2 Sheets—Sheet 1.

TILLINGHAST & BURDWIN.

BARK BREAKER.

No. 110,403. Patented Dec. 20, 1870.

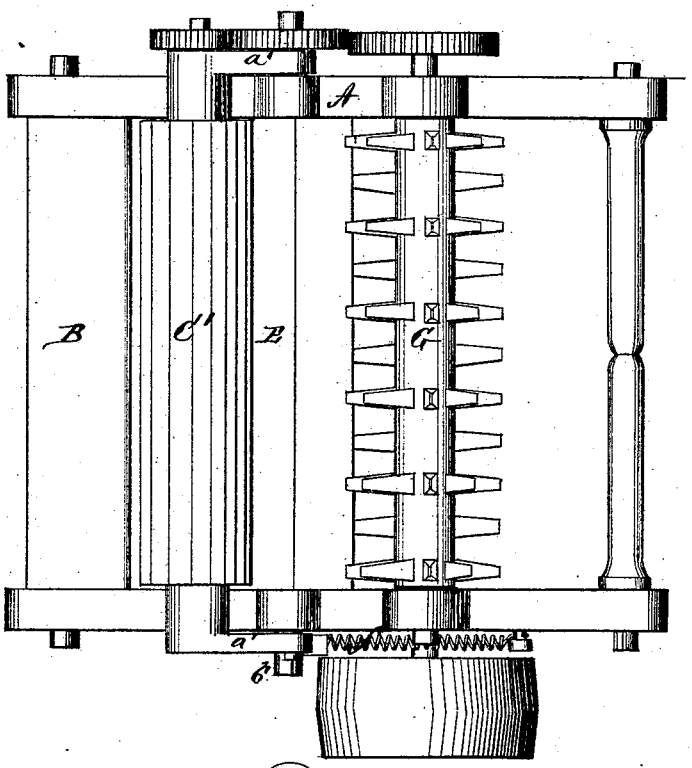
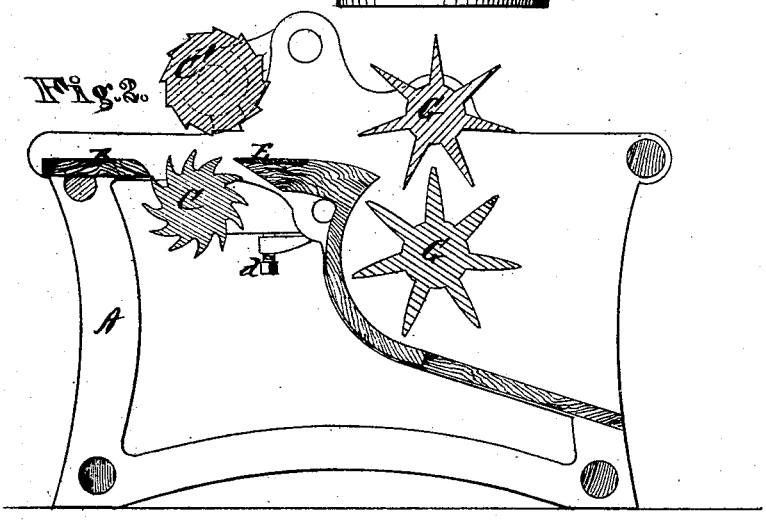


Fig. 2.



Witnesses.
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2 Sheets—Sheet 2.

TILLINGHAST & BURDWIN.

BARK BREAKER.

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Fig. 3.

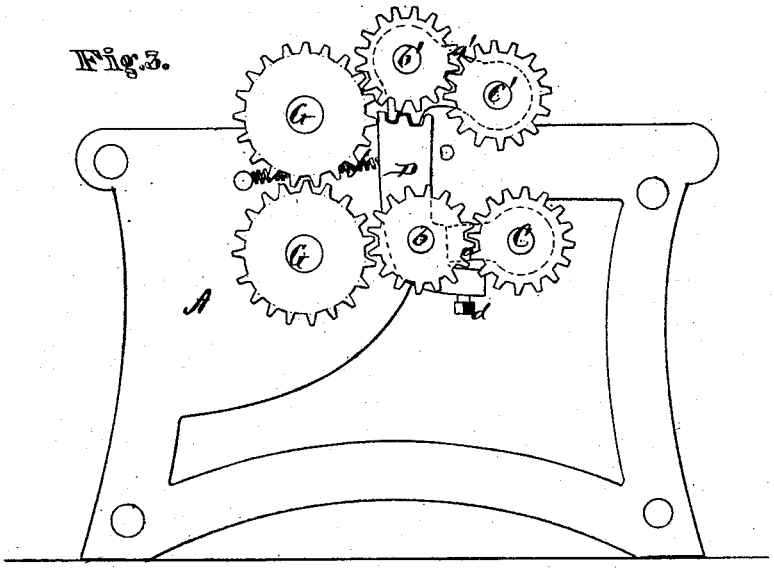
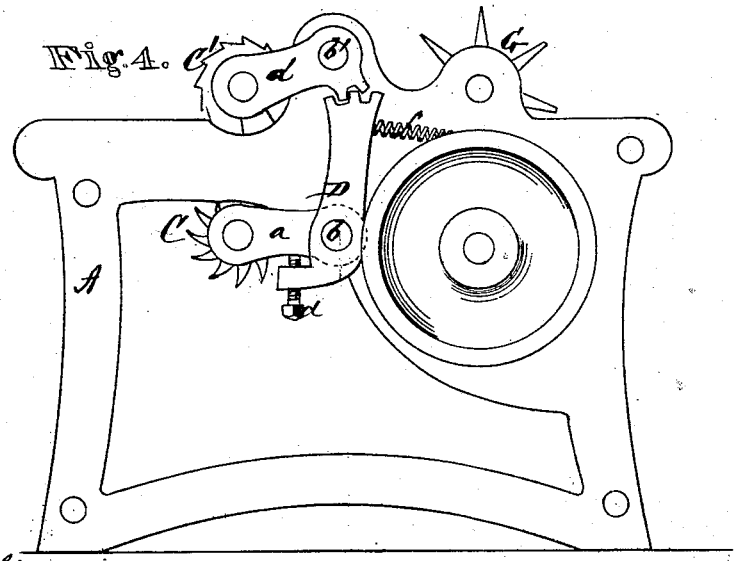


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE S. TILLINGHAST AND JOHN W. BURDWIN, OF MORRISVILLE, N. Y.

IMPROVEMENT IN BARK ROSSERS AND BREAKERS.

Specification forming part of Letters Patent No. **110,403**, dated December 20, 1870.

To all whom it may concern:

Be it known that we, GEORGE S. TILLINGHAST and JOHN W. BURDWIN, of Morrisville, in the county of Madison and State of New York, have invented a new and valuable Improvement in Bark Rossers and Breakers; and we do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawings, making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawings is a representation of our machine in plan view. Fig. 2 is a transverse vertical section. Fig. 3 is a side elevation, showing the gear-wheels; and Fig. 4 is a view of the opposite side of the machine.

Our invention has relation to an improvement in machines for rossing and breaking bark; and it consists in the construction and novel arrangement of devices whereby the feeding-rollers are automatically adjusted with reference to the rossing-knife, thereby enabling the said knife to clear off an amount of the scaly exterior proportionate to the thickness of the bark, whatever it may be.

A represents the frame of our machine, in the front end of which is situated the stationary feed-table B. Immediately in rear thereof are the feed-rollers C C′, which are fluted, as shown in Fig. 2. The lower feed-roller, C, is supported in arms *a a*, pivoted on pins *b b*—one in each side of the machine. These arms *a a* are supported on thumb-screws *d d*, which pass through the lower ends of bent levers D D, also pivoted on the pins *b b*. The upper ends of these levers have a few cogs, which gear with cogs upon the inner ends of arms *a′ a′*, which are pivoted on other pins, *b′ b′*, and support the upper feed-roller, C′. The feed-rollers by this arrangement become self-adjusting for any thickness of bark; but by means of the adjusting thumb-screws *d d*, under the arm-joint of the lower feed-roller, the thickness of the rossing may be fixed.

By means of the peculiar method of connecting the feed-rollers by the finger-joint upon the adjusting arms or levers D, the upper feed-roller is forced upward by thick bark, and the under roller is lowered one-half as much as the upper is raised, thus increasing the thickness of rossing in proper proportion in all cases. The lower feed-roller is of same diameter as the upper, but is rendered lighter by being deeply fluted, thus giving the upper roller advantage in weight and leverage sufficient to hold the bark steadily in place; but the advantage may be increased by adding any required lever and weight to either or both rollers, thus dispensing with the spiral spring *f*, which draws the upper end of the lever D backward, bringing the two feed-rollers together.

By using two feed-rollers instead of one the friction upon the bed or feed-table is avoided, and less power required to operate it.

In rear of the feed-rollers is placed the knife E, and in rear thereof two toothed cylinders G G, which are used for breaking the bark. These cylinders will easily perform their work with little power and less rate of speed than those heretofore used for that purpose, while they will also insure perfect feed, and will always fully prepare the bark for the mill. All other machines leave it too coarse, and require high rate of speed.

The feed-rollers are geared with each other, thus insuring perfect feed, and the breaking rollers or cylinders are also geared together, whereby their power is greatly increased, and certainty of breaking insured.

The double feed-rollers obviate the necessity of adjusting by hand-lever for each piece of bark by lowering bed or table; but these will always readily adjust themselves to any and all thicknesses.

Cross-belting may always be avoided in this machine by reversing breaking-rollers, so as to have belt-pulley upon upper or lower roller, or at either end.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In combination with the self-adjusting reciprocal feeding-rollers C′ C, the rossing-knife E, substantially as specified.

2. The arrangement of the levers D D, arms *a a* and *a′ a′*, thumb-screws *d d*, and springs *f f*, or their equivalent, for making the feed-rollers C C′ self-adjusting, substantially as herein set forth.

3. In a machine for rossing and breaking bark, the combination of the lower deeply-in-

dented feeding-roller, C, with the upper feeding-roller, C′, having its serrations projecting in a much less degree, substantially as and for the purposes specified.

4. The combination of the breaking-rollers G G, rossing-knife E, and self-adjusting feed-rollers C′ C, substantially as specified.

In testimony that we claim the above we have hereunto subscribed our names in the presence of two witnesses.

GEORGE S. TILLINGHAST.
JOHN W. BURDWIN.

Witnesses:
LUCIUS P. CLARK,
BRADLY TILLINGHAST.