3 Sheets--Sheet 1.

A. & J. EXTON.

Cracker-Machine.

No. 164,157. Patented June 8, 1875.

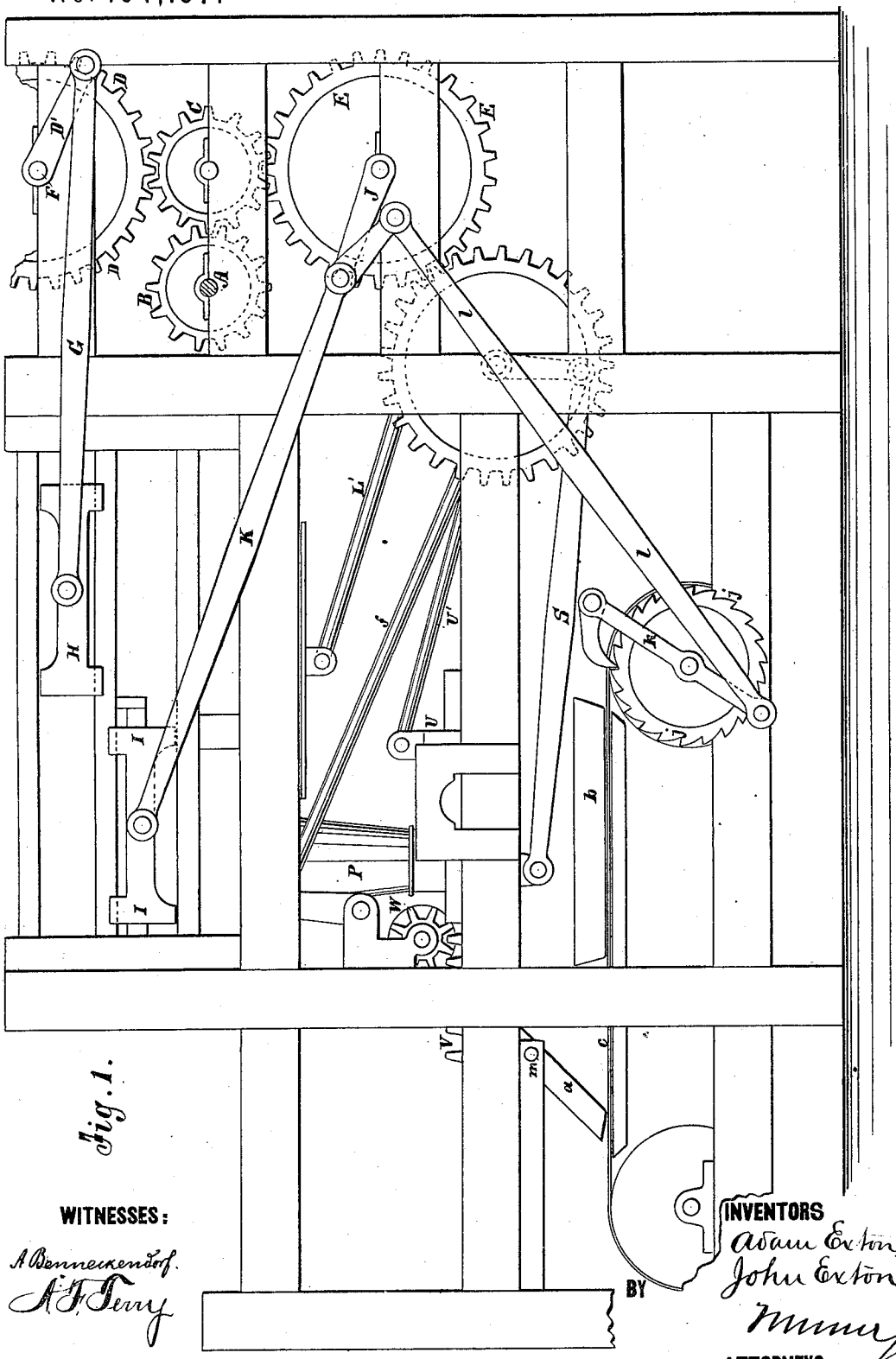

Fig. 1.

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A. F. Perry

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A. & J. EXTON.

Cracker-Machine.

No. 164,157. Patented June 8, 1875.

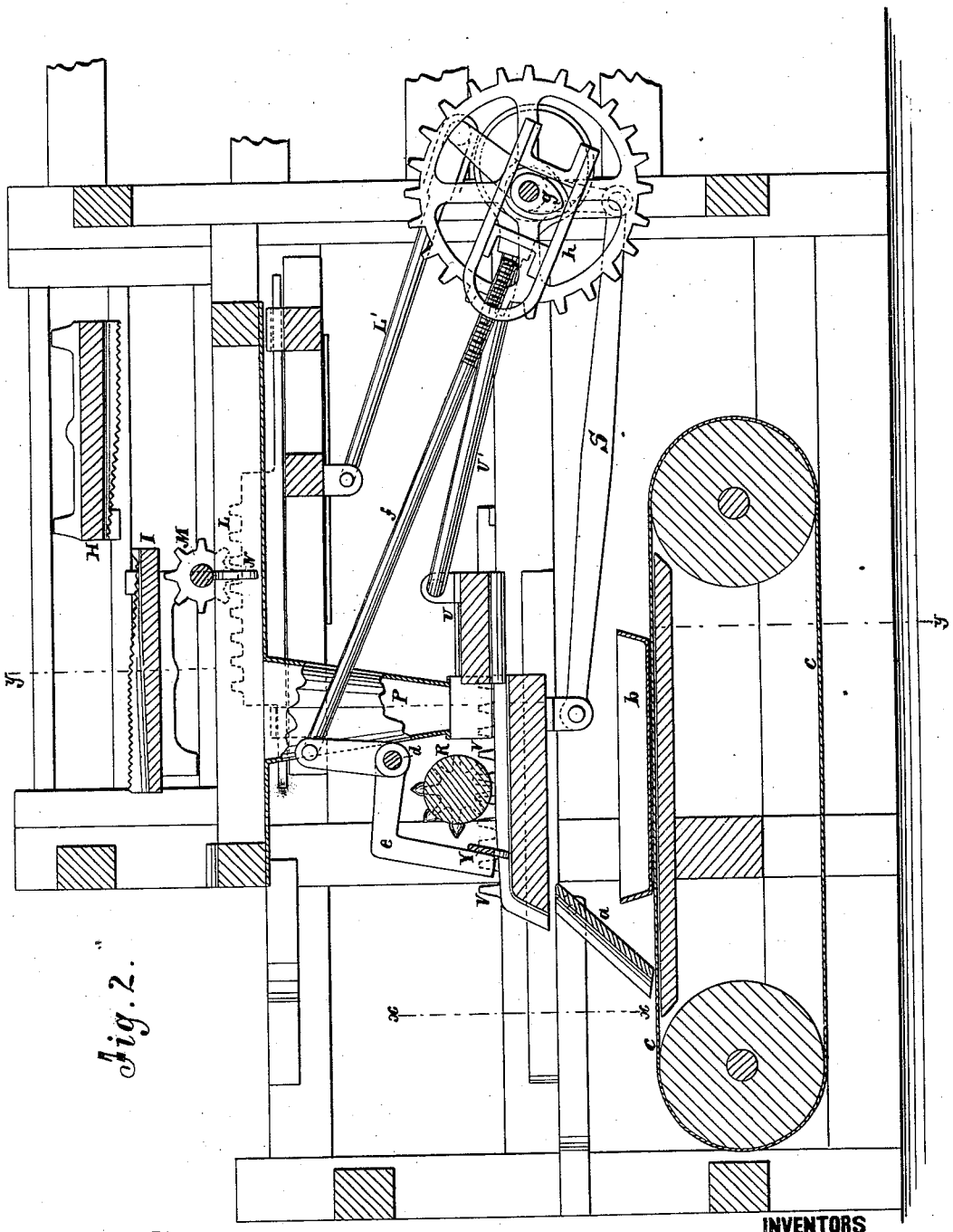

Fig. 2.

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A. & J. EXTON.

Cracker-Machine.

No. 164,157. Patented June 8, 1875.

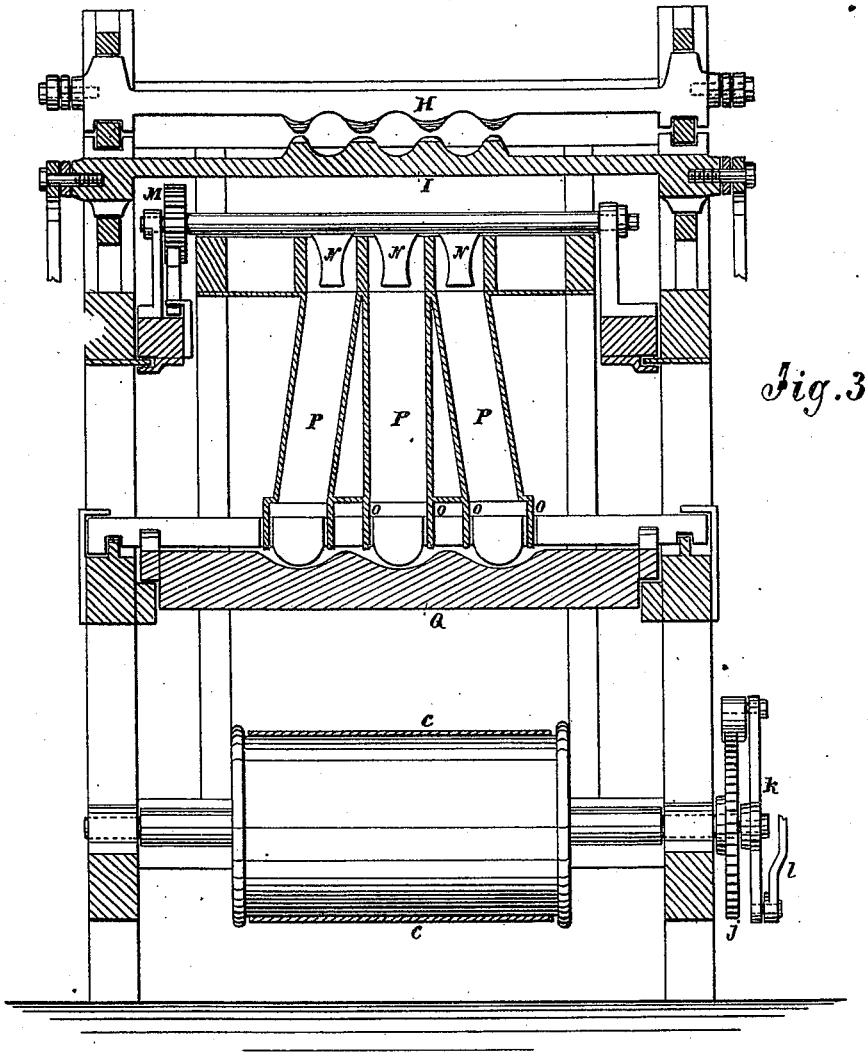

Fig. 3.

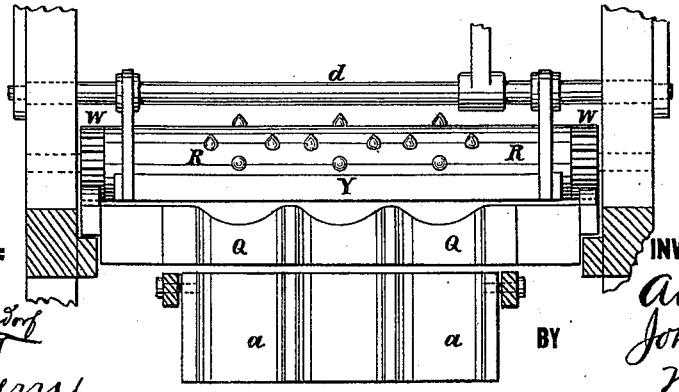

Fig. 4.

WITNESSES:

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UNITED STATES PATENT OFFICE.

ADAM EXTON AND JOHN EXTON, OF TRENTON, NEW JERSEY.

IMPROVEMENT IN CRACKER-MACHINES.

Specification forming part of Letters Patent No. **164,157**, dated June 8, 1875; application filed November 30, 1874.

To all whom it may concern:

Be it known that we, ADAM EXTON and JOHN EXTON, of Trenton, in the county of Mercer and State of New Jersey, have invented a new and useful Improvement in Cracker-Molding Machines, of which the following is a specification:

This invention relates to an improved cracker-molding machine. The basis of the claims is the mechanism whereby the crackers are conveyed or fed to the docker, and cleared from the table upon which the molding process is completed, as hereinafter described.

In the accompanying drawing, Figure 1, Sheet 1, is a side elevation. Figure 2, Sheet 2, is a sectional elevation. Fig. 3, Sheet 3, is a section of Fig. 2 taken on the line *x x*. Fig. Fig. 4, Sheet 3, is a vertical section of Fig. 2 taken on the line *y y*.

Similar letters of reference indicate corresponding parts.

We show in the drawing the oppositely-reciprocating grooved plates, whereby the molding process is completed, although these form the subject of Letters Patent already granted to Adam Exton. We likewise reserve certain parts of the mechanism for separate Letters Patent, particularly the means of feeding the molded crackers to the vertical conducting-tubes, the combined feeding, docking, and finishing devices, and the chute by which the crackers are delivered into the pan ready to be transferred to the oven.

We will, in the present case, describe the machine generally—that is to say, we include in the description all the parts necessary to its operation.

A is the actuating or driving shaft of the machine. The wheel B on this shaft meshes into the wheel C, which transfers the motion to the upper wheel D and the lower wheel E. F is the shaft of the wheel D, on each of the ends of which is a crank, D′, from the wrists of which cranks extend bars G on the outsides of the machine, which are attached to the upper molding-plate H. I is the lower molding-plate, which is given a reciprocating movement from the shaft of the lower wheel E, on the end of which are two cranks, J, from which extend rods K for giving a movement to correspond with that of the upper plate H, but in a contrary direction. The dough is rolled into balls between these molding-plates, the surfaces of which run in contact with each other. Moved by the rack and pinion L, (see Fig. 2,) which are actuated by the eccentric rods L′, is a shaft, *m′*, which extends across the machine, having fingers N on it, which push the balls of dough (which fall from the molding-plates between the upright bars O) into the upright tubes P. There are three of these upright tubes, and the lower ends of the two outer tubes are spread from the middle one, for the purpose of separating the balls which drop down through the tubes onto the sliding board Q. R is the rolling-cylinder. This cylinder is given an alternating motion back and forth on the sliding fluted board Q, by which the balls of dough are given the desired form and shape. The fluted board Q is given a reciprocating motion by means of the rods S, which rods extend from cranks on the ends of an interior crank-shaft T, and act with the sliding pusher U. This pusher U pushes the balls of dough forward to the rolling-cylinder, when the board Q moves forward, and turns the roller B by means of racks or cogs V on its sides, and pinion W on the ends of the roller. The pusher U is given motion by the rod U′. The reciprocating motion of the board Q (caused by the rod Q′) imparts (by means of the racks and pinions) an alternating movement of the roller to crush and give the balls the desired shape. When the table Q moves forward, the sweep Y is raised to clear the crackers, and lowered again when the table begins its reverse movement to push the crackers off the end of the table down the hinged inclined chute or slide *a*, which slide delivers them into the pan *b*, which pan is carried forward by the revolving belt *c*. The sweep-bar Y is attached to arms on the shaft *d* (see Fig. 3) by means of elbows *e*. The shaft is given a rocking motion by means of the adjustable rod *f*, Fig. 2, by means of the cam *g* and cam-frame *h*. *c* is the revolving apron or belt, which is given an intermittent motion by means of the ratchet *j*, pawl-bar *k*, and connecting-bar *l*, Fig. 1. The inclined slide *a* is hung on pivots

m, so that as the pan *b* is carried forward, it is raised by the pan which passes under, and is taken away by the attendant.

Having thus described our invention, we claim as new, and desire to secure by Letters Patent—

1. In a cracker-machine, the combination of the grooved reciprocating table Q, rods S, rotary crank-shaft T, and the vibrating sweep Y, elbow-levers *e*, fixed shaft *d*, rod *f*, and cam *g*, all constructed and arranged as shown and described, to operate as specified.

2. The combination of the tubes P, (when arranged as described,) the pusher U, board or table Q, sweep Y, and roller R, in a cracker or biscuit machine, for the purposes described.

ADAM EXTON.
JOHN EXTON.

Witnesses:
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LEWIS HELLER.