(No Model.)

W. W. D. JEFFERS.
Pulp Engine.

No. 243,568. Patented June 28, 1881.

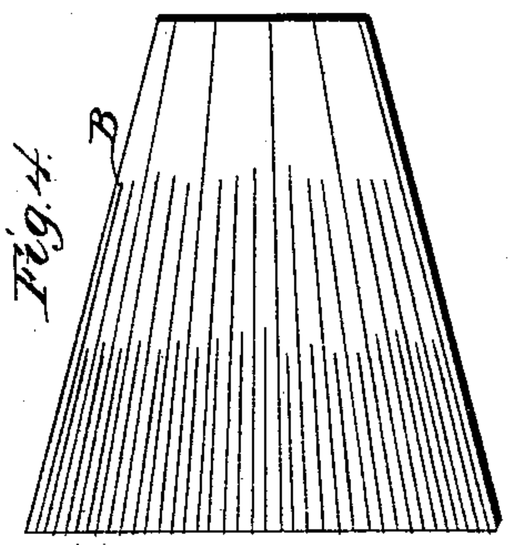
Fig. 4.

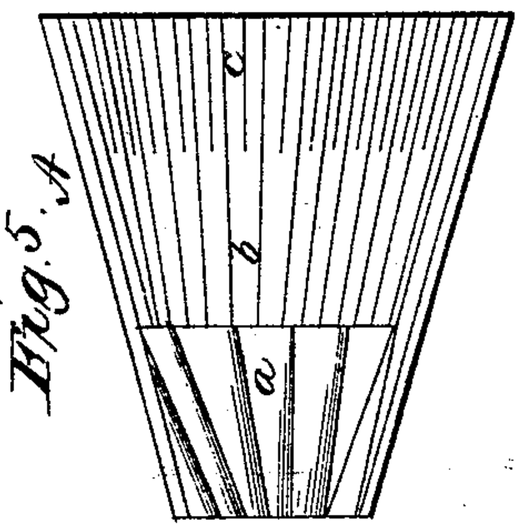
Fig. 5.

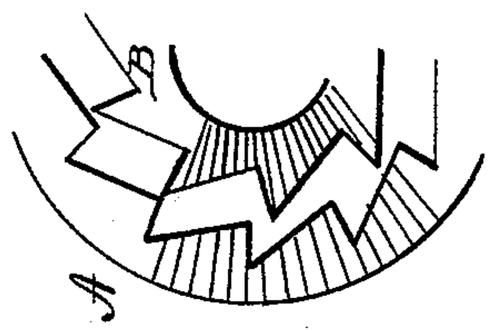
Fig. 2.

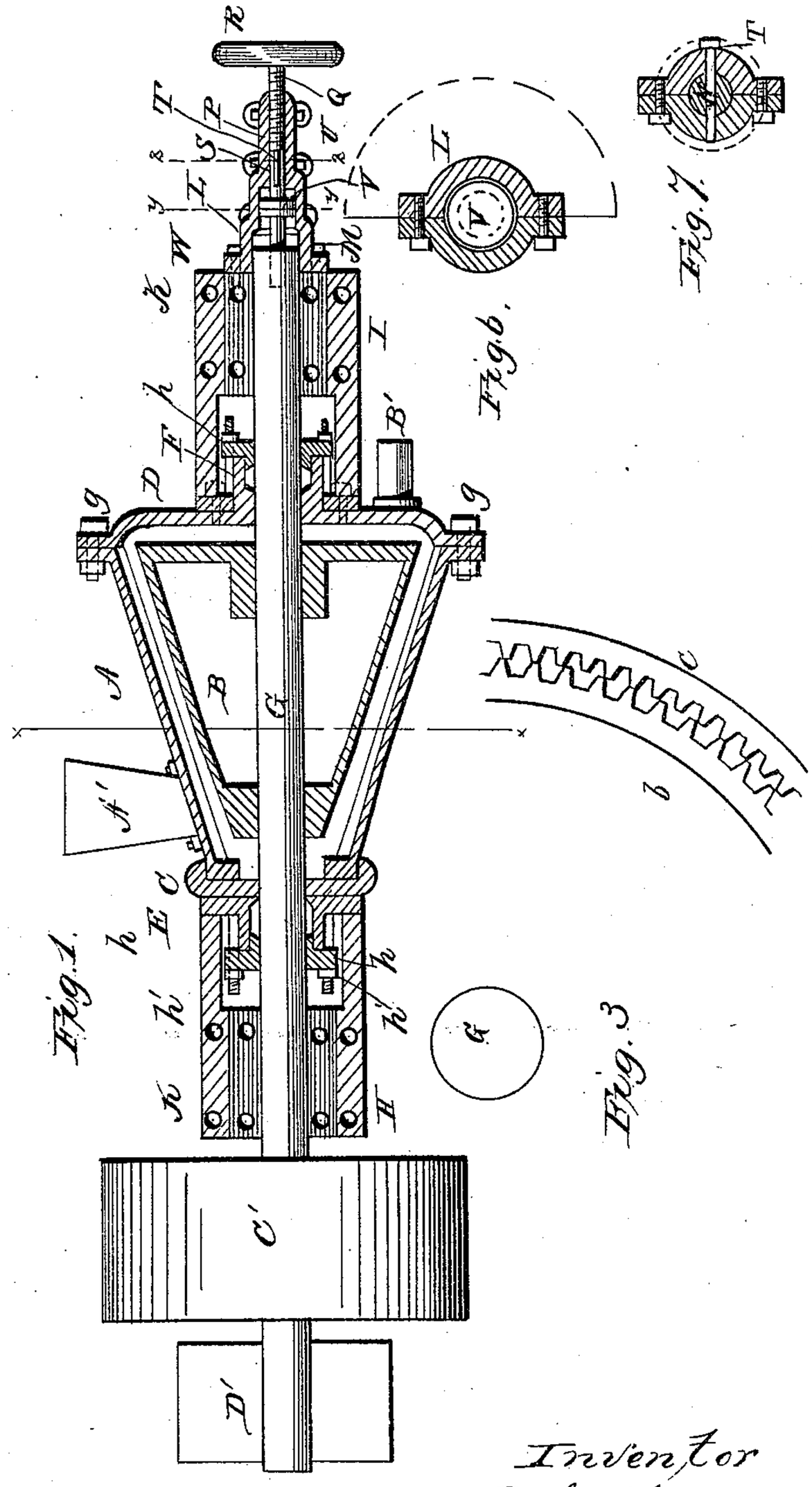
Fig. 1.

Fig. 7.

Fig. 6.

Fig. 3.

Witnesses.
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UNITED STATES PATENT OFFICE.

WALLACE W. D. JEFFERS, OF TICONDEROGA, NEW YORK.

PULP-ENGINE.

SPECIFICATION forming part of Letters Patent No. 243,568, dated June 28, 1881.

Application filed April 21, 1881. (No model.)

To all whom it may concern:

Be it known that I, WALLACE W. D. JEFFERS, of Ticonderoga, in the county of Essex, and in the State of New York, have invented certain new and useful Improvements in Pulp-Engines; 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.

This invention relates to certain improvements in pulp-engines, and it has for its objects to provide an improved apparatus by means of which wood and other vegetable fiber may be expeditiously ground up into half-stock with the least possible expenditure of power, at the same time preserving length and strength of fiber to a remarkable extent, as more fully hereinafter specified. These objects I attain by the mechanism and devices illustrated in the accompanying drawings, in which—

Figure 1 represents a view, partly in longitudinal vertical section and partly in side elevation, of my apparatus entire. Fig. 2 represents a part section on the line *x x* of Fig. 1. Fig. 3 represents a rear view, showing one-half of the casing and grinding cone or frustum with the head removed; Fig. 4, a detached view of the grinding cone or frustum; Fig. 5, a detached view, showing the interior of the grinding-casing; Fig. 6, a section on the line *y y* of Fig. 1, and Fig. 7 a sectional view on the line *z z* of Fig. 1.

The letter A indicates a shell or casing, of cast metal, in the form of a conic frustum.

The letter B indicates the grinding cone or frustum.

The interior of the shell or casing is formed with a series of three or more sections of angular grinding-corrugations, *a b c*. The said corrugations are made closer and greater in number in each succeeding section toward the larger end of the casing, as indicated in Fig. 5 of the drawings. The grinding cone or frustum is of such size as to fit and rotate within the shell, and is tapered somewhat more than the casing, so as to leave a gradually-contracted space between the interior of the casing and the said grinding cone or frustum. The said grinding cone or frustum is provided with a series of sections of angular corrugations, which number in each section one more or less than those in the similar or corresponding corrugated section of the shell, in order that all the corrugations of the shell and grinding-cone may not come in contact at the same time, but some be approaching the work while others are operating, thus reducing the grinding-power to a considerable extent. The said shell or casing, at each end, is provided with heads C D, respectively, which are secured by means of suitable bolts, *g*. The heads are provided with packing-boxes E F, having glands *h*, with suitable adjusting screws and nuts, *h'*, by means of which the packing may be tightened around the horizontal shaft G, upon which the grinding-cone is mounted, and with which it is adapted to rotate. The heads are cast with the shells H and I, which inclose the packing-boxes. The said shells are also provided with journal boxes or bearings K, which are lined with anti-friction metal, and in which the shaft G has its journal-bearings.

To the shell I is secured a shell, L, cast in two parts and bolted together. The said shell L is bolted to the shell I by means of tap-bolts M, and has two bores, the smaller bore, N, being provided with a screw-thread, P, which is rectangular in section. This bore is exactly in line with the shaft G, and is provided with a screw, Q, which has at its outer end a hand-wheel, R, by means of which it can be turned to cause it to advance or recede in the said bore. In the bore N is also secured a plug, S, which is capable of a longitudinal movement in said bore, the said plug being prevented from rotating by means of a pin, T, setting through a longitudinal slot, U, in the casing or shell L. The inner end of the said plug is enlarged, and sets in an enlarged bore, V, in said casing or shell L, bearing against a similar enlarged portion of a plug, W, which sets in the end of the shaft G. The enlarged end of plug S has a vertical groove on its face, and the enlarged end of the plug W revolves in a reservoir in the casing or shell L, by means of which the oil is carried up and flows down through the vertical groove, keeping the surfaces of the enlarged plug constantly lubricated. By means of the screw and the above-mentioned plugs the grinding-cone may be adjusted to its work.

The letter A′ indicates a feed-hopper at the smaller end of the shell A, and B′ an eduction-pipe at the larger end, extending from the head thereof.

The letter C′ indicates the driving-pulley secured to the shaft G, and D′ indicates an outer bearing or journal-box for the shaft.

The casing and cone are constructed of cast-iron of the best quality, and are cast in molds of fine sand, in order to render them durable and efficient, and the casing and apparatus may be mounted upon a suitable bed in any convenient manner.

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

1. In combination with the shell or casing having a series of successively-narrowing corrugations, the grinding cone or frustum, located in the shell and provided with a similar series of corrugations, and mounted on a rotary shaft, substantially as and for the purposes specified.

2. In combination with the shell or casing provided with a series of sections, corrugated as described, the grinding cone or frustum provided with a similar series of sections, corrugated as set forth, the corrugations on the sections of the cone being greater or less in number than the corresponding sections on the shell, substantially as set forth.

3. In combination with the shell provided with internal corrugations, the grinding cone or frustum provided with external corrugations, the rotating shaft, the heads and their packing-boxes and casings, and the bearing-boxes secured in said casings, all arranged substantially as and for the purposes specified.

4. In combination with the larger head and its casing, the supplementary casing having a large and small bore, the latter being screw-threaded, the screw working therein, the longitudinally-working plug enlarged at its end, and the loose plug attached to the end of the driving-shaft, substantially as and for the purposes specified.

In testimony that I claim the foregoing I have hereunto set my hand this 24th day of March, 1881.

W. W. D. JEFFERS.

Witnesses:
JOHN C. FENTON,
FREDERICK WEED.