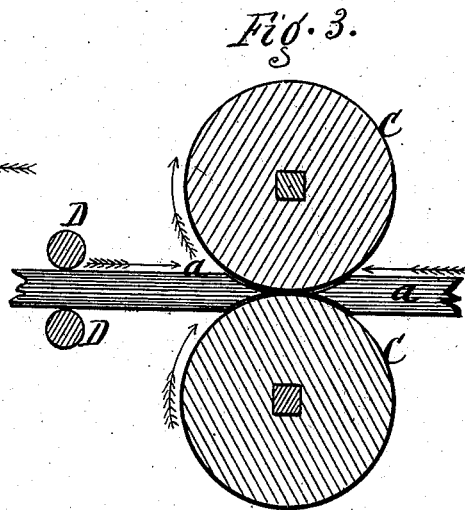
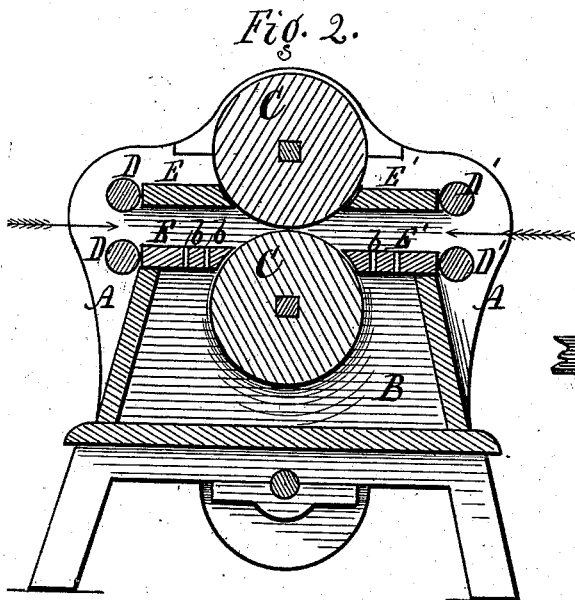
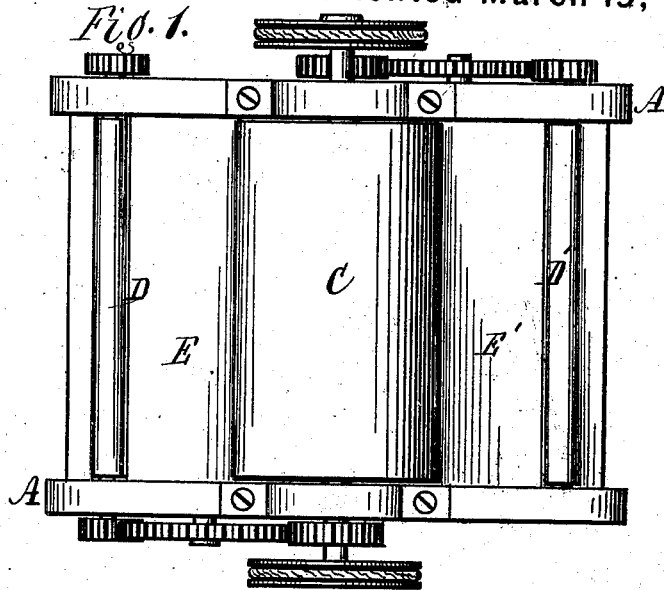
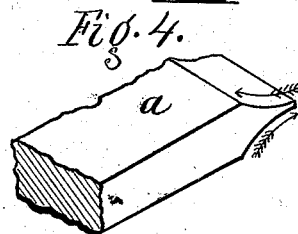


W. J. BAXENDALE & D. BARRY.
 Machine for Reducing Wood to Pulp for Paper.
 No. 201,486. Patented March 19, 1878.



Attest.
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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN MACHINES FOR REDUCING WOOD TO PULP FOR PAPER.

Specification forming part of Letters Patent No. 201,486, dated March 19, 1878; application filed November 7, 1877.

To all whom it may concern:

Be it known that we, WILLIAM J. BAXENDALE and DAVID BARRY, both of the city of Rochester, county of Monroe, and State of New York, have invented a certain new and useful Improvement in Machines for Grinding Wood-Pulp; 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 accompanying drawings, in which—

Figure 1 is a plan of our improved machine. Fig. 2 is a vertical cross-section of the same. Fig. 3 is a diagram, showing the operation of the grinding-cylinders and feed-rollers. Fig. 4 is a perspective view of a fragment of the wood block which is to be ground into pulp.

Our invention differs from others in the use of two cylindrical grinding-stones of even diameter, located one over the other and running in the same direction, by which means, at the point of contact, the grinding is produced in opposite directions.

Our invention consists in the combination, with two such grinding-stones, of two sets of feed-rollers and two sets of plates, located on opposite sides of the grinding-stones, by which means the action is balanced and the two pieces of wood are ground toward each other, thereby preventing the passage of slivers and small pieces of waste, and grinding all the wood without any leavings.

A represents a frame, of any suitable construction. B is a tank within the frame, to receive the pulp. C C are the two grinding-stones, resting one above the other, so that they shall come in close contact. These stones are true cylinders of even diameter their whole length, and they turn in the same direction, as indicated by the arrows in Fig. 3. By this means, at the point of contact, their surfaces move in opposite directions, and the grinding action on the upper and lower surfaces of the wood is also in opposite directions, as indicated in Fig. 4, in which *a* represents one of the pieces of wood which is being ground. The wood being fed in is of wedge form its whole length, and this grinding action in opposite directions upon its surface prevents the slivering and splitting of the wood that would occur if the stones ground

toward each other, drawing the wood between them, while, at the same time, the stones act upon a long surface of the wood and grind the same so as not to break up and injure the fibers. The journals of the stones rest in boxes which are adjustable, so that the surfaces of the stones may be trued one to the other.

We combine with these stones the following arrangement: D D and D' D' are two pairs of feed-rollers, arranged on opposite sides of the grinding-stones, and at some distance therefrom. They are located at such distance apart as to receive the pieces of wood between them and feed them up to the angle of the stones, as shown in Fig. 3. They may be gaged by suitable adjusting or frictional devices to produce the necessary pressure upon the wood to prevent feeding in too fast.

E E and E' E' are two pairs of plates or rests, also arranged on opposite sides of the grinding-stones, and occupying the space between the rollers and the grinding-stones. The plates of each pair are situated at such a distance apart as to form a passage for the wood from the feed-rollers to the stones without binding, and the lower plates are formed with holes *b b* to allow passage of the pulp from the grinding-stones to the tank B. These plates are arranged to be adjusted forward and back to meet the stones as they are adjusted, as before described.

By the arrangement above described, the two pieces of wood are fed in from opposite sides toward each other into the two angles of the stones, and ground down to a fine edge, and, as one piece follows another, there is no waste or leavings, as in ordinary machines, but the whole is ground into pulp. If slivers or small pieces of waste pass through the stones, they are stopped by the piece of wood being ground on the opposite side, and held till thoroughly ground up. In ordinary machines for the purpose, where the wood is held to the grinding-surface by springs or followers, there are small pieces of waste which cannot be ground and are lost.

In addition to the above, the form of the stones is such as to grind on an extended surface and at right angles to the length of the grain, so that the fiber will be drawn from the wood without breaking it too finely.

Having thus described our invention, we do not claim, broadly, feed-rollers and channels for feeding the wood to the stones, as we are aware that the same are not new; but

We claim—

1. In a machine for grinding wood pulp, the combination, with the two cylindrical grinding-stones C C, placed one over the other and running in the same direction, of the two sets of feed-rollers D D and D' D', and the two sets of plates E E and E' E', located on opposite sides of the stones, and arranged to feed two pieces of wood into the opposite angles of the stones, as shown and described, and for the purpose specified.

2. In a machine for grinding wood pulp, the combination, with the grinding-stones C C and a tank, B, below the stones, of the plates E E', provided with perforations *b b*, for discharging the pulp from the stones into the tank without interfering with the feeding of the blocks inward, as herein described.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

WILLIAM J. BAXENDALE.
DAVID BARRY.

Witnesses:

R. F. OSGOOD,
JACOB SPAHN.