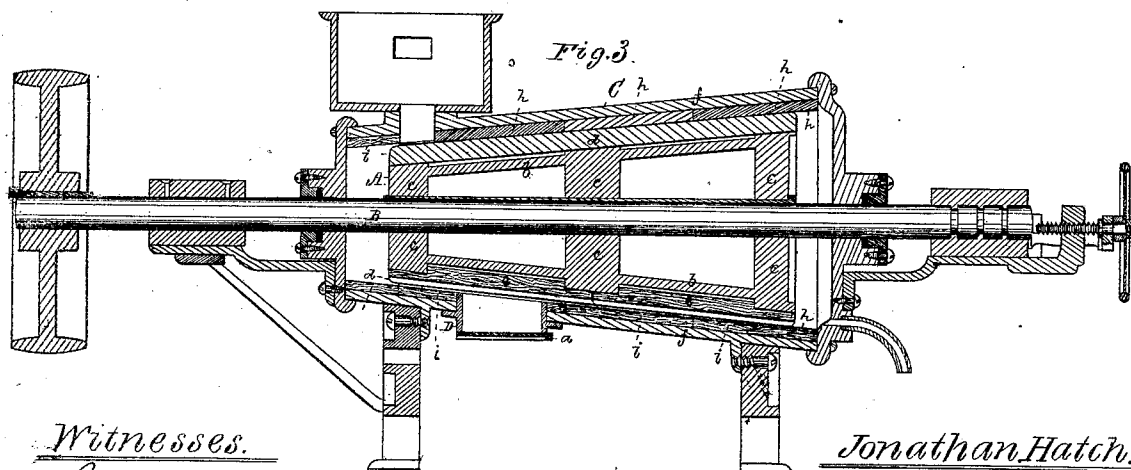
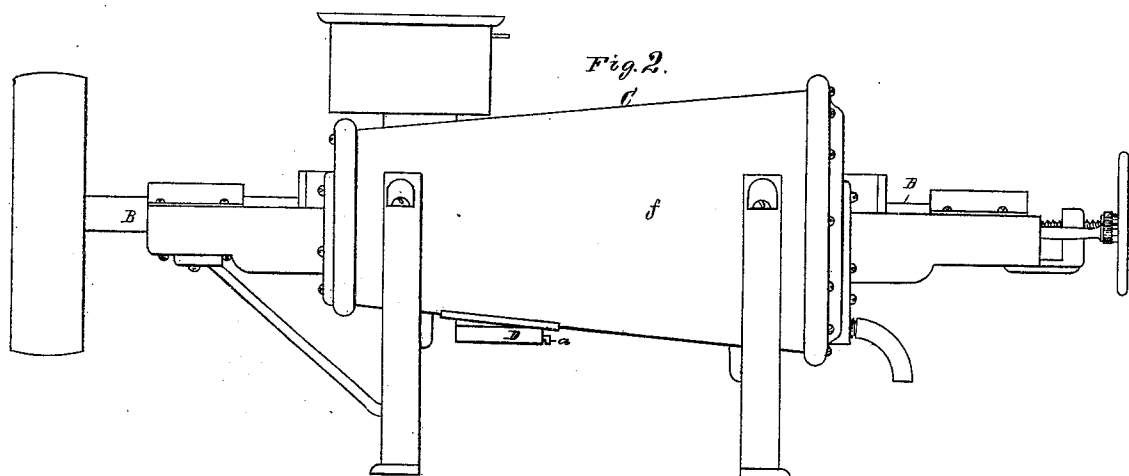
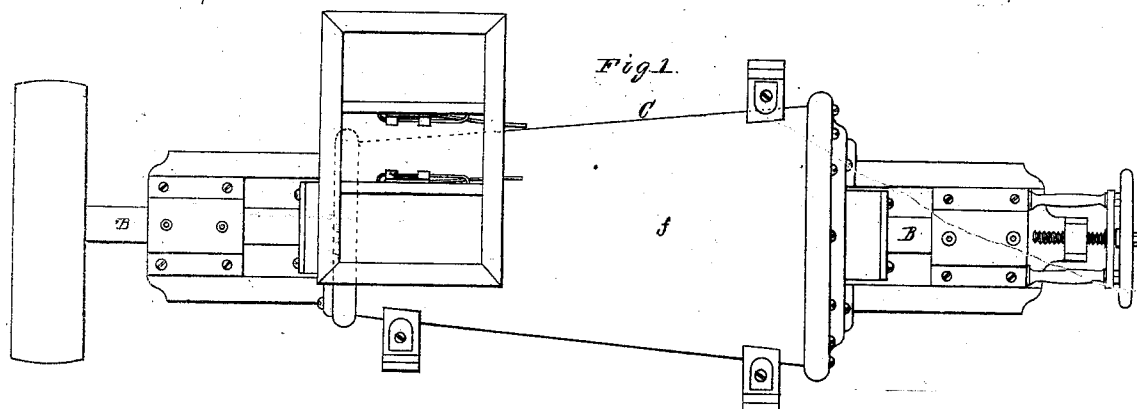


JONATHAN HATCH.
Improvement in Paper Pulp Engines.
 No. 121,780.

Patented Dec. 12, 1871.



Witnesses.

S. N. Piper

L. N. Miller

Jonathan Hatch.

by his attorney.

N. H. H.

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Fig. 4.

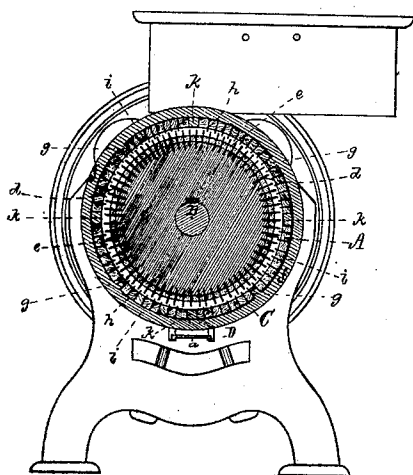


Fig. 5.

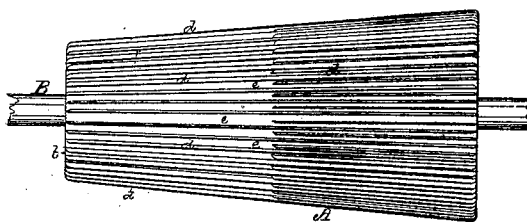


Fig. 6.

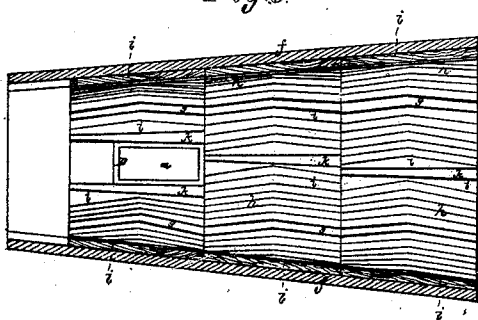
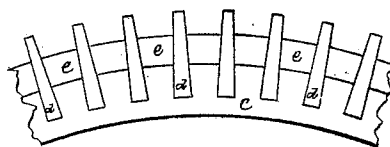


Fig. 7.

Witnesses.S. N. PiperL. N. MillerJonathan Hatch.by his attorney.R. H. Eddy

UNITED STATES PATENT OFFICE.

JONATHAN HATCH, OF SOUTH WINDHAM, CONNECTICUT, ASSIGNOR TO SMITH, WINCHESTER & CO., OF SAME PLACE.

IMPROVEMENT IN PAPER-PULP ENGINES.

Specification forming part of Letters Patent No. 121,780, dated December 12, 1871.

To all whom it may concern:

Be it known that I, JONATHAN HATCH, of South Windham, of the county of Windham and State of Connecticut, have invented certain new and useful Improvements in Machines for Making Paper-Pulp, my invention having reference particularly to the well-known Jordon pulp-engine as exhibited in Letters Patent No. 317, dated February 5, A. D. 1861, and granted to Joseph Jordon, Jr.; and I do hereby declare my said invention to be fully described in this my specification and represented in the accompanying drawing making part thereof, and of which—

Figure 1 is a top view, Fig. 2 a side elevation, Fig. 3 a longitudinal section, and Fig. 4 a transverse section of the pulp-engine as improved by me. Fig. 5 is a top view of the male grinder. Fig. 6 is a horizontal section of the female grinder. Fig. 7 represents an end view of some of the blades or knives of the male grinder, with the dovetailed grooved supporting-rib and the wooden bars arranged between the knives.

This engine has the principal characteristics or members of that described in the aforesaid patent.

My improvements may be stated to consist as follows, viz.: In the male grinder as constructed with dovetailed grooved metallic ribs to receive the knives or blades, and with wooden bars driven between and firmly against the knives and notched upon the ribs, all being substantially as hereinafter explained and as represented in the drawing. Next, in the female grinder as constructed with internal and longitudinal ribs, and as provided with knives or blades and wooden voussoirs or arch-bars arranged and held between such ribs by a key or keys, all being essentially as hereinafter specified and as represented in the drawing. Next, in the female grinder as provided with one or more pockets or chambers arranged to open out of its lower part for the purpose of intercepting any piece or pieces of iron, buttons or other foreign matters which, finding their way into the pulp-engine, would be likely to injure its knives.

I would remark that the drawing shows each of such knives as curved or beveled on that portion of its front end which extends above the filling between the knives. This improvement, though shown, is not claimed by me as my invention, it having been, as I am led to believe,

invented by Charles Smith, of said South Windham.

In the drawing, A denotes the male grinder, which in external form is a conic frustum. It is fixed on a driving-shaft, B, which extends axially through it and the female grinder or she^r. C, which receives the male grinder in manner as represented and has its axis arranged horizontally or thereabout. The intercepting-chamber or pocket is shown at D as arranged at the lower part of the female grinder and opening out of the interior space thereof, such pocket being open at bottom and there provided with a slide or door, *a*, to enable a person to remove from the pocket at any time any foreign matter or matters which may have accumulated therein. The pocket, owing to its situation, will generally catch or intercept such matter or matters, thereby preventing any material injury to the knives being occasioned thereby. The body part *b* of the male grinder is a conic frustum provided with a series of metallic ribs, *c*, extending around it transversely both at its ends and at intervals between such. These ribs down to the outer surface of the body are formed with grooves extended through them rectilinearly and dovetailed in transverse section, they being to receive the knives or blades *d*, which have a corresponding dovetail form and are driven endwise into the grooves of the ribs. The intervals or spaces between the knives are filled to a suitable distance from the surface of the body of the grinder by bars *e*, of wood, driven firmly into such opening, and notched upon the ribs so as to rest in close contact with them and the knives, thereby affording an elastic support for the knives, which operates to prevent them from being broken by sudden lateral strains. Instead of supporting the knives or blades of the female grinder in curved sections or plates of metal arranged around within and fitted to the shell or case, and fastened therein, as heretofore, I cast or construct the case *f* with a series of ribs, *g*, extended longitudinally through it and to project from its inner surface. Between such ribs I arrange the knives or blades *h* at or about equal distances apart, with wooden voussoirs or arch-bars *i* disposed between the blades, each series of blades and voussoirs being fastened in place by a wooden key, *k*, driven between two of the voussoirs so as to crowd firmly together the knives and voussoirs and force both

series closely up against the abutments or sustaining-ribs. This mode of applying and supporting the knives admits of their being easily removed from the shell when it may be desirable to replace them with others.

Having thus described my invention, what I claim as such in the pulp-engine as mentioned may be stated as follows, viz.:

1. The male grinder as constructed with the dovetailed grooved metallic ribs *c* to receive the knives *d*, and with the wooden bars *e* driven between and against the knives and notched upon the ribs *c*, all being substantially as specified and represented.

2. The female grinder as constructed with the

internal and longitudinal ribs *g*, and as provided with the knives *h* and the wooden voussoirs or arch-bars *i* arranged and held between and by such ribs by one or more keys, *k*, all being substantially as explained and represented.

3. The female grinder as provided with one or more intercepting-chambers or pockets, *D*, arranged with it, essentially as and for the purpose described, and the combination of such pocket or pockets with the male and female grinders, arranged as described or shown.

JONATHAN HATCH.

Witnesses:

A. S. WINCHESTER,

J. W. TIBBITS.

(108)