

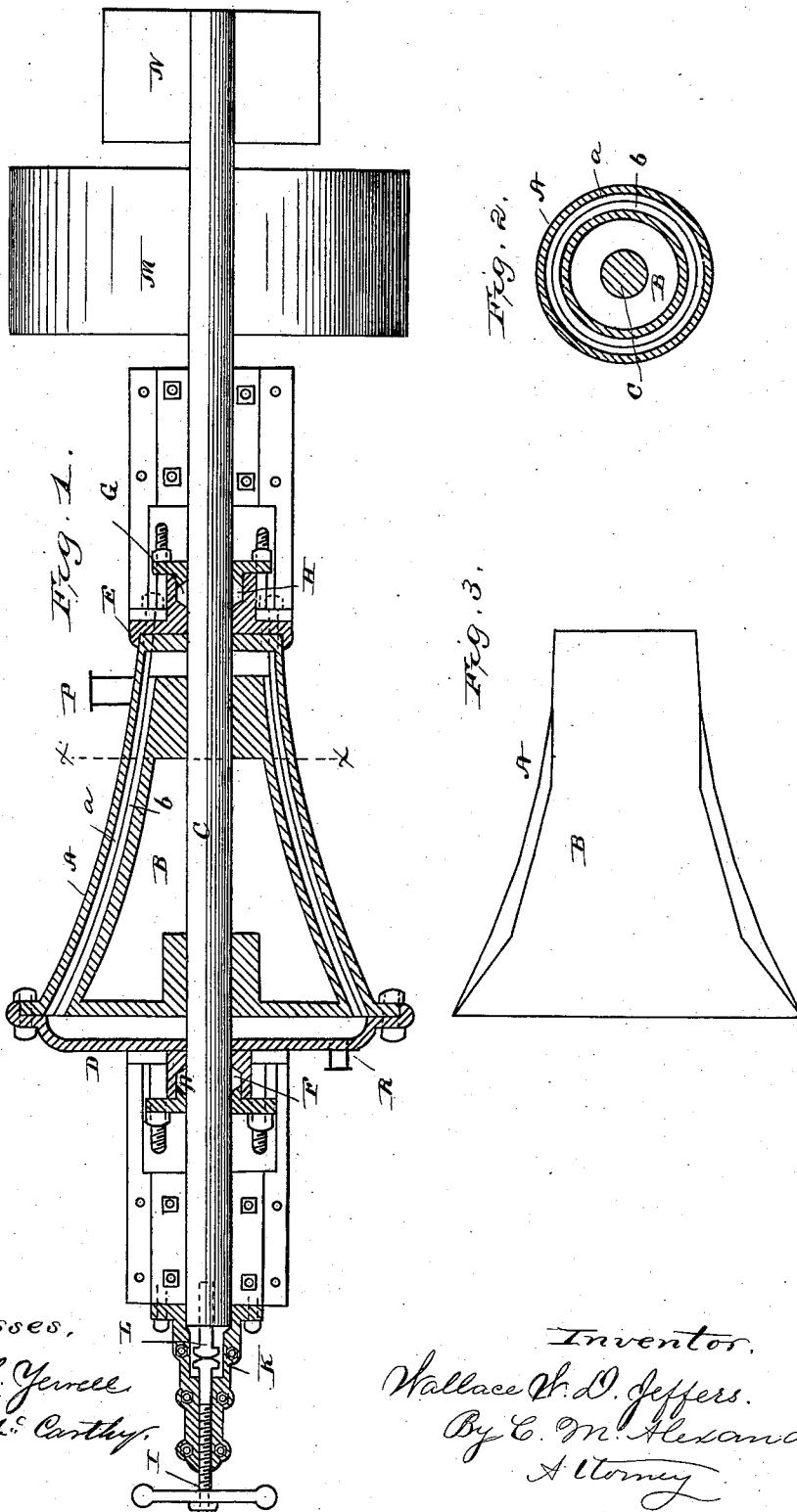
(No Model.)

W. W. D. JEFFERS.

PULP ENGINE.

No. 256,698.

Patented Apr. 18, 1882.



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. 256,698, dated April 18, 1882.

Application filed March 15, 1882. (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 5 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 10 marked thereon, making a part of this specification.

This invention relates to certain improvements in pulp-engines to be used for preparing stock for making paper in its various 15 stages; and it has for its object to provide certain means whereby the grinding-surfaces may be made to wear uniformly, or as nearly uniformly throughout their entire length from the inlet to the outlet openings, as more fully hereinafter specified. In the engines of this class as heretofore, it has been found that the wear is the greatest at the outlet end of the apparatus, at which portion the rotary grinder is 20 greater in diameter than at the other end, and consequently is subjected to a greater amount 25 of work; and my invention is designed to so construct the grinding-surfaces that they will compensate for this unequal wear. These objects I attain by the apparatus illustrated in 30 the accompanying drawings, in which—

Figure 1 represents a longitudinal sectional view of the apparatus; Fig. 2, a transverse vertical sectional view of the apparatus, and Fig. 3 a diagram showing a modification of 35 my invention.

The letter A indicates the outer shell, and B the inner shell or rotary grinder, of the apparatus. These are each in the shape of a conoidal frustum, the sides being curved inward from the base to the smaller end, as 40 clearly indicated in Fig. 1 of the drawings. The inner surface of the shell A and the outer surface of the grinder B are provided with longitudinal corrugations a b, as shown, on 45 working-surfaces best adapted to the stock which is to be manipulated and the paper made therefrom.

The grinder B is located within the shell A upon a longitudinal axle, C, which extends 50 through the heads D and E, bolted to the respective ends of the shell A, and is journaled in bearings F G at opposite ends of the outer

shell, the shaft also passing through suitable stuffing-boxes H.

The letter I indicates a screw at one end of 55 the apparatus, bearing against the bolt K, the head of which is rounded and bears against the head of a similar bolt, L, by means of which the grinder may be adjusted within the shell.

M is the driving pulley of the shaft, and N a 60 bearing for the end of the shaft.

The letter P indicates the inlet and R the outlet pipe of the apparatus.

I am aware that pulping-engines have been made in which the outer shell and inner 65 grinder have been made each in the form of a true frustum of a cone; but such machines are open to the objections above enumerated, which it is the intention of my invention to obviate.

The difficulty with such engines as formed 70 with conical grinding-surfaces is that the large end of the grinding-cone moves with greater velocity and the surfaces come into more intimate contact by reason of the material being more finely reduced at the large end of the 75 cone, thus causing the surfaces to wear much more rapidly than at the smaller end.

By my method of constructing the machine it will be perceived that the working-surface of the grinder moves at a greater angle to the 80 longitudinal axis toward the outlet or large end than they move at the inlet or small end, the angle being gradually increased from the inlet to the outlet, which construction permits the working parts to automatically compensate 85 for the unequal wear of the grinding-surfaces.

The apparatus may also be constructed of a series of conic frustums, as indicated in Fig. 3, with straight or curved sides, the sides of the 90 sections being formed at varying angles with each other, as indicated, without departing from the spirit of my invention.

By my method of construction a large amount of power is saved, owing to the fact that the 95 application of the working parts of the machine to the stock is such as to allow the stock to be lightly worked at the start, and as it becomes distributed over the larger surfaces more thoroughly worked in small bulk.

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

1. In a pulping-engine, the outer shell and

inner grinder, constructed of conoidal shape, with their walls inwardly curved from end to end, substantially as and for the purposes specified.

5. 2. In a pulping-engine, the outer shell and inner grinder, formed of conic sections of varying angles, substantially as and for the purposes specified.

3. In a pulping-engine, the outer shell and inner grinder or roll, constructed of conoidal shape, the longitudinal line of working-sur-

faces at or near the small or inlet end being more nearly parallel to the axis of rotation than the working-surfaces at or near the larger or discharge end, substantially as specified.

In testimony whereof I affix my signature, in presence of two witnesses, this 28th day of February, 1882.

W. W. D. JEFFERS.

Witnesses:

JOHN C. FENTON,

ALBERT WEED.