S. R. THOMPSON.

MACHINES FOR ROSSING AND GRINDING BARK.

No. 176,709. Patented April 25, 1876.

Fig. 4.

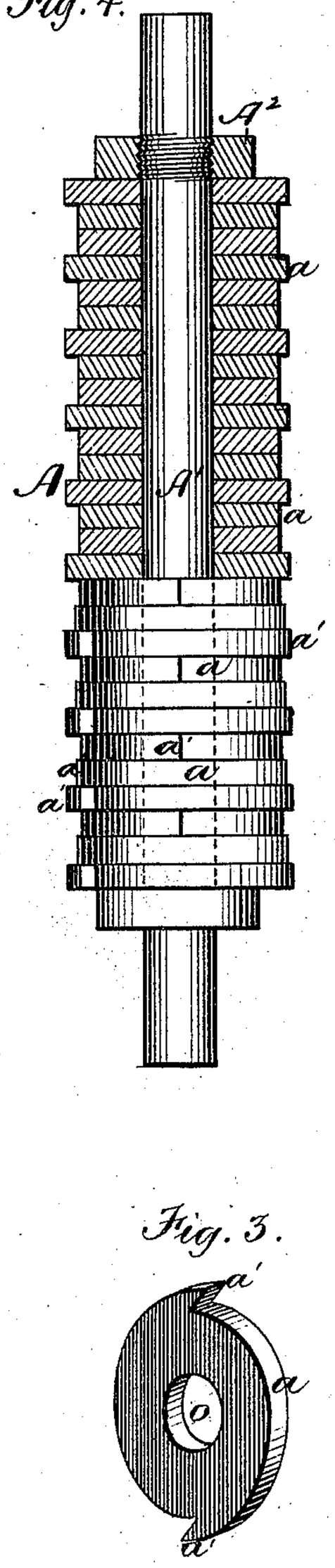

Fig. 1.

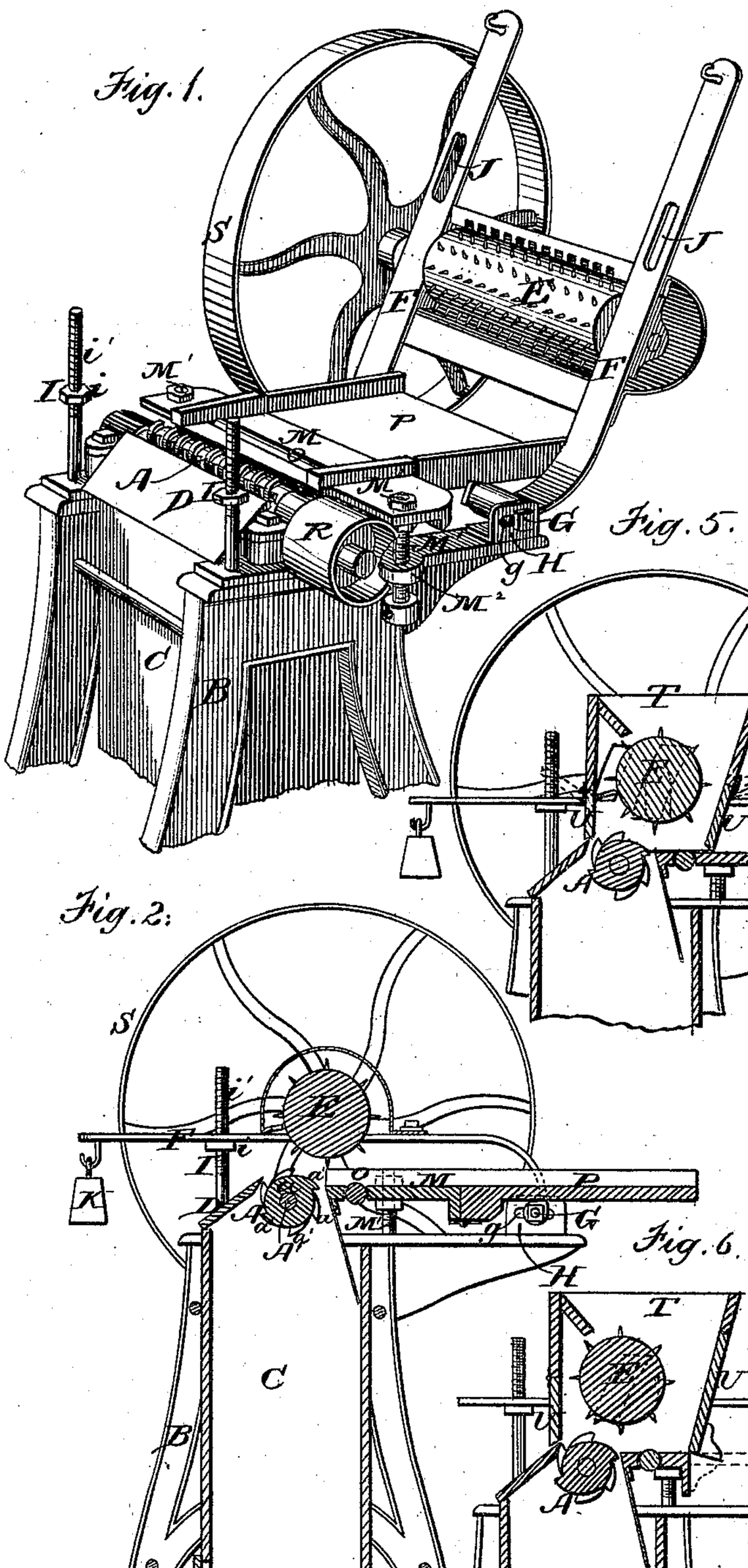

Fig. 5.

Fig. 2.

Fig. 3.

Fig. 6.

Witnesses:
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UNITED STATES PATENT OFFICE.

SAMUEL R. THOMPSON, OF PORTSMOUTH, NEW HAMPSHIRE.

IMPROVEMENT IN MACHINES FOR ROSSING AND GRINDING BARK.

Specification forming part of Letters Patent No. **176,709**, dated April 25, 1876; application filed March 8, 1876.

To all whom it may concern:

Be it known that I, SAMUEL R. THOMPSON, of Portsmouth, in the county of Rockingham and State of New Hampshire, have invented certain Improvement in Machines for Rossing and Grinding Bark, of which the following is a specification:

In the accompanying drawing, forming a part of this specification, Figure 1 is a perspective view of my improved machine, showing the feed-roll elevated. Fig. 2 is a vertical section of the same. Fig. 3 is a perspective view of one of the sections of the cutting-cylinder. Fig. 4 is a sectional view of the cutting-cylinder, and Figs. 5 and 6 are sectional views of the machine, showing the hopper.

This invention relates to the machines for grinding or rossing tan-bark which employ a rotary cutter for shaving or grinding the bark, a feed-roll for feeding the bark to and pressing it upon the cutter, and a bed-plate for supporting the bark as it is fed to the cutter.

The invention has for its object to improve the construction of bark rossing and grinding machines in regard to the feeding mechanism and the bed-plate on which the bark is supported as it passes to the cutting mechanism in such manner as to enable the feeding mechanism and bed-plate to be adjusted in such manner as to regulate the operation of the cutting mechanism on the bark and enable said cutting mechanism to grind the bark entire or separate any desired thickness of liber therefrom, and to facilitate the grinding of coarse fragments of bark.

To these ends my invention consists, first, in certain details of construction whereby the feed-roll is adapted to be adjusted horizontally in such manner as to enable it to be depressed below the upper surface of the cutting-cylinder without striking the latter when the entire bark is to be ground. It sonsists, secondly, in the combination of a stationary cutting-cylinder with a feed-roll, which is adjustable both vertically and horizontally, whereby the cutting-cylinder is adapted to grind the ross and liber together, or to shave the rind or liber from the ross. It cousists, lastly, in a hopper adapted to hold fragments of bark and feed them to the cutter, all of which I will now proceed to describe.

In the drawings, A represents the rotary cutting-cylinder, which is preferably composed of a series of sections or collars, *a*, located in close contact with each other on a horizontal arbor, A′, which revolves in suitable bearings on the supporting-frame B. Each of the sections or collars *a* is provided with a central opening, *o*, adapted to receive the arbor A′, and one or more teeth projecting from its periphery, as shown in Fig. 3, these teeth being so formed as to shave fragments of rind or liber from a piece of bark passed over the cylinder A in a direction opposite to the direction of the rotation of the cylinder. Each tooth *a′* is of the same width as the collar on which it is located, and the teeth are arranged along the cylinder in spiral rows or series, so that as the cylinder is revolved the teeth act successively on the bark, each tooth detaching or shaving a small fragment from the bark. The sections are confined on the arbor A^1 by a nut, A^2. C represents a receptacle under the cutting-cylinder A into which the shavings fall from the cutter, and D is an incline over which the ross passes when separated from the liber. E represents the feed-roll, which is located above the cutting-cylinder and has spurs on its periphery. The roll E is journaled in blocks supported by two hinged arms, F F, which are hinged at G G to slotted ears H on the supporting-frame, and are adapted to oscillate on their hinges in a substantially vertical plane. The axis of the feed-roll E is parallel with that of the cutting-cylinder, and the feed-roll is preferably located somewhat in front of the cutting-cylinder. The feed-roll is rendered adjustable vertically and horizontally by means of the hinged arms F F, the free ends of which can be raised or lowered, while the hinged ends can be adjusted horizontally in the horizontal slots *g* of the ears H, these movements of the arms enabling the feed-roll to be moved toward or away from the cutting-cylinder vertically and horizontally, the vertical adjustment enabling various thicknesses of bark to be rossed, and the horizontal adjustment enabling the feed-roll to be moved toward the

front of the machine, so that it may be lowered without striking the cutting-cylinder, when it is desirable to grind the ross with the rind or liber. The downward movement of the arms F is limited by adjustable stops or rests I I, these consisting of nuts *i* located on vertical threaded standards *i'*, which project from the supporting-frame B, the upper ends of the standards projecting through slots J J in the arms F. By adjusting the nuts on the standards *i'* the feed-roll is supported at any desired height above the cutting-cylinder. The feed-roll is preferably held downwardly, with a yielding pressure greater than would be afforded by its own weight, by weights K, which are attached to the free ends of the arms F.

M represents a bed-plate located in front of the cutting-cylinder A, and adapted to support the bark as it passes to the cylinder. The bed-plate is supported by two or more vertically-adjustable threaded standards, M^1, which pass through tapped lugs M^2 in the frame A. By turning the standards M^1 the bed-plate may be raised or lowered to any desired extent, so as to regulate the thickness of the shavings of liber taken from the bark by the teeth *a'*, or to allow the bark to be ground entire. O represents a friction-roller journaled in the sides of the bed-plate M, and projecting slightly above the upper surface of the same, as shown in Fig. 3. This roller supports the bark and facilitates its passage to the cutting-cylinder. P represents a spout or extension of the bed-plate, which is hinged to the outer end of the bed-plate, and is adapted to be inclined downwardly to any desired extent, so as to facilitate the presentation of a longitudinally curved piece of bark to the cutting-cylinder. The sheets of bark in drying are liable to become warped, the rind or liber side becoming concave; consequently, if the bed-plate is horizontal, the end of the bark is liable to be inclined downwardly as it meets the teeth *a'*, and in this position greater pressure is required to straighten the bark and cause it to pass between the cutting-cylinder and the feed-roll. The hinged extension P, however, enables the outer end of the bark to be depressed, so as to present the inner end to the cutting-cylinder in a substantially horizontal position, and enable it to be passed readily over the cutting-cylinder. T represents a hopper, which is adapted to constitute a bottomless box or casing around the feed-roll and the upper surface of the cutting-cylinder, as shown in Fig. 5, the lower edge of the hopper resting on the bed-plate and incline D. The hopper is adapted to receive fragments of bark and feed them to the cutter. The sides of the hopper are provided with hinged flaps U U, which are adapted to be raised, as shown in dotted lines in Fig. 5, when the machine is used for rossing. The cutting-cylinder and feed-roll are rotated differentially by pulleys R S, which are driven by belts, the cutting-cylinder being rotated at a higher rate of speed than the feed-roll.

From the foregoing it will be seen that the following advantages are obtained, viz., the feed-roll is enabled to be adjusted vertically, so as to admit any desired thickness of bark between itself and the cutting-cylinder. The feed-roll is enabled to be moved horizontally away from the cutting-cylinder, by means of the horizontal slots in the ears H, so as to admit of its being lowered, together with the bed-plate, so far as to enable the cutting-cylinder to grind the ross with the rind or liber. The adjustability of the bed-plate and the feed-roll enables any desired thickness of rind or liber to be shaved from the bark. The hinged extension of the bed-plate enables curved bark to be properly presented to the cutting-cylinder, and the hopper enables small pieces or fragments of bark to be conveniently ground.

I do not confine myself to the precise construction and combination of parts shown and described, as various modifications may be made without departing from the spirit of my invention. The adjustable feed-roll may be used with a non-adjustable bed-plate, and the adjustable bed-plate may be used with a non-adjustable feed-roll when only one kind of work is to be done. One of the flaps U of the hopper may be adapted to form an extension of the bed-plate when lowered, as shown in Fig. 6, by dotted lines. The ends of the hopper should be provided with slots adapted to enable the feed-roll to be adjusted.

I claim—

1. The hinged arms F F, supporting the feed-roll E, combined with the horizontal slots *g*, whereby the feed-roll is enabled to be adjusted horizontally.

2. The stationary cutting-cylinder A, combined with the horizontally and vertically adjustable feed-roll E, and the vertically adjustable bed-plate M, substantially as described.

3. The hopper T, having the hinged flaps U U, combined with the feed-roll E and cutting-cylinder A, substantially as described.

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

SAMUEL R. THOMPSON.

Witnesses:
SAML. M. BARTON,
C. F. BROWN.