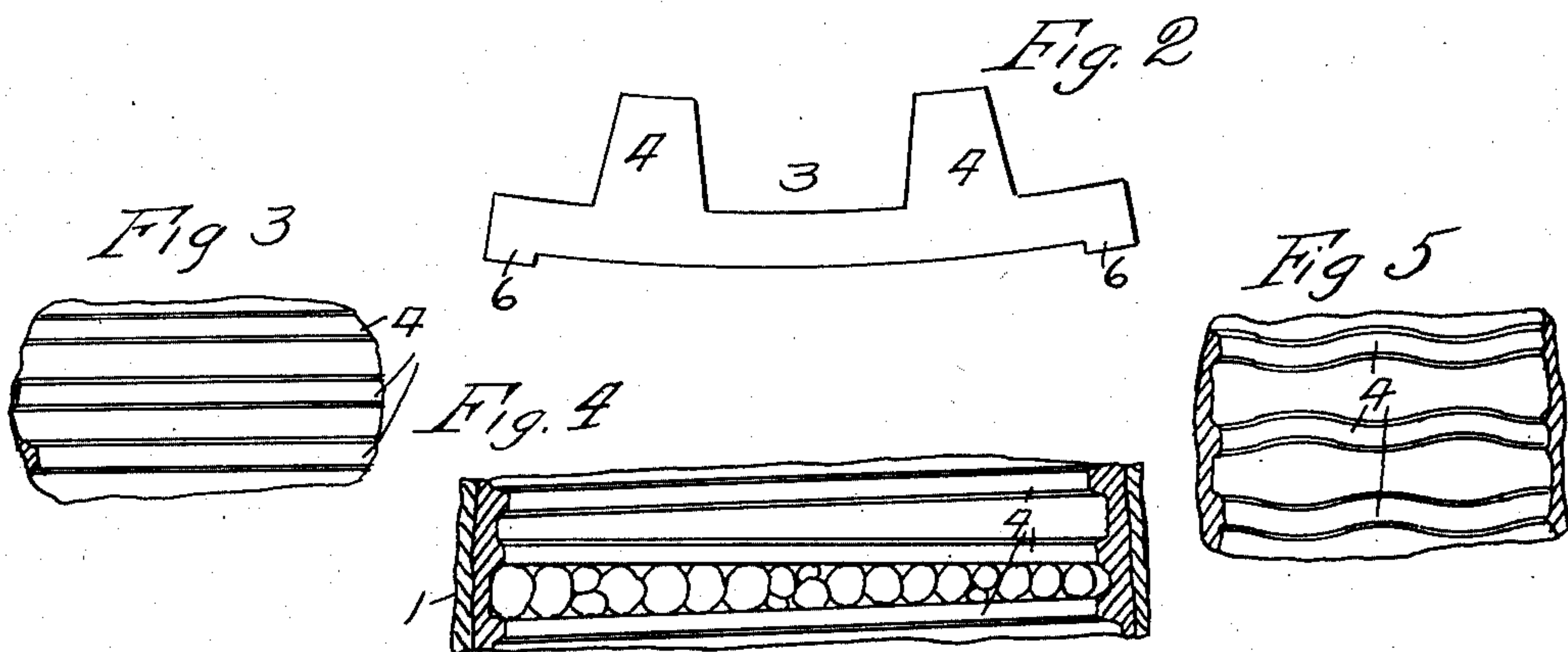
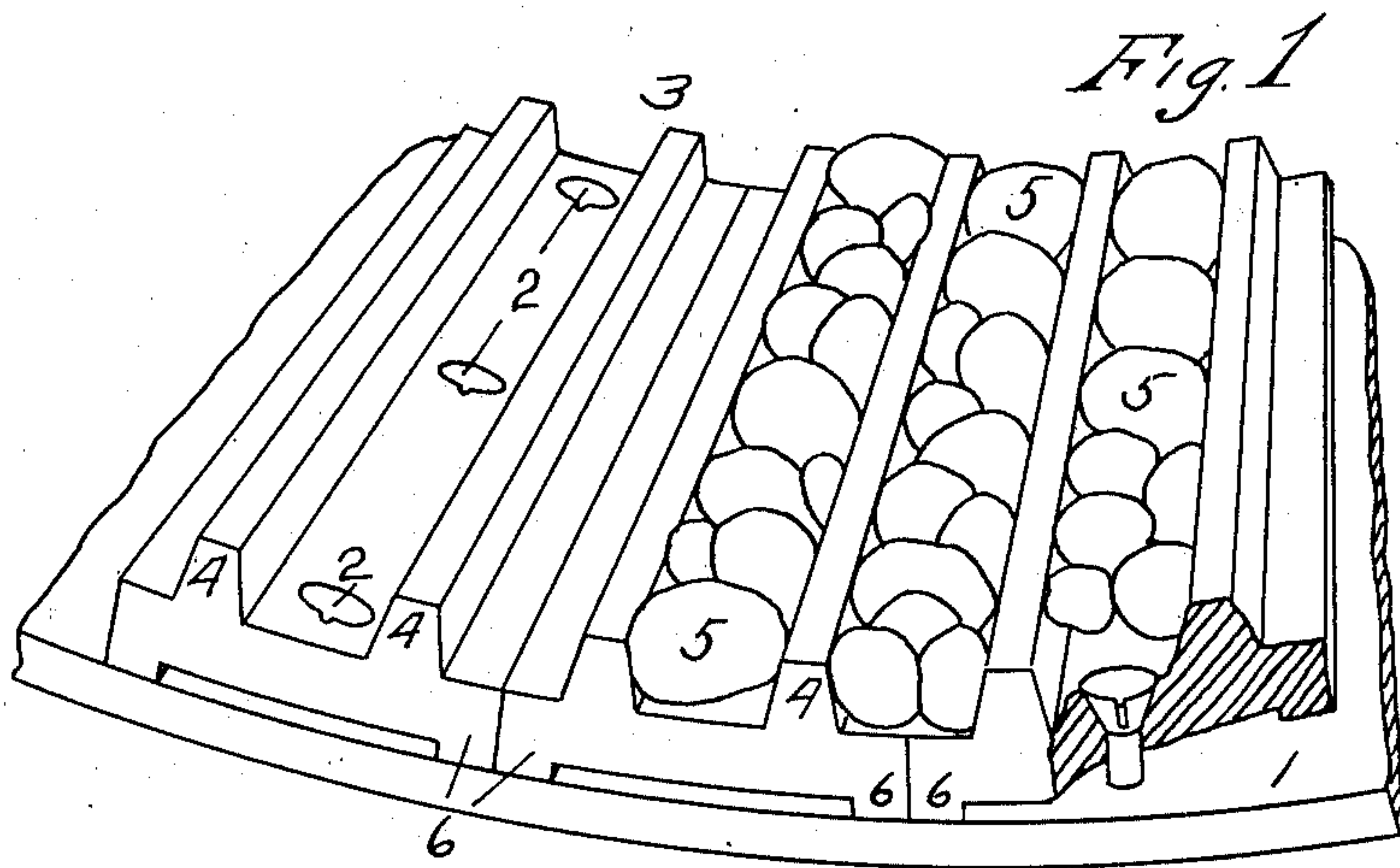


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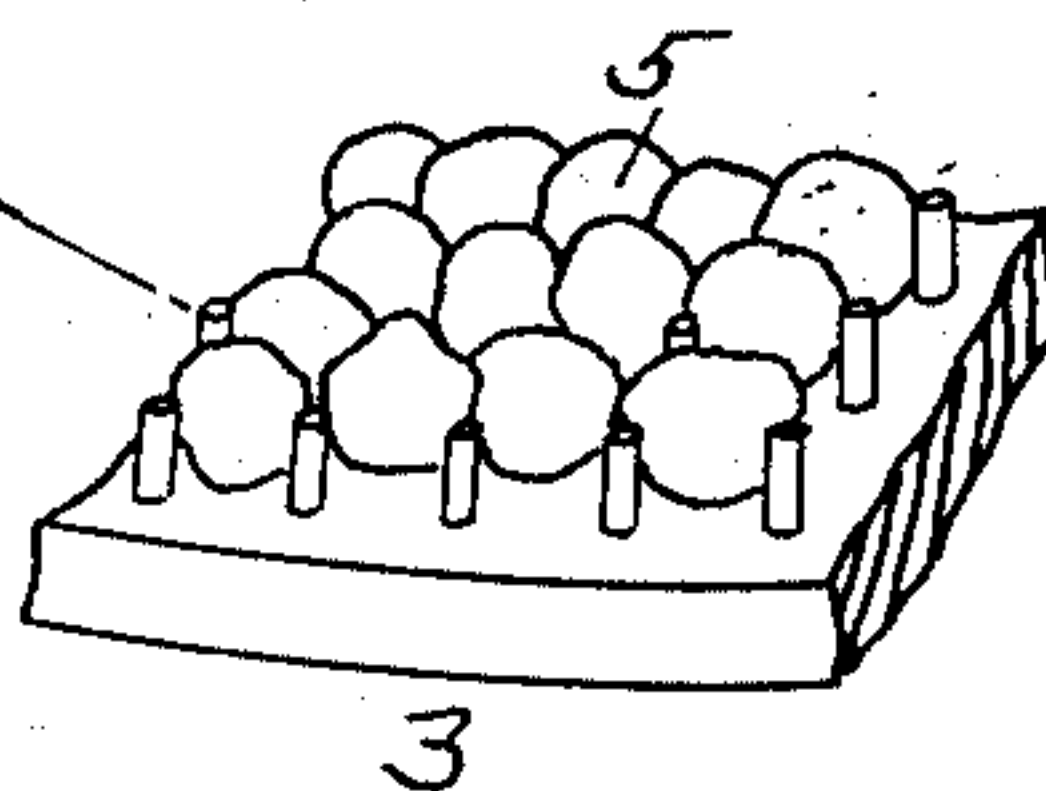
PATENTED AUG. 27, 1907.

J. R. BROWN.  
LINING FOR GRINDING MILLS.  
APPLICATION FILED JUNE 13, 1906.



Witnesses  
H. W. Blaisdell  
J. W. Reynolds

Fig. 6



Inventor  
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# UNITED STATES PATENT OFFICE.

JOSEPH RODNEY BROWN, OF LOS ANGELES, CALIFORNIA.

## LINING FOR GRINDING-MILLS.

No. 864,357.

Specification of Letters Patent.

Patented Aug. 27, 1907.

Application filed June 13, 1906. Serial No. 321,574.

*To all whom it may concern:*

Be it known that I, JOSEPH RODNEY BROWN, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have

invented certain new and useful Improvements in Linings for Grinding-Mills; and I 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.

This invention relates to grinding mills and particularly to those mills in which the material is pulverized by being introduced into a revolving cylinder with grinding flints, and one of the objects of this invention is to provide a self-forming and renewing lining for a mill of this class, composed of the material by which the grinding is performed.

It is also an object of this invention to prevent the excessive wear of the inner surface of the mill caused by the sliding of the grinding materials therein.

Another object of this invention is to provide a lining for such a mill in which the fixed pulverizing surfaces may be formed by the lodging between suitable projections or in recesses in the interior of the mill of some of the bodies introduced therein for that purpose.

A further object of the invention is to dispense with the necessity of forming the lining by cementing the flints into the interior surface of the mill.

Referring to the drawing forming part of this application, Figure 1 is a perspective view of a portion of the drum of a mill, showing sections of the lining. Fig. 2 is an end elevation of one of the sections of the lining; Figs. 3, 4, 5 and 6 are perspective views of alternate constructions.

Referring to Fig. 1, reference character 1 designates a section of the drum of the mill, to which, by means of bolts 2 (having conical heads) of the kind known as plow bolts, is bolted lining support 3 of cast iron or any other suitable material. Lining support 3 has ribs 4 in the recesses between which may lodge the bodies used for the lining surface, such as the lining flints usually used in such mills. The side of the lining support 3, next to the drum, is provided with ribs 6 as shown, which prevent the rocking of the lining support 3,

caused by distortion as a result of warping in the process of manufacture.

In the construction illustrated in Fig. 3, the ribs run around the inner circumference of the cylindrical drum being wider apart at some points than at others, and allowing the flints to lodge in the grooves between them.

In Fig. 6 there is shown a construction in which pins of suitable material are used instead of ribs, the flints lodging between the pins.

The operation of this invention is as follows: Flints or other crushing mediums being introduced into the mill, the mill is revolved, causing a number of the flints to lodge in the recesses between the grooves 3, thereby forming a lining. The sand to be ground is then introduced into the mill and the remaining flints are ground together by the revolving of the mill, thus causing the grinding of the sand to any desired fineness.

The operation of the constructions shown in Figs. 3, 4, 5 and 6 are so similar as to need no explanation.

### Claims

1. A lining plate for a tube mill and recesses therein for holding grinding bodies, said recesses being somewhat wider at the portion adjacent to the axis of said mill than at the portion remote from the axis and adapted to retain material wedged therein.

2. A lining for a tube mill comprising a series of ribs formed upon the interior surface of said mill, said ribs being narrower at the portion adjacent to the axis of said mill than at the portion remote from said axis, and grinding bodies held frictionally in the recesses between said ribs.

3. A mill of the character described comprising a drum adapted to contain material to be pulverized and a grinding or abrading material, said drum being provided with a lining having recesses adapted to retain the grinding material wedged therein.

In testimony whereof, I have signed my name to this specification, in the presence of two subscribing witnesses at Los Angeles, in the county of Los Angeles, State of California, this 2nd day of June A. D. 1906.

JOSEPH RODNEY BROWN.

Witnesses:

H. W. BLAISDELL,

O. O. McREYNOLDS.