No. 733,933. PATENTED JULY 21, 1903.

R. J. BAKER.

STAMP MILL.

APPLICATION FILED OCT. 17, 1901.

NO MODEL. 3 SHEETS—SHEET 1.

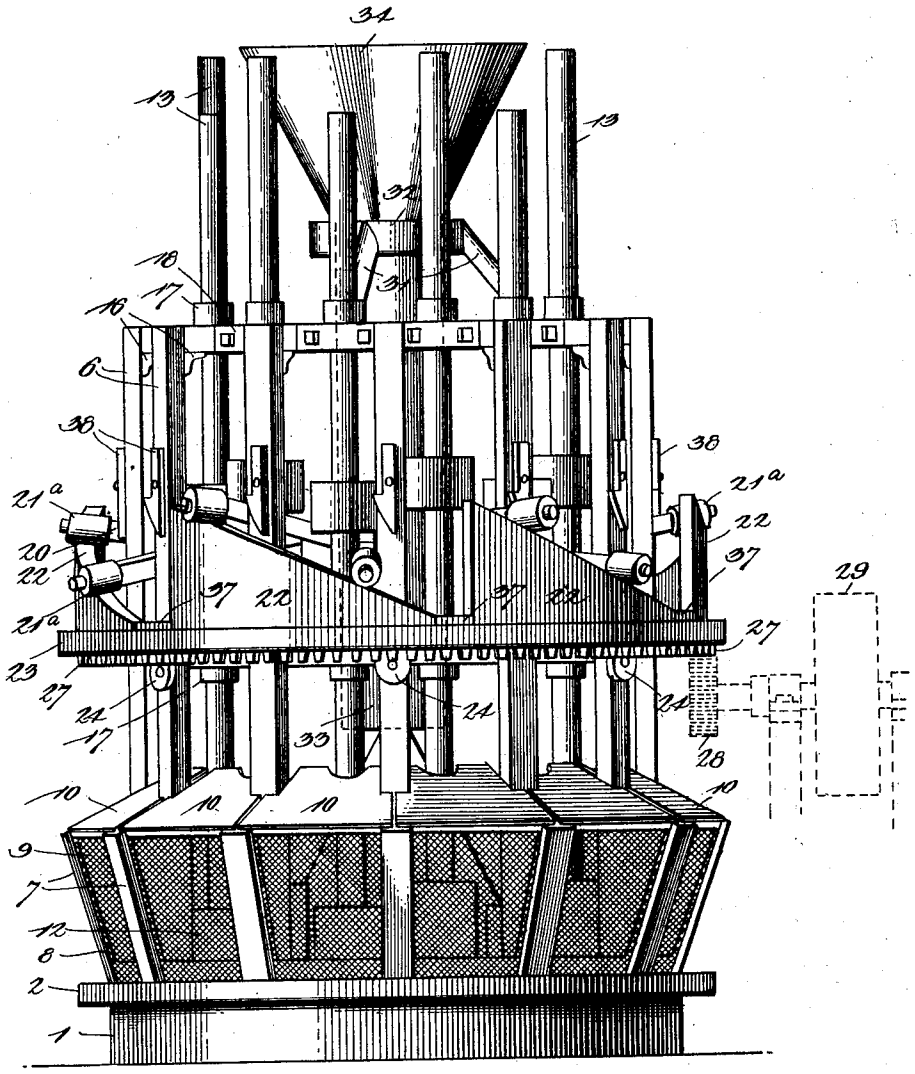


Fig. 1.

Witnesses
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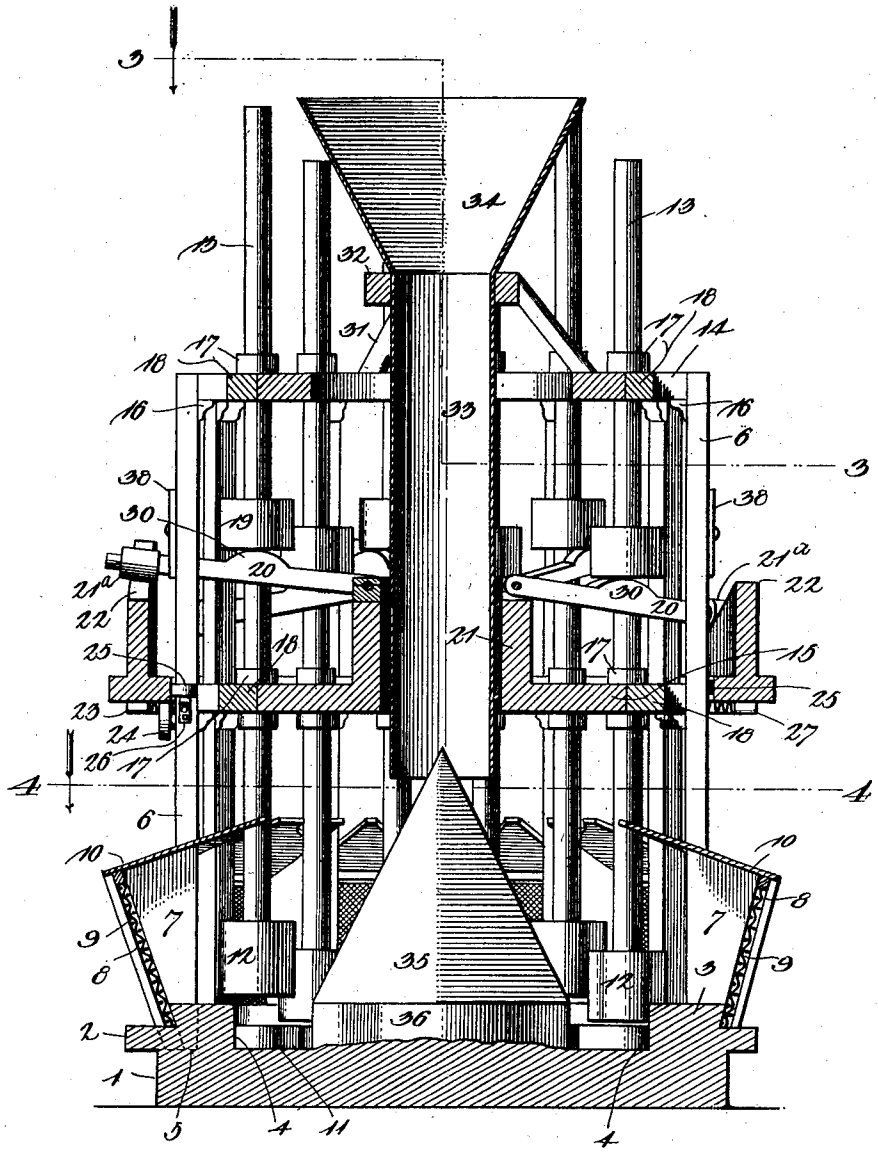


Fig. 2.

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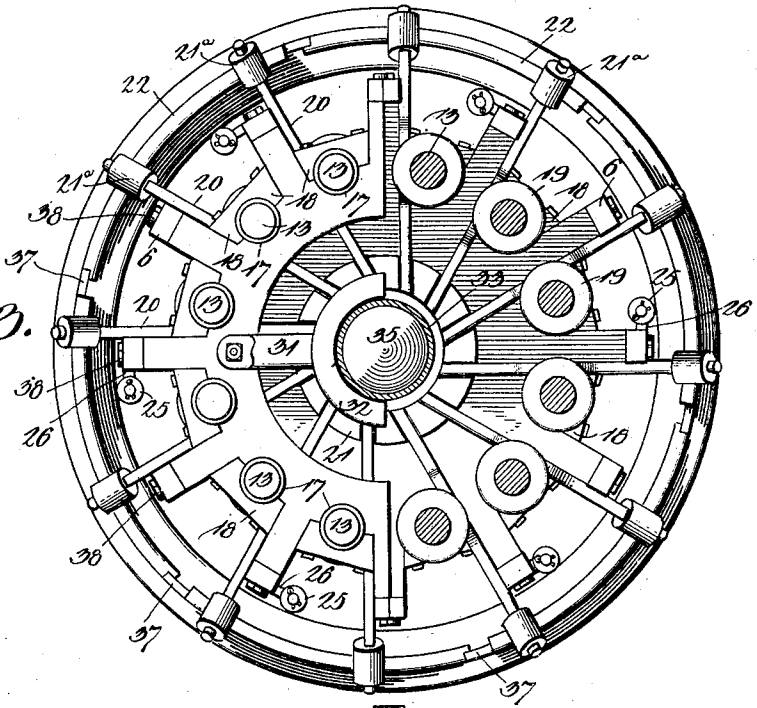
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NO MODEL. 3 SHEETS—SHEET 3.

Fig. 3.



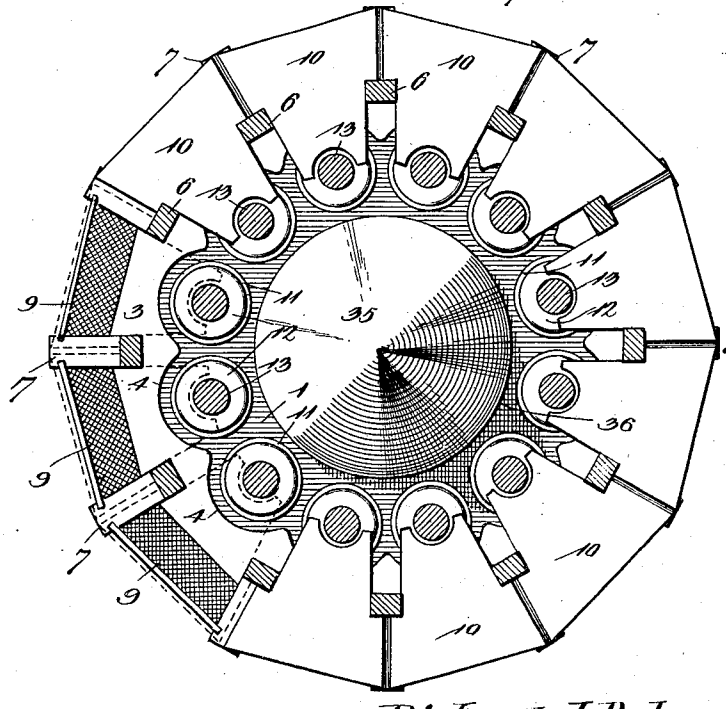


Fig. 4.

Witnesses

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No. 733,933. Patented July 21, 1903.

UNITED STATES PATENT OFFICE.

RICHARD J. BAKER, OF EL PASO, TEXAS.

STAMP-MILL.

SPECIFICATION forming part of Letters Patent No. 733,933, dated July 21, 1903.

Application filed October 17, 1901. Serial No. 79,007. (No model.)

To all whom it may concern:

Be it known that I, RICHARD J. BAKER, a citizen of the United States, residing at El Paso, in the county of El Paso and State of Texas, have invented a new and useful Stamp-Mill, of which the following is a specification.

This invention relates to stamp-mills.

The object of the invention is to present a stamp-mill which with a minimum of space utilized for the operating mechanism will give the maximum of output and in which the parts will be so constructed and arranged as to require but comparatively small power to operate the same.

With this and other objects in view, as will appear as the nature of the invention is better understood, the same consists in the novel construction and combination of parts of a stamp-mill, as will be hereinafter fully described and claimed.

In the accompanying drawings, forming a part of this specification, and in which like numerals of reference indicate corresponding parts, there is illustrated a form of embodiment of the invention capable of carrying the same into practical operation, it being understood that the elements therein exhibited may be varied or changed as to shape, proportion, and exact manner of assemblage without departing from the scope of the invention.

In the drawings, Figure 1 is a view in side elevation. Fig. 2 is a view in vertical transverse section. Fig. 3 is a view in horizontal plan, taken on the line 3 3, Fig. 2. Fig. 4 is a similar view taken on the line 4 4, Fig. 2.

Referring to the drawings, 1 designates the base of the mill, provided with a marginal outstanding flange 2 and a vertical flange 3, provided on its inner face with semicircular recesses 4. The base and the flanges 2 and 3 may be made integral or may be made as separate elements and assembled. The flanges 2 and 3 are provided with a plurality of recesses or sockets 5, in this instance twelve, to be engaged by the lower ends of a similar number of standards 6, provided adjacent to the base with angular offsets 7, the inner faces of which contiguous to their outer edges being provided with inclined grooves 8 to be engaged by removable screens 9, which operate in the usual manner to permit escape of finely-pulverized stone, mud, and water, the spaces between said offsets being closed at their upper ends by lids or covers 10, held assembled with the offsets in any preferred manner.

Secured to the base of the mill and close to the flange 3 is a series of dies 11, the same being arranged in a circle to economize space, thus with a comparatively small mill to secure a large output of pulverized material. These dies, as will be seen by reference to Fig. 4, set as close as possible to the flange 3 in order that the pulverized material may readily escape through the screens, whereby to prevent any backing up or accumulating of pulverized material on the base. Coacting with each of these dies is a stamp 12, carried by the lower end of a stem 13, the said stems being guided for vertical movement by two guide-frames 14 and 15, secured to the standards, as by bolts or the like, lugs or brackets 16, carried by the standards near their upper ends and intermediate of their ends, serving to support the guide-frames and to remove unnecessary strain from the assembling means employed. In order to cause the tems to move in a predetermined direction, and also to compensate for wear thereof, removable bearings 17 are employed, in which the stems work, as clearly shown in Figs. 3 and 4, the bearings being held in place by detachable cap-squares 18, suitably bolted to the guide-frames. Upon each of the stems between the two guide-frames is secured a tappet 19 to be engaged by a lifting-lever 20, the inner end of each of which is pivotally connected with an upstanding tubular projection 21 on the guide-frame 15, the outer ends of the said levers being projected beyond the standard and provided each with a roller 21^a to engage the cams 22 of an annular gear 23, surrounding the standard and supported thereon vertically by friction-rollers 24, the gear being caused to rotate in a true circle by horizontally-disposed rollers 25, secured to offsets 26, carried by the standards, as shown in Fig. 3. The under side of the annular gear carries the gear-teeth 27, and these are engaged by a gear-wheel 28, driven from a suitable source of power, as by a band-wheel 29. (Indicated by dotted lines in Fig. 1.) This means of driving the gear or cam-bear-

ing member is merely given as an illustration of one way in which it may be actuated, it being understood that if preferred gearing may be dispensed with and a belt engaging the periphery of the cam-bearing member be made to perform the same function. That portion of each of the lifting-levers which engages with the tappet 19 is rounded or offset, as at 30, whereby at each operation of the levers a partial rotation in a horizontal plane is imparted to the stamp, thus at each impact to present a different portion of the face of the stamp to the ore, and thereby prevent uneven wear of the stamps, which would inevitably result if the same were permitted each time to strike over the same part of the die.

Supported from the upper guide-frame 14, as by braces 31, is an annulus 32, through which extends the discharge-spout 33 of a funnel 34, this spout also passing through the tubular projection 21 of the guide-frame 15 and terminates a short distance below the latter.

Secured to the base of the mill is an ore-spreader 35, which is cone-shaped and has its apex projected into the spout of the funnel, the lower portion of the spreader being straight, as at 36, to lie close up to the dies 11, thereby to cause the ore as it is fed down the spout to be deflected from the spreader and onto the dies, whereby equal feeding of ore or auriferous earth to the dies will be effected.

It will be seen by reference to Fig. 1 that the escape side of the cams are perfectly straight or vertical, thus to give what is known as a "flat" drop to the stamps, and in order to absorb the shock and jar which would otherwise be imparted to the lifting-levers as they drop yielding or resilient buffers 37 are employed at the base of each of the cams, and upon these buffers the rollers of the lifting-levers will drop when released from the cams. In order to hold one or more or all of the lifting-levers elevated above the crest of the cams, thus to render the stamps inoperative when desired, latches 38 are employed, these being of any preferred form and connected with the standards, as clearly shown in Fig. 1.

The operation of the mill will be understood from the following description. Ore from any suitable source is fed to the funnel 34 and passes down the spout 33 onto the spreader 35, whence it is deflected onto the dies, where it is finally pulverized by the action of the stamps, which are reciprocated in any suitable manner, as described. As the ore becomes finely pulverized it escapes out through the screens 9, being carried therethrough by the water, which is supplied to the mill in the usual manner, as a vehicle, the coarser portions of the ore being retained in the mill to be subjected to further reducing action, any escape of mud or water other than through the screens being prevented by the lids or covers 10. The operation may be continued as long as desired without any danger of the machine becoming clogged. By disposing the stamps and dies in a circle, as described, all of the available space of the base of the mill is utilized for effective work, so that, in effect, there will be no lost space. Further, by the employment of the novel form of spreader certain and even feed of the material to the stamps will be assured.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a stamp-mill a frame including an annular upright, a plurality of levers pivoted radially to said upright, cam-shaped projections upon the upper sides of said levers, vertically-movable stamping-stems having tappets engaging and adapted to be gradually rotated by the cam-shaped projections of said levers, rollers upon the outer ends of said levers, and a suitably-supported annular gear-wheel having cams adapted to engage said rollers.

2. In a stamp-mill, a base provided with a plurality of circularly-disposed spaced dies, a cone-shaped spreader concentrically disposed with relation to the dies, standards supported by the base and carrying guide-frames, stamp-carrying stems mounted for movement in the frames, tappets carried by the stems, a cam-bearing member encircling the standards, and lifting-levers having their inner ends pivotally connected with the frames, their outer ends provided with rollers for engaging the cams, and their intermediate portions with cam-surfaces to engage and partially rotate the stems.

3. In a stamp-mill, the combination of two guide-frames, the lower one of which is provided with an upstanding tubular projection, a plurality of stamp-bearing stems working in bearings in the guide-frames, a feed-chute secured in the said tubular projection, a cone-shaped spreader having its apex projecting a short distance within the said chute, spaced dies arranged below the stamp, levers having their inner ends pivotally connected with the tubular extension, a rotary cam-bearing member coacting with the outer end of the levers, and tappets carried by stamp-bearing stems and engaging the intermediate portions of the levers.

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

RICHARD J. BAKER.

Witnesses:
J. C. JAMIESON,
O. C. COLES.