(No Model.)

J. W. NESMITH.

ORE CONCENTRATOR.

No. 558,978. Patented Apr. 28, 1896.

Fig. 1.

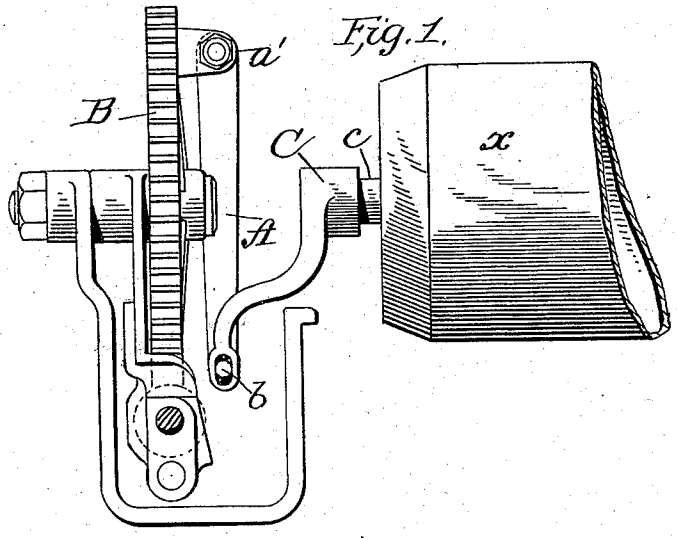
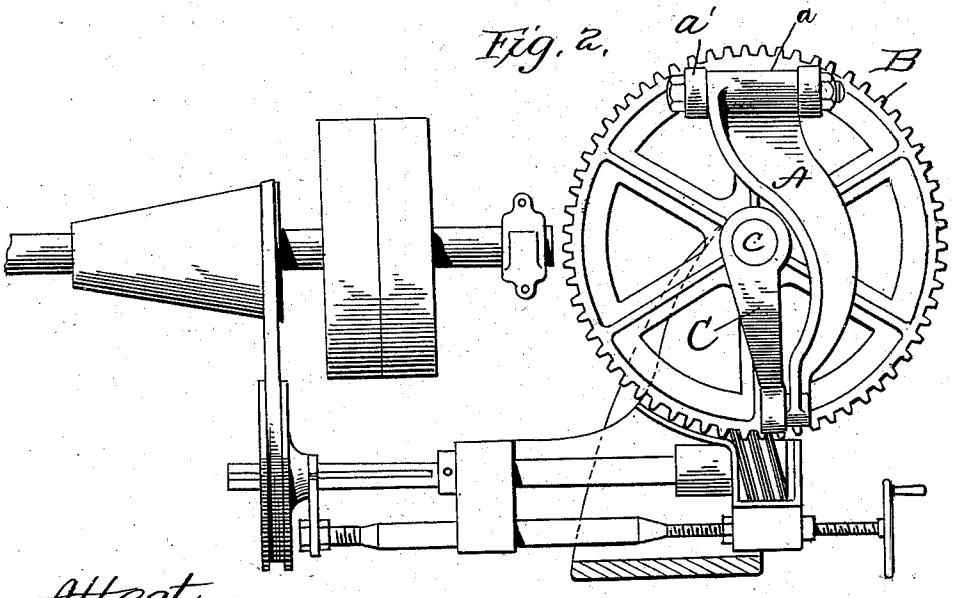


Fig. 2.



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UNITED STATES PATENT OFFICE.

JOHN W. NESMITH, OF DENVER, COLORADO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE COLORADO IRON WORKS COMPANY, OF SAME PLACE.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 558,978, dated April 28, 1896.

Application filed October 21, 1895. Serial No. 566,317. (No model.)

To all whom it may concern:

Be it known that I, JOHN W. NESMITH, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Concentrators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to ore-concentrators, and more particularly to the connection between the drum of the belt-cylinder and the driving-wheel in such concentrators. This belt requires and receives a slow longitudinal movement and a sharp rapid lateral vibration, and, with the connection heretofore made, much trouble is occasioned.

The device which I have produced and have shown serves to give the first requisite, a positive steady rotary movement to the drum or cylinder and at the same time permits of rapid and free lateral vibrations without interfering with the rotation or travel of the belt, and, further, the device is durable. It is shown in the accompanying drawings, which also show so much of the concentrating apparatus as is necessary to illustrate my invention.

In the drawings, Figure 1 shows an end view of the concentrator in part. Fig. 2 shows a side elevation of a part of the ore-concentrator, both figures showing the device and combination claimed as my invention and the contiguous parts of the concentrator, the parts not shown being of ordinary or any suitable construction.

In the drawings a part of the driving and supporting cylinder for the belt is shown at *x*. It has other supporting and tension drums and a frame and mechanism for the lateral jarring motion, not necessary to show.

The shaft of the drum *x* is shown at *c*, and to this is fixed a crank C, bent laterally away from the end of the drum and with its bent end in range with an arm A, to which it is pivoted by a stud *b*, working in a slot, as shown in Fig. 1. The arm A is pivoted between lugs *a'* on the driving-wheel by means of a bolt which passes through the said lugs and through a sleeve *a* on the end of the arm.

The arm is bent aside to clear the bearing of the drive wheel or gear, and while it is held rigidly in its relation to the rotary movement of the wheel it may swing in and out to and from the wheel. In this way the crank is movably connected with the driving-wheel—that is to say, the rotary drum, which has free motion longitudinally of its axis, is connected through the end of its fixed crank with the driving-wheel by pivotal connections yielding in a plane of the axis of the cylinder or parallel therewith.

The driving-wheel B, to which the arm A is pivoted, is a gear mounted on an axis in line with the axis of the drum and is driven, as shown in the drawings, by a worm-shaft.

I claim—

1. In an ore-concentrator, and in combination with the belt-drum adapted to turn with the belt and to reciprocate longitudinally of its axis, a crank rigidly attached to the shaft of the said drum, a driving-wheel and a vibrating arm between the crank and driving-wheel, said arm forming a rigid connection between the parts in the rotation thereof, substantially as described.

2. In an ore-concentrator, and in combination with the belt-drum, a crank fixed to the shaft of said drum, a driving-wheel, an arm pivoted to said wheel to have movement in and out only, and a pivoted connection between the opposite end of said arm and the end of the crank, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN W. NESMITH.

Witnesses:
JAMES P. EVANS,
SAML. H. NESMITH.