

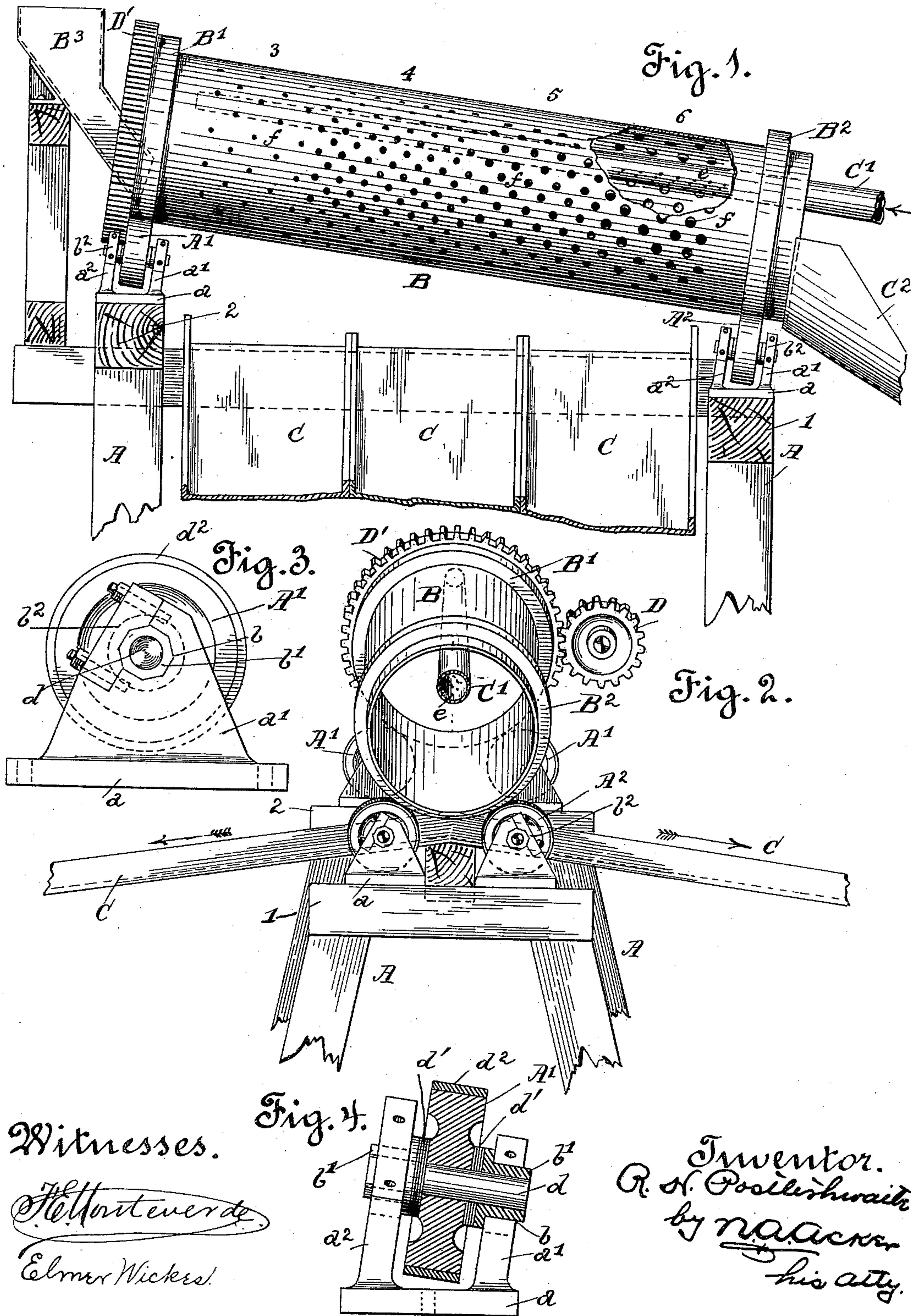
No. 619,341.

. Patented Feb. 14, 1899.

R. H. POSTLETHWAITE.
ROTARY GRIZZLY OR SEPARATOR.

(Application filed Dec. 6, 1897.)

(No Model.)



UNITED STATES PATENT OFFICE.

ROBERT H. POSTLETHWAITE, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR
TO THE RISDON IRON AND LOCOMOTIVE WORKS, OF SAME PLACE.

ROTARY GRIZZLY OR SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 619,341, dated February 14, 1899.

Application filed December 6, 1897. Serial No. 660,937. (No model.)

To all whom it may concern:

Be it known that I, ROBERT H. POSTLETHWAITE, a subject of the Queen of Great Britain, residing at San Francisco, in the county of San Francisco and State of California, have invented certain new and useful Improvements in Rotary Grizzlies or Separators; and I do hereby declare that the following is a full, clear, and exact description thereof.

This invention relates to a certain new and useful rotary grizzly or separator more especially designed for use in connection with a gold-saving apparatus; and it consists in the arrangement of parts and details of construction, as will be hereinafter fully set forth in the drawings and described and pointed out in the specification.

The invention resides mainly in providing what I shall term a "graduated rotary grizzly or separator" for distributing the pulp or material fed therein onto the separating or collecting table arranged thereunder, in combination with a tapering perforated water-supply pipe which leads into the said rotary grizzly or separator from the lower end thereof and distributes water therein, so as to maintain the material fed therein in a semi-liquid condition in order that it may flow freely from the said grizzly during the rotary movement thereof.

In order to understand the invention, reference must be had to the accompanying sheet of drawings, forming a part of this application, wherein—

Figure 1 is a side view in elevation of the rotary grizzly or separator partly broken away, said view disclosing the position of the grizzly, the rolls upon which the same is supported, the water-supply pipe, and the feed and the discharge chute. Fig. 2 is an end view in elevation of the mechanism illustrated in Fig. 1, viewed from the discharge end of the grizzly. Fig. 3 is an enlarged detail view in elevation of the bracket and one of the supporting-rolls; and Fig. 4 is a side view of the mechanism illustrated in Fig. 3, partly in section.

The letter A is used to indicate any suitable base or frame for the grizzly, and A' A² the upper and lower supporting-rolls, upon which the grizzly is supported and rotates.

These rolls are in pairs. Consequently there are two upper ones and two lower ones, the lower ones being arranged in a plane below that of the upper rolls in order that the rotary grizzly or separator may stand at an incline. Each supporting-roll works in a bracket, which consists of a base-plate *a* and two upwardly-projecting side plates *a'* *a*², which plates stand at an incline to the base-plate, (the inclination being toward the lower or discharge end of the rotary grizzly.) The side plates are formed with an octagon-shaped bearing-hub *b'*, the hub being held in place by the lock-plate *b*². The bearing-hub *b'* is provided with a flange *b*^x, extending between the roll and the bracket side, which holds the hub from slipping longitudinally and takes the wear from the bracket side. Within these bearing-hubs works the axle *d*, upon which are loosely mounted the said supporting-rolls, there being interposed between the face of the rolls and the inner face of the bearing-hub a series of friction-plates *d'*. The brackets of the lower supporting-rolls are attached to the cross-beam 1 of the frame A and the brackets of the upper rolls to the cross-beam 2 of said frame. Each supporting-roll is provided with a steel or hardened periphery or wearing-ring *d*².

The rotary grizzly or separator B is made cylindrical in cross-section and preferably of uniform diameter throughout its length, and at its upper and its lower end it is encircled by a band B' B², which rests upon the supporting-rolls A' A², respectively, and receives the frictional wear incident to the rotation of the grizzly. In order that the material fed into the feed end of the grizzly by the chute B³ may be evenly distributed throughout its length upon the separating or recovering table C, (located thereunder,) it is necessary that the outlets, openings, or perforations in the grizzly vary in size and pitch from the feed to the discharge end, for if the said openings be of uniform diameter throughout the bulk of the material fed therein will escape through the opening at the feed end of the grizzly and cause an uneven distribution of the material upon the separating or recovering tables. For this reason the grizzly may be said to be divided into a series of

sections 3 4 5 6, the perforations f in each section varying in size and in pitch, (the upper section 3 having comparatively small outlets or escape-openings, section 4 having its escape or outlet openings somewhat larger, the escape or outlet openings in section 5 being larger than those in section 4, while the outlet or escape openings in section 6 are larger than those in either of the other sections.) The outlet or escape openings are so proportioned to each other that approximately even distribution of the material upon the separating or recovering tables during the rotation of the grizzly is secured, which cannot be accomplished where the escape or outlet openings are made uniform, for practical working has demonstrated that when the openings are made uniform the major portion of the material escapes through the forward openings (or those nearest the feed end) and tends to bank upon the separating or recovering tables, (which is a disadvantage to the proper working of this class of material.)

Within the rotary grizzly or separator, at its discharge end, projects the water-supply pipe C' , which extends to within a short distance of the feed end. This pipe gradually tapers or reduces toward its forward end, and in the bottom thereof is formed throughout its entire length a series of perforations or outlet-openings e , through which the water escapes into the grizzly. The water thus discharged into the grizzly maintains the material fed therein in a semiliquid condition in order that it may work freely through the escape or outlet openings in the said grizzly. The tapered water-inlet pipe is provided with outlet-openings so arranged that the outlet of water will be proportioned to the discharge of the material from the various sections of the grizzly.

As the grizzly or separator is used for the working of gravel or similar material, or where the precious metal is what is known as "free gold," such of the material as will not pass through the outlet or escape openings during its travel through the inclined grizzly may safely be considered as base or worthless. Such of the material escapes through the lower open end of the grizzly or separator into the discharge chute or runway C^2 , by means of which it is conveyed to any suitable place of deposit.

Inasmuch as the rotary grizzly rests upon and is supported upon the rolls $A' A^2$ at an incline considerable strain is placed upon the said rolls and bearing-hub. For this reason

the frictional plates d' are interposed to take up the thrust of the grizzly and the bearing-hubs are made octagonal, (to permit of wear being readily taken up.) As the strain upon the axles d is mainly a downward one, the tendency is for the lower face or bearing portions of the bearing-hub to wear smooth at its edges, and thereby permitting loose play and imparting an uneven motion to the supporting-rolls, which, if permitted to continue, causes pounding and damage to the working parts. When such wear takes place, the lock-plate b^2 is loosened and the bearing-hub given a part turn, so as to bring another face or side at the bottom, which presents a new wearing-surface for the axle d . The bearing-hub may thus be utilized until the entire opening for the axle of the roller has become worn away, when the hub is removed and a new one inserted. The bearing-hub being of octagon shape and fitting within an octagonal bearing-seat, the same cannot work loose.

Motion is imparted to the rotary grizzly by means of the cog-pinion D , driven by any suitable mechanism, intermeshing with the cog-ring D' , secured to the said grizzly at its feed end. The material fed into the grizzly is thoroughly washed during the rotary movement of the grizzly and separated as it travels the length thereof, and what does not make its escape through the graduated outlet-openings is discharged from the lower end thereof into the runway C^2 .

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

In an apparatus for the recovery of precious metal, the combination of a rotary cylindrical grizzly of approximately uniform diameter throughout its length, the perforations thereof being arranged in sections and increased in size from the feed end toward the discharge end thereof, separating-tables below the grizzly, means for rotating the grizzly and a tapering water-supply pipe extending into the grizzly with the small end thereof nearest the feed end of the grizzly, and provided with outlet-openings so arranged that the outlet of water will be proportioned to the discharge of material from the various sections of the grizzly, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 30th day of October, 1897.

ROBERT H. POSTLETHWAITE.

Witnesses:

N. A. ACKER,
LEE D. CRAIG.