(No Model.)

J. TULLOCH.

CONCENTRATOR.

No. 476,500. Patented June 7, 1892.

Fig. 1.

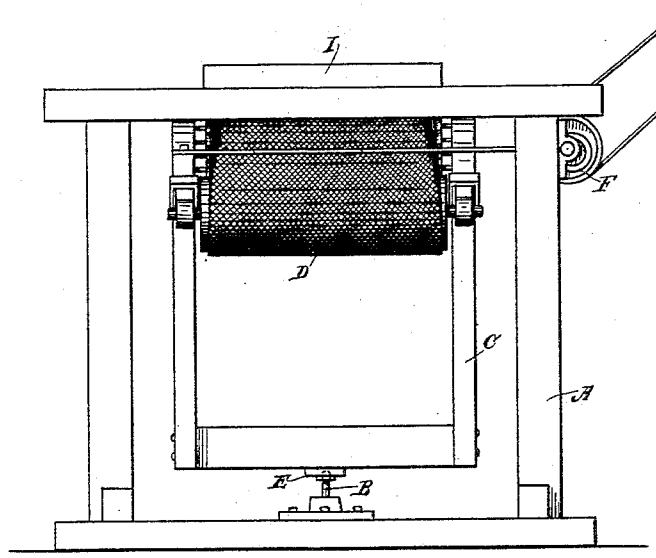
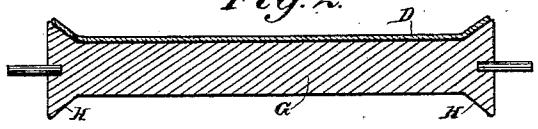


Fig. 2.



Witnesses,
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UNITED STATES PATENT OFFICE.

JAMES TULLOCH, OF ANGEL'S CAMP, CALIFORNIA.

CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 476,500, dated June 7, 1892.

Application filed July 7, 1891. Serial No. 398,724. (No model.)

To all whom it may concern:

Be it known that I, JAMES TULLOCH, a citizen of the United States, residing at Angel's Camp, Calaveras county, State of California, have invented an Improvement in Concentrators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to certain improvements in traveling-belt concentrators; and it consists in certain details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is an end view of my concentrator, showing the belt and the support for the rocking table upon which the belt is carried. Fig. 2 is a sectional view of one of the rollers over which the belt travels and a section of the belt in position upon the roller.

In former patents, issued to me October 8, 1889, and December 23, 1890, I have shown a traveling-belt concentrator with a mechanism by which the belt is advanced and by which the table upon which it is carried is caused to rock from side to side. In these inventions the base of the belt-carrying frame or table is supported upon curved rockers, the effect of which is to carry the table from one side to the other in its oscillations. In the present invention I show a frame-work A, the base of which has fixed at each end a pin or standard B.

C is a frame which carries the traveling belt D, and this frame has a socketed plate E, fixed at the center of the cross-bar or timber at each end and at the bottom of the frame. The pin B extends into this socket and forms a central support for the frame C, and about this central point or hinge the frame is caused to oscillate by means of the cam or eccentric mechanism, which is actuated by a belt, as shown at F and more fully described in my former patents. By this construction the frame is oscillated about a single supporting-point at E, and consequently the belt dips downward alternately upon each side as it oscillates with a comparatively sharp movement, the arc of the circle upon which it moves depending upon the distance between the hinge or socket piece and the level of the belt. When supported upon rockers, as in my former patent, the belt is thrown from side to side, but without this sharp vertical motion, and the advantage in the present case is the more complete separation of the lighter from the heavier particles as they flow over the belt and the settling of the latter to the bottom. The surface of the belt itself may be of canvas or coarse-woven fiber. I have made the belts of rubber and have molded the surface, as shown in the drawings, so as to present the appearance and surface of the cross-lines of coarse-woven fabric, thus obtaining the advantage which is derived from the use of such fabric with the more lasting qualities of the rubber. In order to prevent the material from flowing off at the sides of the belt D, I pass it over rollers G, the central portions of which are cylindrical, while the ends are made conical, the bases of the cones being outwardly and of larger diameter than the cylindrical portion G, as shown at H, Fig. 2. Upon these conical ends the edges of the belt travel, while the main portion runs upon the cylindrical portion G. By these means the edges of the belt are always turned upwardly, thus forming a trough, in which the material is caused to travel and prevented from passing off to either side of the belt. The inclination of the belt is, as shown in my former patents, sufficient to cause a flow of the material from the feed-box I at the upper end to the lower or discharge end. By the employment of the rollers constructed as here shown I am enabled to make a thin and flexible belt, which under ordinary conditions would lie perfectly flat; but it is sufficiently upturned at the edges by the action of the rollers to give it the necessary trough shape and holding capacity. By this construction it is very easy to run the belt over the rollers, and there is no danger of breaking portions of it, as in cases where the edges of the belt are made considerably thicker than the main portion in order to give it this trough shape.

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

1. In a traveling-belt concentrator, a frame with rollers journaled transversely upon the upper part, an endless belt adapted to travel about said rollers from end to end of the frame, stationary pivots fixed in line beneath the center of the belt, and means for tilting

the frame and belt from side to side about the pivots, whereby a sharp side and downward motion of the belt is produced, substantially as herein described.

2. In a concentrator, an endless traveling belt adapted to move over rollers upon which it is supported, said belt having a continuous surface of rubber, made with lines crossing each other in the manner of woven canvas and forming a corresponding surface of rubber, substantially as herein described.

In witness whereof I have hereunto set my hand.

JAMES TULLOCH.

Witnesses:
S. H. NOURSE,
H. F. ASCHECK.