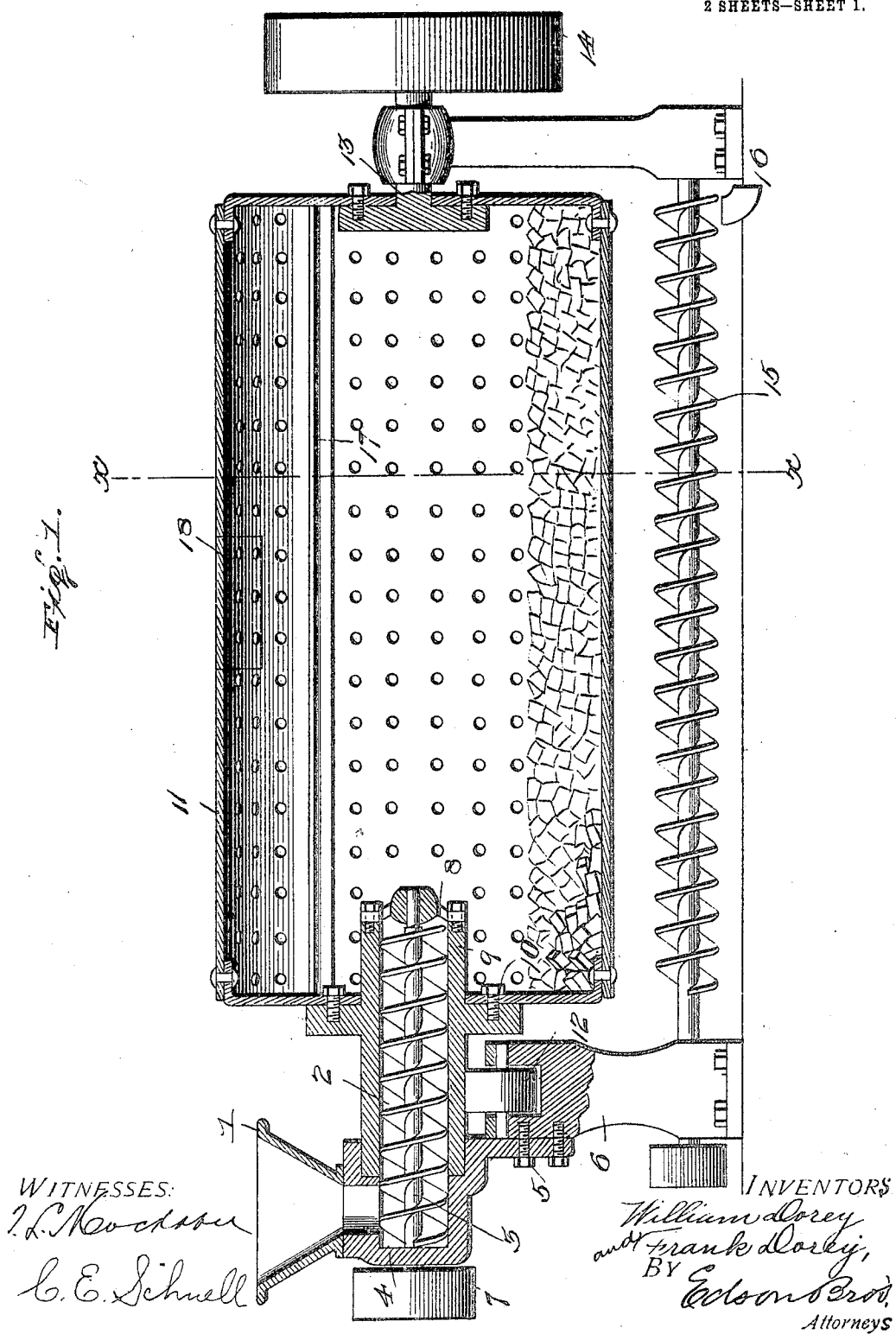


No. 801,854.

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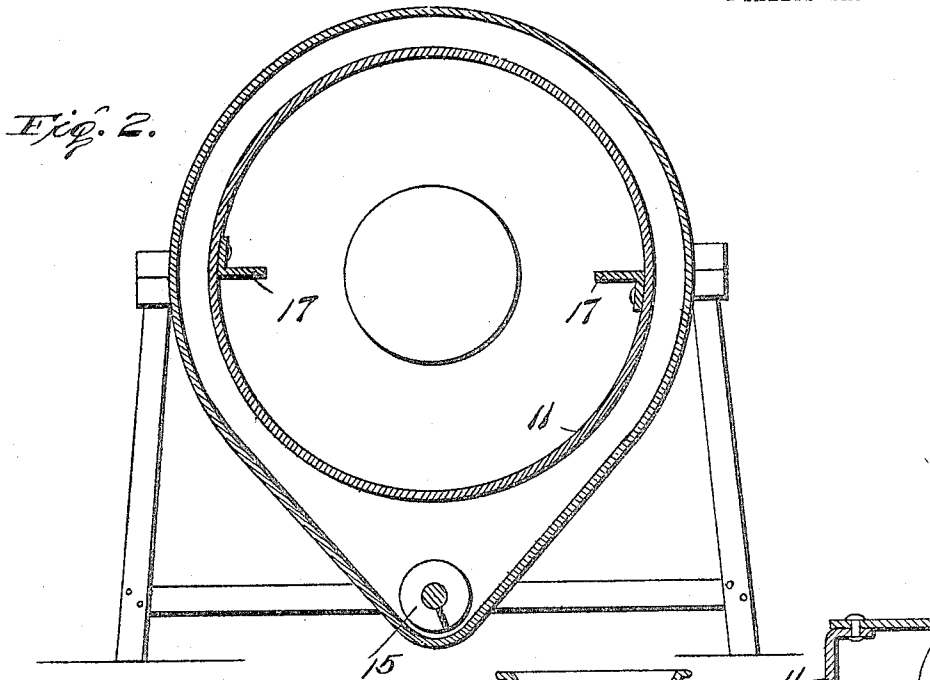
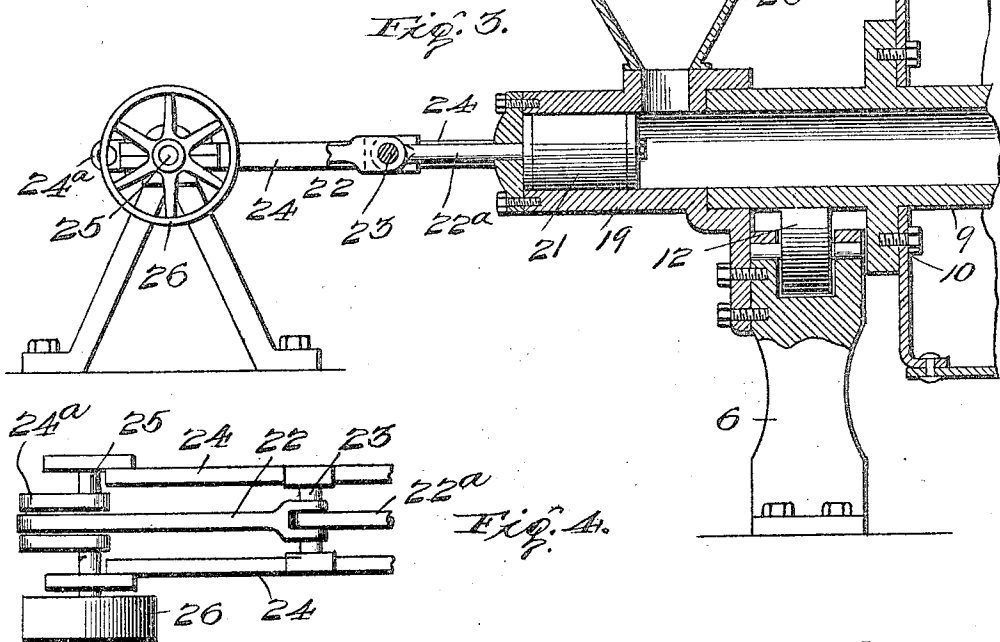
W. & F. DOREY.
MACHINE FOR GRINDING.
APPLICATION FILED JAN. 14, 1904.

2 SHEETS—SHEET 1.



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2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

WILLIAM DOREY AND FRANK DOREY, OF GANANOQUE, CANADA, ASSIGN-
ORS TO THE NATIONAL MICA AND GRINDING CO., LTD., OF GANAN-
OQUE, CANADA, A CORPORATION OF ONTARIO.

MACHINE FOR GRINDING.

No. 801,854.

Specification of Letters Patent.

Patented Oct. 17, 1905.

Application filed January 14, 1904. Serial No. 189,037.

To all whom it may concern:

Be it known that we, WILLIAM DOREY and FRANK DOREY, citizens of Canada, residing at Gananoque, in the county of Leeds, Province of Ontario, Canada, have invented certain new and useful Improvements in Machines for Grinding; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to machines for grinding mica and other minerals.

It has for its object to provide a machine of this nature which will be much simpler in construction, and therefore cheaper of manufacture, and in which a simple and efficient grinding process is used, which to the best of our knowledge has not been known or used before our invention.

The invention consists, broadly, of a revolvable cylinder to which the material is fed by suitable means and in which are placed angular pieces or cuts of steel or other hard metal. The agitation of the cylinder causes the cuts to grind the mineral, which passes through suitable openings in the cylinder and is delivered by suitable means to the outlet of the machine.

The invention also consists of certain details of construction and combination of parts hereinafter described, and more particularly pointed out in the claims.

In the accompanying drawings, illustrating the preferred embodiment of our invention, Figure 1 is a side elevation of the machine with the outer casing removed and the cylinder and feeding mechanism in section. Fig. 2 is a transverse sectional view of the machine on line *xx* of Fig. 1, showing the casing; and Figs. 3 and 4 are side and plan views, respectively, of a modified form of feed mechanism.

Referring more particularly to the drawings, 1 is the feed-hopper leading to the feeder or worm-conveyer 2, which is mounted on a shaft 3, having one of its bearings in a bracket 4, secured, as at 5, to one of the supports 6 of the machine. Said shaft carries a belt-pulley 7 for operating the same and has its other end journaled in a bearing-piece 8, fastened to the inner end of the sleeve 9, se-

cured, as at 10, to one end of the cylinder or shell 11. Said sleeve has its other end mounted in the bracket 4 and bears upon a roller 12 on the support for the machine to which said bracket is secured. The cylinder or shell 11 is made, preferably, of sheet-steel and has its other end fixed to a short shaft 13, mounted in a suitable bearing and carrying a belt-pulley 14, whereby the cylinder is revolved. Said cylinder is perforated with holes, preferably one inch apart and three-sixteenths of an inch in size, allowing the mineral as it is ground to drop on the ordinary conveyer 15, which carries it to the outlet 16. Angular irons 17, preferably about four inches wide, are secured firmly to the inside of the cylinder, and said cylinder is provided with a trap-door 18, through which the cuts of steel may be passed.

In place of the worm-feed we may use the plunger-and-pitman mechanism shown in Figs. 3 and 4. This mechanism is adapted more particularly for feeding large pieces of mineral which would not pass through the first-described mechanism. To attach this device, the bracket 4 is removed and another bracket 19, carrying a feed-hopper 20, substituted therefor. Said bracket 19 has its tubular portion somewhat longer to allow for the movement of the plunger 21, which is carried by a pitman-rod 22 in two sections, one section 22^a let in through the head of the tubular portion of the bracket-piece and secured to a cross-piece 23, adapted to slide between parallel bars 24, and the other section also secured to said cross-piece and to a crank 24^a on a shaft 25, carrying a belt-pulley 26.

In use about one hundred pounds of, preferably, square cuts of steel from one to two inches square are placed in the cylinder for each foot of its length. When the mineral is fed into the cylinder containing these cuts and said cylinder revolved, it is obvious that said cuts will act upon the pieces of mineral, grinding them until they are fine enough to pass through the perforation in the cylinder.

It is obvious that other material besides minerals can be ground by our process. It is therefore understood that we do not limit ourselves to the details of construction shown and described herein as the preferred con-

struction of our invention, as they may be changed at will and the spirit of our invention remain intact and be protected.

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

1. In a grinding-machine, the combination with a revoluble vessel having a tubular piece secured to one end thereof and extending well within said vessel, said tubular piece mounted upon a roller-bearing, a detachable bracket secured to a support having a tubular portion of the same bore as said tubular piece and carrying means, for feeding material to the vessel, which extend through said tubular piece.

2. In a grinding-machine, the combination of a cylindric screen having a short shaft fixed to the outer surface of one end of said screen and mounted in a bearing in a support, the central interior portion of said screen being uninterrupted, the other end of said screen having secured thereto a tubular piece resting upon a roller-bearing carried by a second support, said tubular piece having its outer end engaging a bracket removably attached to said second support, said bracket having means

interiorly thereof and extending through said tubular piece for feeding material into the screen.

3. In a grinding-machine, the combination of a cylindric screen having a short shaft fixed to the outer surface of one end of said screen and mounted in a bearing in a support, the central interior portion of the screen being uninterrupted, the other end of said screen having secured thereto a tubular piece resting upon a roller-bearing carried by a second support, said tubular piece having its outer end engaging a bracket attached to said second support, said bracket having means for feeding material into and through said tubular piece into the screen, said bracket detachably secured to said second support whereby said bracket may be removed and another one substituted therefor.

In testimony whereof we affix our signatures in presence of two witnesses.

WILLIAM DOREY.

his
FRANK × DOREY.
mark

Witnesses:

W. F. STEVENS,
C. H. WRIGHT.