

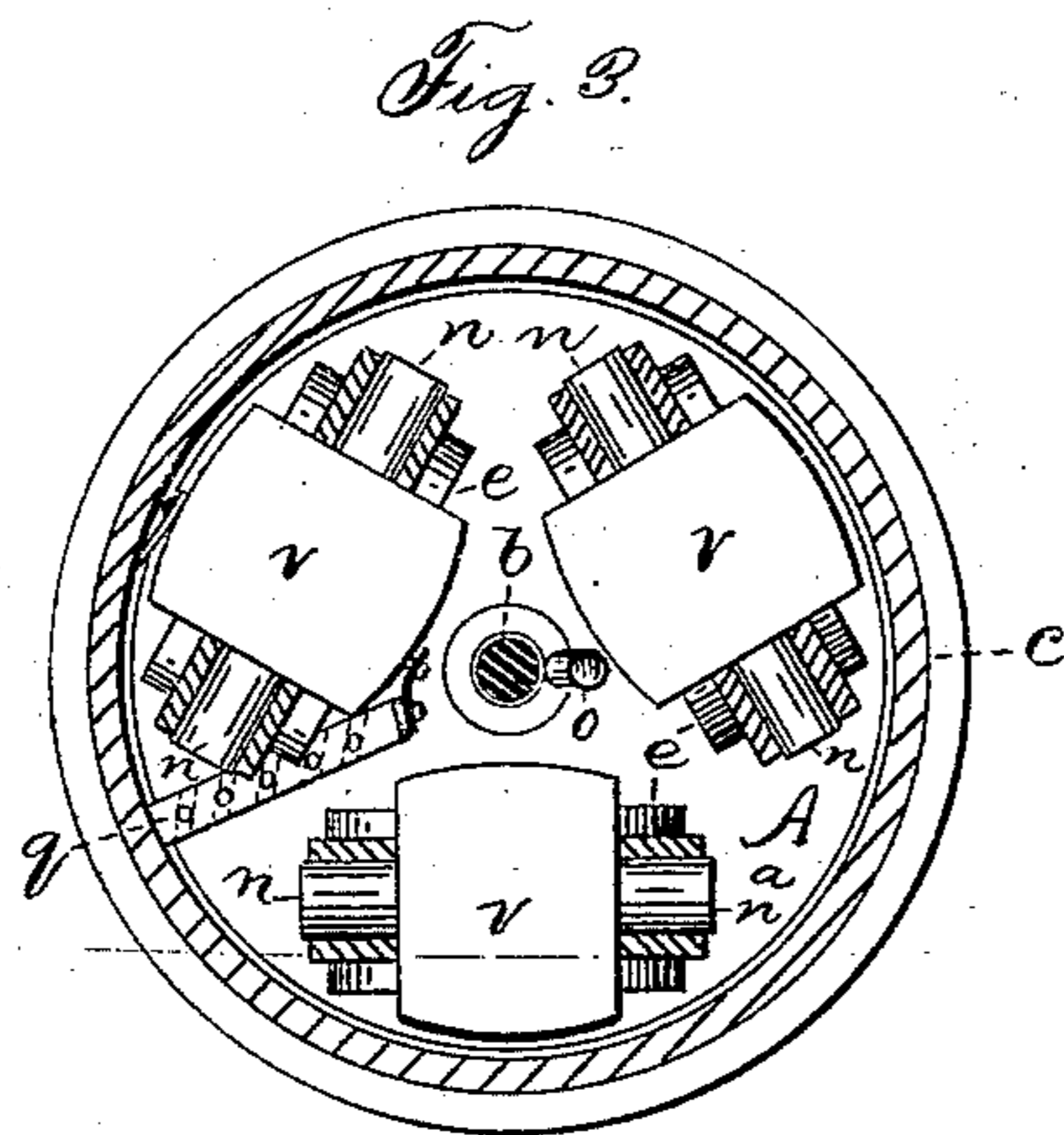
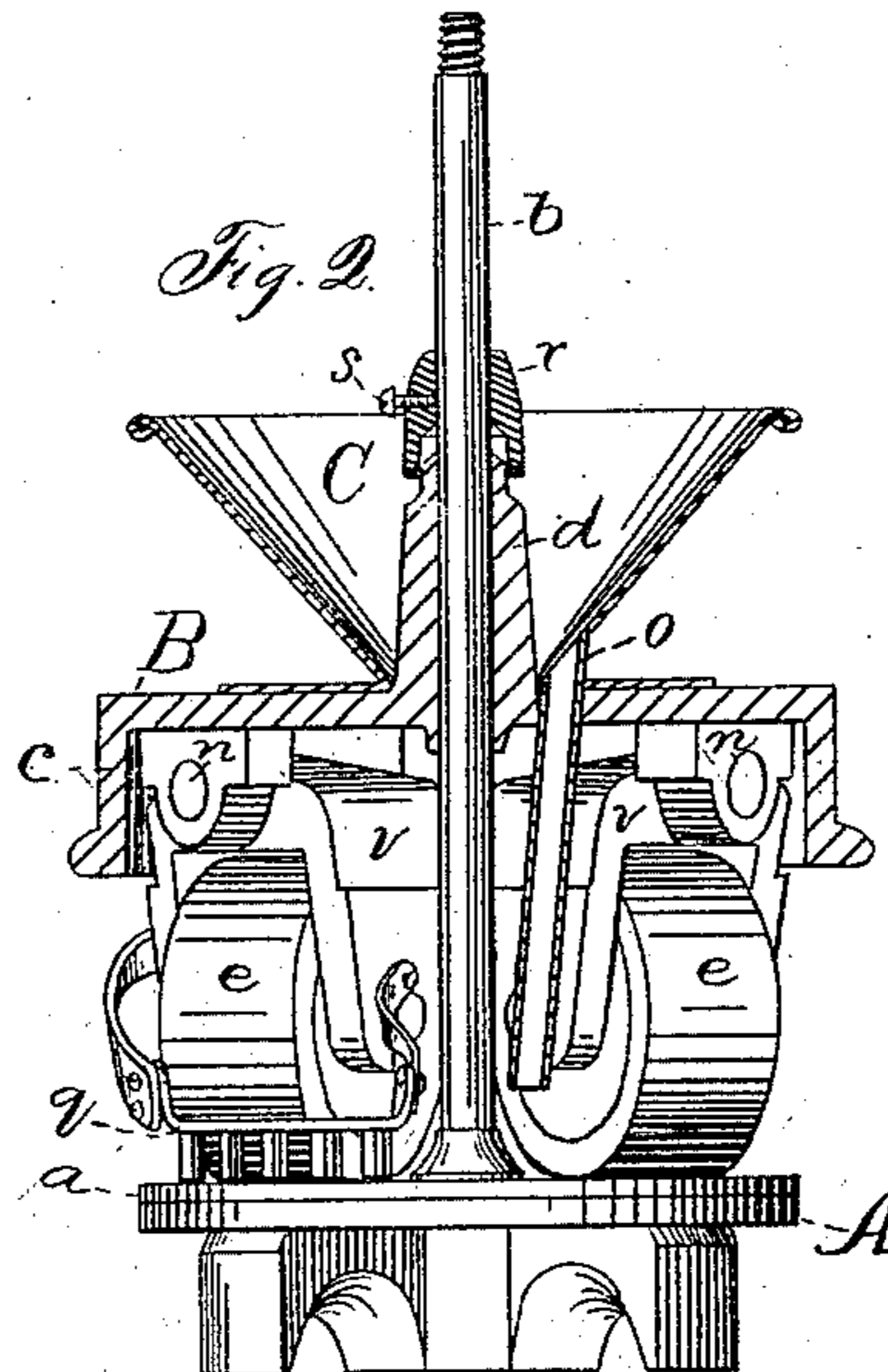
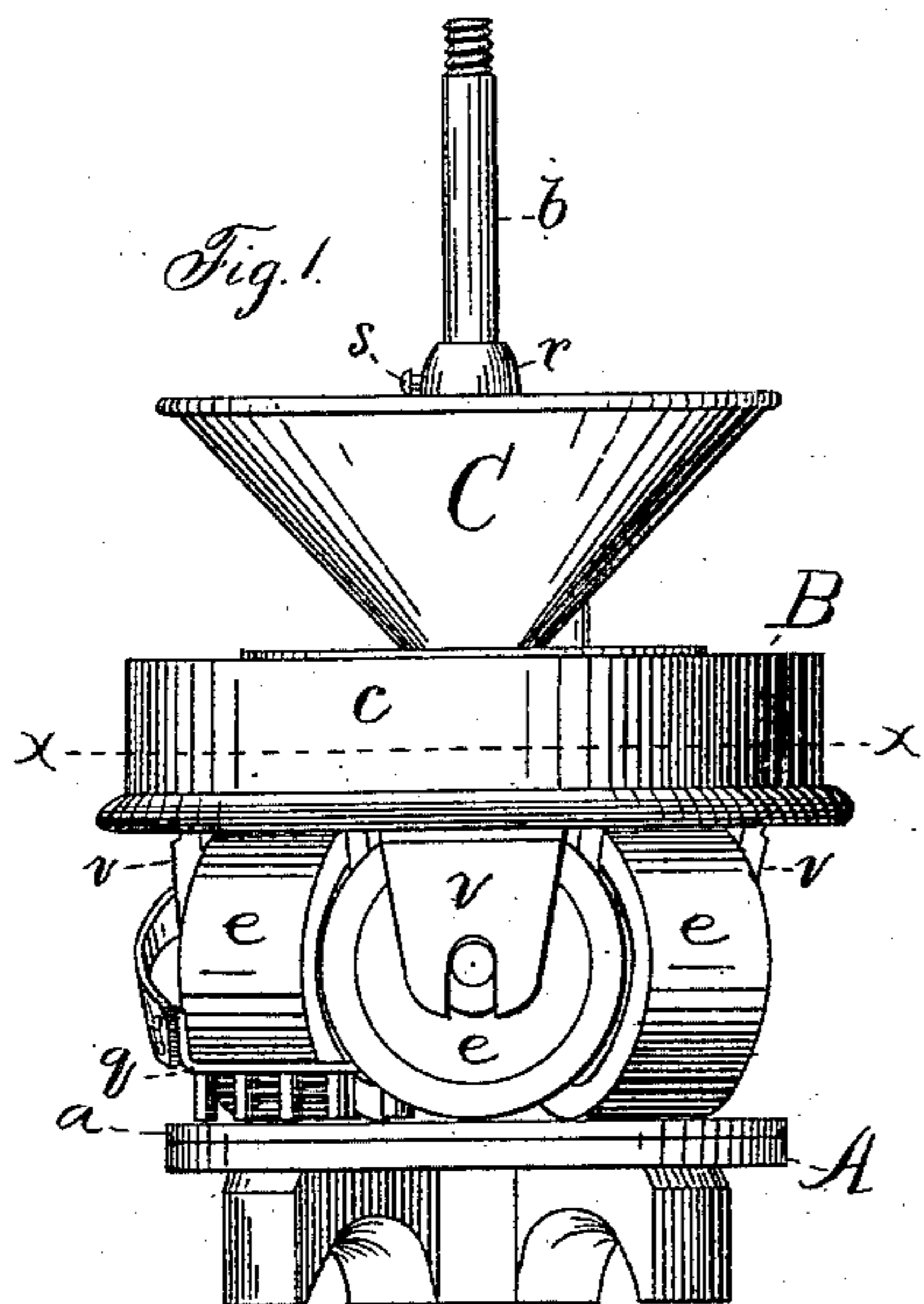
(No Model.)

F. & W. W. WHEELER.

ORE CRUSHER.

No. 285,538.

Patented Sept. 25, 1883.



Witnesses.  
John Edwards Jr.  
Chas B. Olden

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# UNITED STATES PATENT OFFICE.

FRANK WHEELER AND WILLIAM W. WHEELER, OF MERIDEN, CONNECTICUT.

## ORE-CRUSHER.

SPECIFICATION forming part of Letters Patent No. 285,538, dated September 25, 1883.

Application filed October 27, 1882. (No model.)

*To all whom it may concern:*

Be it known that we, FRANK WHEELER and WILLIAM W. WHEELER, of Meriden, in the county of New Haven and State of Connecticut, have invented certain new and useful Improvements in Ore-Crushers, of which the following is a specification.

Our improvements relate to machines for crushing ore, quartz, seeds, or other granular material, in which a roller or rollers are made to travel over the substance to be crushed; and the objects of our invention are to make the rollers adjust themselves to the material under them, to deliver the material from the machine, and to otherwise facilitate the operation of crushing, as hereinafter more fully specified. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation of our crushing-machine. Fig. 2 is a like view, partly in vertical section; and Fig. 3 is a horizontal section on line *xx* of Fig. 1, with the roller-frames and delivering-plow shown in plan view.

A designates a circular table or bed-plate, which may or may not be provided with a hard shoe, *a*, made of white iron, chilled iron or steel, or other hard substance. If only soft material is to be crushed in the machine, it will of course be unnecessary to employ the hard shoe *a*. In the center of the bed we place an upright shaft, *b*, stationarily secured thereto. All other parts of the machine, except the hood *r*, revolve about this shaft and over the bed-plate A.

B designates a circular plate or roller-carriage, having a central hub, *d*, by means of which it is fitted to the shaft *b*, and a downwardly-projecting rim, *c*, whose outer face is adapted to receive the driving-belt which drives the machine. To the under side of the plate we secure cylindrical rollers *e e e*. The frames *v*, in which said rollers are mounted, are hung upon trunnions *n n*, so that said rollers can oscillate, rock, or tilt to bring their axes out of and into a line which is parallel to the surface of the bed-plate. The rollers are so set on the plate B that their axes are substantially on radial lines. We secure the hopper C above the plate B, and provide one or

more tubes, *o*, which extend from near the bottom of the hopper to a point below the axes of the rollers *e e e* and near the central shaft, *b*, so as to deposit the material placed in the hopper upon the bed and inside of the path of the rollers.

We provide a delivery-plow, *q*, which preferably is attached by a hinged bail to one of the roller-frames, and which rides over the bed as it is dragged behind one of the rollers. Said plow consists of a frame and a series of plates set obliquely, as indicated by broken lines in Fig. 3.

Over the upper end of the hub *d* we place upon the shaft *b* a collar or hood, *r*, provided with a set-screw, *s*, by means of which it may be adjusted up and down to any desired point. The lower end of the hood is designed to cover and encircle the upper end of the hub.

The material to be crushed is placed in the hopper and flows through the tube to the bed-plate, where it soon spreads out into the path of the rollers and is crushed as the rollers are driven over it. If more material is under one end of rollers than the other, they tilt on the trunnions *n n*, and accommodate themselves thereto. When the plow comes around, it forces the material over which it passes a little nearer to the edge of the bed-plate, and finally pushes it off the edge of said plate. The hood prevents fine portions of the material from working in between the hub and the shaft when the hopper is being filled. If the material accumulates around the shaft so as to cover the lower end of the tube, no more material will flow through the tube until that accumulated under it is worked away. By making the tube so that its lower end will come nearer to the bed-plate, the flow of material from the hopper will stop when less material is deposited upon the bed-plate. The tube may be made longer or shorter relatively to the bed-plate, to regulate the supply in this way. The plows may be set more or less obliquely, to throw the material off from the bed-plate faster or slower, as may be desired. The hopper-plate and rollers attached thereto are free to rise and fall, to a certain extent, upon the shaft *b*, and thereby all of their weight is brought to bear upon the material which is being crushed.

The rollers need not be very heavy, as the plate to which they are attached can be made as heavy as may be desired, and its upper surface is adapted to receive additional weight 5 when desired. Furthermore, the hopper may be kept nearly full, and thereby still further add to the crushing-weight of the machine. For rolling seeds or other material which from its nature or condition would be liable to 10 stick to the rolls a scraper may be placed upon rolls to clear them. By placing the cylindrical rollers thus on the bed-plate, they have somewhat of a rubbing action in addition to the crushing action.

15 We are aware that various prior patents show rollers mounted on frames or carriages, arranged to revolve about a shaft upon a bed-plate, and that in some of these the rollers can tilt or oscillate to raise their outer edges, but 20 cannot tilt to raise their inner edges; that in others the frame or roller-carriage can tilt two rollers together, but cannot tilt the rollers independently; also, that a roller-carriage is shown with a periphery adapted to receive a 25 driving-belt; also, a conductor which extends from a hopper down to a point inside of the path of the rollers; also, plows or agitators working in a pan or trough, all of which prior art is hereby disclaimed.

30 We claim as our invention—

1. In a roller crushing-machine, the combination of the roller-carriage, the roller-frames, and the rollers, said frames being mounted upon axes which stand at right angles to the 35 axes of the rollers and substantially over the middle of the rollers, substantially as described, and for the purpose specified.

2. The combination of the bed-plate, the central stationary shaft, the roller-carriage mounted on said shaft and adapted to rise and fall 40 thereon, three or more roller-frames, and rollers mounted by said frames between the carriage and the bed-plate, substantially as described, and for the purpose specified.

3. The combination of the circular table or 45 disk form of bed-plate, left free at its edge, three or more rollers, the roller-carriage, the hopper mounted thereon, the conductor extending therefrom to a point inside of the path of the rollers and below their axes, and the 50 plow beveled in a direction to carry the material off the edge of the bed-plate, the whole adapted for gradually feeding the material, properly reducing it, and discharging the same automatically as fast as it is reduced, 55 substantially as described, and for the purpose specified.

4. The combination of the roller-carriage, made in the form of a circular plate, with a downwardly-depending rim, said rim being 60 adapted for use as a driving-pulley, and three or more rollers mounted on said carriage by means of frames affixed to the underside thereof and inside of the depending rim, substantially as described, and for the purpose speci- 65 fied.

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