

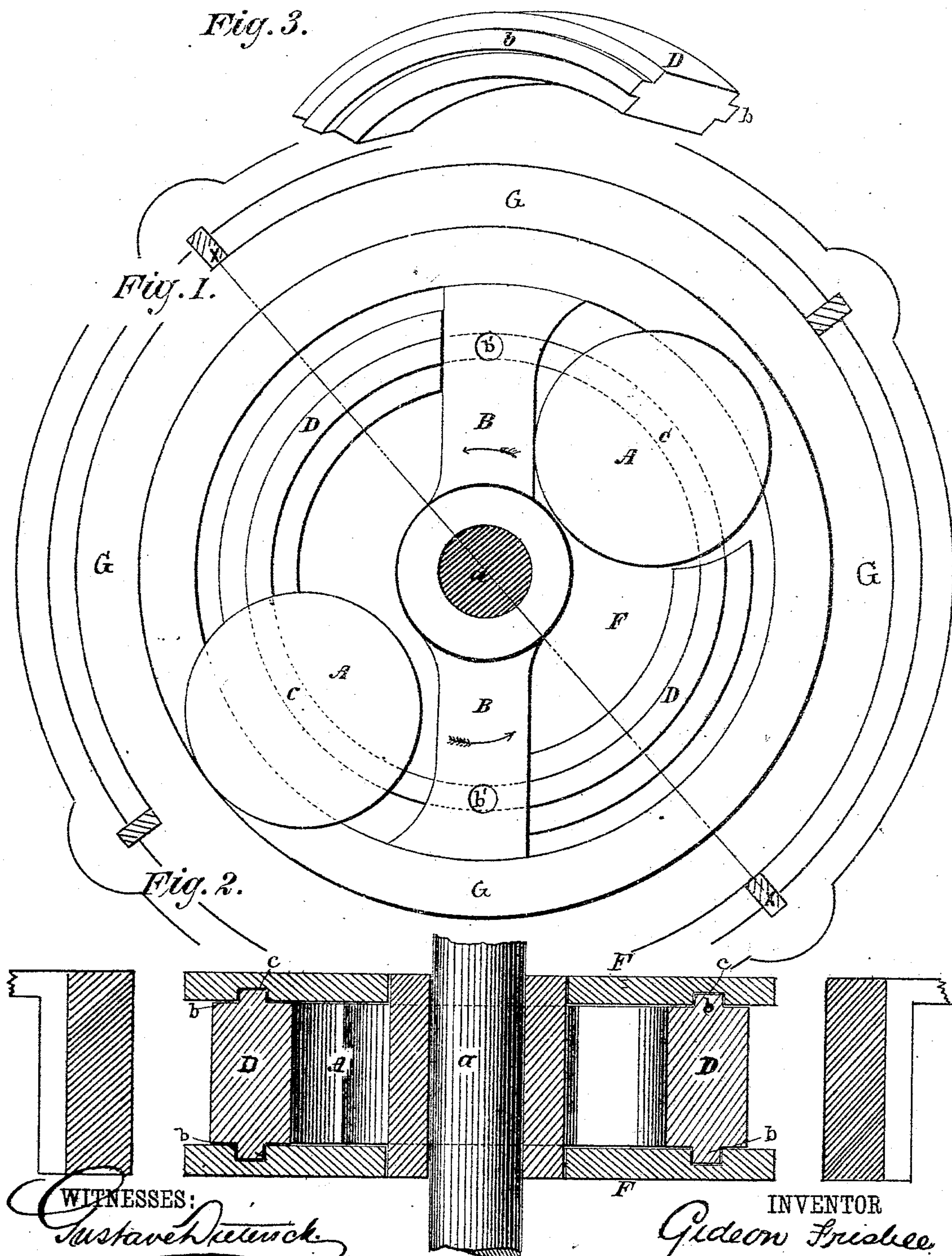
(No Model.)

2 Sheets--Sheet 1.

G. FRISBEE.
MACHINE FOR PULVERIZING ORES, &c.

No. 321,429.

Patented July 7, 1885.



WITNESSES:
Gustave Dietrich
Fred Houtwouke

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(No Model.)

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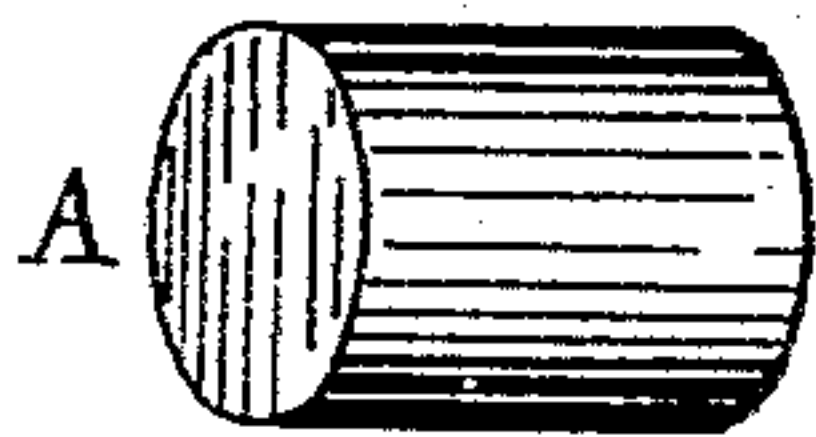
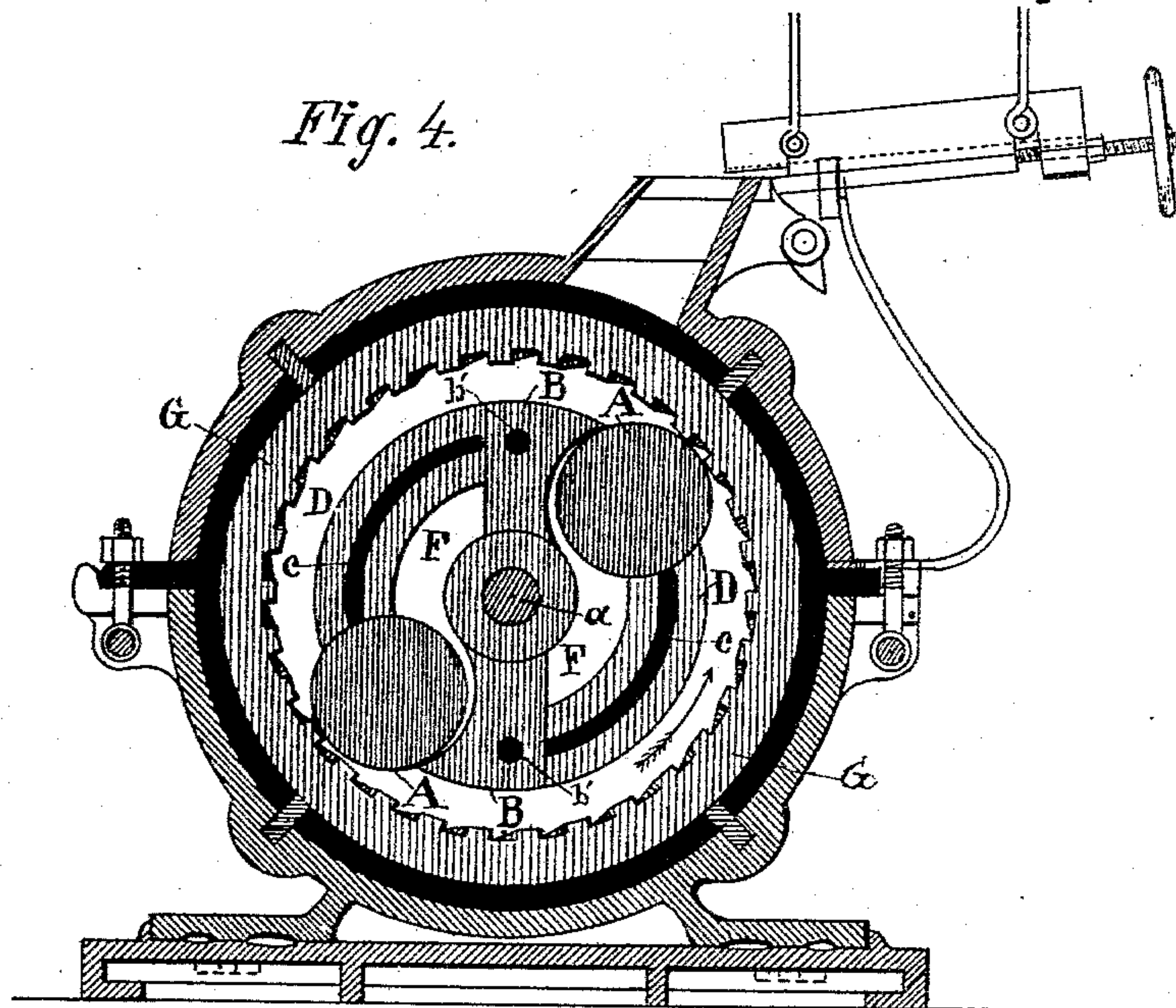


Fig. 5.

Witnesses.

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UNITED STATES PATENT OFFICE.

GIDEON FRISBEE, OF ELMORE, OHIO.

MACHINE FOR PULVERIZING ORES, &c.

SPECIFICATION forming part of Letters Patent No. 321,429, dated July 7, 1885.

Application filed June 12, 1884. (No model.)

To all whom it may concern:

Be it known that I, GIDEON FRISBEE, of the village of Elmore, in the State of Ohio, have invented certain new and useful Improvements in Machines for Pulverizing Ores, Seed, or Grain, and other Substances, of which the following is a full and clear description, reference being had to the accompanying drawings.

The object of my invention is to provide a new and improved means for holding, supporting, and driving the rollers used in a machine for pulverizing ores by centrifugal force, and to dispense with the spindles now used to carry such rollers, and to avoid the tear and wear incident to the use of spindles.

My invention consists in the construction of a curved metal driver, inserted between the disks of the machine, behind each roller, and which driver is held securely in position by means of a groove and feather on each side.

My invention is specially applicable to the ordinary machine now used for pulverizing ores and other substances by centrifugal force, or such machines as are shown and described in Letters Patent of the United States granted to Richard Cook for grinding-machine, dated May 16, 1882, and numbered 258,194.

In the drawings, Figure 1 is an interior end view of a detached portion of a centrifugal machine having a smooth interior surface to the drum or casing, with the improvements applied therein. Fig. 2 is a transverse section of my machine on *x x* of Fig. 1. Fig. 3 is a perspective view of the driver used in my machine. Fig. 4 is an inside view of a centrifugal machine for crushing ores, &c., showing the drivers and rollers applied therein where the interior of the drum or casing has projections. Fig. 5 is a perspective view of one of the rollers.

In the drawings, F indicates a metal or cast-iron disk. Fig. 1 shows an inside view of one of the two cast-iron or metal disks. On the inside of these disks are annular grooves C C, into which the feathers *b b* on the driver D are

tightly and snugly fitted. These disks are mounted on and revolve with the shaft *a*, and between the disks, and attached to the shaft *a*, are the metal arms B B. These arms serve to support and retain in position the rollers A A. In each arm B is a hole, *b'*, in which is inserted a bolt, which extends into the groove *c c* in the disks F F, to act as guides. The rollers are inserted between the drivers D D and the arms B B. When the machine is put in motion, the disk and arms revolve to the left, in the direction of the arrows, and the rollers are driven by the drivers D D in contact with the drum or casing.

In a pending application now before the office, filed September 8, 1884, Serial No. 142,524, I have shown and described a drum or casing which has on the interior surface projections so arranged that the rollers, as they pass around and crush the material, will free themselves from it. These are also shown in Fig. 4 of this patent, where the rollers are arranged in such a drum with the projections. These rollers are without journals, and the difficulties heretofore encountered where journal-bearings have been used will be avoided, and the rollers need not be removed until so worn down on their general surfaces as to become useless. Heretofore where rollers have been supported by journal-bearings the journals wear so rapidly that the rollers have to be removed in consequence thereof.

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

In a machine for pulverizing ores, &c., the combination of the drum, the disks F F, having grooves *c c*, the drivers D D, provided with feathers *b b*, the arms B B, shaft *a*, and rollers A A, substantially as and for the purpose described.

GIDEON FRISBEE.

Witnesses:

JOSEPH MARTIN,
WM. J. McGRANAHAN.