W. H. HASKINS, Dec'd, W. A. HASKINS, Adm'r.
Machines for Reducing Wood to Pulp for Paper.

No. 198,845. Patented Jan. 1, 1878.

Fig. 1.

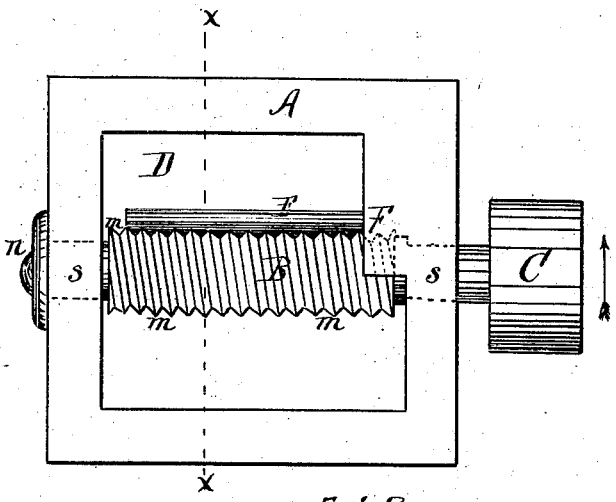


Fig. 2.

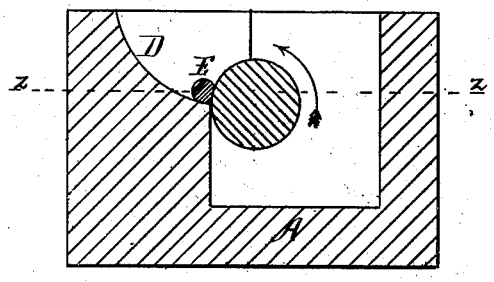
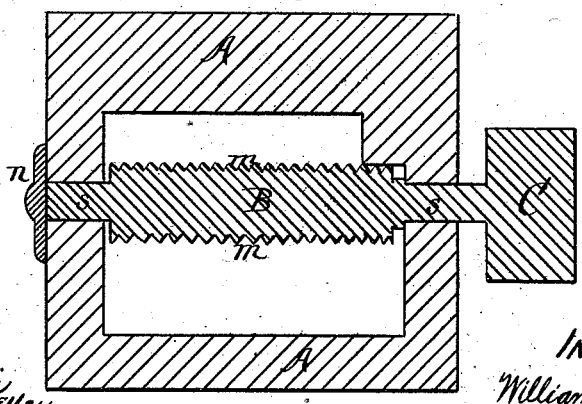


Fig. 3.



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UNITED STATES PATENT OFFICE.

WILLIAM A. HASKINS, OF LITTLETON, NEW HAMPSHIRE, ADMINISTRATOR OF WILLIAM H. HASKINS, DECEASED.

IMPROVEMENT IN MACHINES FOR REDUCING WOOD TO PULP FOR PAPER.

Specification forming part of Letters Patent No. **198,845**, dated January 1, 1878; application filed November 30, 1877.

To all whom it may concern:

Be it known that WILLIAM H. HASKINS, late of Bradford, in the county of Orange and State of Vermont, did invent a new and useful or Improved Machine for Reducing Wood to Pulp, which invention is fully set forth in the following specification, reference being had to the accompanying drawing.

The said invention consists, chiefly, in disintegrating the wood and reducing it to fine fiber by means of a spiral cutter, hereinafter described, whereby the pulp is produced by a combined cutting and scraping operation, as distinguished from the usual rubbing, grinding, or abrading process hitherto practiced by means of grinding-wheels.

In the accompanying drawings, Figure 1 is a top view of a simple form of said invention or machine. Fig. 2 is a vertical cross-section of the same, taken on line *x x*, Fig. 1. Fig. 3 is a horizontal section of the same, taken on line *z z*, Fig. 2.

A is a rectangular box or tank, which contains the water and pulp as it is produced. B is the cutter, consisting of a spirally-grooved cylinder, secured to a rotary shaft, whose bearings are at *s s* in the sides of box A. Upon one end of said shaft is a pulley, C, for rotating the same by the application thereto, in any suitable manner, of a motive power. The opposite end of the shaft rests in a metallic cap or bearing secured to the side of the tank, and indicated by the letter *n*.

One of the internal walls or sides of said tank is formed with a curved incline, D, Fig. 2, whereon the wood which is to be reduced to pulp rests in contact with the cutter, and may be kept in contact with said cutter, when its own gravity is not sufficient, by any suitable device for properly holding the same.

During the practical operation of the machine the wood and cutter may be wholly or partially immersed in the water of tank A, or a flowing current of water upon the same may be provided and kept up, to facilitate the operation and keep the cutter clear of fiber. The machine may contain one or more cutters, as may be found most desirable.

The cutting-edges *m* are analogous to the threads of a screw, and for this purpose, to obtain the requisite pitch and degree of fineness in said spiral threads or cutting-edges, it may be necessary to construct the cutter with a plurality of such cutting-spirals.

The cutter may be readily sharpened and put in order by placing it in a screw-lathe and running a threading-tool over it, whose movement and position are adapted to the pitch and inclination of said threads.

The operation of said invention is as follows: Tank A being filled, or partially filled, with water, or a flow of water being provided, as and for the purpose before mentioned, a block or stick of wood, E, is placed upon the incline D, preferably with its side pressed or resting against the cutter, and one end resting against the wall of the tank at F, and being properly held in such position, the cutter is rotated in the direction indicated by the arrow. The cutting spirals or threads, by such rotary action, embed themselves in the wood, and by their tendency to screw or crowd the wood in the direction and against the resistance of side F, they strip or scrape the fiber of the wood longitudinally from the stick, when the water carries it out of the grooves of the cutter into the tank; and, thus cleared, they continue to so reduce the wood to pulp.

Pulp so produced possesses a better quality of fiber than that prepared by the usual grinding process, and is therefore suitable for the manufacture therefrom of a finer and better article of paper, and its production is attended with less expense in the outfit of machinery and the cost of operating and maintaining the same in good running order.

The said invention is not restricted to the details of construction, arrangement, and combination herein described and shown, as it is obvious that such machines may, in many particulars, be varied from that herein described and shown without departing from the principle of said invention.

What is claimed as new is—

1. A machine for reducing wood to pulp by means of a spiral cutter, operating substantially as specified.

2. The combination of a support, D, for holding the wood to the cutter, a stop, F, for resisting the pressure on the wood imparted by the inclination of the cutter-spirals, and a spiral cutter, B, all operating substantially as and for the purpose specified.

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