

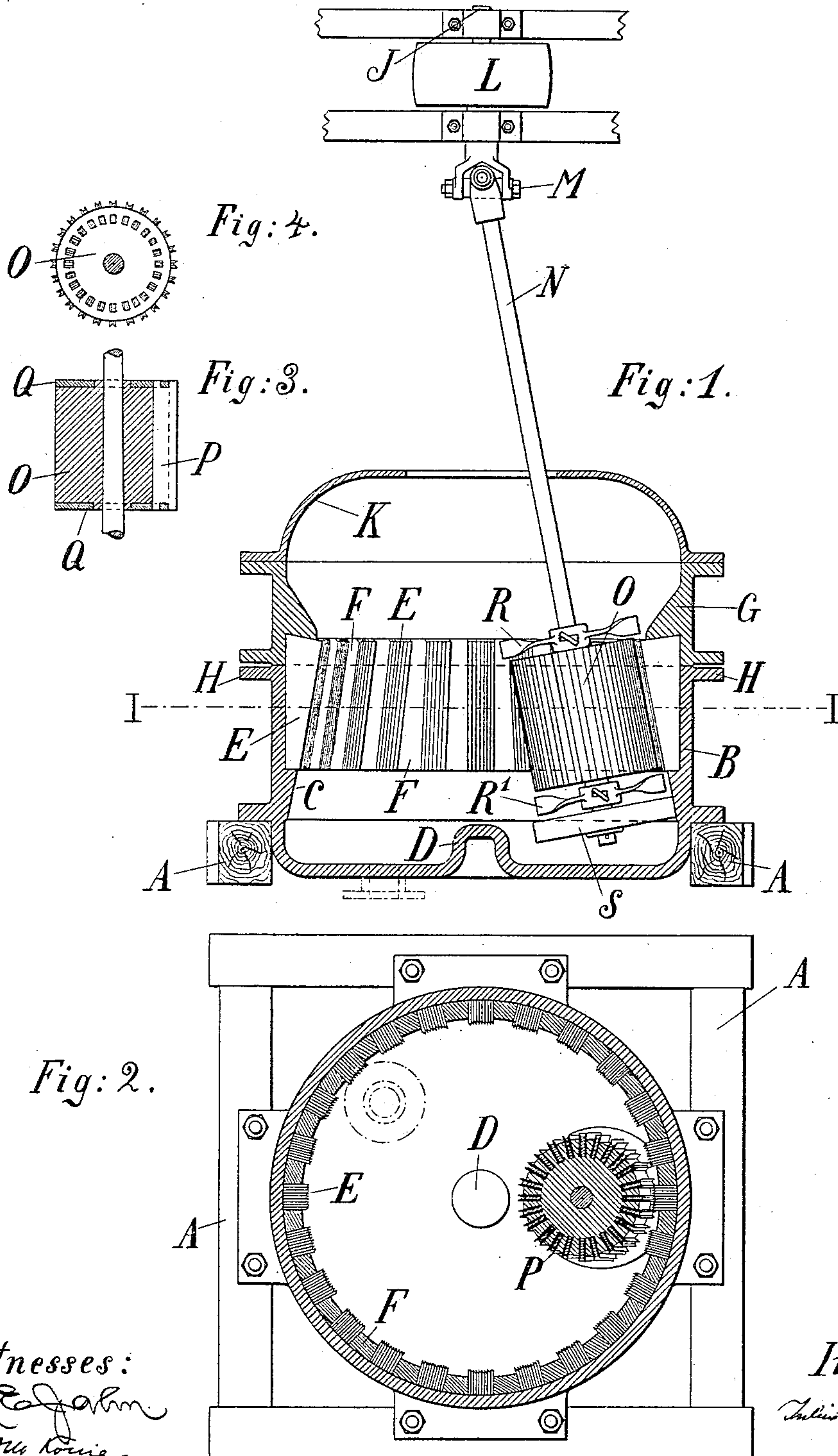
No. 616,517.

Patented Dec. 27, 1898.

J. WÜSTENHÖFER.
RAG ENGINE.

(Application filed May 25, 1898.)

(No Model.)



Witnesses:
E. E. Jahn
O. W. König

Inventor:
Julius Wüstenhöfer

UNITED STATES PATENT OFFICE.

JULIUS WÜSTENHÖFER, OF HAGEN, GERMANY.

RAG-ENGINE.

SPECIFICATION forming part of Letters Patent No. 616,517, dated December 27, 1898.

Application filed May 25, 1898. Serial No. 681,712. (No model.)

To all whom it may concern:

Be it known that I, JULIUS WÜSTENHÖFER, a subject of the Emperor of Germany, residing at Hagen, in the Province of Westphalia and Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Rag-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to improvements in paper-making; and it has for its object a rag-engine working on a new principle in this class of machinery.

Instead of the ordinary oblong tub with a partition (mid-fellow) in the middle of the same and the backfall and bed-plate in one partition and a roller with the rag-knives fixed therein and working upon said bed-plate I use a circular tub with sets of knives fixed in its inner circumference, with their cutting edges running obliquely, and one or more circular rollers suspended at a point outside above the tub on a spindle or pendulum forming the axle of these rollers. These rollers are also provided with cutting-knives, and they are caused to rotate and at the same time to roll along around the inner surface of the tub, but being prevented from coming in close contact with the knives in the same.

In the accompanying drawings, Figure 1 is a vertical section of a machine according to my new system of working. Fig. 2 is a horizontal section of the same along line I I of Fig. 1. Fig. 3 is an axial section of the cutter-roller alone. Fig. 4 represents an end view of the roll.

On a solid base or frame A is placed a tub B. At the lower part the inside of this tub is formed conically, as shown at C, or an extra conical ring may be arranged for that purpose. A central hub or projection D may be arranged centrally to the bottom of the tub. Upon the radial projection or shoulder formed by the conical ring C sets of knives E, with intermediate filling-blocks F, are placed and fixed tightly therein. From above these knives and blocks are held in place by a flanged ring G, placed upon the upper edge of the tub B and held tight upon the same by the flanges H and bolts in the usual manner. A

hood or cover K partly closes the whole and allows only sufficient room for the suspending bar of the cutter-roller to pass through and for its circulating movement. Centrally above the tub is arranged a driving-shaft J, with a pulley L, and by means of a universal joint M or a ball-and-socket joint or any such suitable coupling means as are well known to any mechanic the lower end of the shaft J is coupled to a pendulum-shaft N, to the lower free end of which is keyed the cutter-roller O, exactly in the height of the knives E. This cutter-roller consists of a solid central part, with radial knives P fixed therein and held in place vertically or axially by covering-plates Q. Above and below the cutter-roller I arrange wings or fliers R R' for the purpose of stirring up the material and to raise it. Below the lower wing R', I fix a guide-roller S. This rolls along the conical part C of the tub B and has for its object to prevent the cutter-knives of the roller O from coming in contact with the knives E. A suitable outlet may be provided at the bottom of the tub for the outlet of the reduced material.

The working of the new machine is as follows: Into the tub B is filled the material to be ground and reduced in fine particles, the rags or other fibrous material, and the necessary amount of water is admitted thereto. Then the pulley L is set in quick rotation, in consequence of which the roller O at the end of the shaft N has the tendency to fly outward toward the knives in the rim of the tub. The roller J prevents a too close approach of the roller-knives against the knives E, and in its march around the inner circumference always new material is brought between the roller-knives and the knives in the tub, the wings R and R' thereby stirring up the material also and raising it, so that it is always kept in motion again and again exposed to the working of the cutters.

I am aware that mills for reducing ores, quartz, and other minerals working upon the same principle have been used, and I do not claim, broadly, such mills as my invention; but I am not aware that the principle of this working has ever been applied in connection with paper-making and in place of the ordinary rag-engines, and

What I therefore do claim as my invention,

and desire to secure as my property by Letters Patent, is—

1. In a machine for reducing rags and other fibrous matter for paper-making the combination with a circular tub, sets of radially-
5 arranged knives E and filling-blocks F between them, a conical guide-ring below said knives and filling-blocks, a flanged ring G bolted to the tub B and holding the knives
10 and blocks in place vertically, a cutter-roller O having radially-arranged blades P fixed therein, a pendulum-shaft N having the said roller keyed thereto, a driving-shaft from
15 by a universal joint, fliers R and R' above and below said roller and a guide-roller S keyed to the lower end of said shaft N working together with the conical ring C in order to prevent too close contact of the roller-
20 knives P and the knives E in the circumference of the tub B, the whole as described and illustrated and for the purpose set forth.

2. In a rag-engine, a tub having a series of vertical knives on its inner face, in combination with a vertically-arranged roller provided
25 with longitudinal cutting-blades which coact

with the said knives, means for causing the said roller to travel around the said tub and in lateral proximity to the said series of knives and means for guiding the said roller
30 in such travel and maintaining the proper interval between the said knives and blades substantially as set forth.

3. In combination with a tub having a series of knives set around its inner periph-
35 ery, a roller traveling around the said tub in lateral proximity to the said knives and provided with blades which coact with the said knives, devices rotating with the said roller and arranged concentrically below the
40 same on the axis thereof for raising and stirring the rags in order that they may be repeatedly subjected to the action of the said knives and blades, and means for causing
45 the said roller to travel around over the said knives substantially as set forth.

In testimony whereof I have affixed my signature in presence of two witnesses.

JULIUS WÜSTENHÖFER.

Witnesses:

R. E. JAHN,
OTTO KÖNIG.