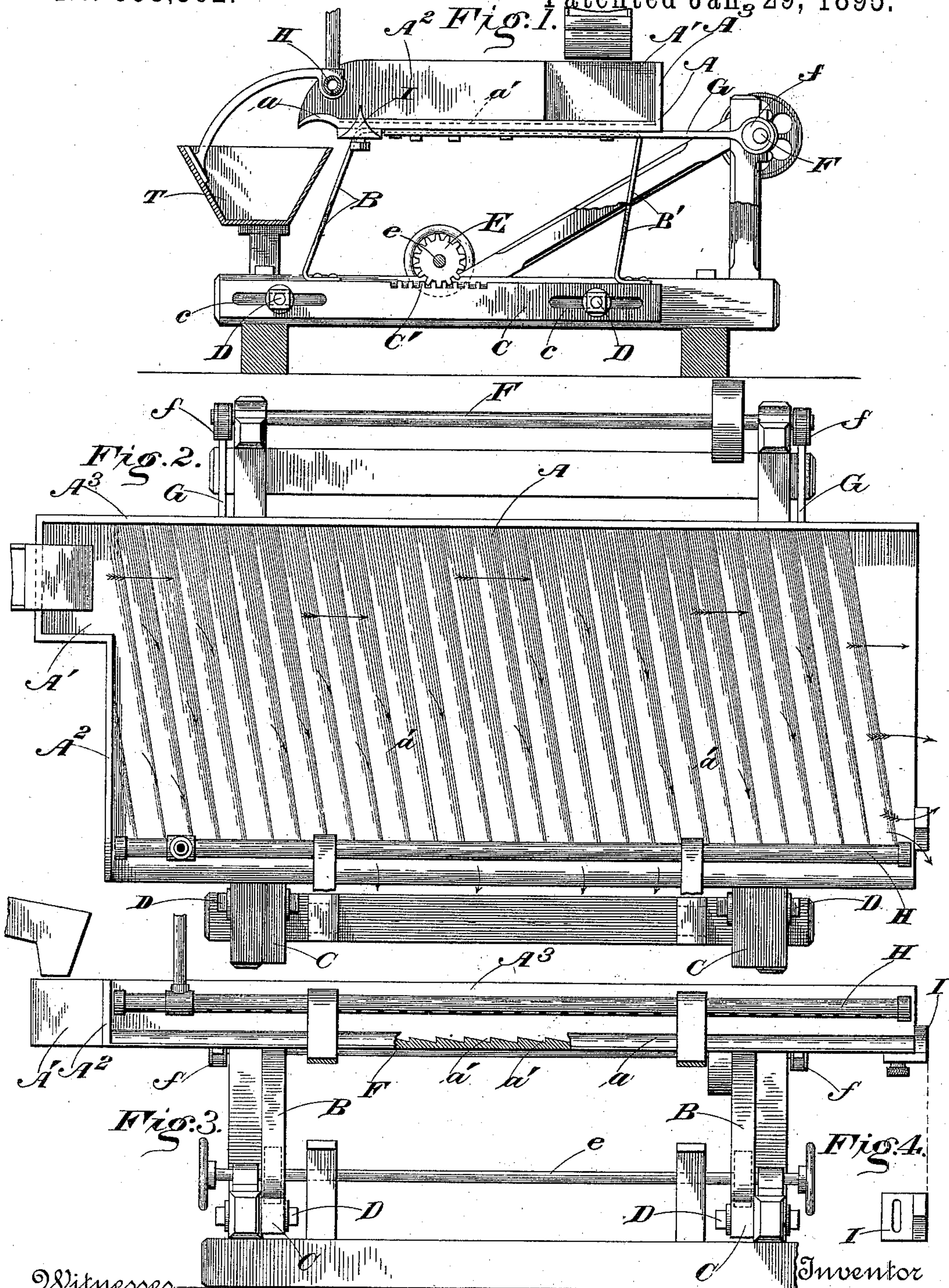


(No Model.)

J. LAMPERT.
CONCENTRATOR.

No. 533,362.

Patented Jan. 29, 1895.



Witnesses
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UNITED STATES PATENT OFFICE.

JACOB LAMPERT, OF HILL CITY, SOUTH DAKOTA.

CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 533,362, dated January 29, 1895.

Application filed March 16, 1894. Serial No. 503,917. (No model.)

To all whom it may concern:

Be it known that I, JACOB LAMPERT, of Hill City, in the county of Pennington and State of South Dakota, have invented certain new and useful Improvements in Concentrators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention is an improved concentrator, especially designed for operating upon fine and light concentrates. The construction will be clearly understood from the accompanying drawings and the following detailed description thereof; and the essential features of the invention are set forth in the claims.

In the drawings:—Figure 1 is an end view of the concentrator, the nearest end frame being partly broken away. Fig. 2 is a top plan view, partly broken away. Fig. 3 is a front elevation, partly broken. Fig. 4 is a detail.

The shaking table A is mounted upon supports B, B', which are preferably bar springs, capable of sustaining the table but permitting it to be vibrated laterally. These supports are connected to the table and to the base frame of the machine, in any suitable manner, but in order to provide for adjusting the inclination of table I propose to adjustably connect the lower ends of said supports to the base frame. As shown supports B are longer than supports B', and the lower ends of adjoining supports, at each end of the frame, are fastened to a horizontal longitudinal movable bar C, which is secured to the end piece of the main frame, by means of bolts D, passing through horizontal slots c in the bar, and thereby allowing the latter to be longitudinally shifted. The bars C can be shifted by means of pinions E on a shaft e, suitably journaled on the main frame, said pinions meshing with racks C' on the bars, as indicated in the drawings. The shorter supports B' are under the rear side of table, and the longer supports under the front or delivery side thereof. By moving bars C backward, the front side of the table will be elevated, faster than the rear side, and by moving the bars forward the front side of table

will be lowered faster than the rear side, because of the unequal lengths of the supports, and thus by simply adjusting bars C the table can be adjusted as desired. Of course various other means can be used for adjusting bars C, or the supports, so as to enable the table to be adjusted as desired by the operator.

The receiving end of the table has a short hopper or box extension A' into which the pulp is delivered, the pulp being kept from falling off the receiving end, or rear side of table, by flanges A², A³, as shown. Along the delivery or front side of table is a bead or flange a, which rises slightly above the top of table, and over which the concentrates escape into a trough T, or other receiver.

The top surface of the table is transversely corrugated or grooved as indicated at a', the corrugations being slightly diagonal, inclining toward the delivery side and end of table, and extending from the rear side to the bead a, almost parallel with the line of vibration of table, and at right angles to the course of current of pulp. The corrugations—or small “riffles”—catch the fine and light concentrates, and direct them across the table to delivery side thereof.

The table is vibrated laterally by means of pitmen straps G engaging cranks or eccentrics f on a shaft F journaled in uprights of the main frame at the rear side of table.

H is a perforated water pipe suspended above the bead a, and connected with a water supply, so that a spray of water can be directed upon the bead at all times.

I is an adjustable “divider,” attached to the delivery end of table, near the bead, and adapted to separate the sand and pulp which may work down close to the bead, from the concentrates which work down along the bead.

In operation the table is vibrated laterally, the water and pulp coming from plates or sizer is fed on the table at the upper end A', and the concentrates being heaviest settle behind the corrugations or “riffles” a' and are moved toward the delivery side of the table, and are there thrown over the bead a by the rapid vibration of the table, which I propose running at about six hundred vibrations per minute. If the feed is rapid the

delivery side of board is slightly elevated so as to keep the sand and pulp near the rear side of table but the concentrates in the "riffles" are directed toward the bead and separated
 5 from the sand. Some of the lighter concentrates will follow down the inclined table near the bead to the tail end of table, and are directed by "divider" into the trough, while the sand is directed away from the
 10 trough. The course of the pulp and sand is shown by the full arrows on Fig. 2, and the course of the concentrates by tailless arrows thereon. The table has a double motion, laterally and vertically, which facilitates the
 15 separation of the concentrates.

The object of my water pipe H is to deliver a spray of water on the raised side or bead to keep the sand back and to keep the concentrates from packing; for if there was no
 20 spray of water on the bead the water from the pulp would stay back farther on the table and concentrates get dry and pack all along the raised bead.

The function of the "divider" is to separate the concentrates from the sand, as by
 25 starting up the shaking movement of the machine the concentrates find their way over to the bead and are thrown off but the finest of them and the heavy slimes are forced
 30 ahead of the sand, but they being too light to be thrown off at the side will run down along the bead to the lower end of table close to the edge of the bead the sand running down also. By adjusting the movable divider
 35 the light concentrates are directed into the box while the sand runs the other way into the waste.

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

1. The combination with the table having a series of diagonally arranged, corrugations or "riffles" and flanges on one end and side

only, and a longitudinal "bead" extending along one end of the series of riffles with
 45 means for vibrating said table in a direction about lengthwise of the corrugations, and a water jet pipe suspended over the said "bead," substantially as and for the purpose specified. 50

2. The combination of the table A having a series of diagonally arranged corrugations α' , and a longitudinal "bead," α , on one side, and the receiving trough T below the beaded edge of the table with the adjustable sup-
 55 ports for said table means for vibrating it laterally, and a pipe for spraying water along the beaded edge of the table, substantially as and for the purpose set forth.

3. The combination of the table, having a
 60 series of transverse diagonally arranged "riffles" and also flanges at one end and side to prevent material dropping therefrom; the spring supports of unequal length for the
 65 table, the adjustable bars carrying said supports, and the mechanism for vibrating the table laterally, substantially as set forth.

4. The herein described concentrator, consisting of the table A having transverse diagonal corrugations α' upstanding flanges on
 70 its head end, and rear side, and a "bead" α on its front edge; the "divider" I attached to the tail end of the table; the spring supports B, B', for the table, the adjustable bar carrying said supports, mechanism for vibrat-
 75 ing the table laterally, and the water jet pipe, all substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of
 80 two witnesses.

JACOB LAMPERT.

Witnesses:

FRANK A. STEVENS,
 J. GEO. LAMPERT.