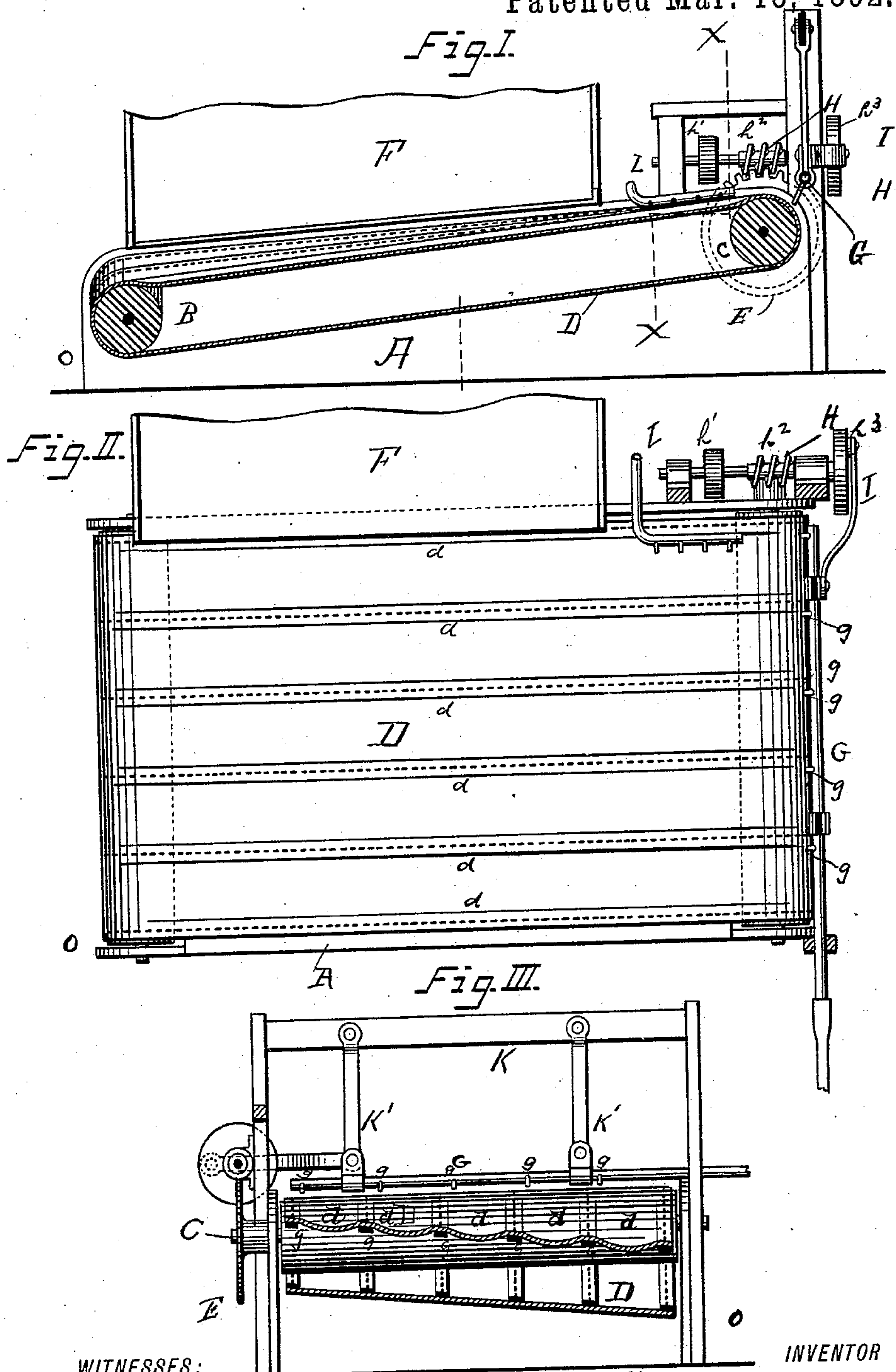


(No Model.)

G. L. CUDNER.  
ORE CONCENTRATOR.

No. 470,781.

Patented Mar. 15, 1892.



WITNESSES:  
*George E. Metz*  
*Richard Lips*

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# UNITED STATES PATENT OFFICE.

GUSTAVIS LORRIMER CUDNER, OF NEW YORK, N. Y., ASSIGNOR OF FOUR-FIFTHS TO JACOB RUPPERT, JR., GEORGE E. METZ, AND ADAM E. SCHATZ, OF SAME PLACE.

## ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 470,781, dated March 15, 1892.

Application filed January 6, 1891. Serial No. 376,829. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVIS LORRIMER CUDNER, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improved Ore-Concentrators, of which the following is a specification.

My invention has for its object the concentration of ores. In machines constructed after my plan the ore pulp is fed to a constantly-revolving belt made, preferably, of carpet, with the woven side up; or it may be made of rep or corduroy cloth having on its back a series of rubber or other pliable bands, which are provided for the twofold purpose of giving strength to the belt and of forming depressions or gutters between the bands, so that the ore, by reason of the bed being lower at one corner, will allow the gangue to be washed off toward the lower side or corner, while the concentrates remain in the belt, lodged in the gutters or depressions thereof, although the machine may be built with an incline toward the discharging edge.

In the drawings, Figure 1 represents a side view, partly in section. Fig. 2 represents a top view. Fig. 3 represents a transverse sectional view on the line  $x x$  in Fig. 1, showing the oscillating jetted water-pipe and gearing.

A represents a table or platform on which the belt D rests.

B and C represent drums or rollers over which the belt D is stretched.

C is a drum having at one end a cog-wheel E, which, engaging with the worm-wheel H, revolves the drum C and causes the belt D to travel.

D is a belt made, preferably, of carpet, with the nap up, and having on its under side or back at regular intervals rubber or leather straps or bands running lengthwise.

G is a water-pipe having the jets  $g g g g$  and which is suspended by the arms  $K' K'$  from the frame-work K.

$h^3$  is a wheel fixed on one end of the worm-wheel shaft H and having an eccentric stud or pin, to which the connecting-rod I is fixed

and by means of which the water-pipe G is oscillated.

L is a water-pipe having jets (or it may be slotted or perforated) and is set lengthwise with the belt D at the upper corner of the table A.

The water-pipe G is set in such a manner that the water is delivered on the belt at the point where it travels over the drum C, and, being constantly oscillated, delivers a stream of water across the entire width of the belt D.

$h'$  is a driving-pulley fixed to the worm-wheel shaft and by means of which the entire mechanism is operated.

In practice the wet ore pulp is delivered by suitable means from the feed-table F onto the belt D at the side of the belt in such a manner that the ore pulp is carried over the width of the belt by gravity and the aid of the water delivered onto the belt D from the pipe L at the head of the machine. While the pulp is being delivered the belt is revolved. The table A inclining toward the lower outside corner O, the gangue is washed or carried toward the opposite side of the machine from which the same has been fed. The gutters formed in the belt by reason of the straps  $d d d d d d$  raising part of the surface of the belt, concentrates lodge in the nap and at the raised parts of the belt. The escape of the gangue is greatly assisted by the flow of water from the jet-pipe L. The gangue having been separated from the concentrates and washed over the lower edge of the belt and off the platform, the concentrates are carried up toward the head of the machine, where the nap of the belt is spread apart as it travels over the drum C. Here the belt D is washed off by the action of the water, which is delivered to it by the oscillating jetted water-pipe G at such an angle that the concentrates are forced out of the nap or crevices of the belt D and delivered in a receiver provided for that purpose.

As indicated in the drawings, particularly Figs. 1 and 3, the straps  $d$  are quite taut, and the fabric belt rests thereon or is attached thereto and is sufficiently loose to form de-



pressions or gutters between the straps. Since the end of the drum B farthest from the feed-table F is depressed, it follows that the gangue delivered from the said table is  
5 carried across the riffles formed by the said depressions in the fabric and the concentrates are more securely held by the nap of the belt in said riffles, which in the meantime are being moved upward away from the flow of  
10 gangue for the concentrates to be removed from the nap at the other end of the incline.

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

15 1. In an ore-concentrator, the combination, with an endless belt, of two drums for supporting and moving the same, one of said drums being lower than the other and said lower drum having its bearings at one end  
20 lower than its other bearing, a series of endless straps located between the belt and the

drums, and a feed chute or table located adjacent to the edge of the belt at its higher side, substantially as described.

2. In an ore-concentrator, the combination, 25 with a frame and a pair of drums B C, one of which is lower than the other and also has one end in bearings lower than its other end, of a series of bands or straps *d d*, taut upon said drums, an endless belt of napped fabric 30 secured to said straps, a feed chute or table F, located adjacent to the higher edge of the belt, and a water-jet pipe located adjacent to the higher end of the belt, substantially as described. 35

Signed at New York, in the county of New York and State of New York, this 9th day of December, A. D. 1890.

GUSTAVIS LORRIMER CUDNER.

Witnesses:

RICHARD LIPS,  
GEORGE E. METZ.