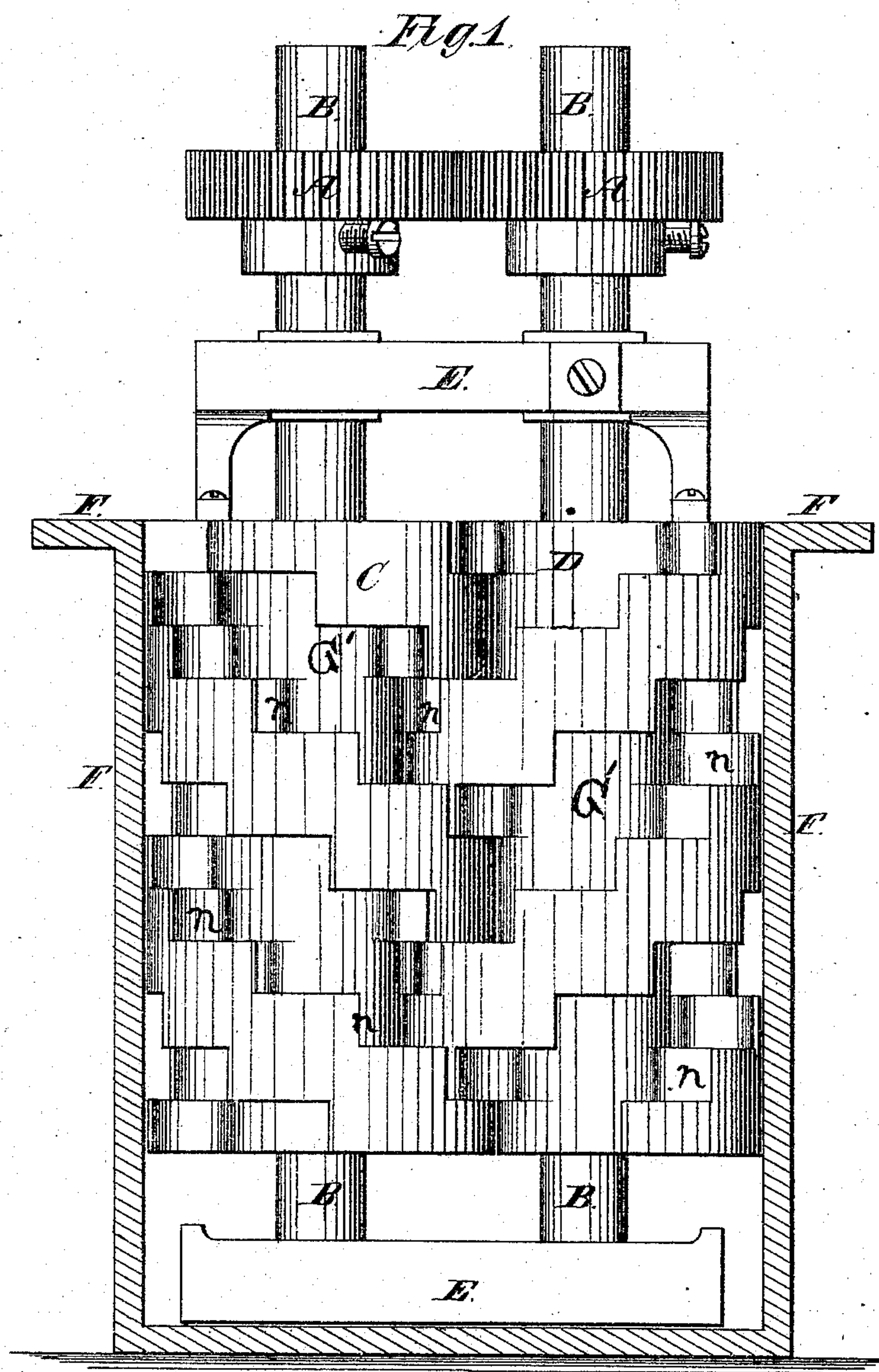


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Water-Wheels.

No. 158,277.

Patented Dec. 29, 1874.



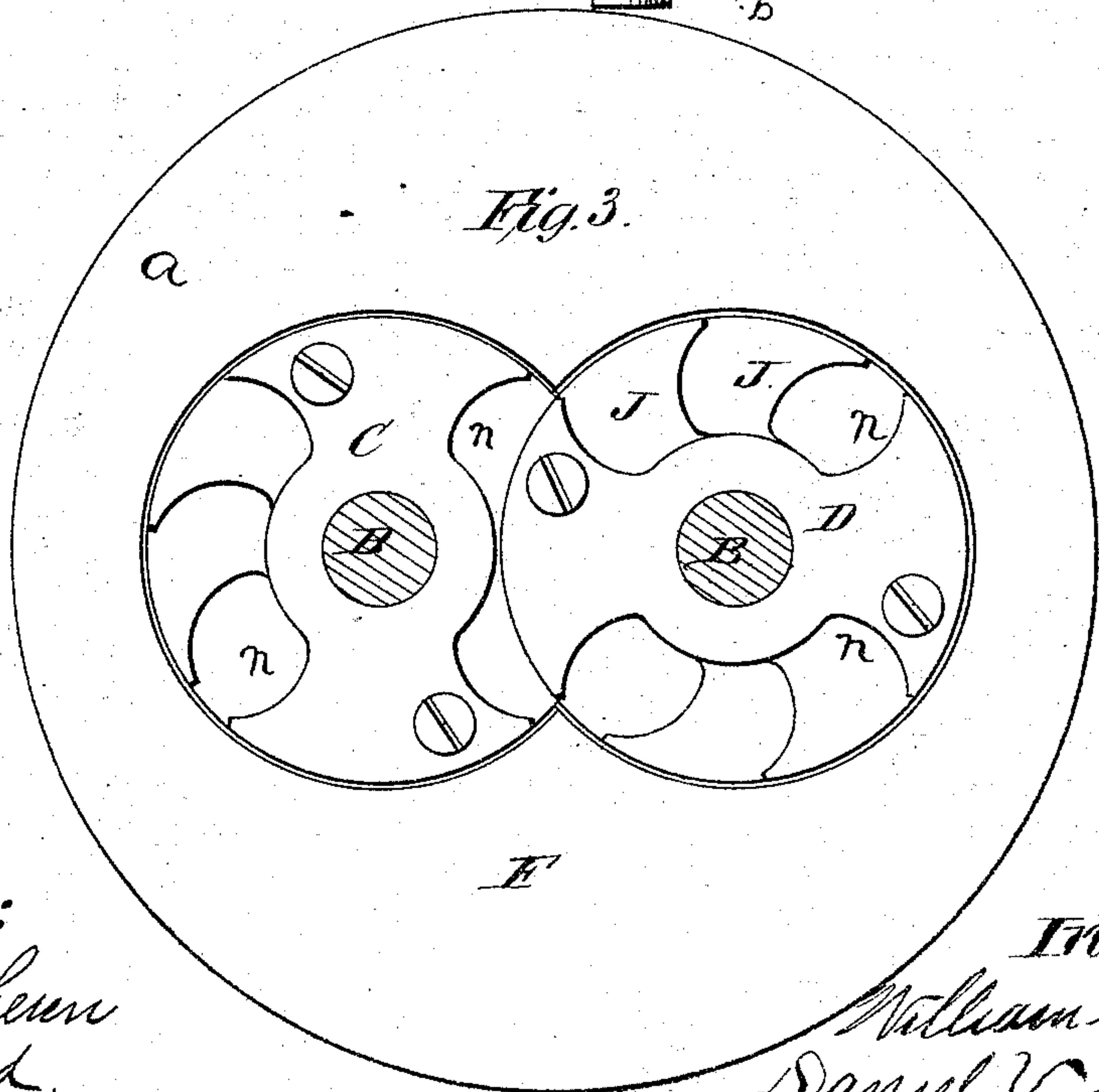
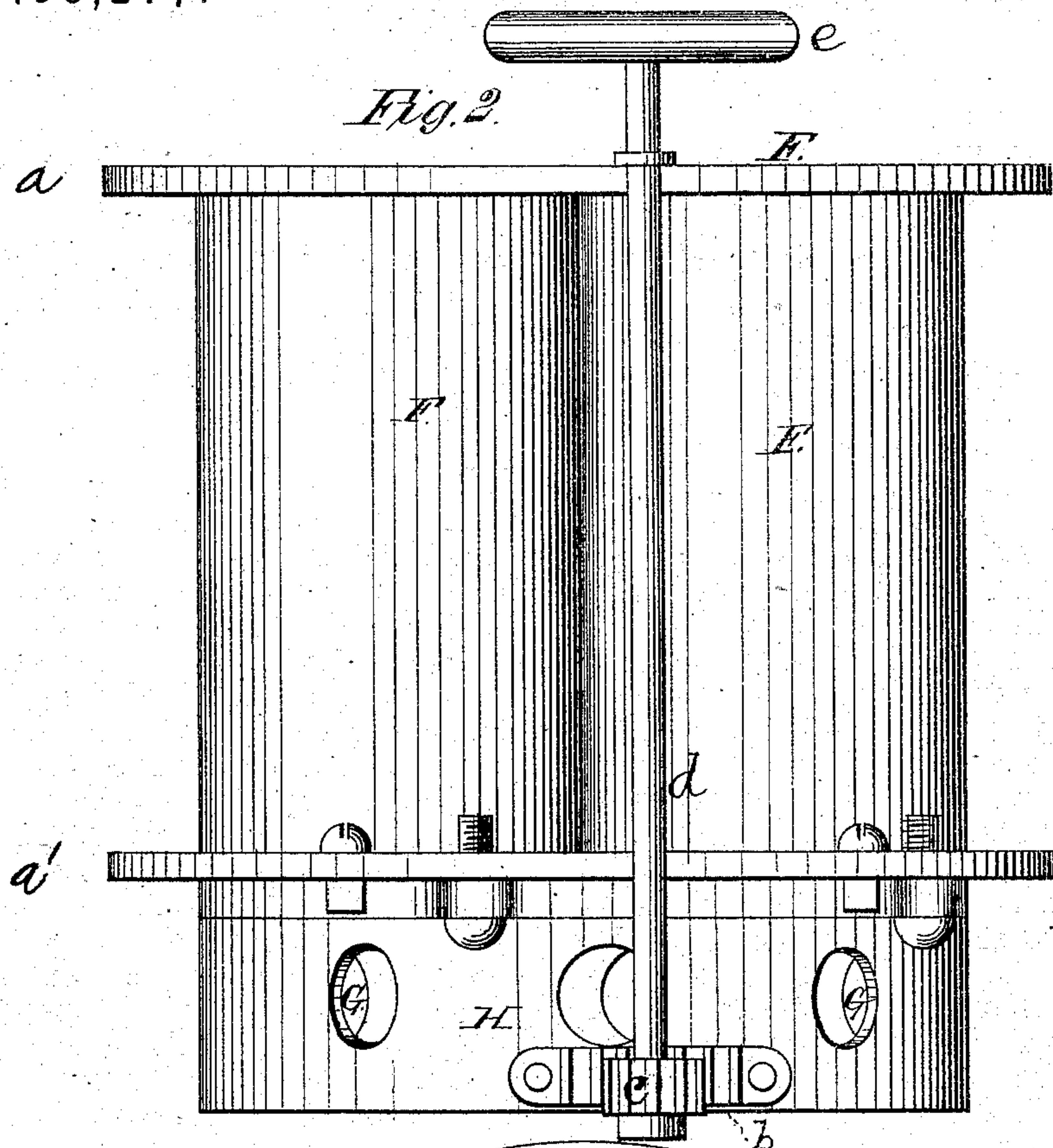
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Inventors:
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UNITED STATES PATENT OFFICE.

WILLIAM H. HOLCOMB AND DANIEL V. HOLCOMB, OF NUNDA, ILLINOIS.

IMPROVEMENT IN WATER-WHEELS.

Specification forming part of Letters Patent No. **158,277**, dated December 29, 1874; application filed July 27, 1874.

To all whom it may concern:

Be it known that we, WILLIAM H. HOLCOMB and DANIEL V. HOLCOMB, of the town of Nunda, of McHenry county, State of Illinois, have invented a Water-Wheel, of which the following is a specification:

This invention has relation to means for driving machinery by the force of water acting on helical flanges, which are applied on two parallel shafts, and arranged in the same case. The nature of our invention consists, mainly, in the employment, in a single case or curb, of two shafts, which are geared together so that they will rotate in opposite directions, and which are surrounded by helical flanges of equal radiuses, stepped in such manner that they will mesh together in close contact, and afford surfaces against which the ascending currents of water will act to turn the said shafts in opposite directions, as will be understood from the following description.

In the annexed drawings, F designates the case or curb of our water-power, which is constructed with flanges *a a'* on its ends, to the lower one, *a'*, of which a cylinder, G, is bolted, having a closed bottom and perforated sides. Surrounding the cylinder G is a ring or band, H, having perforations through it corresponding to the perforations through the cylinder G. A rack, *b*, is secured to the band H, with which a pinion, *c*, on a vertical shaft, *d*, engages. The shaft *d* extends above the top of the case F, and has a hand-wheel, *e*, on its upper end, by turning which the admission of water into the lower end of the case F can be regulated or prevented. E E designate two bridges, in which are blocks for the journals of two vertical shafts, B B, which are geared together by means of twin-wheels A A, on

their upper ends. On the shafts B B cylinders G' G' are keyed, which are equal in their length to the length of the case F. Around these cylinders are helical flanges C D, leaving helical grooves or water-ways extending throughout the length of the cylinders. The flange of one cylinder winds around it in an opposite direction to the corresponding flange of the other cylinder, as shown in Figs. 1 and 3, and both flanges have the same radiuses.

The upper and lower sides of each flange are stepped regularly, for two purposes: First, that surfaces *n* are formed, against which the force of the ascending current of water will act; and, second, that the periphery of one flange shall run in close contact with the periphery of the cylinder of the opposite flange. The surfaces *n* are concave, as shown in Fig. 3, and the height of these surfaces are all equal on both of the cylinders; consequently, one flange will run closely in the groove formed by the other flange, and the two flanges will thus interlock with one another, and at the same time allow the ascending currents of water to rotate the shafts B B in opposite directions. After the water has spent its force on the flanges C D it flows freely from the top of the case F.

Having described our invention, we claim—

Stepped helical flanges C and D, formed on cylinders G' G', which are applied on shafts B B, geared together, the said flanges interlocking with each other, and arranged in a case or curb, F, substantially as described.

WILLIAM H. HOLCOMB.
DANIEL V. HOLCOMB.

Witnesses:

L. BENTHUSEN,
B. TYRRELL.