerson
by W. K. Doolittle
Attorney

UNITED STATES PATENT OFFICE.

SHERMAN B. RICKERSON, OF GRAND RAPIDS, MICHIGAN.

ROLLER-MILL.

SPECIFICATION forming part of Letters Patent No. 278,272, dated May 22, 1883.

Application filed March 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, SHERMAN B. RICKERSON, a citizen of the United States, residing at Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and useful Improvements in Roller-Mills; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to that class of roller-mills described by me in Letters Patent of the United States No. 271,518, granted to me January 30, 1883, in which two rolls or cylinders, each having spiral grooves and ribs, and rotating toward each other at preferably different speeds, are used to produce a more perfect granulation of the grain, and to remove at the first break the crease-dirt and germ, and to prevent the further grinding of the same with the crushed grain by receiving and protecting both in suitably-formed grooves or pockets.

My present improvements consist in a special form of dress for the rolls, by which the crushing and granulation of all kinds of grain may be accomplished, but which is specially adapted for the coarser grains, such as corn, oats, barley, &c.

In the accompanying drawings, which make part of this specification, Figure 1 is a perspective view of a roll having spiral grooves and ribs of my improved construction. Fig. 2 is a section of the face of one of the rolls. Fig. 3 is an outline of a portion of the two rolls in proper relative position when they are moving at the same speed in the direction indicated by the arrows. Fig. 4 is a similar view, showing the relative positions of the ribs and pockets when one roller is moving faster than the other, as I prefer to use them.

Similar letters designate corresponding parts in all the figures.

The ribs and grooves of both rolls are similar in construction. Each rib has a plain outer face, *a*, and two sides, *b c*, perpendicular to said face, thus giving two sharp cutting-faces to each rib. The upper side, *b*, of each rib is made of full depth, and the lower side, *c*, of partial depth, and they are connected at their lower edges with the opposite sides of adjacent ribs by an inclined surface, *d*, thus making a pocket having all the advantages which are given by the concave-sided pocket shown in my Letters Patent above referred to, without sacrificing the additional advantage of the two sharp cutting-edges. This construction of pocket permits of its being given a sufficient depth to receive and protect large kernel grains. The relative proportions of the sides, faces, and distances apart of the ribs shown in the drawings are suitable ones for the objects required, though they may be slightly varied, if found desirable. One roll, A, is rotated, preferably, at a more rapid speed than the other roll, B, a speed of the roll A double that of the roll B being a proper one. This differential motion may be imparted by any suitable or well-known means, which therefore is unnecessary to be shown or described herein. The rolls are to be so situated in reference to each other that the distance between their adjacent working-faces may be a suitable one for the size of the grain to be granulated, as the object is not to grind or pulverize the grain, but merely to crush and split it, and so remove the dirt, germ, and other impurities. By this different speed of rotation and the construction of the ribs and grooves the falling grain is caught between the upper cutting-edges of the ribs of the slow-moving roll and the lower cutting-edges of the ribs of the fast-moving roll, is rubbed and crushed between the faces of the ribs of the rolls, and then falls into the pockets below, where it is protected from grinding or further crushing. When the working-edges become worn or dull by use, by changing the speeds of the rolls so that B becomes the fast roll and A the slow roll the edges hitherto not worn will become the working-edges, thus getting a double wear from the same roll.

What I claim as my invention is—

1. In a roller-mill, the described roll provided with ribs and grooves, each rib having a plain outer face and two straight perpendicular sides, the upper side being of full depth and the lower side of partial depth, each side being connected at the bottom with an inclined surface, substantially as and for the purpose herein specified.

2. The combination of the two rolls, each

provided with a dress composed of grooves and ribs, each of the ribs having a plain outer surface and two perpendicular sides, the upper side being of full depth and the lower side of partial depth, and connected at their bottoms with inclined surfaces, arranged and operated so that the lower cutting-edge of one roll will first strike the upper cutting-edge of the other roll, substantially as and for the purpose herein specified.

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

SHERMAN B. RICKERSON.

Witnesses:

I. E. MIDDLETON,

J. H. BLACKWOOD.