(No Model.) 2 Sheets—Sheet 1.

F. H. SCHMIDT.

APPARATUS FOR GRINDING WOOD

No. 401,971. Patented Apr. 23, 1889.

Fig. 1.

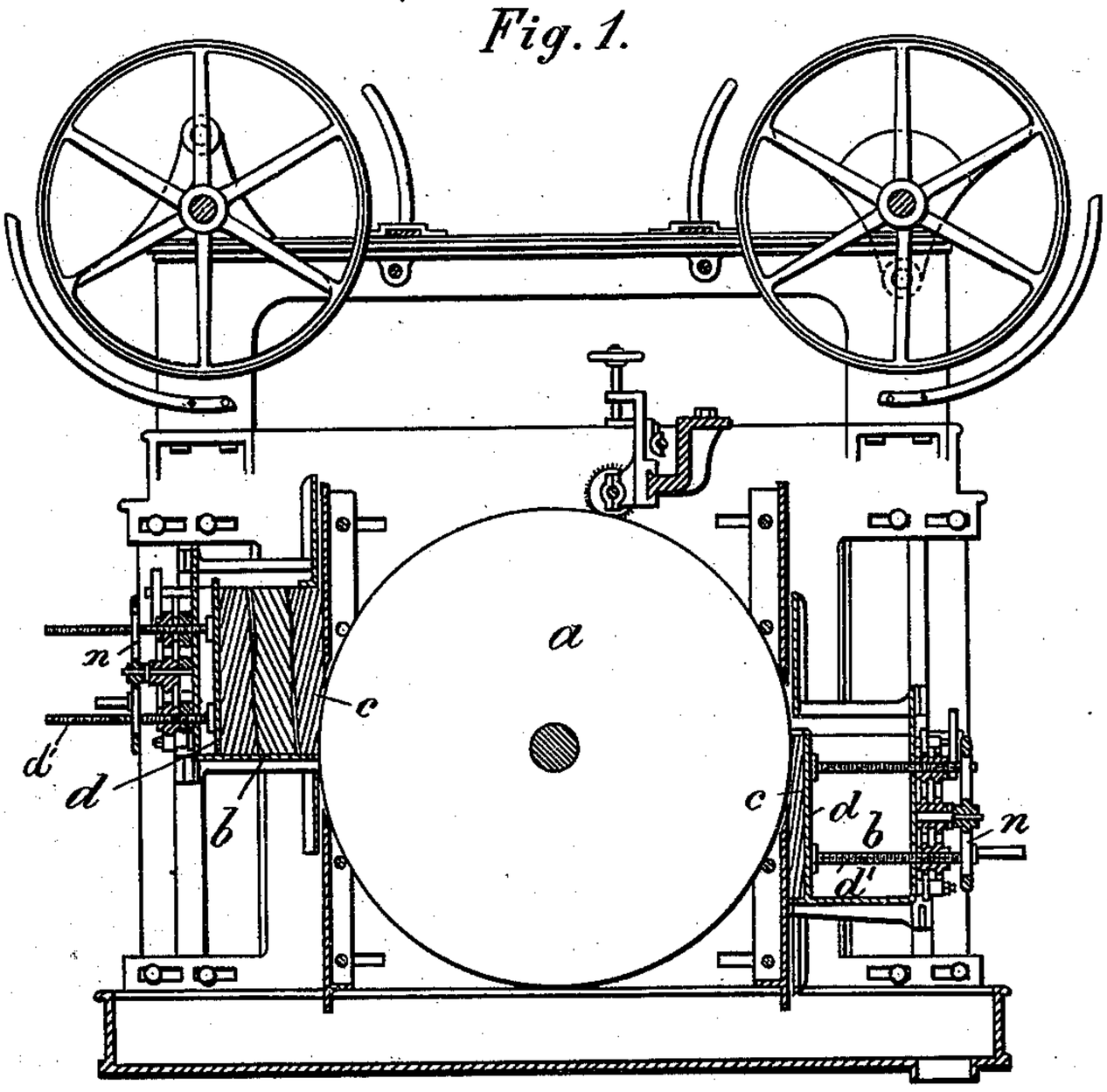
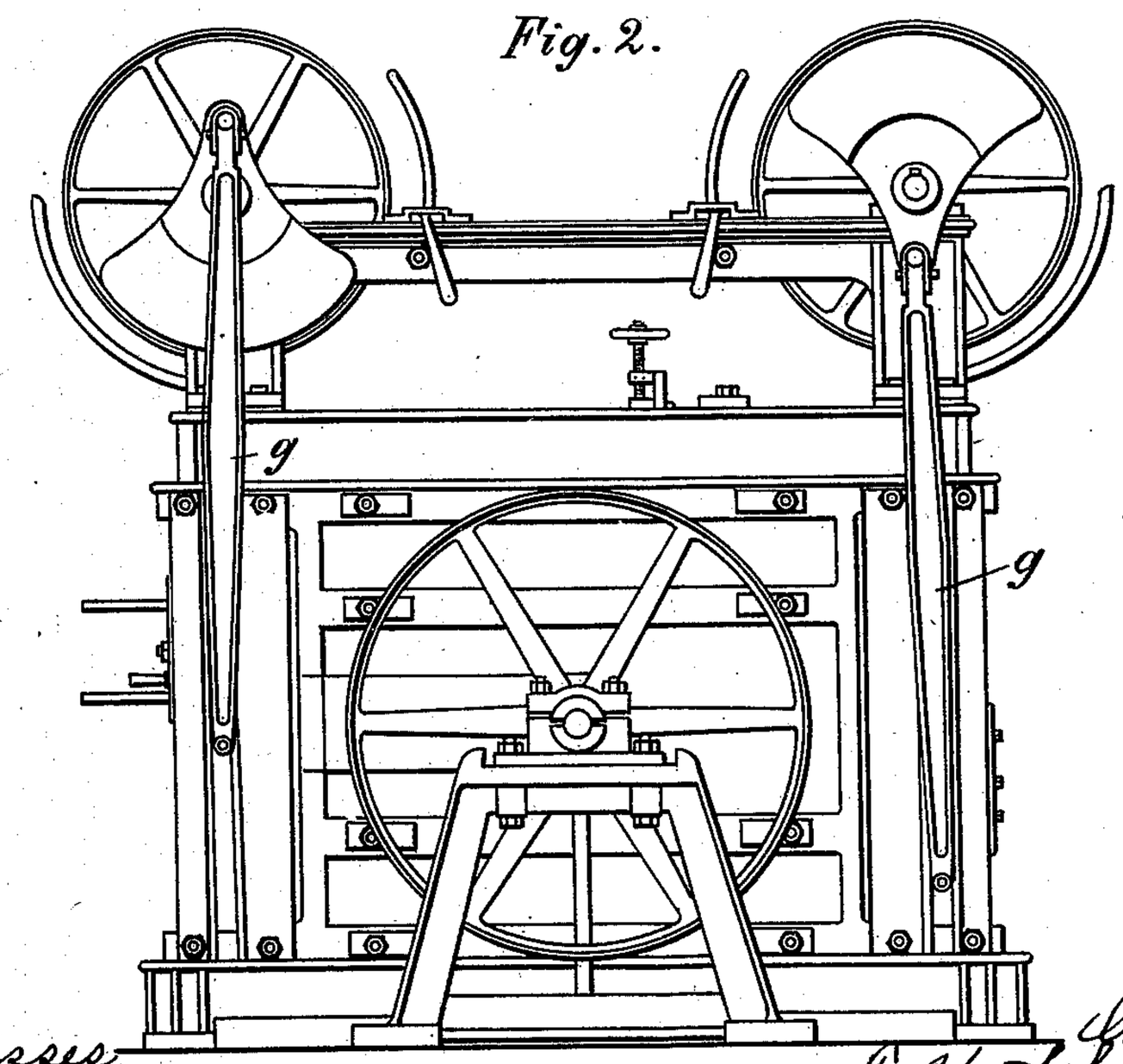


Fig. 2.



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(No Model.) 2 Sheets—Sheet 2.

F. H. SCHMIDT.

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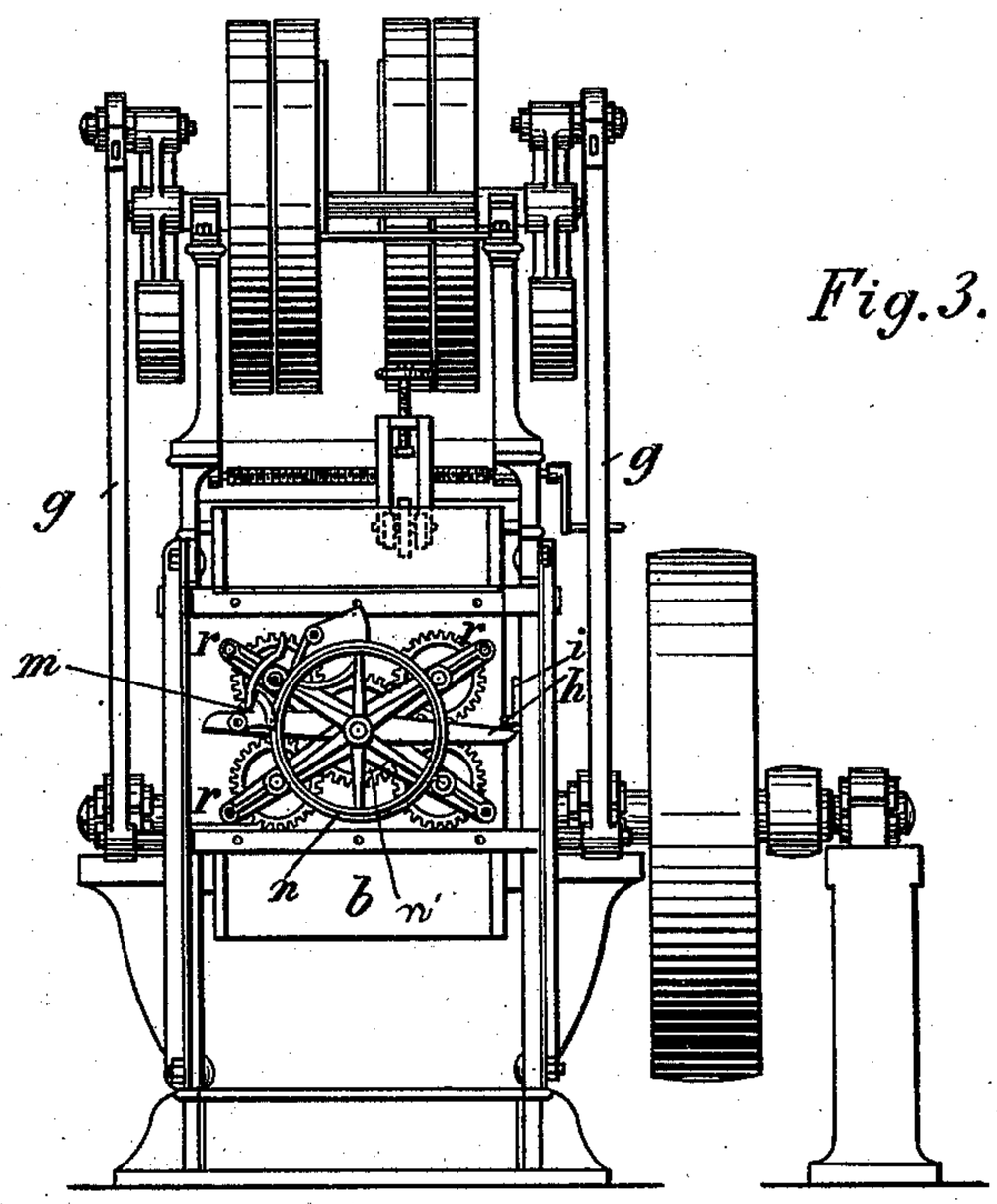


Fig. 3.

Fig. 4.

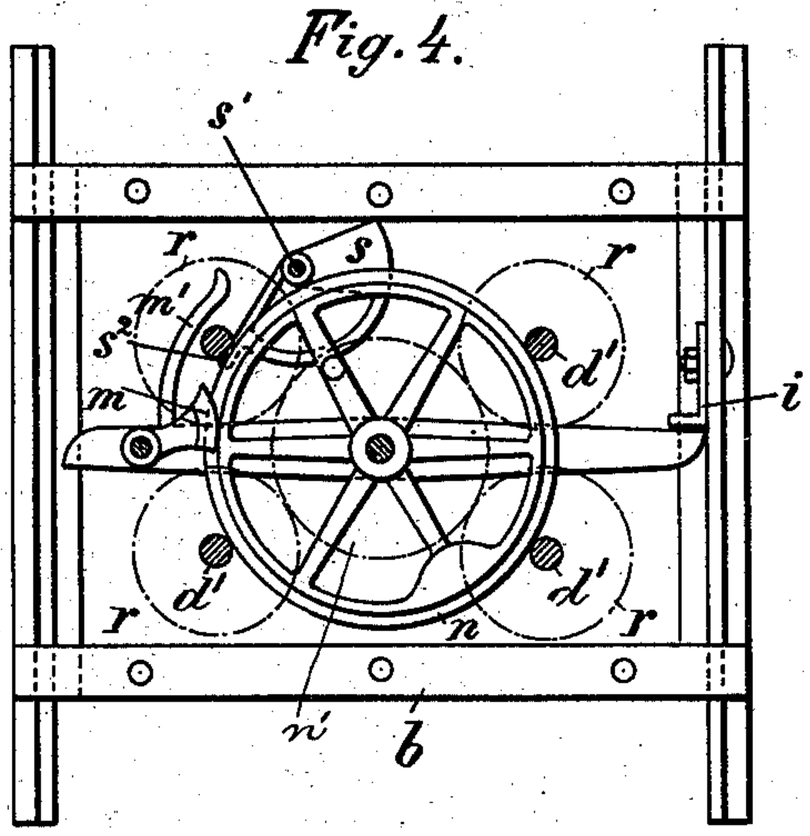
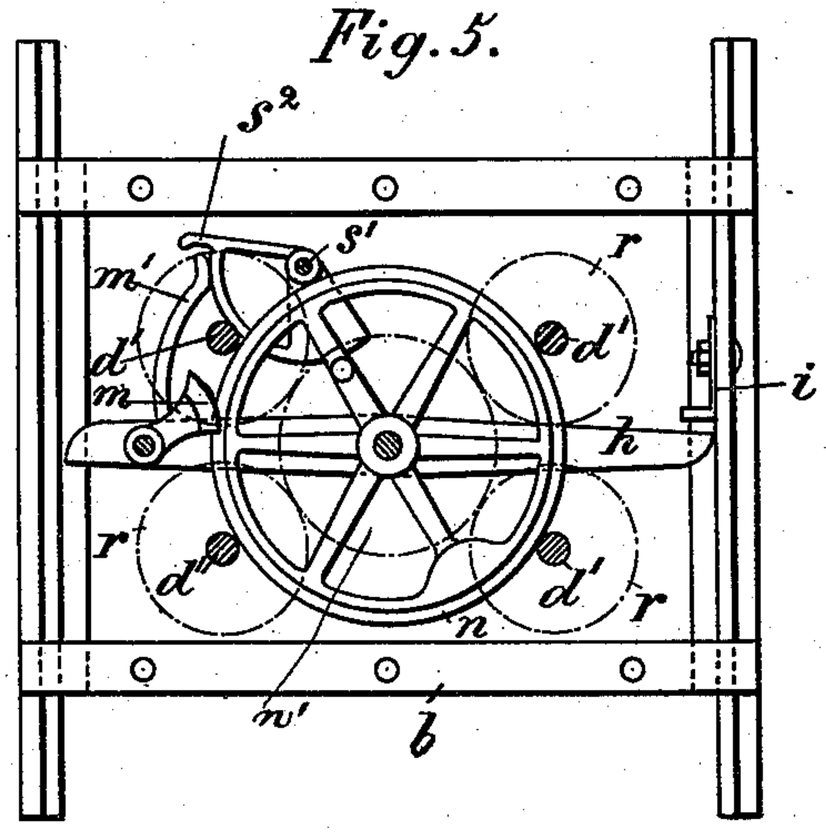


Fig. 5.



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UNITED STATES PATENT OFFICE.

FRIEDRICH HERMANN SCHMIDT, OF SCHINDLER'S WERK, NEAR BOCKAU, SAXONY, GERMANY.

APPARATUS FOR GRINDING WOOD.

SPECIFICATION forming part of Letters Patent No. 401,971, dated April 23, 1889.

Application filed July 28, 1888. Serial No. 281,330. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH HERMANN SCHMIDT, a subject of the King of Saxony, German Empire, residing at the village of Schindler's Werk, near Bockau, in the Kingdom of Saxony, Empire of Germany, have invented certain new and useful Improvements in Apparatus for Grinding Wood, of which the following is a specification.

This invention relates to the automatic feeding of wood to the grindstone, as also to the automatic disengagement of the apparatus which operates the feeding device.

A grinding apparatus provided with these improvements is shown in longitudinal section in Figure 1 of the accompanying drawings, in side view in Fig. 2, and in front view in Fig. 3. Figs. 4 and 5 show in front view the grinding-box on a larger scale.

On each side of the grindstone *a* there is a grinding-box, *b*, moved up and down by means of the crank-rod *g*, working in vertical guides. The wood, *c*, to be ground is placed vertically in the grinding-box *b*, so that the wood is ground lengthwise in the direction of the fiber and touches the stone in one line only. The wood is pressed against the stone without the use of weights by means of a pressure-plate, *d*, provided with four screw-spindles, *d'*, operating in such a manner that while the grinding-box *b* is moving up and down the lever *h*, provided with a pawl, *m*, strikes against an adjustable stop, *i*, fixed to the frame of the grinding apparatus, and by means of which the ratchet-wheel *n* is moved forward a little. Upon the spindle of the ratchet-wheel *n* there is secured a crown-wheel, *n'*, Figs. 4 and 5, which gears with the four gear-wheels *r*, which are in the form of nuts upon the spindles *d'*. As the wheels *r* are secured in the front wall of the grinding-box so that they can turn but not move lengthwise, each movement of the ratchet-wheel *n* will cause the four spindles *d'* and with them the pressure-plate *d* to move forward in the direction of the grindstone. In this manner the pressure-plate gradually feeds the wood toward the grindstone, and accordingly as the wood is to be fed faster or slower the stop *i* is fixed higher or lower.

On the front wall of the grinding-box there is a segment, S, loaded on one side and revolving loosely upon a spindle, S'. This projects, with its tappet S^2, against one of the spindles *d'*, Fig. 4; but the tappet loses its support when the spindle has been so far screwed into the grinding-box that its outer end passes the segment. The segment then falls, under the influence of its overbalancing weight, from the position shown in Fig. 4 to that shown in Fig. 5. This takes place when the wood in the grinding-box has been all used up—that is, when the pressure-plate is only a few millimeters distant from the grindstone. As the segment S tumbles into the position shown in Fig. 5, the tappet S^2 strikes against an arm, *m'*, secured to pawl *m*, and thereby lifts pawl *m* out of engagement with the ratchet-wheel *n*. A further feeding of the wood no longer takes place, and the pressure-plate may be screwed back. As soon as the grinding-box is again filled with wood, the segment S is replaced to its former position, Fig. 4, and the feeding begins anew.

It is evident that my invention is not confined to use with a grindstone in the most limited sense of the term; but any grinder, cutter, or reducer can be employed to reduce the wood to fiber.

What I claim is—

1. In a wood-grinding machine, the combination of a grinding-box, into which the wood to be ground is placed, a feed-plate in the box to feed the wood against the grinder, gearing to force in the feed-plate, and a pitman connected to the grinding-box to reciprocate the same, and thereby operate the gearing to move the feed-plate inwardly, substantially as described.

2. In a wood-reducing machine, the combination of a reciprocating grinding-box adapted to receive the wood to be ground, means for reciprocating the same, a feed-plate in the box to feed the wood against the grinder, gearing to move the plate, and a stationary stop adapted to be engaged by and operate said gearing as the box reciprocates, substantially as described.

3. In a wood-reducing machine, the combination of a reciprocating grinding-box to re-

ceive the wood to be ground, gearing carried by the box to feed the wood in the same against the grinder, and a lever to operate said gearing moving with the box and adapted to engage and be rocked by a stationary part as the box reciprocates, and thereby actuate the gearing, substantially as described.

4. In a wood-grinding machine, the combination of a reciprocating grinding-box adapted to receive the wood to be ground, a pressure-plate in the box to feed the wood against the grindstone, gearing to move the pressure-plate, a stationary stop, and a lever moving with the grinding-box to be rocked by the stop as the box reciprocates, and thereby operate the gearing to feed the wood, substantially as described.

5. In a wood-grinding machine, the combination of a reciprocating grinding-box adapted to receive the wood to be ground, a pitman to reciprocate the same, and a pressure-plate in the box to feed the wood against the grindstone, substantially as described.

6. In a wood-grinding machine, the combination of a reciprocating grinding-box to receive the wood to be ground, a pressure-plate in the box to feed the wood against the grindstone, a ratchet-wheel carried by the box, gearing connecting the pressure-plate and ratchet-wheel to operate the plate to feed when the wheel is turned, an adjustable stop, and a lever moving with the box and provided with a pawl to rotate the ratchet-wheel when the lever is rocked by said stop as the box reciprocates.

7. In a wood-grinding machine, a grinding-box to receive the wood to be ground, a pressure-plate to feed the wood against the grindstone, one or more rods to force in the plate, gearing to operate the rods, and a weighted pivoted segment adapted to disconnect the gearing from its driving-power and stop the feed when the rods have forced the plates in a certain distance, substantially as described.

8. In a wood-grinding machine, the combination of the grinding-box adapted to receive the wood to be ground, a pressure-plate movable in the box to feed the wood against the grinding-stone, gearing to move the plate, and a pivoted lever or segment to stop the feed when the wood in the box is exhausted, substantially as described.

9. In a wood-grinding machine, the combination of a reciprocating grinding-box to receive the wood to be ground, a pressure-plate movable in the box to feed the wood against the grindstone, one or more rods secured to the plate to move the same, gearing to operate the rods, a ratchet-wheel to operate the gearing, a lever provided with a pawl to rotate the ratchet-wheel when the lever is rocked, means to intermittingly rock the lever as the box reciprocates, and a pivoted lever or segment to automatically throw the lever-pawl from engagement with the ratchet-wheel and stop the feed when all the wood in the box is exhausted.

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

FRIEDRICH HERMANN SCHMIDT.

Witnesses:
C. H. KLEMM,
F. E. WAGNER.