

No. 617,668.

Patented Jan. 10, 1899.

W. O. BAILEY.

MEANS FOR GRINDING OR POLISHING GLASS, METAL, &c.

(Application filed May 14, 1898.)

(No Model.)

2 Sheets—Sheet 1.

FIG. 1

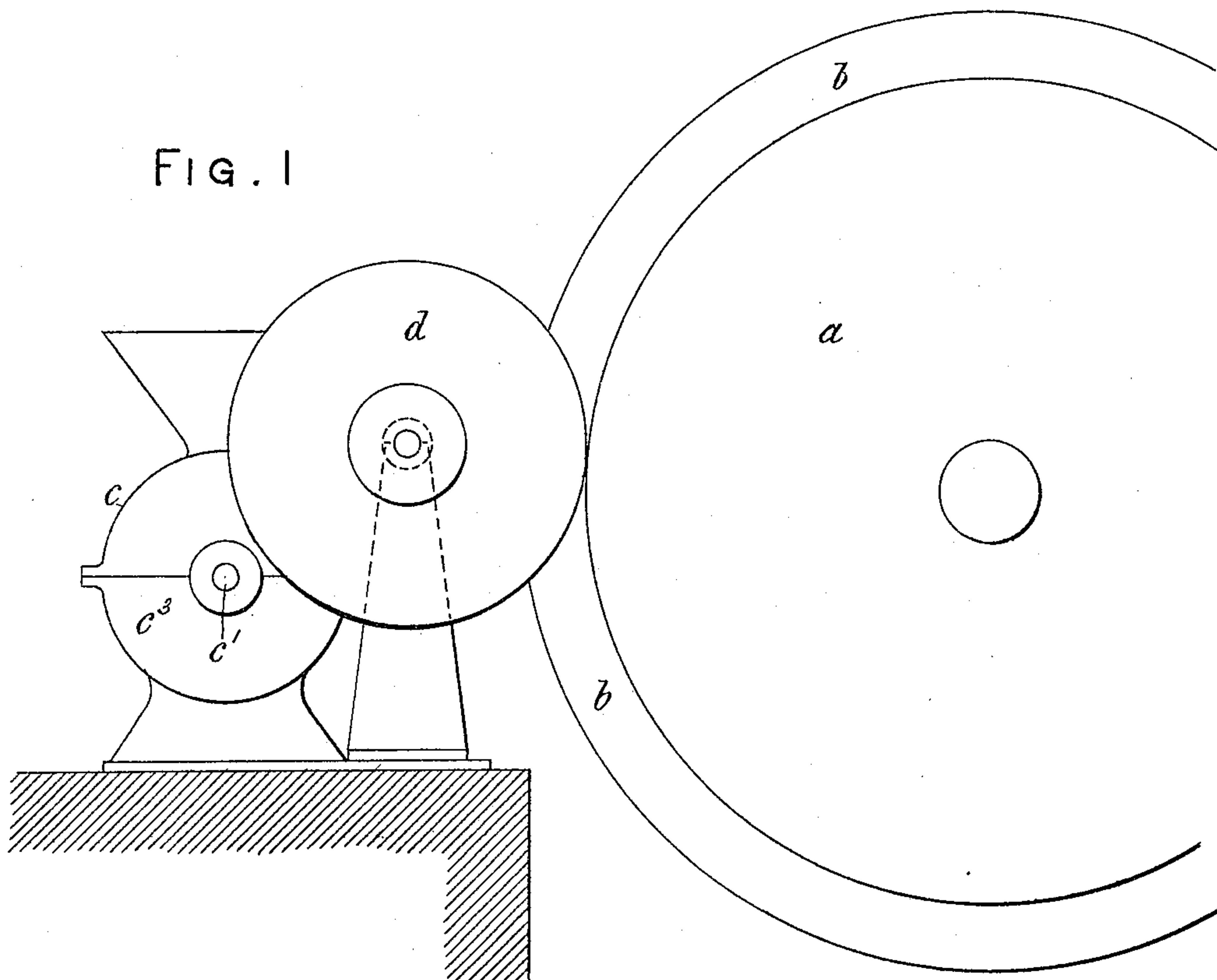
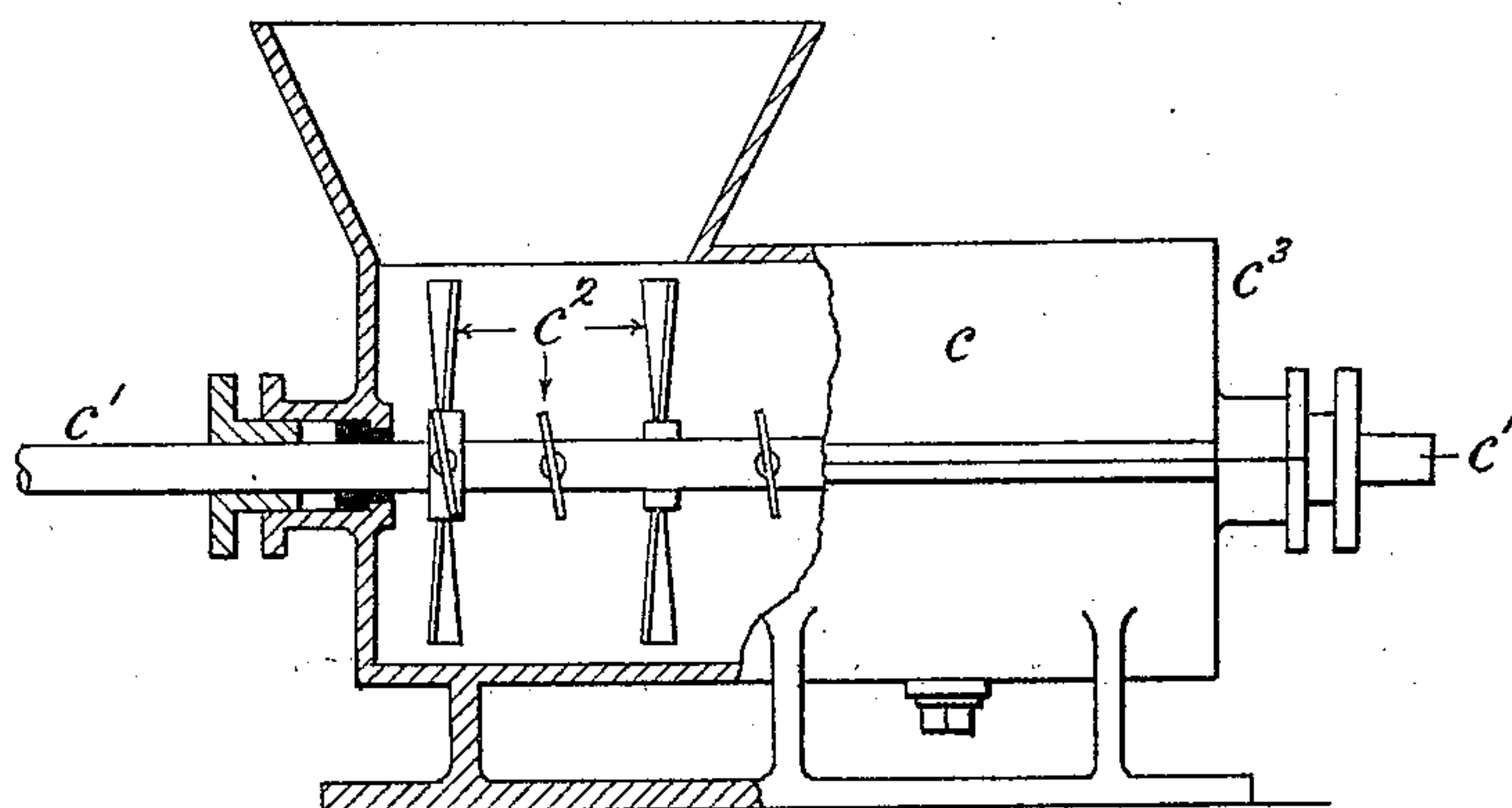


FIG. 2



Witnesses

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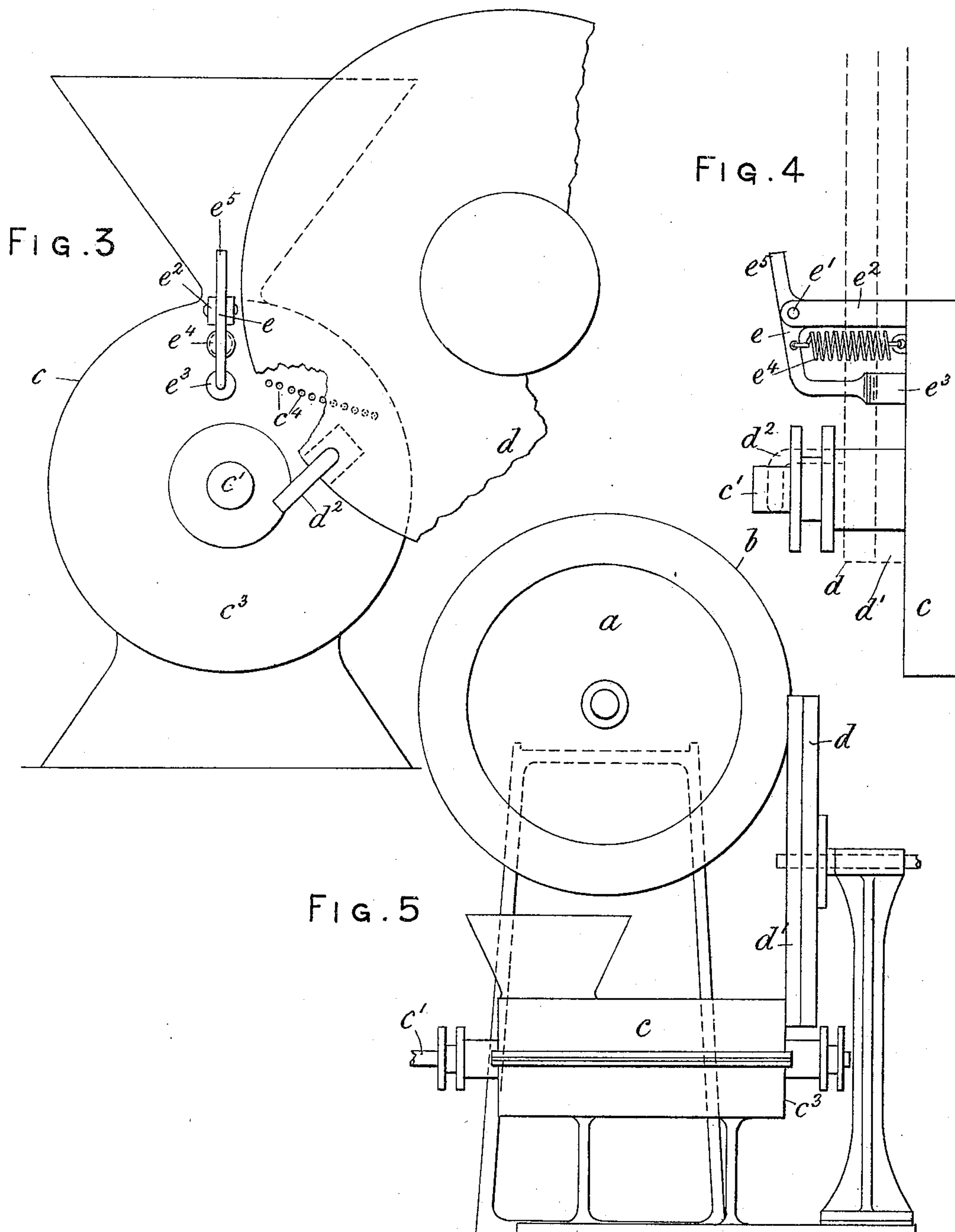
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Witnesses

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UNITED STATES PATENT OFFICE.

WILLIAM OLIVER BAILEY, OF LONDON, ENGLAND.

MEANS FOR GRINDING OR POLISHING GLASS, METAL, &c.

SPECIFICATION forming part of Letters Patent No. 617,668, dated January 10, 1899.

Application filed May 14, 1898. Serial No. 680,697. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM OLIVER BAILEY, glass merchant, a subject of the Queen of Great Britain, residing at the Excelsior Works, Winlock road, City road, London, England, have invented certain new and useful Improvements in or Relating to Means or Apparatus for Grinding, Cutting, or Polishing Glass, Metal, and other Materials or Substances, of which the following is a specification.

My invention relates to improved means or apparatus to be used for grinding, cutting, or polishing purposes generally; and it consists in providing an improved medium combined with an efficient means for feeding same with the grinding material.

In order that my said invention may be particularly described and ascertained, reference is hereby made to the accompanying drawings, in which similar letters of reference indicate corresponding parts.

Figure 1 is a diagrammatical face view of the apparatus for face-cutting. Fig. 2 is a side view, partly in section, of the cylindrical hopper or mixer of the feeding apparatus. Fig. 3 is an enlarged elevation of the feeding apparatus fitted with means for disengaging the grinding material, as hereinafter described. Fig. 4 is an elevation of a portion of the mechanism shown in Fig. 3, the point of view being at the right hand of and at an angle of ninety degrees with the line of sight in said Fig. 3. Fig. 5 is an elevation showing the mill adapted for edge grinding or polishing.

a represents the mill, which is provided with a lead (or similar soft metal or alloy) ring b , the acting face of which may be of any desired shape—that is to say, it may be beveled, flat, or curved, according to requirements.

c is a cylindrical hopper or mixer, in which a shaft c' , Fig. 2, is mounted, carrying blades or beaters c^2 , the said shaft being rotated by any suitable external means. The grinding or polishing material, preferably emery, (but fine sand, pumice, or rouge may be used,) is placed in the mixer c with a suitable quantity of water or other fluid, the rotation of the blades c^2 causing the liquid mass to be propelled toward the end c^3 of the mixer c . In this end c^3 a number of holes c^4 , Fig. 3, are made,

through which the emery in solution issues to a circular disk or other rotary brush d , arranged so that the bristles, hair, or other material d' thereof pass across or over the holes. The brush d thus conveys the emery to the acting face or edge b of the mill a , on which the emery is spread in an even layer. It will thus be seen that the ring b acts as a medium for conveying the grinding or polishing material, in which ring the emery becomes embedded, thus forming a quick-cutting face or edge; but it is absolutely essential that the emery should be fed in a regular manner and that an even layer should be spread on the mill. This I have accomplished by the feeding apparatus before described and by the arrangement I will now describe. This consists in means for disengaging the more solid matter from the holes c^4 . (Shown in Figs. 3 and 4.) e is a lever pivoted at e' to the bracket e^2 , attached to the end c^3 of the cylindrical mixer c . The lever e is formed with a weighted end or hammer e^3 , normally held against the end c^3 by the spring e^4 . On the rotary brush d I fit one or more projecting pins or studs d^2 , arranged to impinge upon the end e^3 of the lever e , thereby lifting the hammer at each revolution of the brush d . It will be understood that the action of the pin d^2 on the lever e is such as to cause a continuous tapping of the hammer e^3 on the end c^3 , thus setting up vibrations, which liberate the semifluid or solid matter from the holes, and securing a regular supply of the emery to the brush. These vibrations may also be utilized to effect a regular supply of emery into the mixer c .

The lead (or other suitable soft metal or alloy) ring b is preferably cast in one or more parts and may be attached to the mill by bolts, the heads of which are sunk within the surface of the ring, or by any other suitable means for fixing. After the ring is attached to the mill the face or edge is trued to the exact shape required.

The cutting, grinding, or polishing is effected by varying the degree of fineness of the emery or sand, the pumice or rouge powder being employed for polishing hard materials, such as glass.

I claim—

1. In an apparatus for cutting, grinding and

polishing glass, and other substances, the combination with a tool for acting upon the glass or other substance, of a mechanism for mixing the abrading material employed, the mixing-compartment having exit-apertures for said material, an automatic tapping device acting upon the wall of the compartment in which said apertures are formed, and a spreading device to receive the mixed material, and to operate the tapping device, substantially as described.

2. In an apparatus for cutting, grinding, and polishing glass and other substances, the combination with means for acting thereon, of a mechanism for mixing the abrading material employed, a spreading device adapted to rotate in suitable proximity to exit-apertures in the wall of the mixing-compartment, a spring-thrown lever having its fulcrum on said wall and provided with a weighted or

hammer head, and one or more devices mounted on the spreading device and, by the rotation of the latter caused to engage said lever and draw the hammer-head away from the wall of the mixer against the tension of its spring, and then release it, substantially as described.

3. The combination with the feeding apparatus hereinbefore described of the tapping mechanism, consisting of the lever *e* pivoted to a bracket on the end of the mixer, hammer *e*³, spring *e*⁴ and the pin or stud *d*² on the rotary brush, substantially as set forth.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

WILLIAM OLIVER BAILEY.

Witnesses:

GEORGE C. DOWNING,
WALTER J. SKERTEN.