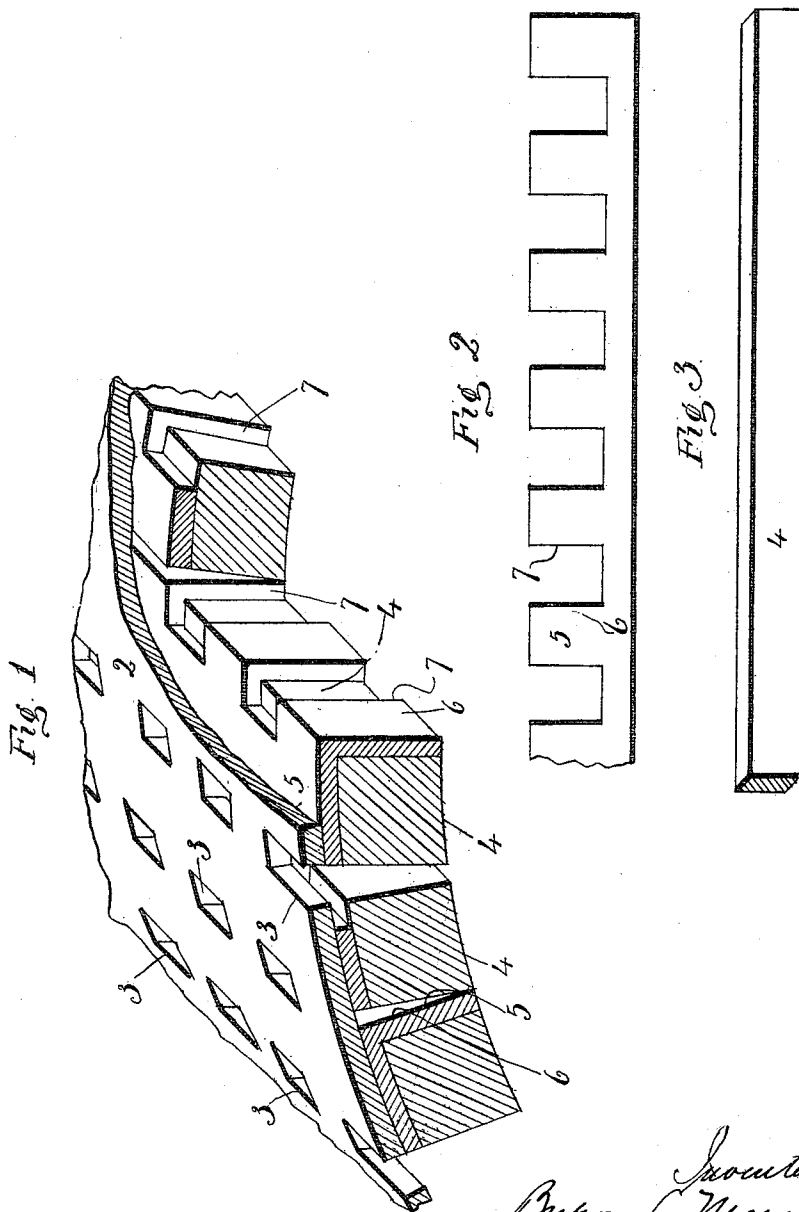


B. L. MORRISON.
TUBE MILL.
APPLICATION FILED DEC. 13, 1909.

957,436.

Patented May 10, 1910.

2 SHEETS—SHEET 1.



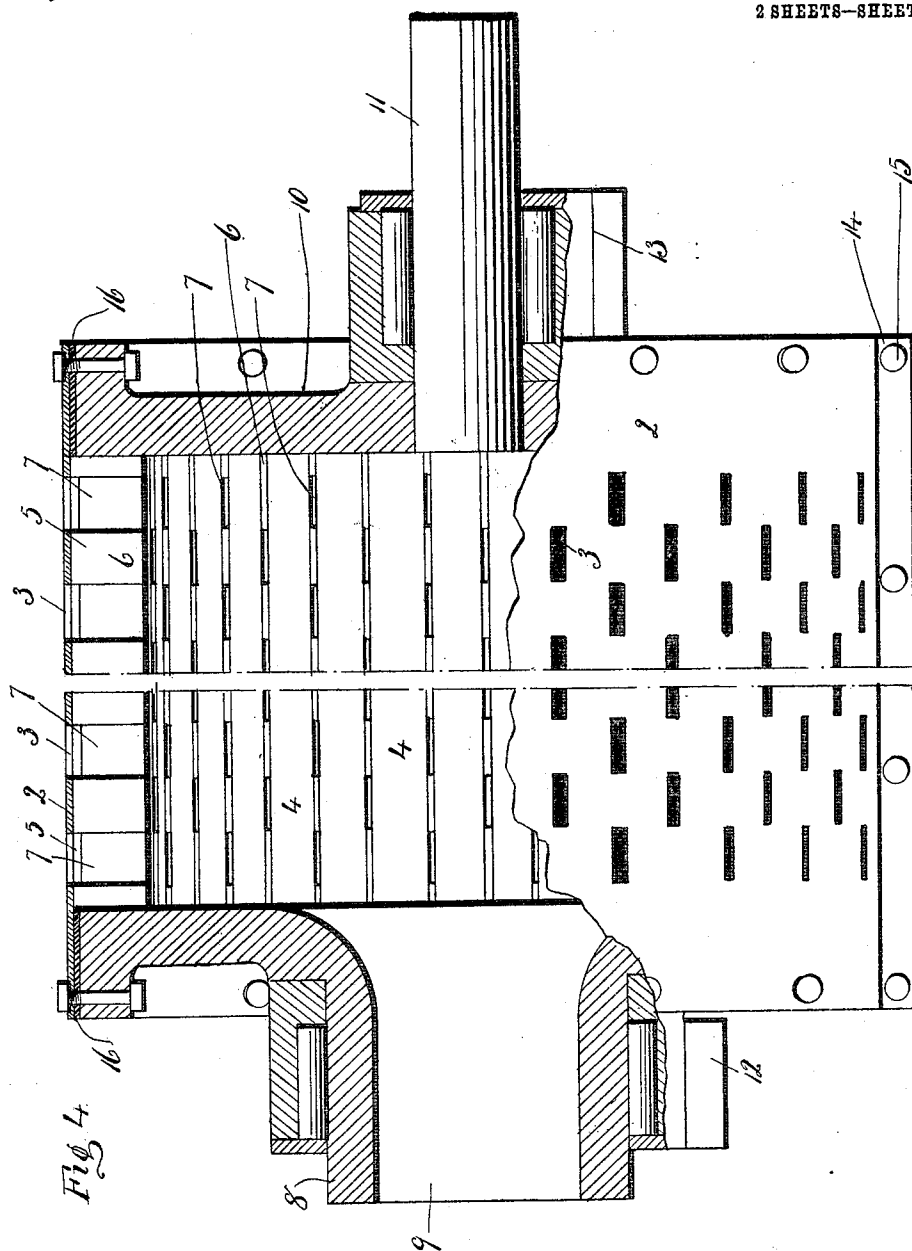
Witnesses
C. J. Reed
C. L. Reed

Inventor
Byron L. Morrison
by Seymour K. Carr
Att'y

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UNITED STATES PATENT OFFICE.

BYRON L. MORRISON, OF COLORADO SPRINGS, COLORADO, ASSIGNOR OF ONE-THIRD
TO JOSEPH W. ADY, OF COLORADO SPRINGS, COLORADO.

TUBE-MILL.

957,436.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed December 13, 1909. Serial No. 532,900.

To all whom it may concern:

Be it known that I, BYRON L. MORRISON, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented a new and useful Improvement in Tube-Mills; and I do hereby declare the following, when taken in connection with the accompanying drawings and the numerals of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1 a broken perspective view of a portion of a tube mill constructed in accordance with my invention. Fig. 2 a broken plan view of one of the pocket-forming strips detached. Fig. 3 a broken perspective view of one of the lining bars detached. Fig. 4 a broken side view partially in section of a mill embodying my invention.

This invention relates to an improvement in grinding mills of the tube type, and particularly to the construction of a shell or barrel-like screen used in tube mills of the type in which the shell or screen is revolved, material being thrown into the barrel, and by revolving and tumbling against itself becomes crushed and escapes through the openings in the shell.

The object of this invention is to construct a simple form of lining which is easily applied, readily repaired if necessary, and sufficiently strong to stand the necessary strain; and the invention consists in the construction hereinafter described and particularly recited in the claim.

The barrel 2 comprises a feed end 8 having a feed opening 9 and a driving head 10 connected with a shaft 11 by which it may be driven, the feed and driving ends being supported in roller bearings 12 and 13. The feed end 8 and driving end 10 are connected together by shells 2 which are bolted to the respective ends and formed with flanges 14 which are secured together by bolts 15 so as to clamp the several sections together. In the shell are a series of aligned slots or perforations 3. The lining is made up of longitudinal bars 4 of iron or steel formed

rectangular in cross-section and preferably square. These bars are arranged between the perforations 3 in the shell and between each bar and the lining is a strip 5 having a flange 6 turned substantially at right angles and so as to extend downward between the bars. In each flange 6 are a series of notches 7 corresponding to the holes 3 in the shell and the notches extend into the strip 5. These strips with their flanges are formed from a flat strip of metal as shown in Fig. 2 of the drawings, and after the notches are cut is bent at right angles. The notches in the strip and the holes 3 in the outer shell are so arranged that the notches in every other strip will be in line, the notches in the intermediate strips coming in line between the notches of the first mentioned strips. The bars with their dividing strips are clamped in place by the shell in the usual manner of crushing or tumbling barrels and provides a series of exits for the crushed material which exits will be of smaller dimensions at the inner face than the outer face so that any material which can escape through the wall of the lining can readily escape from the shell and so that clogging is prevented. Between the ends of the shell and the respective ends of the mill I preferably insert shims 16 to provide for taking up wear of the bars and lining.

I claim:—

A tube mill comprising a barrel having a feed opening at one end and a driving head at the opposite end, the ends connected by a shell having a series of perforations, a lining comprising rectangular bars, notched strips between the bars and shell, said strips formed with flanges turned downward between the bars, and having the notches therein registering with the perforations in the shell.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

BYRON L. MORRISON.

Witnesses:

LILLIAN NOBLE,
J. F. SCHLOTTER.