

(No Model.)

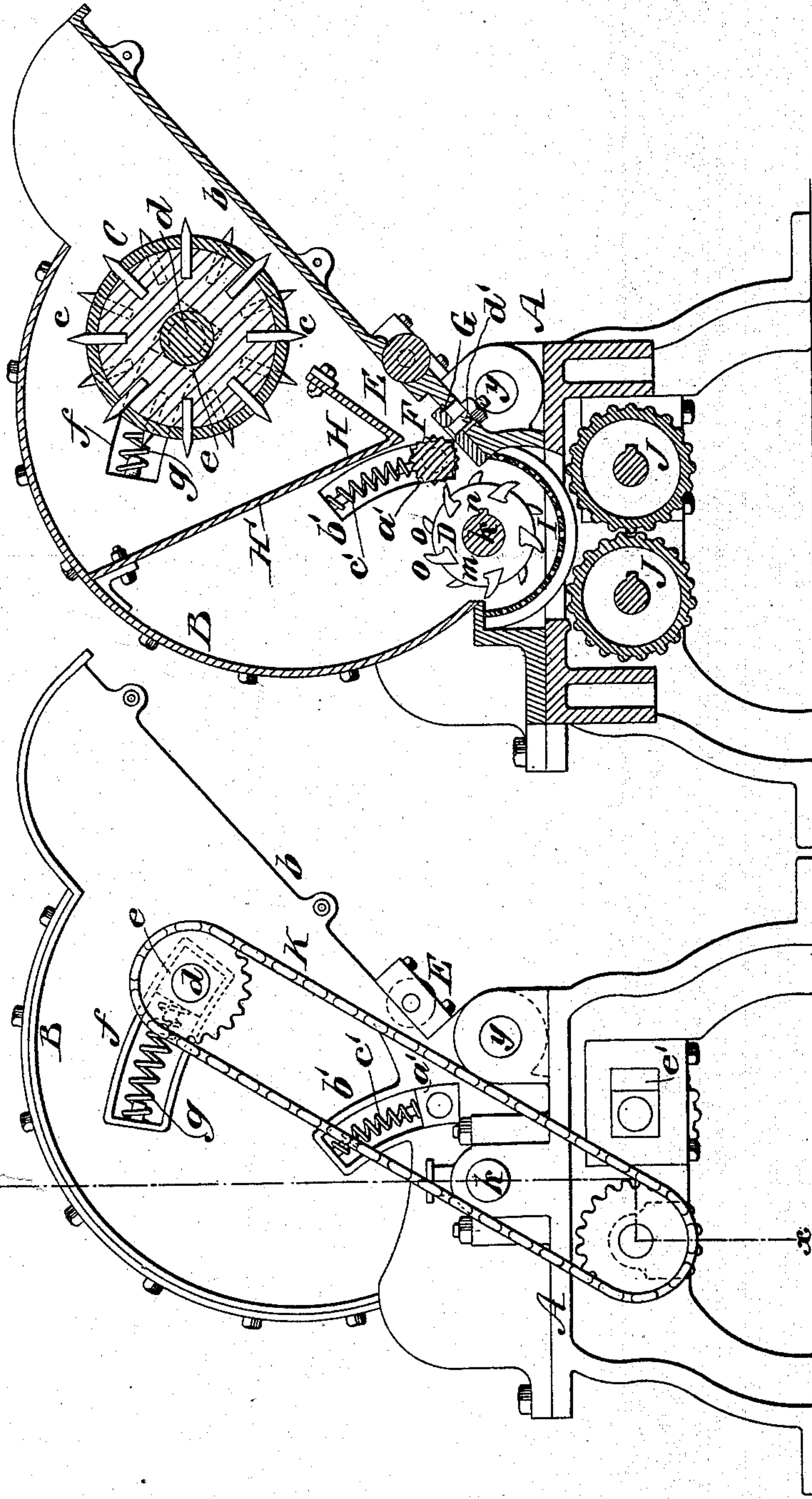
2 Sheets—Sheet 1.

J. McKENDRICK.

BARK MILL.

No. 325,849.

Patented Sept. 8, 1885.



WITNESSES:

John H. Reemer
C. Sedgwick

INVENTOR:

BY *J. M. Kendrick*
Munn & Co

ATTORNEYS.

(No Model.)

2 Sheets—Sheet 2.

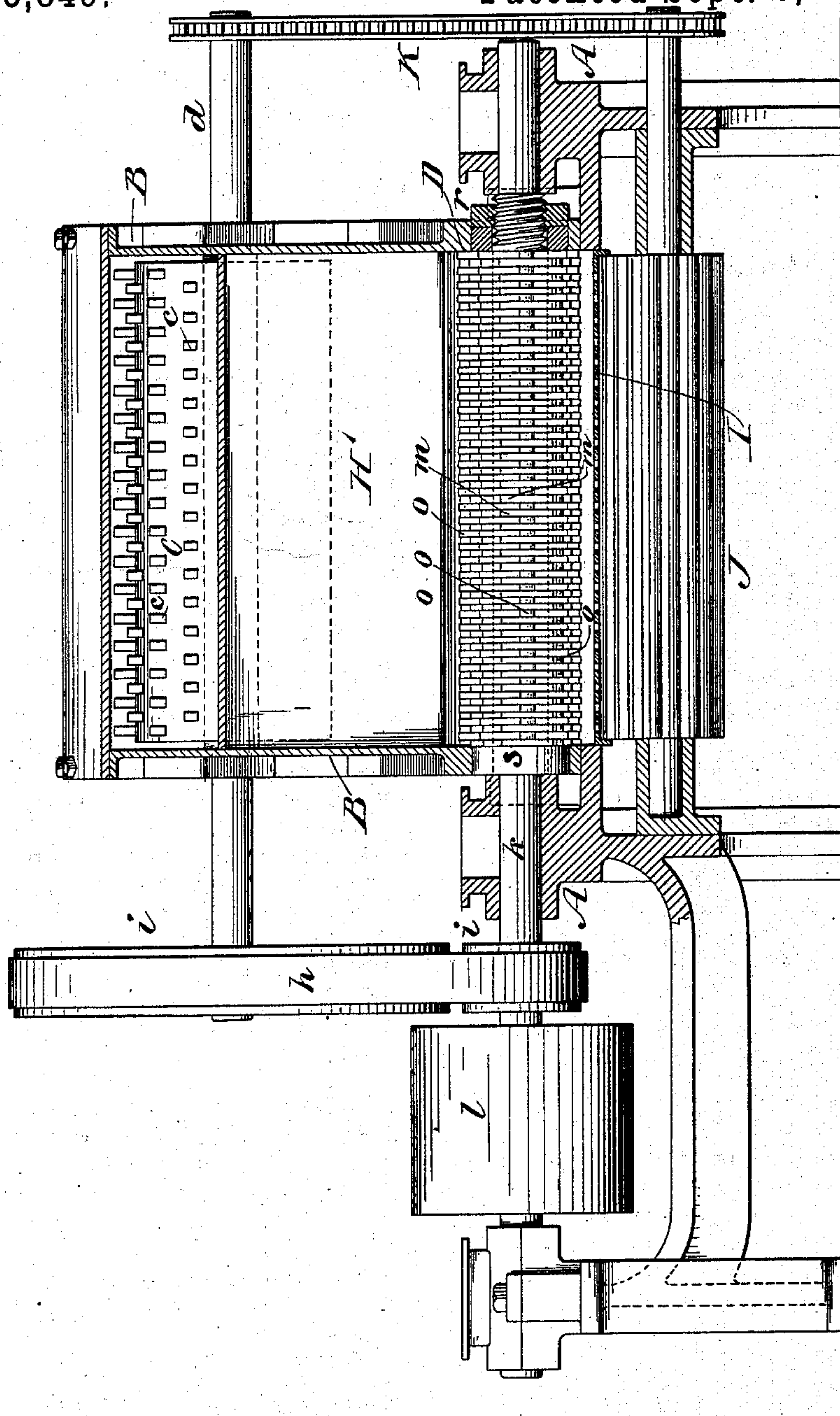
J. McKENDRICK.

BARK MILL.

No. 325,849.

Patented Sept. 8, 1885.

Fig. 3.



WITNESSES:

John H. Deemer
C. Sedgwick

INVENTOR:

J. McKendrick
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN MCKENDRICK, OF NEW YORK, N. Y., ASSIGNOR TO WILLIAM F. MONAGHAN, OF SAME PLACE, AND SIMEON HARTLEY AND CONSTANT C. HODGMAN, BOTH OF NEWARK, NEW JERSEY.

BARK-MILL.

SPECIFICATION forming part of Letters Patent No. 325,849, dated September 8, 1885.

Application filed October 20, 1884. (No model.)

To all whom it may concern:

Be it known that I, JOHN MCKENDRICK, of the city, county, and State of New York, have invented a new and Improved Bark-Mill, of which the following is a full, clear, and exact description.

This invention relates to mills for cutting up or grinding and reducing bark for tanners' use; and it consists in certain constructions and combinations of parts whereby greater efficiency and many conveniences are secured, as will be hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents an end elevation of a bark-mill embodying my invention; Fig. 2, a vertical transverse section of the same, and Fig. 3 a vertical longitudinal sectional view thereof on the line *x x*, Fig. 1.

A is the bed portion and frame of the mill, and B is an upper close case constructed to form at its front an inclined feed-board or barkway, *b*, down which the bark to be reduced is fed. This case B serves to cover or inclose the feed roll or cylinder C, the cutting-cylinder D, and other parts or devices connected with the supply of the bark to the cutting-cylinder. Said case is pivoted below in its front, as at *y*, to the frame A, to admit of its being thrown back when necessary to get at the cutting-cylinder and other parts for the convenience of cleaning or repair.

The feeding-cylinder C, which is armed with spikes *c* on its periphery to force the bark to the cutting-cylinder, is arranged some distance in front of and above the cutting-cylinder, and has its shaft *d* supported in sliding boxes in the sides of the case B, each of said boxes *e* being fitted to work within a guideway, *f*, in the sides of the case, and being pressed down by a spring, *g*, to give a general tumbling motion to the feed-cylinder, whereby it is made to adjust itself to irregularities in the bark as well as irregularities in the feed thereof. This feed-cylinder C is driven by a belt, *h*, and pulleys *i i*, or by any other suitable means of gearing from the shaft *k* of the cut-

ting-cylinder, and to keep the shafts *d* and *k* at the same distance from each other in all automatic adjustments of the feed-cylinder the guides or guideways *f* in which the boxes *e* slide are of curved form, struck from the cutting-cylinder shaft as a center. Said shaft *k* may have motion given to it by a belt-pulley, *l*, from any suitable prime motor or counter-shaft.

The rotary cutter-head or cylinder D is made up of a series of disks, *m*, arranged to lie closely one against the other upon the shaft *k*, along which and a spline, *n*, thereon they are slid to their places. Each of these disks *m* is fitted with any number of insertible cutters or teeth, *o*, fitting at their roots into locking-slots in the peripheral portions of the disks from which the cutting parts of the teeth project. These teeth are so arranged that each successive disk has its cutters or teeth intermediate of the teeth in the next adjacent disk, thus dividing up the cut and giving a more effective action on the bark. The key *n* and the notches in the disks engaged by said key preserve this arrangement of the cutters as the disks are successively slid to their places on the shaft *k*. Said disks *m* are firmly bound together, to form of the whole a solid cutter-head, by means of a screw-nut, *r*, and washer on or near the one end of the shaft *k* and a fixed collar or washer, *s*, at the opposite end of the shaft. This construction of the cutting-cylinder D is not only a substantial one, but also highly economical and convenient, as it permits both a separate renewal of any of the teeth or separate replacement of any of the toothed disks as wear or breakage may render necessary, and avoids the loss or condemnation of the whole cutter-head.

The bark is fed down the inclined way or board *b*, and forced by the spike roll or cylinder C toward the cutting cylinder D, in the course of its passage to which it is relieved from friction by traveling over a roller, E, arranged to project slightly above the feed-board, in the lower end portion thereof, and from thence it passes under a fluted roller, F, arranged over a face-plate, G, which acts as the cutting-bed for the cutting-cylinder D.

This roll F serves to hold the bark steady and to keep it from chattering while being cut, and it has its bearings in sliding end boxes, *a'*, fitted to work in guides or guideways *b'* and forced down by springs *c'*. This yielding pressure of the roll F provides for said roll taking or admitting beneath it bark of irregular sizes and to hold it in contact with the cutting-cylinder and to prevent it from breaking. The face-plate G, over the lower edge of which the bark is cut by the cutting-cylinder D, is made adjustable toward and from said cylinder by means of a screw-bolt, *d'*, passing through a slot in the portion of the case which carries said face-plate.

Arranged within the case B, between the feeding-cylinder C and the yielding fluted roller F, is a fixed guide and guard, H H', the lower or guide portion, H, of which forms the upper wall of a throatway for the bark to the roller F and to prevent it from riding over said roller, while the upper or guard portion, H', which extends from the upper portion of the case B down to the forward end of the guide H, secures the return of any cut bark lifted by the cutting-cylinder back to the front side of the roller F for passage again to said cylinder, and also prevents escape of dust through the mill.

The cutting-cylinder D rotates at its lower portion within the usual screen, I, that graduates the size of the cut bark which passes from the screen down into or between crushing-rolls J J, that may either be corrugated or plain, and which are in automatically-adjustable yielding relation with each other—as, for instance, by rubber or spring backings *e'*, applied to the sliding bearings of one of the rolls. These crushing-rolls serve to open the grain of the cut or ground bark, and

thereby to obtain an increased amount of extract. They may be driven, or one of them, at least, by an endless chain, K, receiving its motion by chain-wheels from the shaft of the feeding-cylinder C, or otherwise.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In a bark-mill, the combination, with the rotary cutting-cylinder, of the feed-cylinder journaled above and in advance thereof, sliding boxes or bearings in which the ends of the feed-cylinder shaft are mounted, the guides or guideways *f*, curved on the arc of the cutting-cylinder, the springs *g*, and suitable gearing between the cutting-cylinder and the feed-cylinder for rotating the latter, whereby the cutting-cylinder and the feed-cylinder will always be the same distance apart, thereby preventing disconnection or straining said gearing, substantially as set forth.

2. In a bark-mill, a close cover or case and a rotary cutter-head or cylinder, in combination with a pressure-roller, F, cutting block or plate G, and the guide H, arranged in relation with said roller as described, whereby the bark as it is being fed is prevented from passing over said roller, substantially as specified.

3. The combination of the close cover or case B, the rotary cutting-cylinder D, the yielding pressure-roller F, the cutting or face plate G, the spike-armed feed-roll C, and the combined guide and guard H H', arranged in relation with said feed-roll and cutting-cylinder, substantially as specified.

JOHN McKENDRICK.

Witnesses:

A. GREGORY,
C. SEDGWICK.