(Model.)

C. W. CLARK.

Wood Pulp Machine.

No. 231,761. Patented Aug. 31, 1880.

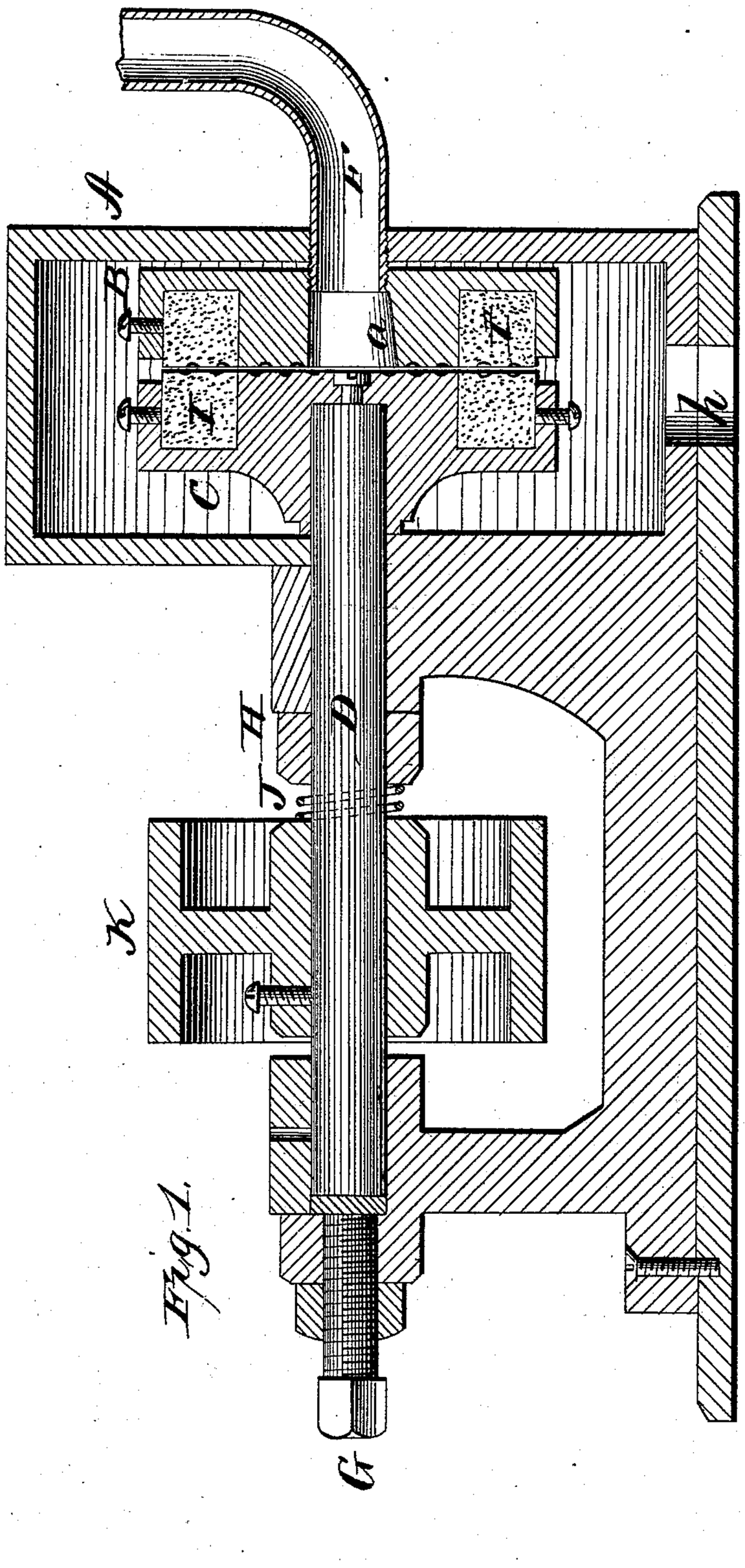

Fig. 1.

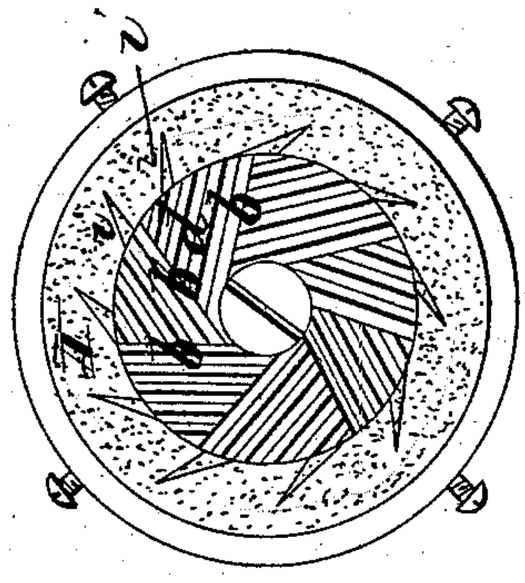

Fig. 2.

Witnesses:
Franck L Durand
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Inventor:
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atty

UNITED STATES PATENT OFFICE.

CHESTER W. CLARK, OF MISHAWAKA, INDIANA.

WOOD-PULP MACHINE.

SPECIFICATION forming part of Letters Patent No. 231,761, dated August 31, 1880.

Application filed April 16, 1880. (Model.)

To all whom it may concern:

Be it known that I, CHESTER W. CLARK, of Mishawaka, in the county of St. Joseph, and in the State of Indiana, have invented certain new and useful Improvements in Wood-Pulp Machines; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification.

The nature of my invention consists in the construction and arrangement of a machine for converting wood-sawdust, shavings, and other similar material into pulp, as will be hereinafter more fully set forth.

In order 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, referring to the annexed drawings, in which—

Figure 1 is a longitudinal section of my pulp-machine. Fig. 2 is a face view of one of the grinding-stones.

A represents a cylindrical casing of any suitable dimensions, within which is the stationary grinder B, and also the rotating grinder C, the latter being fast upon the end of a horizontal shaft, D.

The material to be ground passes through a pipe, F, that enters the casing and projects into the eye of the stationary grinder B. This eye is inclined downward, as shown at *a*, which makes it take the pulp much faster than it would if the eye were straight in the center. The eye need not necessarily be round, but may be simply in the form of a vertical slot extending from the center downward for a suitable distance.

Each grinder has an annular stone, I, inserted in it, and fastened by set-screws or other suitable means. Setting the stones in metal casings in this manner prevents the stones from bursting when run at fast speed.

The center surface of each metal plate or casing is provided with grooves or furrows *b d*, as shown in Fig. 2. The long furrows *b* run diagonal from near the center to the circumference of the plate, while the short grooves *d* run into the long ones.

All the furrows are made shallow at their outer ends, thus preventing slivers from passing to the stones without being ground up.

The pulp passes from the inner to the outer edges of the plates by the action of the diagonal furrows running in the direction to throw the pulp outward, assisted by the centrifugal force. The pulp then passes from the plate to the furrows *i* in the stone, which furrows also run diagonal, thus carrying the pulp by the assistance of the centrifugal force through the stones, which finishes the refining. The pulp is caught in the outside casing and is discharged through an aperture, *h*, in the bottom.

The running grinder C is adjusted with relation to the stationary one by means of a screw, G, at the end of the shaft D. H is a collar sliding upon the shaft against one of the bearings, and a spring, J, is interposed between this collar and the pulley K, to which the power is applied, whereby the grinders are kept apart when running empty.

It will be noticed that the grinders are not furrowed clear out to the edges, and hence no material can pass through without being acted upon.

I am aware that pulp-grinders have been made of artificial stone set in metal frames, but in such cases the metal frames form no part of the grinding-surfaces; whereas in my invention the material first passes and is ground between the metal plates, and then passes and is finished between the annular stone grinders.

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

1. In a pulp-machine, a grinder composed of an annularly-recessed metal plate and an annular grinding-stone inserted and held in said recess, and constructed, as shown and described, so that the material to be ground will first be ground between the metal surfaces and then pass between and be finished by the stones, substantially as herein set forth.

2. The combination of the stationary grinder B, rotating grinder C, shaft D, set-screw G, collar H, and spring J, substantially as and for the purposes herein set forth.

3. The stationary grinder B, having an elongated eye or opening extending from the center downward for the admission of the material to be ground, substantially as herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 12th day of April, 1880.

CHESTER WAREN CLARK.

Witnesses:
JOHN J. NUTT,
FREDREK CARRINGTON.