W. D. & N. H. SHAW.

Wood-Grinding Machine for Paper-Pulp.

No. 209,197. Patented Oct. 22. 1878.

Fig. 1.

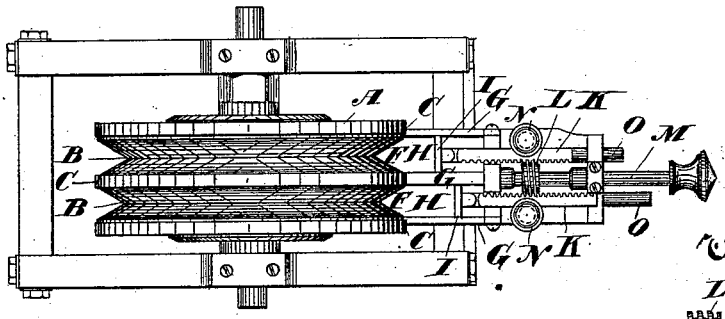



Fig. 3.

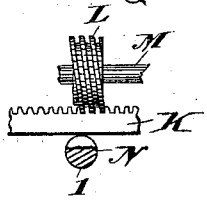
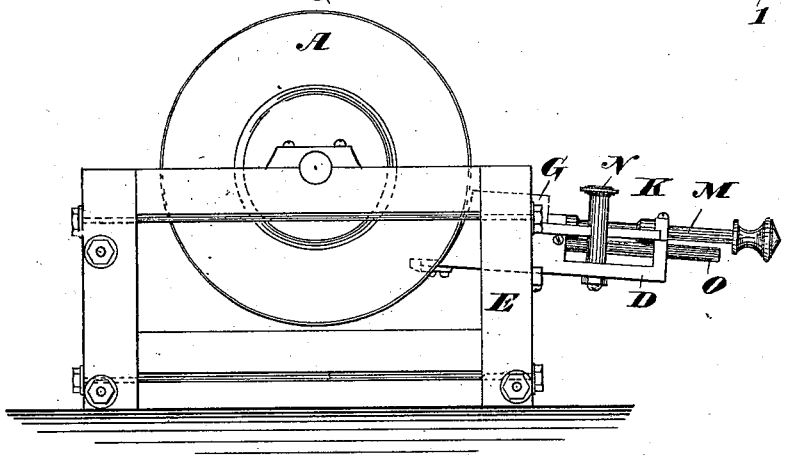



Fig. 2.

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## IMPROVEMENT IN WOOD-GRINDING MACHINES FOR PAPER-PULP.

Specification forming part of Letters Patent No. **209,197**, dated October 22, 1878; application filed September 21, 1878.

*To all whom it may concern:*

Be it known that we, WINTHROP DEARBORN SHAW, of Ashland, in the county of Grafton, in the State of New Hampshire, one of the United States of America, and NATHANIEL HERSEY SHAW, of the village of Bedford, in the county of Missisquoi, in the Province of Quebec, Canada, have invented certain new and useful Improvements on Machines for Grinding Wood for Paper-Pulp; and we do hereby declare that the following is a full, clear, and exact description of the same.

Our present invention consists in providing the stone or wheel with an extended grinding-surface, so arranged as to enable the stone to be girt with metallic bands to support it, and enable the stone to revolve with greater velocity than without the bands.

We are aware that an extended grinding-surface, already in use, is obtained by forming the stone or grinding-surface with a rigid or convex transverse sectional periphery, which so far answers the purpose of giving an extended surface. By this peculiar configuration the stone is prevented from being supplied with binding metallic hoops to enable the stone to run at a greater velocity with than without said binding-hoops, decreasing the danger of the stone bursting, by reason of its centrifugal force overcoming the attraction of cohesion holding it together.

By forming a stone or wheel with grooved or concaved transverse sectional periphery, spaces may be left on the stone upon which binding-hoops may be placed, and the grooves so formed, as they wear and from time to time are trued up, are deepened without disturbing the bands, as will hereinafter be more clearly described.

Our invention further consists in a new construction and arrangement of feed-box for holding and pressing the wood upon the grind-stone or wheel.

In the drawings hereunto annexed similar letters of reference indicate like parts.

Figure 1 is a plan embodying our invention. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a detail.

A is the stone or wheel, with two grooves, B B, and with three spaces, upon which loops C C are shrunk or otherwise secured in the ordinary manner, to prevent the stone or wheel flying to pieces by reason of the great velocity of its revolutions with the shaft, upon which it is hung and rotated in the ordinary manner.

By making B grooves instead of ridges, when their surfaces are worn out, and require to be trued up, it is only necessary to deepen the grooves.

The feed-box consists of a bed, D, attached to the frame upon which the stone or wheel is supported. The front end of the bed is provided with points F agreeing with the angles of the grooves. The bed D is also provided with three upright diaphragms, G, dividing it into two spaces or boxes, H H, of equal width with the grooves B, and also situated to agree with the same. In these boxes the wood to be ground is placed.

I are the presser-plates for pressing the wood forward into the grooves of the stone or wheel. To these are attached, by joints and pivots, as shown, worm-racks K K, which engage with a worm-wheel, L, secured on a spindle, M, which spindle and worm-wheel may be rotated by any suitable pulley or gear driven by power. The spindle M is carried in suitable bearings formed on the bed D. As the racks K are attached to the plates I by a joint, they are free to swing sidewise and disengage from the wheel L. For the purpose of keeping them engaged with the said wheel, a turning-post, N, is provided on the outside of each rack. The parts of these posts where they pass the racks K are reduced to the section shown in Fig. 3, so that when the post is situated as shown in Fig. 3 the rack may be disengaged from the wheel without disturbing the rack on the opposite side. This is for the purpose of enabling the one presser-plate to be situated at any given point in the box without being dependent on the position of the other, and thus accommodate different-sized pieces of wood in the two boxes H H, and the plates I can be set to cause the wood to press into the grooves almost immediately in either box, regardless of whether the wood in them is equal or not. By turning the turning-posts N around so that the point 1 is op-

posite the rack, each rack is thus securely confined in its engagement with the wheel L, or released at pleasure. O O are spindles attached on the plates I and passing through eyes in projections of the bed.

Although but one set of boxes H are shown in the drawings, several boxes of the same construction and arrangement may be provided; and although the stone or wheel is shown as situated vertically, it may be set horizontally.

Although in this specification A has been described as a stone or wheel—that is to say, a grindstone—it may also be a wheel for emery or other grinding material, and it may be, if desired, a compound surface of part grindstone and part emery, or other grit or grinding substances.

What we claim as our invention is as follows:

1. The wheel A, having grooves B, substantially as and for the purposes described.

2. The wheel A, having grooves B, with bands C, substantially as and for the purposes set forth.

3. The combination of the boxes H, presser-plates I, racks K, and worm-wheel L, with the wheel A, having grooves B, substantially as and for the purposes described.

Bedford, 16th day of September, A. D. 1878.

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Witnesses:
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