No. 879,012. PATENTED FEB. 11, 1908.

E. H. SHACKELFORD.

BOX CLEANING DEVICE FOR CONCENTRATING TABLES.

APPLICATION FILED AUG. 7, 1907.

3 SHEETS—SHEET 1.

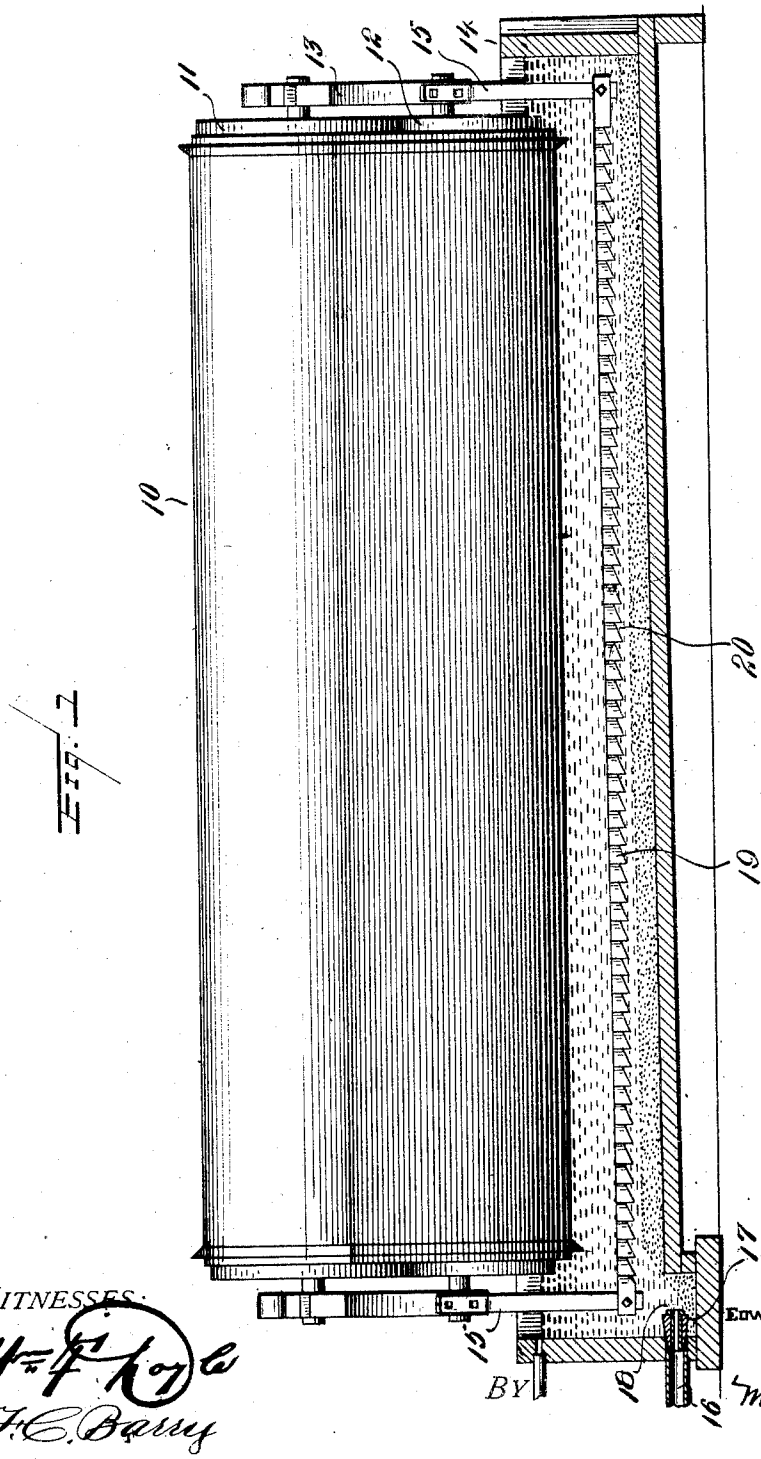

Fig. 1.

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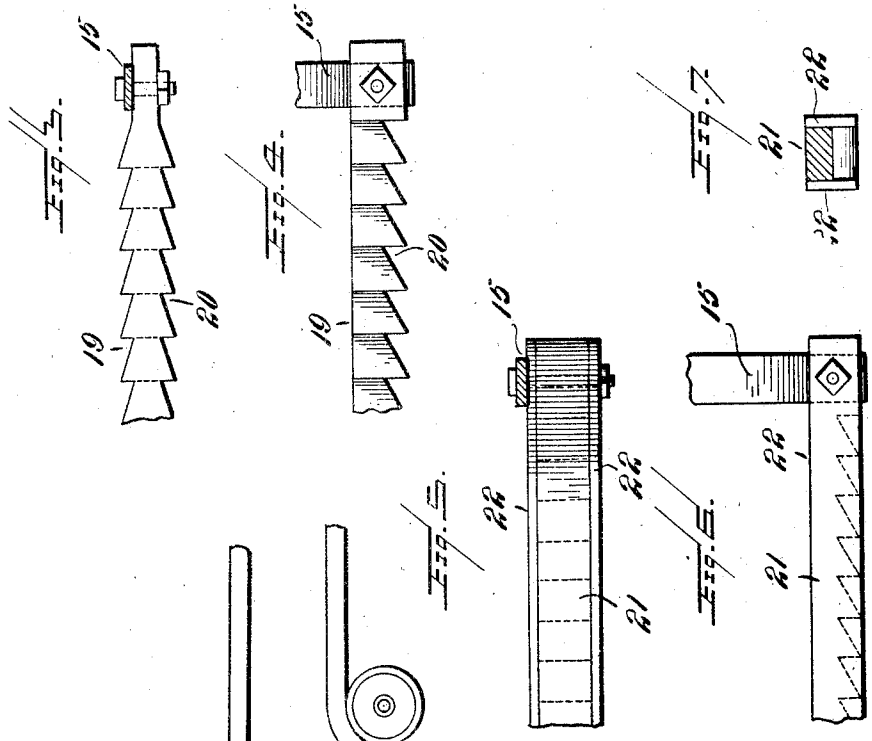
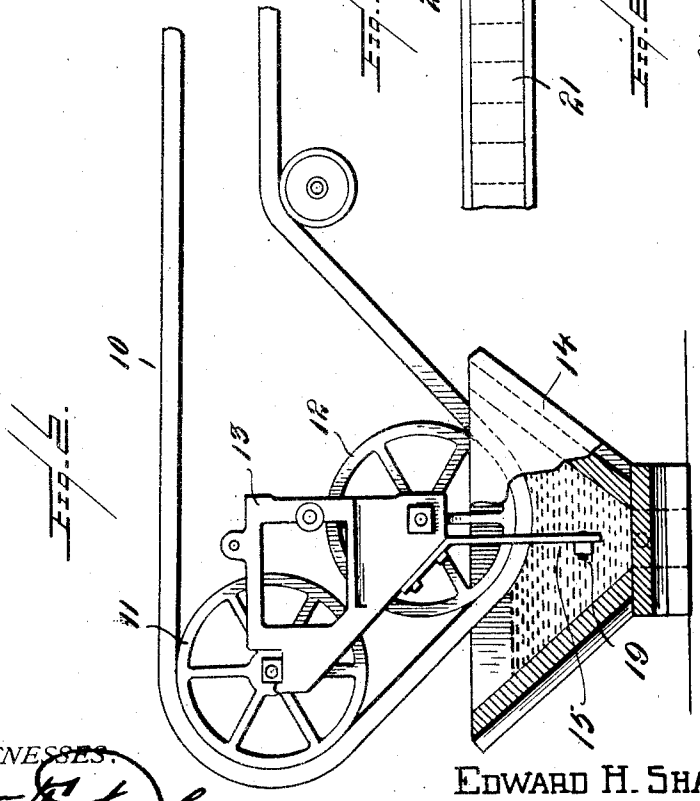
3 SHEETS—SHEET 2.





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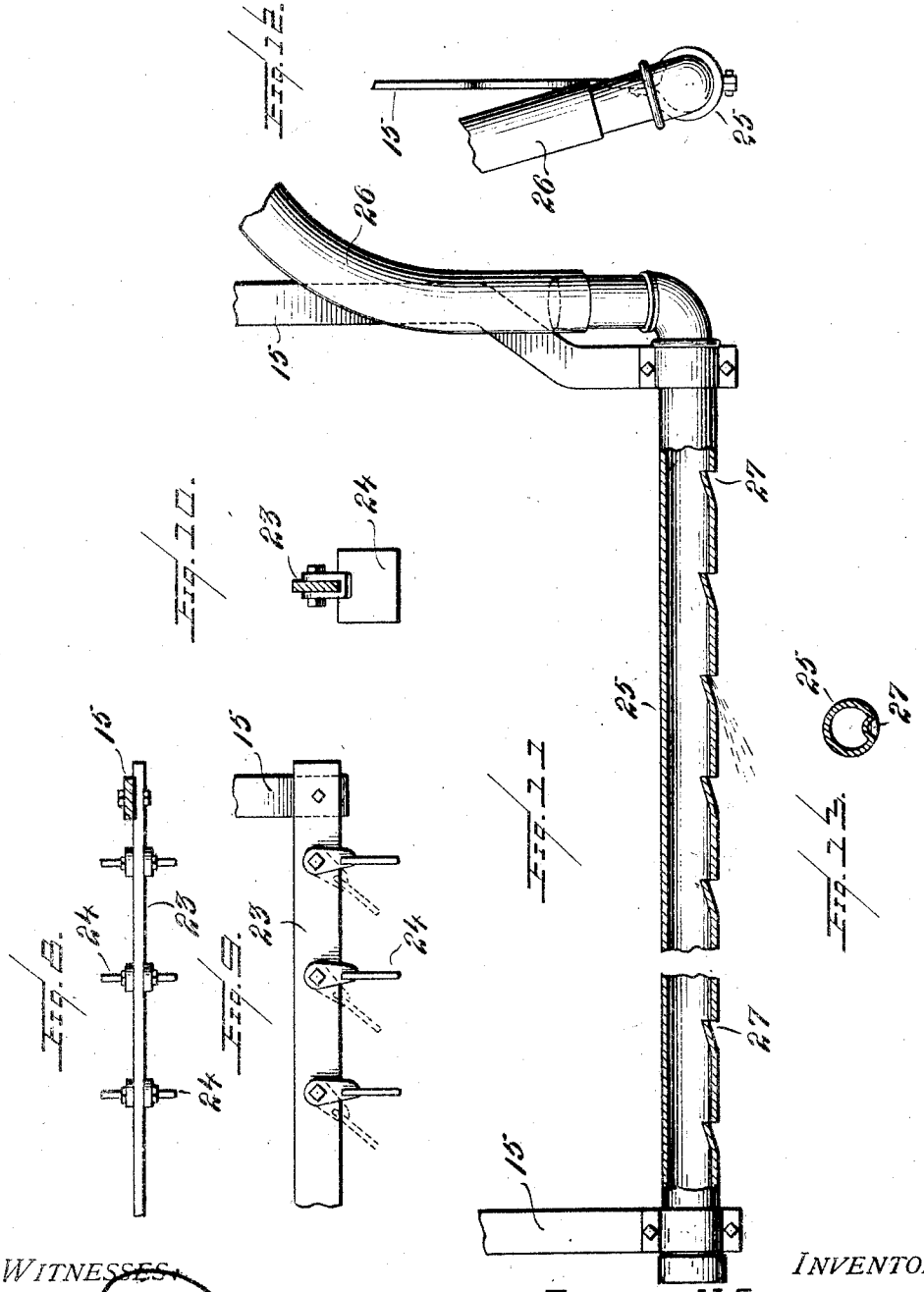
3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD HASKINS SHACKELFORD, OF SALT LAKE CITY, UTAH.

BOX-CLEANING DEVICE FOR CONCENTRATING-TABLES.

No. 879,012. Specification of Letters Patent. Patented Feb. 11, 1908.

Application filed August 7, 1907. Serial No. 387,489.

To all whom it may concern:

Be it known that I, EDWARD HASKINS SHACKELFORD, a citizen of the United States, residing at Salt Lake City, in the county of Salt Lake and State of Utah, have invented a new and useful Improvement in Box-Cleaning Devices for Concentrating-Tables, of which the following is a specification.

This invention is a cleaning device for the outlet boxes of vanners, Wilfley tables and all other kinds of concentrating tables which have a shaking frame or table discharging into a concentrate box at the end of the machine.

The concentrates when discharged into the box, tend to settle to the bottom thereof in a tight or dense mass, and it is the object of this invention to provide means to keep the concentrates continuously stirred up or in motion and to move them slowly and gradually to the outlet or discharge pipe, which, with the flow of water supplied to such tables will act to discharge the values through the outlet.

The invention is illustrated in the accompanying drawings, in which

Figure 1 is an end elevation, partly in section, of a vanner with the invention applied thereto. Fig. 2 is a partial side elevation thereof, partly in section. Figs. 3 and 4 are details in plan and side view of one type of rack. Figs. 5, 6 and 7 are details in plan, side view and section of another type. Figs. 8, 9 and 10 are similar views of still another type. Figs. 11, 12 and 13 are details of a device for discharging air or water for the same purpose as the racks referred to.

In the drawings, only so much of a vanner is illustrated as is necessary to show my invention. The vanner belt 10 travels at its discharge end around rollers 11 and 12 (supported by the frame 13) and through the V-shaped concentrate box 14. The frame and belt have the well known lateral vibration or movement imparted by means which need not be shown or described here, and the concentrates are discharged or washed from the belt into the box by the constant flow or supply of water.

The concentrates tend to pack or settle in the box, and to avoid this I provide a rack suspended from the shaking frame by hangers 15 at the ends of the rack, so that the rack has longitudinal vibration according to that of the belt and frame. The outlet pipe at the end of the box is indicated at 16, with a wooden plug 17 and porcelain bushing 18, and the concentrates are discharged through this pipe.

The rack may be made in various forms and material. In Figs. 1 to 4 inclusive I show a wooden rack consisting of a bar 19 the bottom and opposite sides of which are notched or stepped as indicated at 20, with inclines and square shoulders, the latter being presented toward the outlet.

When the rack bar is vibrated it acts in consequence of its form to cause a flow of water and feed of concentrates lengthwise in the box toward the outlet and keeps the water in motion and the concentrates continually stirred up, so that they do not pack, but are washed out through the hole in the outlet pipe.

In the type of rack shown in Figs. 5, 6 and 7 a bar 21 is provided having square shouldered notches in its lower edge and side plates 22 at each side. The action is the same as above described.

In the type shown in Figs. 8, 9 and 10, a bar 23, preferably metal, is provided with depending swinging plates 24 which on the forward stroke, stop against the bar in perpendicular position and on the backward stroke swing to inclined position as shown in dotted lines Fig. 9. The action is to sweep or force the water and values toward the outlet.

In Figs. 11, 12 and 13, I show a modification in structure and operation, comprising a pipe 25 suspended by the hangers and supplied with water or air through a flexible hose 26. Said pipe has holes or slits 27 cut or struck in, in such manner that the fluid is discharged downwardly and forwardly at an angle toward the bottom of the box. And its effect on the concentrates is similar to that above described, the flow or force of the fluid acting to agitate the concentrates and force them toward the outlet.

Various other modifications of the invention may be made or employed within the scope thereof.

I claim

1. The combination with a concentrate box having an outlet for the concentrates, and a vibrating frame carrying concentrating devices which discharge into said box, of means carried by the frame and vibrated thereby to positively impel the concentrates in the box toward the outlet.

2. The combination with a vibrating concentrating device, and a concentrate box into

which it discharges, said box having an outlet, of means carried by the said device and vibrating therewith to agitate the material in the box and positively impel the concentrates toward the outlet.

3. The combination with a concentrate box having an outlet at one end, and a laterally vibrating concentrating device discharging into said box, of a device extending lengthwise in said box and connected to and vibrating with the concentrating device and constructed to agitate the material in the box and positively impel it toward the outlet.

EDWARD HASKINS SHACKELFORD.

Witnesses:
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