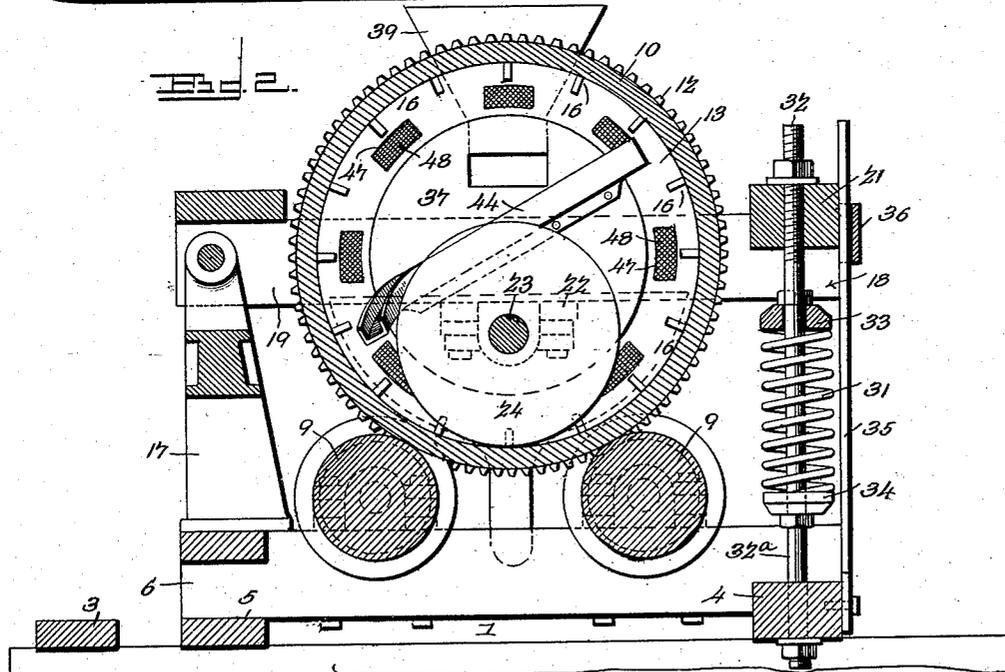
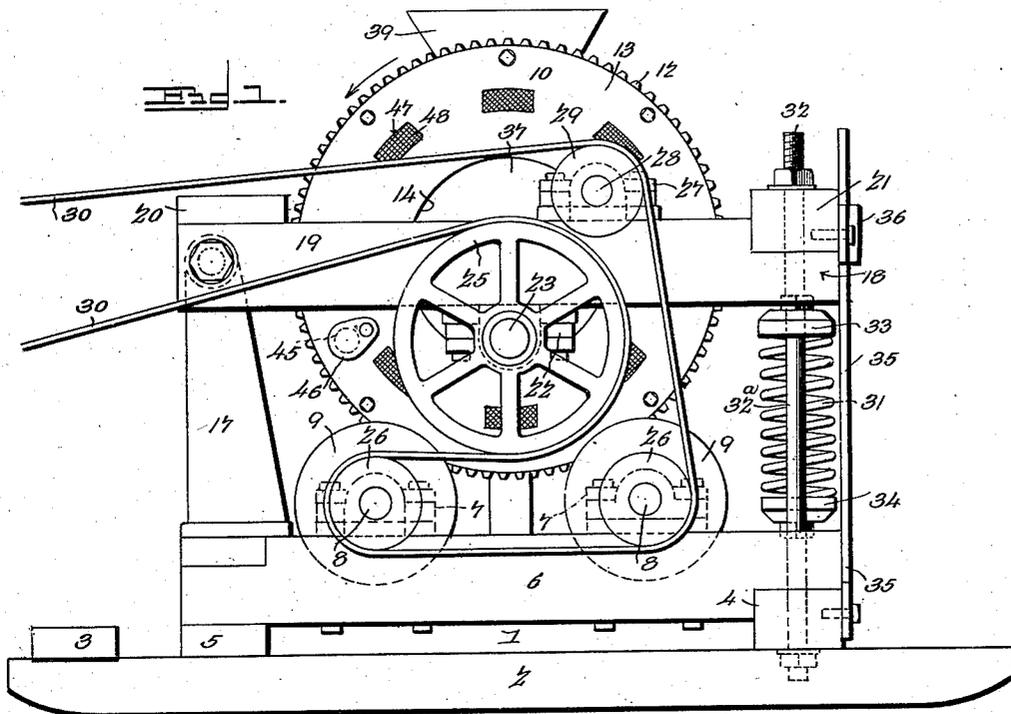


A. B. MOUCK.
MILL FOR CRUSHING ORES.
APPLICATION FILED MAY 26, 1900.

NO MODEL.

3 SHEETS—SHEET 1.



Witnesses
E. Kellwag
J. W. Garner

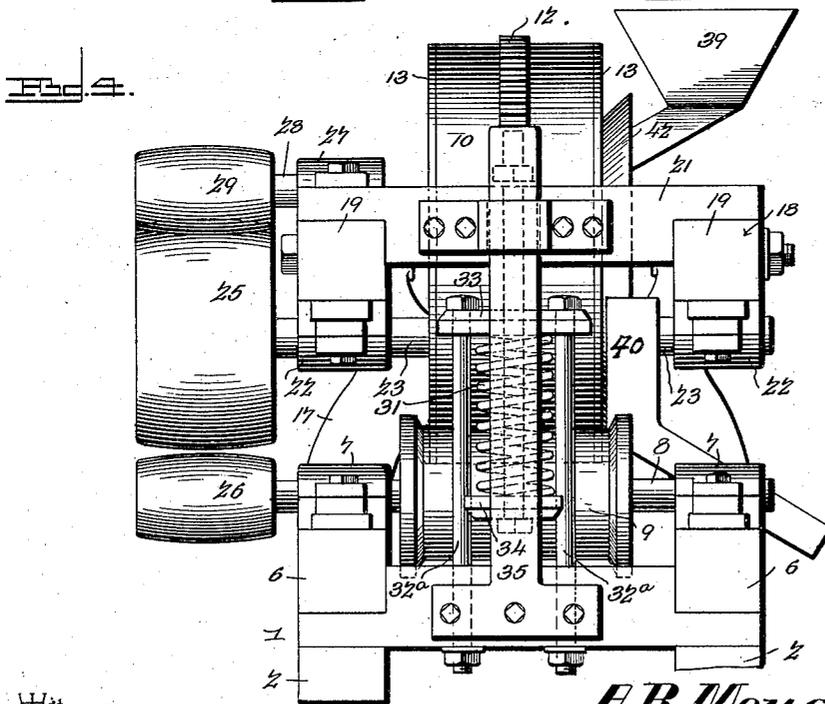
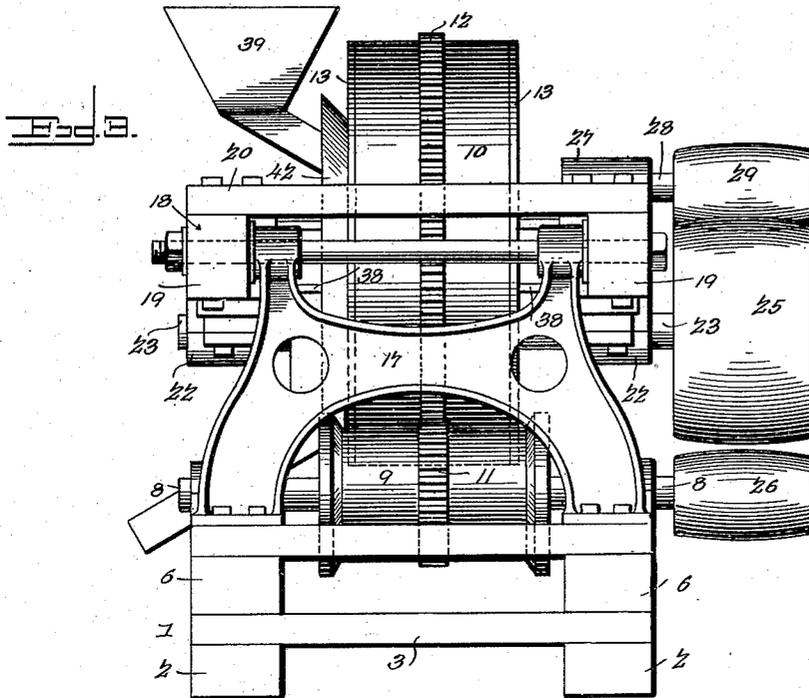
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3 SHEETS—SHEET 2.



Witnesses
E. L. Stewart
J. Warner

By *A. B. Mouck* Inventor
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 Attorneys

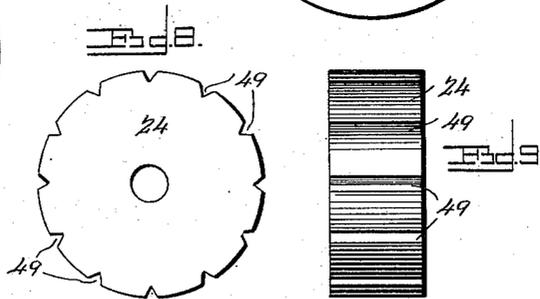
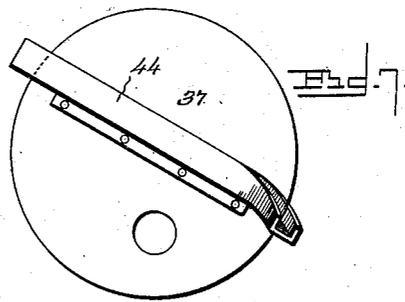
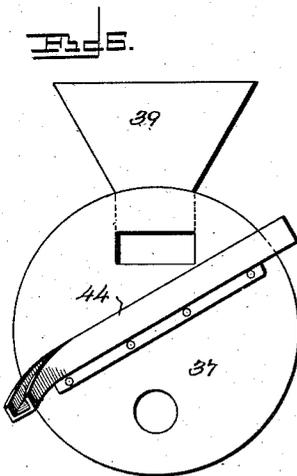
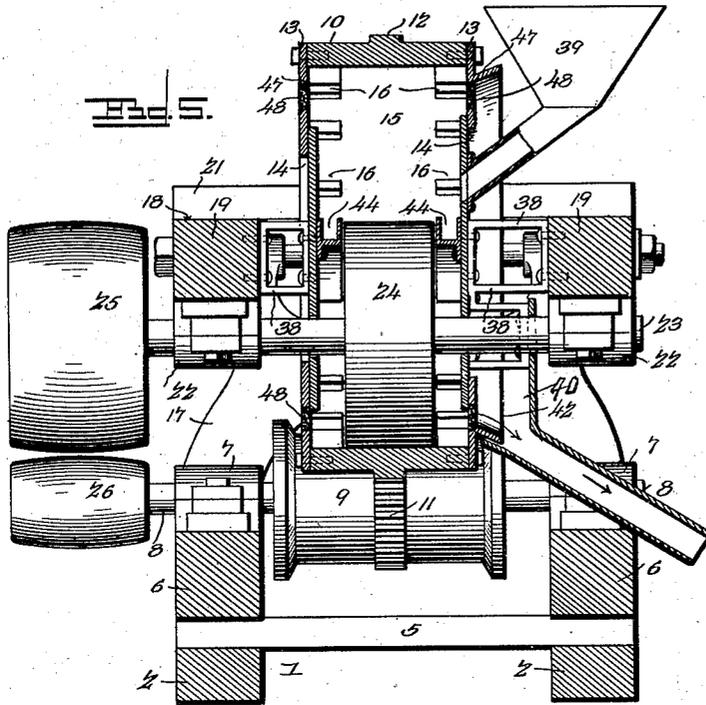
No. 743,014.

PATENTED NOV. 3, 1903.

A. B. MOUCK.
MILL FOR CRUSHING ORES.
APPLICATION FILED MAY 26, 1900.

NO MODEL.

3 SHEETS—SHEET 3.



Witnesses
E. E. Stewart
J. W. Garner

A. B. Mouck Inventor
C. A. Snow & Co.
Attorneys

UNITED STATES PATENT OFFICE.

ANDREW B. MOUCK, OF FARGO, NORTH DAKOTA.

MILL FOR CRUSHING ORES.

SPECIFICATION forming part of Letters Patent No. 743,014, dated November 3, 1903.

Application filed May 26, 1900. Serial No. 18,139. (No model.)

To all whom it may concern:

Be it known that I, ANDREW B. MOUCK, a citizen of the United States, residing at Fargo, in the county of Cass and State of North Dakota, have invented a new and useful Mill for Crushing Ores, of which the following is a specification.

My invention is an improved mill for crushing and grinding ores of that class in which a revolving roller operates within a revolving drum, the crushing action being effected between the periphery of the roller and the opposing inner surface or tread of the drum.

The object of my invention is to so construct the mill that it will be light, cheap, and yet efficient in operation, adapted to crush and pulverize ores and other material rapidly and effectually, that will operate either in conjunction with or without water in the pulverizing of the ores, and which is automatic in operation and adjusts itself to the wear of its parts.

My invention consists in the peculiar construction and combination of devices herein-after fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of an ore crushing and pulverizing mill constructed in accordance with my invention. Fig. 2 is a vertical longitudinal sectional view of the same. Figs. 3 and 4 are end elevations of opposite ends of the same. Fig. 5 is a vertical transverse sectional view of the same. Figs. 6, 7, 8, and 9 are detail views.

The base-frame 1 may be of any suitable construction, but is here shown as comprising a pair of sills 2, connected together by cross-bars 3 4 5. Longitudinal bars or beams 6 connect the bars 4 5 and are disposed above the sills 2 and are provided on their upper sides with bearing-blocks 7, in which are journaled transversely-disposed shafts 8. The said shafts are provided with supporting-rollers 9, on which rests a cylindrical drum 10, the latter deriving its motion from the supporting-rollers 9. The said rollers and the said drum are provided with coacting spur-gears 11 12, respectively. The drum is provided with annular side plates 13, which are bolted thereto, as shown, and are provided with central openings 14 of suitable size. The

annular inner tread or runway 15 of the drum is provided on its sides with pockets 16, which open inwardly and which serve to convey material when the drum rotates.

A suitable standard 17 rises from the base-frame, at one end thereof, and to the said standard is pivoted one end of a vertically-movable rocking frame 18, which comprises the side beams 19 and the cross-beams 20 21, which connect the ends thereof together. The said frame 18 is provided on the under sides of the side beams 19, at the centers thereof, with bearing-blocks 22, in which is journaled a transversely-disposed shaft 23, that carries a crushing-roller 24, which is of suitable size, is disposed within the drum 10, and operates in the lower side of the tread or runway thereof. The said shaft 23 is provided at one end with a driving-pulley 25, and the shafts 8 are provided at one end with pulleys 26, which are in line with said pulley 25. The said frame 18 also carries on one side a bearing-block 27, in which is journaled a stub-shaft 28, that is provided with an idle pulley 29.

An endless power-belt 30, driven by an engine or any other suitable source of power, which is not here shown, as the same will be readily understood by those skilled in the art to which my invention relates and constitutes no part of my present improvements, passes over and connects the pulleys 25 26 29, and hence the drum and coacting roller 24 are both positively rotated, as will be understood.

The crushing-roller 24 may be of any suitable weight, but to increase the efficiency of the same in coaction with the drum I provide a tension-spring, (indicated at 31,) which bears downward on the frame 18, which carries the said crushing-roller 24. The said spring 31 may be of any preferred type. I have herein shown the same as carried by a bolt-rod 32, which depends from and is vertically adjustable in the cross-beam 21 at the free end of the frame 18, and a pair of vertically-disposed bolt-rods 32^a, which rise from the cross-beam 4 and carry a yoke 33, in which the said bolt-rods 32^a operate, the spring 31 acting between the said yoke 33 and a washer or enlargement 34 on the lower end of bolt-rod 32. A vertically-disposed bar 35 has its lower end bolted to the outer side of the cross-beam 4, and the upper portion thereof operates in a guide 36,

which is bolted on the outer side of the cross-beam 21 at the free end of frame 18. It will be understood that the function of the bar 35 and guide 36 is to prevent the free end of

5 frame 18 from vibrating laterally.

The openings 14 in the sides of the drum are closed by circular plates 37, which are bolted to brackets 38, that are bolted to the inner sides of the beams 19 of frame 18. Said
10 plates 37 bear against the inner sides of side plates 13 of the drum, and one of said plates 37 is provided with a feed-hopper 39 and a discharge-hopper 40. The latter on its inner side has an opening 41, the edge of which is
15 covered by the flared annular flange 42, with which the proximate plate 37 is provided. The said plates 37 are provided on their inner sides with inclined troughs 44, which serve to convey the material discharged onto them
20 from the pockets in the drum to the front side of the crushing-roller 24, the lower front ends of said troughs being curved inward toward each other, as indicated in the drawings. A flush-hole 45 is made in one of the
25 said plates 13 for the purpose of discharging all the material from the inner side of the drum by flushing out the latter, and said flush-hole is normally covered by a closure 46.

In the treatment of free milling gold ores
30 I place a suitable quantity of quicksilver in the drum and discharge the amalgam through the flush-hole 45.

The mill is further provided with discharge-openings 47, which are made in one of the
35 plates 13 and are covered by screens 48, the meshes of which are of such size as may be required. By the use of these screens the size of the particles of material discharged from the mill through the hopper 40 is determined, as will be understood, and is of uniform fineness.
40

In some instances the pockets in the drum may be discarded, in which event I provide the crushing and pulverizing roller 24 with
5 transversely-disposed peripheral grooves 49,

which form pockets that are efficient in constantly feeding the ores between the coating surfaces of the drum and roller.

Having thus described my invention, I
50 claim—

1. In a crushing and pulverizing mill of the class described, the combination of a drum having side plates with central openings, one of the plates having a flared annular flange on its outer side, means to support and rotate
55 the drum, a muller-roller disposed in the drum and having movable bearings, plates carried by the bearings and forming closures for the said openings, a feed-hopper carried by one of the plates, and a discharge-hopper
60 also carried by the same plate and having an opening in its inner side the edge of which is covered by the said flange, substantially as described.

2. In a crushing and pulverizing mill, the combination with a revoluble drum having a horizontal axis, and provided with an annular runway on its inner side concentric with the axis, and pockets on the sides of the runway opening directly thereinto and also open on
70 their inner sides, said pockets being within the radius of the runway and having their bottoms flush therewith, plates secured to and forming the heads of the drum, the plates
75 having central openings, screened openings within the radius of the pockets and one of said plates and having a discharge-opening and a closure therefor, a muller-roller operating in the runway, and relatively fixed
80 plates forming closures for the central openings in the head-plates of the drum, the latter being fed through an opening in one of the plates, substantially as described.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in
85 the presence of two witnesses.

ANDREW B. MOUCK.

Witnesses:

W. C. LAIZURE,
E. C. GEARRY, Jr.