

H. B. Meech Pulping Engine.

116978

Fig. 1.

PATENTED JUL 11 1871

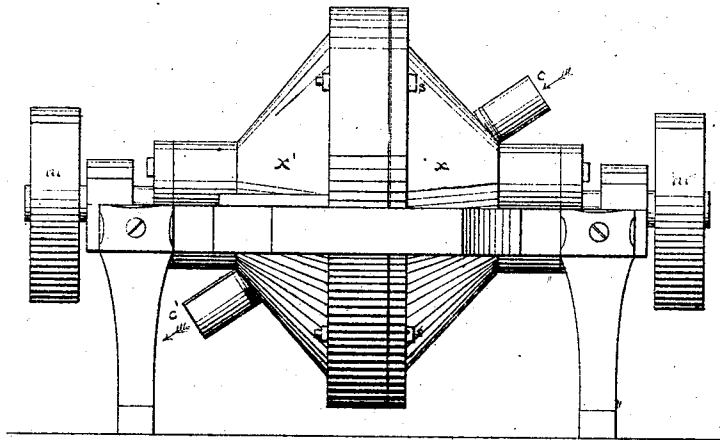


Fig. 2.

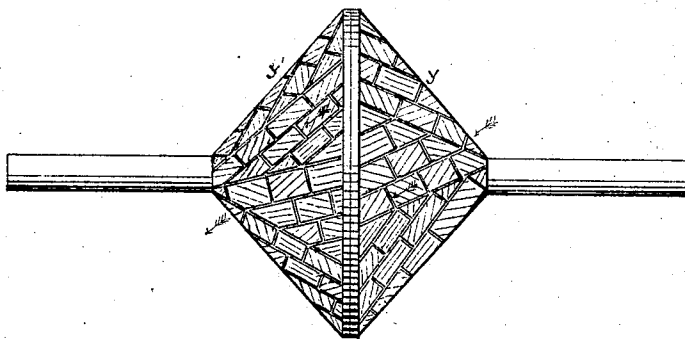


Fig. 3.

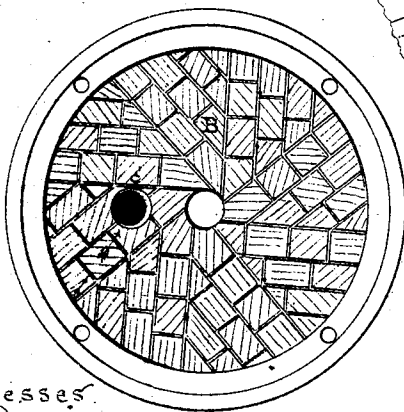


Fig. 5.

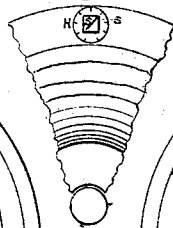
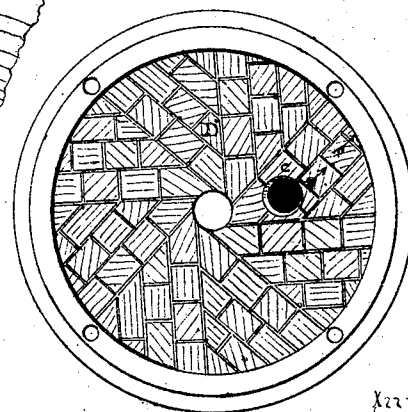


Fig. 4.



Witnesses

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IMPROVEMENT IN PAPER-PULP ENGINES.

Specification forming part of Letters Patent No. 116,978, dated July 11, 1871.

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of Fort Edward, in the county of Washington and in the State of New York, have invented certain new and useful Improvements in Pulping-Engines for disintegrating straw, wood, and other fibrous substances to a pulp for paper; and I do hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon.

The nature of my invention consists in a pulping-engine for disintegrating and separating the fibers from each other and the vegetable matter by means of a boiling, rubbing, and grinding operation.

To enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, reference being had to the accompanying drawing and the letters of reference marked thereon which form a part of this specification, and in which—

Figure 1 is an elevation of the pulping-engine. Fig. 2 represents the inner revolving double-cone cylinder $y y'$, which revolves within the case or cones $x x'$. The surfaces of the cylinder $y y'$ and the inner surfaces of the cones $x x'$ are made of steel, malleable or chilled iron, or of stone, and are constructed in sections so as to be readily repaired when worn out or broken. The grinding-surfaces are grooved and ruffed something like a millstone, the grooves, &c., being arranged in such a manner as to gather, rub, and grind the stock while passing through the engine, and to work it after entering the induction-pipe c over the surface of the cone y , and the inner surface of the cone x , to the surface of the cone y' and inner surface of the cone x' , and out through the pipe c' . Figs. 3 and 4 are inside views of the cones $x x'$. D represents the inside of the half represented by x , and B shows the half represented by x' . Fig. 5 shows the bolts $s s$ for adjusting the cones $x x'$, in combination with the index H for indicating when each bolt is moved the same distance.

For reducing or disintegrating the fibers of wood or straw from each other the wood or straw should be cut into short lengths, then placed within a vessel or close boiler with clear water or liquor, the disintegrating-engine being connected with the vessel or boiler. The cylinder $y y'$ be-

ing operated by means of power applied to the pulleys $m m$ on the axle of the cylinder, the straw or wood will pass through the engine while boiling, and continue to pass through until the fibers are thoroughly rubbed, ground, and separated from each other.

This invention is designed to disintegrate the fibers of wood, straw, &c., from each other by mechanical means without the use of chemicals, so as not to destroy the strength of the fibers, and to save the vegetable matters, such as starch and the nutritious juices that may be used for many valuable purposes. Although after boiling the material in one or two waters the stock may be boiled and ground in a weak solution of alkali, according to the quality of paper that it is desired to make. For white paper, about one-third of the chemicals may be used that are now used by boiling without grinding, say from one hundred to two hundred pounds of caustic soda to the ton of straw. Other solvents may be used in combination with this machine. The stock to be pulped may be boiled in any vessel, with or without steam-pressure, but I prefer to use an upright steam-tight boiler and boil the straw or wood at the same time it is grinding in a solution at a temperature of about 300° Fahrenheit. By means of a swivel-screw on the shaft of the double-cone cylinder $y y'$ to adjust it to grind or rub more closely against one of the outside cones than the other, and the bolts $s s$ for adjusting the outside cones, the grinding and quality of the stock and its passage through the engine may be easily regulated.

Pulp-engines have been made with a nut having blades on its flat face, with corresponding grinding-surfaces on the inside of the case. These blades fail to macerate the stock properly, and tend to cut the fibers, while my machine thoroughly macerates and leaves the stock in a desirable condition.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

The double-cone cylinder and double-cone shell surrounding the same, both having uneven surface-plates for grinding straw, wood, grass, and the like, substantially as described.

HARRISON B. MEECH.

Witnesses:

N. B. CHAPMAN,
PETER FOLAND.