

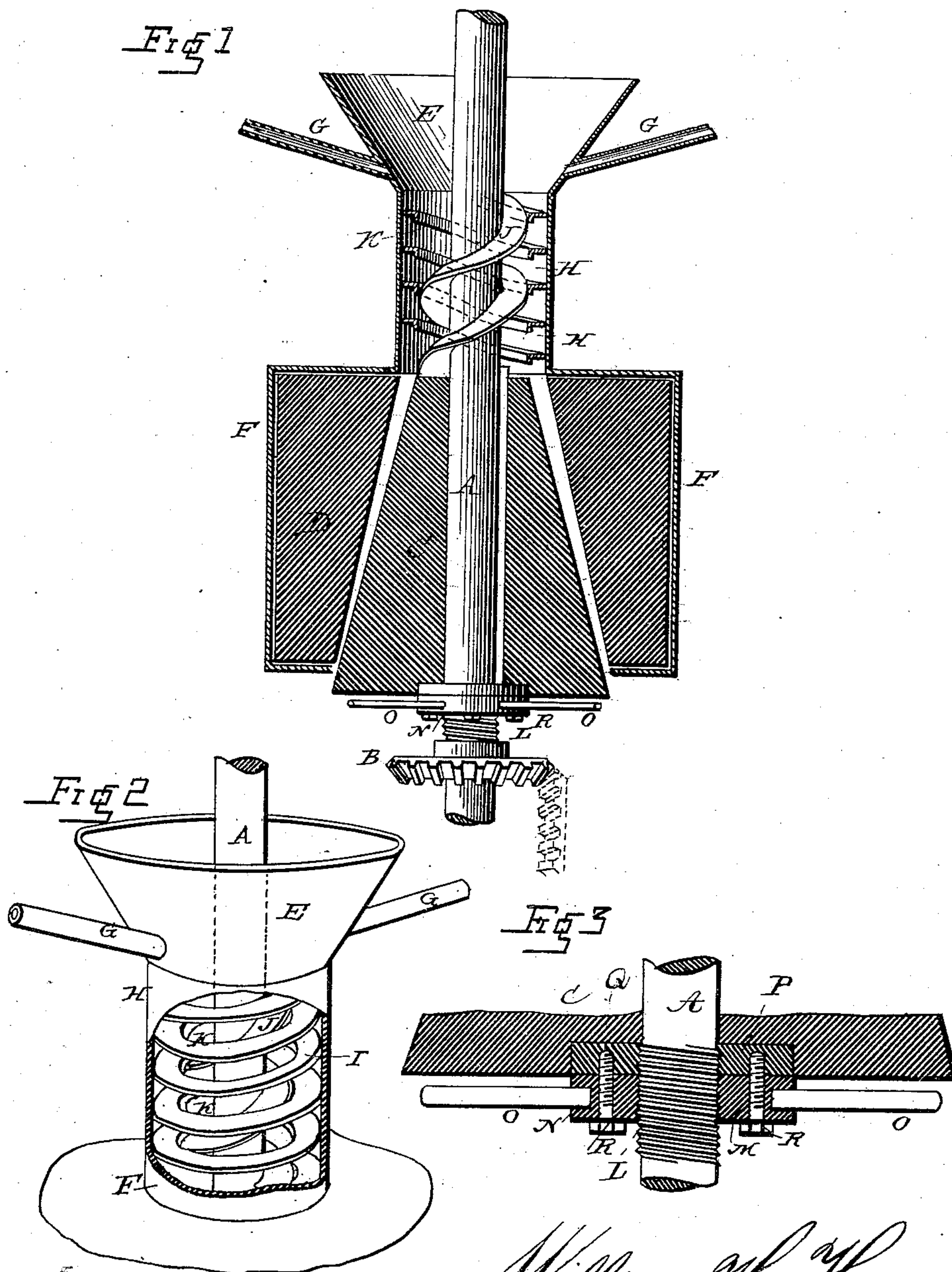
(No Model.)

W. H. HOWELL.

PULP GRINDER.

No. 272,258.

Patented Feb. 13, 1883.



WITNESSES:

Mrs. L. Dietrich
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UNITED STATES PATENT OFFICE.

WILLIAM H. HOWELL, OF THOROLD, ONTARIO, CANADA.

PULP-GRINDER.

SPECIFICATION forming part of Letters Patent No. 272,258, dated February 13, 1883.

Application filed December 29, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. HOWELL, of Thorold, in the county of Welland, Province of Ontario, and Dominion of Canada, have invented certain new and useful Improvements in Pulp-Grinders; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification, and in which—

Figure 1 is a vertical sectional view of my improved pulp-grinder. Fig. 2 is a perspective view of the feeding mechanism, with part of the casing broken away; and Fig. 3 is a detail view of the adjusting mechanism.

Similar letters of reference indicate corresponding parts in all the figures.

My invention has relation to that class of pulp-grinders where the material to be ground is fed by a spiral flange on the shaft into the grinder, consisting of a cone rotating inside an inverted cone; and it consists in the improved construction and combination of parts of the same, as will hereinafter be more fully described.

In the accompanying drawings, the letter A represents the main shaft, which is rotated by a beveled cog-wheel meshing with a beveled pinion, B, which is keyed on the shaft, or in any other desired manner.

Upon the shaft is fastened a conical runner, C, of stone or metal, the sides of which are roughened or corrugated to operate with the roughened or corrugated sides of an inverted conical bed, D. The angle of the cone C is sharper than the angle of the inverted cone D, leaving a larger space at their apices, which point upward, between their sides than at their bases.

The material to be ground is fed from a hopper, E, over the stones, which are inclosed in a casing, F, and consists generally of finely-divided wood or straw, which is mixed with water entering the hopper through pipes G. From the hopper the material passes down into a cylindrical casing, H, which is fastened on top of the casing F and connected with the hopper. The inner surface of this cylinder is provided with a spiral flange, I, which extends

from the inside of the cylinder to the periphery of one or more spiral flanges, J, fastened upon the shaft A. When the shaft turns the flanges J will feed the material mixed with water into the grinder, and the flange I, being turned down at its outer edge, as shown at K, prevents it from working up out of the cylinder. The edge k of the flange I, being bent down, assists in keeping the material down, especially as it, being generally finely-divided wood or straw, has a tendency to rise in the water while the spiral flanges mix it with the water in feeding it.

To adjust the position of the conical runner C, which is fastened to the shaft in such a manner as to rotate with the shaft while it may be raised or lowered on it, the lower end of the shaft is screw-threaded, as shown at L, while an annular disk, M, which has screw-threads on its inner rim, bears against the bottom of the cone. To operate this disk for raising or lowering the runner, it is provided with holes N in its outer rim, into which fit iron handles O, by which it may be turned. The disk M bears against a disk, P, fastened around the shaft to the base of the cone C, and provided on its under side with holes Q, into which one or more set-screws, R, may be introduced, which pass through threaded holes in the disk M and prevent it from working itself loose and turning while the cone rotates. By this mechanism the space between the runner and the bed may be adjusted according to the fineness to which it is desired to grind the pulp.

Having thus described my invention, I claim and desire to secure by Letters Patent of the United States—

1. In a pulp-grinder, the cylindrical casing H between the hopper and the grinder, provided with spirally-arranged plates I on its inside, having downward-turned ends K, substantially as and for the purpose shown and set forth.

2. In a pulp-grinder, the combination of the cylindrical casing H between the hopper and the grinder, provided with spirally-arranged plates I, having downward-turned edges K, with the shaft A, having one or more spiral flanges, J, as and for the purpose set forth.

3. In a pulp-grinder, the adjusting attach-

ment consisting of the annular disk M, screw-threaded on its inner rim, and provided with holes N for the reception of handles O, and set-screws R, screw-threaded part L of the shaft, and disk P, having holes Q for the reception of the set-screws R, substantially as set forth.

4. In a pulp-grinder of the described class, the combination of the hopper E, having water-pipes G, the cylindrical casing H, having spirally-arranged plates I, bent downward at K, outer casing, F, bed-stone D, recessed to form an inverted cone, cone-shaped runner C, rotating with shaft A and having disk P, provid-

ed with holes Q, disk M, having inner screw-threaded rim, set-screws R, and holes N for the reception of handles O, and shaft A, having spiral flanges J and screw-threaded part L, all constructed and combined to operate substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I have hereunto affixed my signature in presence of two witnesses.

WILLIAM HARMAN HOWELL.

Witnesses:

WILLIAM M. CARROLL,
WM. CARTMILL.