

APPLICATION FILED FEB. 4, 1920.

Patented Mar. 1, 1921.

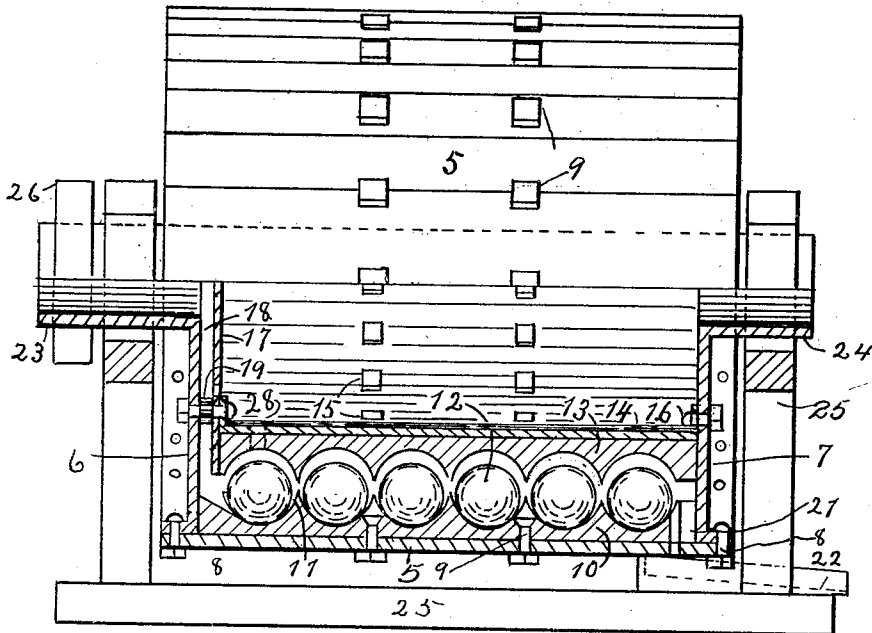


Fig. 1

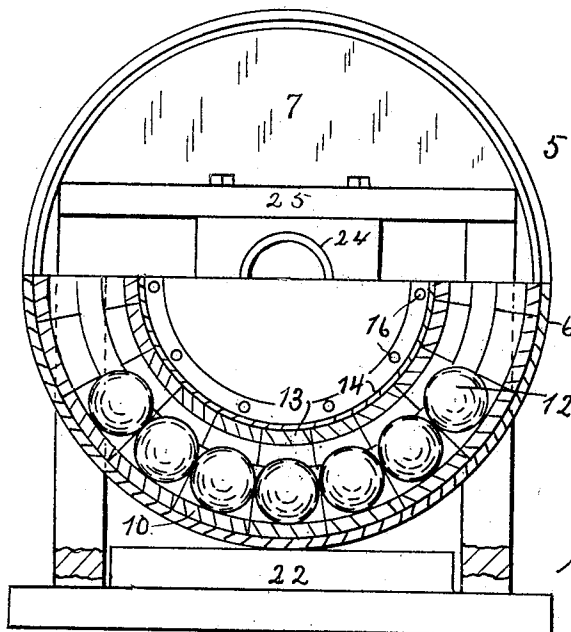


Fig. 2.

G. B. Allison
Inventor
By W. S. W. W. W.
Attorney

UNITED STATES PATENT OFFICE.

GEORGE B. ALLISON, OF LOS ANGELES, CALIFORNIA, ASSIGNOR TO GILBERT H. BEESMYER, OF LOS ANGELES, CALIFORNIA.

BALL-MILL.

1,370,259.

Specification of Letters Patent.

Patented Mar. 1, 1921.

Application filed February 4, 1920. Serial No. 356,343.

To all whom it may concern:

Be it known that I, GEORGE B. ALLISON, a citizen of the United States, residing at the city of Los Angeles, county of Los Angeles, State of California, have invented new and useful Improvements in Ball-Mills, of which the following is a specification.

My invention relates to a mill for grinding ore or other material to a fine powder, and the object thereof is to produce a cheap and efficient mill for that purpose.

In the drawings forming a part of this application Figure 1 is a side elevation partly in central longitudinal section of my improved mill. Fig. 2 is an end elevation partly in cross section of my mill.

Referring to the drawings 5 is the outside shell, preferably of boiler plate or heavy sheet iron to which castiron or steel heads 6 and 7 are secured by bolts 8. Secured to shell 5 by bolts 9 are the grooved outer lining bars 10 which when positioned form troughs 11 in which the balls 12 travel when the mill is in operation. At a suitable distance above the ball are the grooved inner lining bars 13 which are secured to the inner shell 14 by bolts 15. Shell 14 has an internal flange at each end through which pass bolts 16 which attach the shell to the heads. At one end shell 14 is spaced a short distance from head 6 and a closure plate 17 is threaded upon the bolts at that end to close the end of the shell thereby forming a feed channel 18 at that end. Spacing washers 19 hold plate 17 separated from head 6. Balls 12, of which there are a suitable number are mounted in the grooves of the lining. Near the bottom of the last groove from the feed channel is a row of ports 21 through which the pulverized material is discharged into a trough 22 which leads the material out of the mill. Heads 6 and 7 have hollow trunnions 23 and 24 by means of which the shell is mounted in frame 25. A pulley 26 is mounted on trunnion 23 to which power is applied to rotate the shell.

Material to be pulverized is fed through trunnion 23 and passes down through the feed channel 18 and under the first row of balls. If water or other liquid is required for pulverizing the material it is fed into the inner shell and passes into the feed channel through ports 27 of which there are a suit-

able number in plate 17. As the material is fed into the shell it will successively pass beneath the rows of balls and will be thoroughly pulverized and will pass out through ports 21. By this construction an inexpensive and efficient mill is provided in which the wearing parts can be easily replaced when worn. Shells 5 and 14 and attached and connected parts with the balls form a pulverizing cylinder.

Having described my invention, I claim—

1. A ball mill comprising a frame; a pulverizing cylinder mounted therein, said cylinder comprising an outer shell having ports at one end and an inner shell; heads for said shells, said heads having hollow trunnions, said trunnions being mounted in the frame; the inner shell being spaced at one end from the head at that end to form a feed channel; a closure plate for said inner shell at said feed channel, said plate having ports therein; grooved lining bars secured to said shells respectively, the bars secured to the outer shell having ports registering with the ports in the outer shell, said ports being at the end opposite the feed channel; and balls in the grooves of said lining bars.

2. A ball mill comprising a frame; and a pulverizing cylinder mounted in said frame, said cylinder comprising an outer and an inner shell respectively; heads for said shells having hollow trunnions; grooved lining bars for said shells said bars having inlet ports and outlet ports therein; and balls in said grooved linings.

3. A ball mill comprising a drum consisting of outer and inner shells forming between them a peripheral grinding chamber, said shells having at one end thereof a common head and at the other end separate heads with an intervening space forming a passage way to the outer shell; hollow trunnions secured to said heads, one of said trunnions leading into the inner shell and the other trunnion leading to said passage way; grooved linings in said grinding chamber secured to said outer and inner shells respectively, said shells having ports therein; and balls freely movable in said linings.

In witness that I claim the foregoing I have hereunto subscribed my name this 27th day of Jan., 1920.

GEO. B. ALLISON.