

S.C. Tapp,
Wood Grinder.

2, Sheets, Sheet 1.

No. 101,785.

Patented. Apr. 12, 1870.

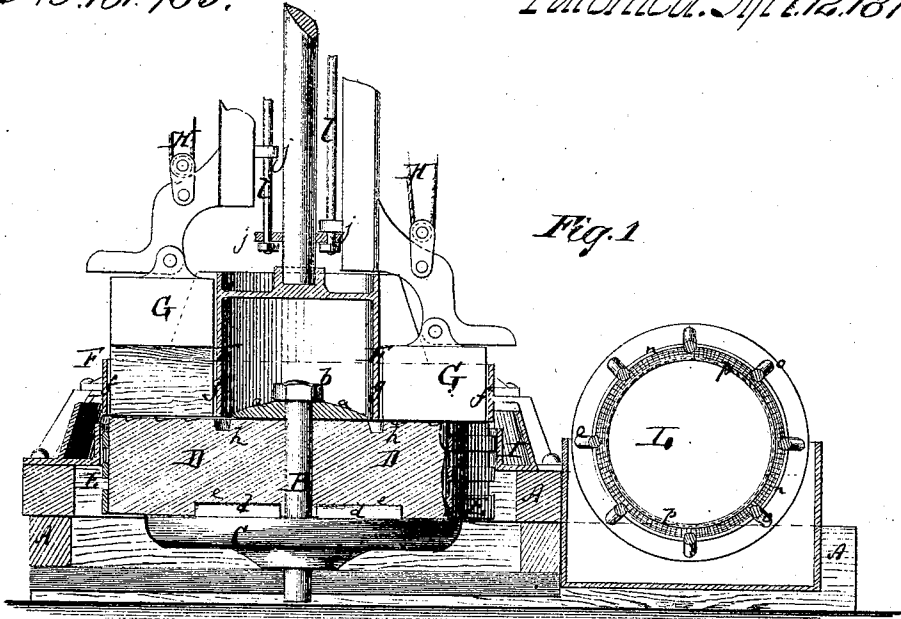


Fig. 1.

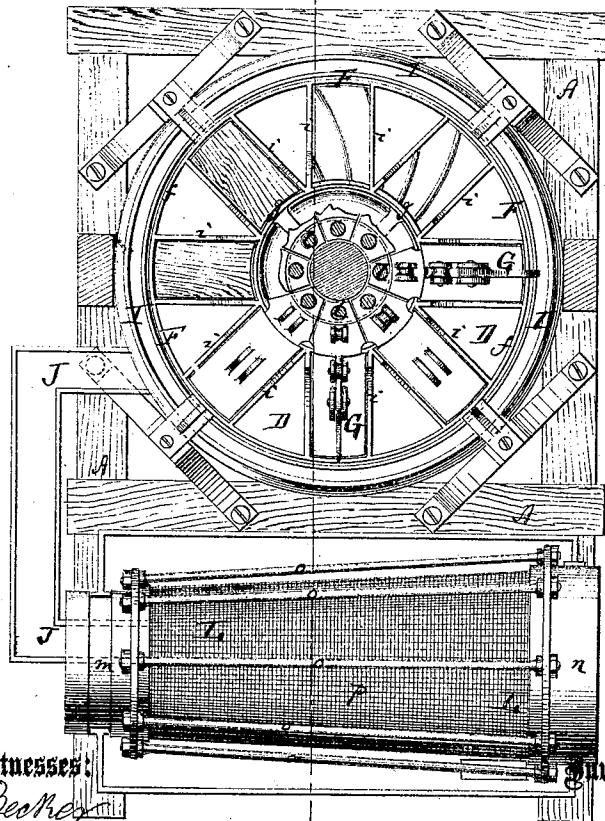


Fig. 2.

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S. C. Taft,
Wood Grinder.

2. Sheets, Sheet 2.

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Fig. 3.

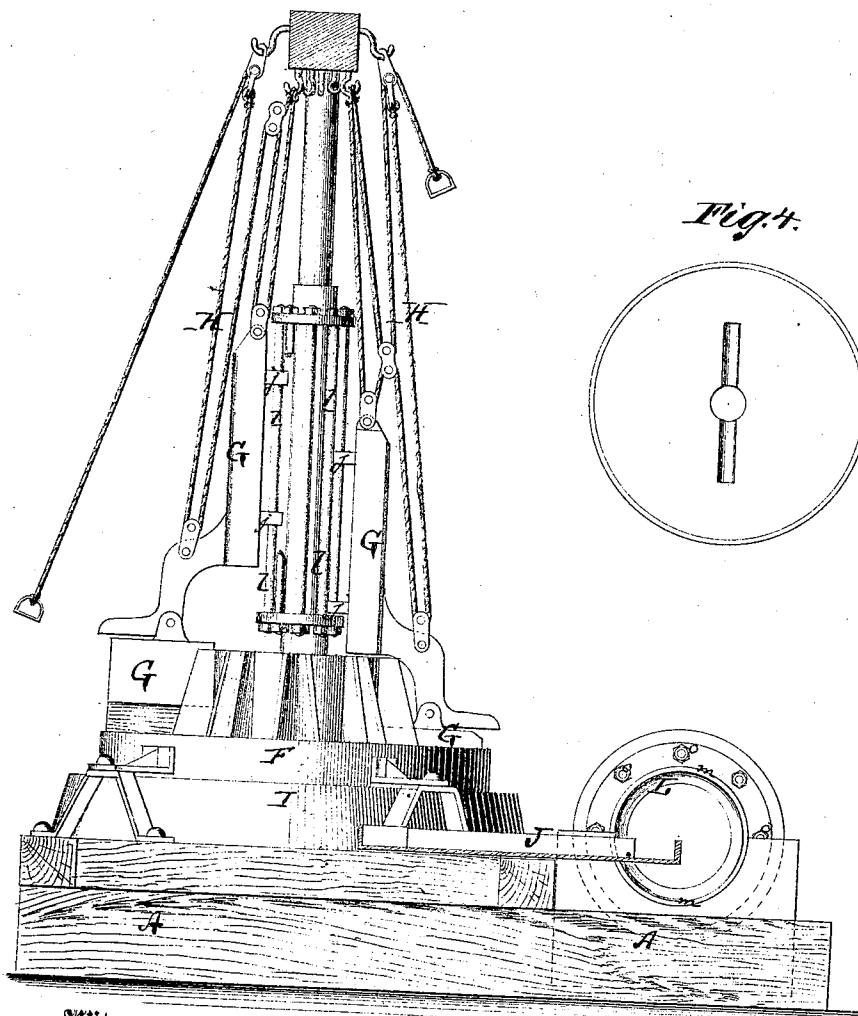


Fig. 4.

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UNITED STATES PATENT OFFICE.

STEPHEN CLARENDON TAFT, OF MENDON, MASSACHUSETTS.

IMPROVEMENT IN WOOD-PULP MACHINES.

Specification forming part of Letters Patent No. 101,785, dated April 12, 1870.

To all whom it may concern:

Be it known that I, STEPHEN CLARENDON TAFT, of Mendon, in the county of Worcester and State of Massachusetts, have invented a new and Improved Wood-Pulp Machine; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

Figure 1 represents a vertical section of my improved wood-pulp machine, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2 is a plan or top view, partly in section, of the same. Fig. 3 is a side elevation of the same. Fig. 4 is an inverted plan view of the grinding-machine.

Similar letters of reference indicate corresponding parts.

This invention relates to a new machine for reducing wood to a pulp to prepare it for the manufacture of paper. The object of the invention is to overcome the difficulties which are now in the way of wood-pulp machines, and of which the following are the most important, to wit: the protecting the stone from danger of splitting; the vertical adjustment of the stone as it is being worn; the construction of self-adjusting weights for pressing the wood against the grinding-surface; and the application of an unobstructed revolving sieve, by which the pulp matter is separated from the splinters.

All these difficulties are overcome by my invention, which consists, first, in binding the stone with metal, by applying hoops around its edge, and in clamping it between two metal plates, of which the lower one is attached to the driving-shaft. Thereby the stone is so completely protected that it cannot readily be split and destroyed during the operation of grinding. Secondly, in forming protecting ribs or ears on the supporting-plate of the grindstone, and corresponding recesses or depressions in the stone, to thereby communicate motion from the shaft to the stone. The necessity of providing a large central aperture through the stone, and having the driving device within the same, is thus overcome. Thirdly, in suspending above the grindstone an annular fixed frame for retaining the wood to be

ground, and the weights for holding the wood against the stone, the said frame being, by means of partitions, divided into several smaller receptacles for the wood and weights. Fourthly, the invention consists in forming a circular groove in the surface of the stone directly under the inner rim of the aforesaid annular frame, for the purpose of permitting the vertical adjustment of the stone or frame as the surface of the stone wears lower. The invention consists, further, in the combination of said annular subdivided frame with a series of vertically-adjustable guided weights for holding the wood on the stone, and with an annular trough, which is placed around said frame to receive the ground wood. Finally, the invention consists in the arrangement of a revolving sieve of truncated conical form, hung at its ends in the main supporting-frame of the machine, in such manner that it can be worked without a central shaft and connecting arms, as hereinafter more fully described.

A, in the drawing, represents a framing, made of wood or other suitable material, of suitable size and shape, sufficiently strong to sustain and hold the different parts of machinery employed on the apparatus. B is the vertical driving-shaft, hung in the frame. It carries a broad projecting flange, C, which constitutes a plate for the support of the grindstone D. The grindstone is provided with and bound by metallic hoops E E, which are applied around its edge, as shown. *a* is a small circular plate, placed upon the grindstone and around the upper part of the shaft B. A nut, *b*, fitted around the upper end of the shaft B, holds the plate *a* against the stone, and clamps the latter firmly between the plates C *a*, as shown in Fig. 1. The plate C has on its surface one or more projecting ribs, *d d*, catching into corresponding grooves or recesses *e* of the stone, to transfer the motion of the shaft to the stone. The only aperture thus required through the stone is one large enough to admit the shaft, as shown. The stone is, consequently, less weakened than by the ordinary mode of hanging. F is a vertical frame, made of cast-iron or other suitable material, of annular form. It is supported above the grindstone, as shown, its outer rim *f* being about in a line with the outer edge of the stone, while the inner rim *g* is directly

above a circular groove, *h*, cut into the surface of the stone, as shown. The grinding-surface of the stone is between the two rims of the frame *F*. By means of transverse partitions *i* the frame *F* is subdivided into a suitable number of compartments of polygonal or other suitable form, as in Fig. 2. Each of these compartments is to receive a block of wood to be ground, and a sliding weight, *G*, for keeping the wood in place. The several weights *G G* are arranged with projecting loops or eyes *j j*, to be guided on vertical rods *l* of the frame *A*, and they are connected with ropes *H H*, by means of which they can be elevated to insert the block of wood. As the stone revolves it will gradually grind off the surfaces of the wooden blocks, the weights keeping the latter in place. *I* is an annular trough, fitted around the stone *D* to receive the ground wood, which is, by centrifugal force, thrown off the stone through a crevice formed between such stone and the outer rim *f* of the frame *F*. The ground wood is, from the trough *I*, conducted through a channel, *J*, into a rotating sieve, *L*, which is of truncated conical form, and which is constructed of two metal rings, *m n*, at the ends of rods *o o*, connecting and holding said rings, and of the wire body *p*. The rings *m n* rest in the supports provided in the frame *A*, and constitute the journals of the sieve, doing away with the necessity of using a shaft. The driving-belt is fitted around one ring, *m*, which constitutes a pulley.

To prevent longitudinal displacement of the sieve, one ring may be ribbed or grooved to fit or embrace a corresponding groove or rib on the support.

As the ground wood works gradually along the sieve, its finer parts pass through the meshes of the same, while the coarse parts or splinters are discharged from the large end.

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

1. The combination, with the grinding-stone *D*, which is bound with metal hoops, of the plates *a* and *C*, the stone being clamped between said plates, as set forth.

2. The plates *C*, provided with the projecting ribs *d*, which fit into corresponding grooves or recesses in the surface of the stone, as set forth.

3. The annular frame *F*, subdivided by partitions *i*, to receive the several weights *G*, and combined with a grinding-stone, as set forth.

4. The stone *D*, provided with a circular groove, *h*, directly below the inner ring *g* of the stationary annular frame *F*, as set forth, for the purpose of permitting adjustment of the stone, as specified.

5. The combination of the annular frame *F*, weights *G*, and revolving stone *D* with the annular trough *I*, all arranged as set forth.

6. The revolving sieve *L*, supported by the rings which form its ends, and combined with a wood-pulp machine, as set forth.

The above specification of my invention signed by me this 3d day of February, 1870.

STEPHEN CLARENDON TAFT.

Witnesses:

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GEO. W. MABEE.