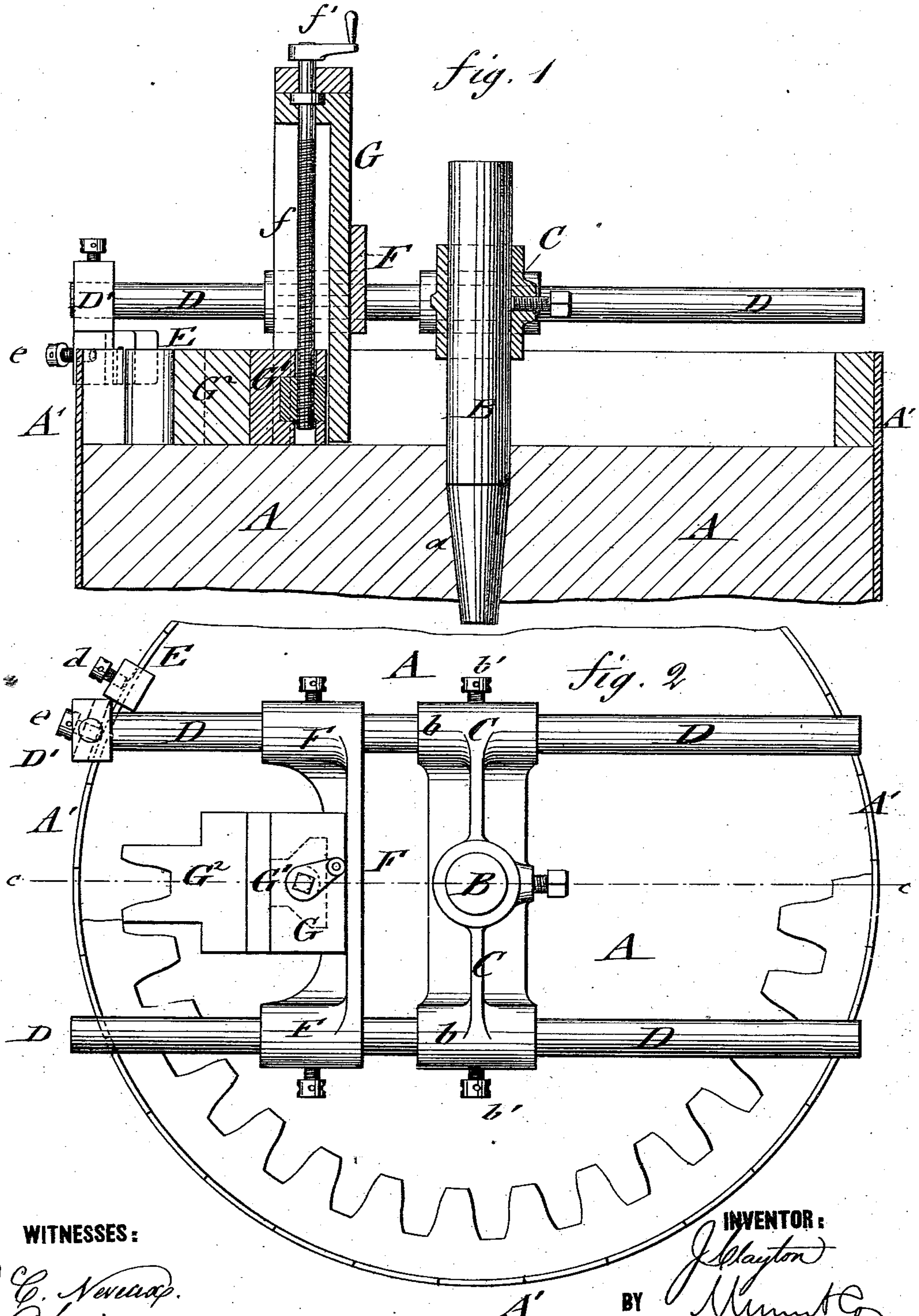
J. CLAYTON.

Machine for Forming Gear-Wheel Molds.

No. 161,385. Patented March 30, 1875.



WITNESSES:

C. Neveux
C. Sedgwick

INVENTOR:

J. Clayton

BY Munn & Co

ATTORNEYS.

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

UNITED STATES PATENT OFFICE.

JAMES CLAYTON, OF PORTSMOUTH, OHIO.

IMPROVEMENT IN MACHINES FOR FORMING GEAR-WHEEL MOLDS.

Specification forming part of Letters Patent No. **161,385**, dated March 30, 1875; application filed June 13, 1874.

To all whom it may concern:

Be it known that I, JAMES CLAYTON, of Portsmouth, in the county of Scioto and State of Ohio, have invented a new Improved Machine for Forming Gear-Wheel Molds, of which the following is a specification:

In the accompanying drawing, Figure 1 represents a vertical central section on the line *c c*, Fig. 2, of my improved machine for forming gear-wheel molds, and Fig. 2 represents a top view of the same.

Similar letters of reference indicate corresponding parts.

The invention will first be fully described, and then pointed out in the claim.

In the drawing, A represents the bed of my machine for forming the molds for gear-wheel teeth, which is provided with a circumferential flange-ring, A′, in which the wheel is molded. A vertical shaft, B, turns in a central socket-hole, *a*, of the molding-bed, and carries the vertically-adjustable cross-head C, which supports again, in its horizontal sleeve-shaped ends *b*, the parallel guide-arms D fastened by clamp-screws *b′*. The end of one guide-arm, D, carries the stop-piece D′, which serves, in connection with slotted marker E, to define the exact position of the molding pattern. The marker E is adjusted on the flange-ring A′ by a set-screw, *d*, after the outside of the ring has been divided into as many parts as teeth are required in the wheel to be molded. The lower part of stop-piece D′ is of curved shape to slide accurately along the flange-ring, and is fastened firmly thereto, after being carried against the marker E by a set-screw, *e*, to give the requisite stability to the supporting devices. Guide-arms D carry a second adjustable cross-head, F, which slides thereon in similar manner by sleeve-shaped ends, and is clamped by suitable set-screws at the distance from the center shaft required by the radius of the wheel. Cross-head F carries centrally to it the vertical slide-standard G, in whose central grooved part the slide G^1, with the tooth-pattern attached thereto, is raised and lowered by a screw-bolt, *f*, and handle *f′*. The tooth-pattern G^2 consists of two semi-teeth, and intermediate recess of the exact size of the teeth required, and is applied in such a manner to the slide G^1 that the radial and accurate position of the teeth is obtained in the mold.

The mode of forming the mold is as follows: The bottom is first formed by a mold-board on the bed of the machine, the marker is then placed on the outer division of the flange-ring, and the guide-arms firmly fixed thereon. The tooth-pattern is then lowered, and the sand firmly rammed in between it and the flange-ring. The pattern is then raised, and the marker and guide-arms adjusted for the next tooth, and the space rammed with sand, as before. This operation is contined until all the teeth of the gear-wheel are molded.

Wheels of different diameters may be molded as the guide-arms and the pattern-supporting cross-head are adjustable. The core-box for the arms and center part of the wheel is then inserted, and the top formed by mold-board. The divisions on the flange-ring may be either permanently or temporarily applied, as preferred, requiring in the latter case the marking on a varnish or other covering.

All the various kinds of gear-wheels may be molded in this machine in a very expeditious and accurate manner.

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

The combination, in a gear-wheel-molding machine with a vertical circular bed-flange, A, of the stop-piece D′, on guide-arm and the marker E, both adjustable on same flange, as and for the purpose set forth.

JAMES CLAYTON.

Witnesses:
W. C. LOYD,
THOS. S. HALL.