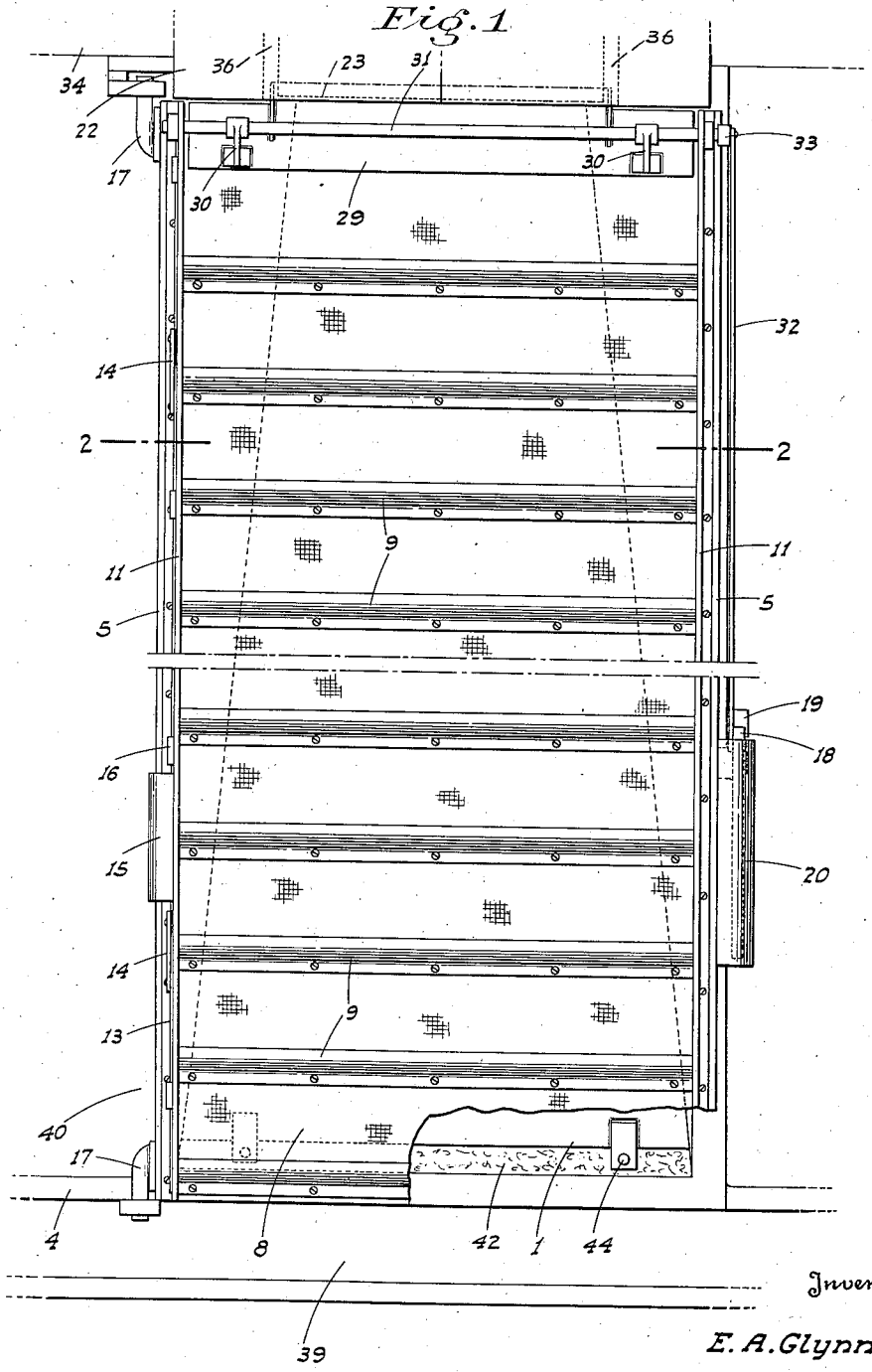
Jan. 15, 1946. E. A. GLYNN 2,392,914

DRY CONCENTRATING TABLE

Filed May 14, 1943 4 Sheets-Sheet 1

Fig. 1



Inventor

E. A. Glynn

By

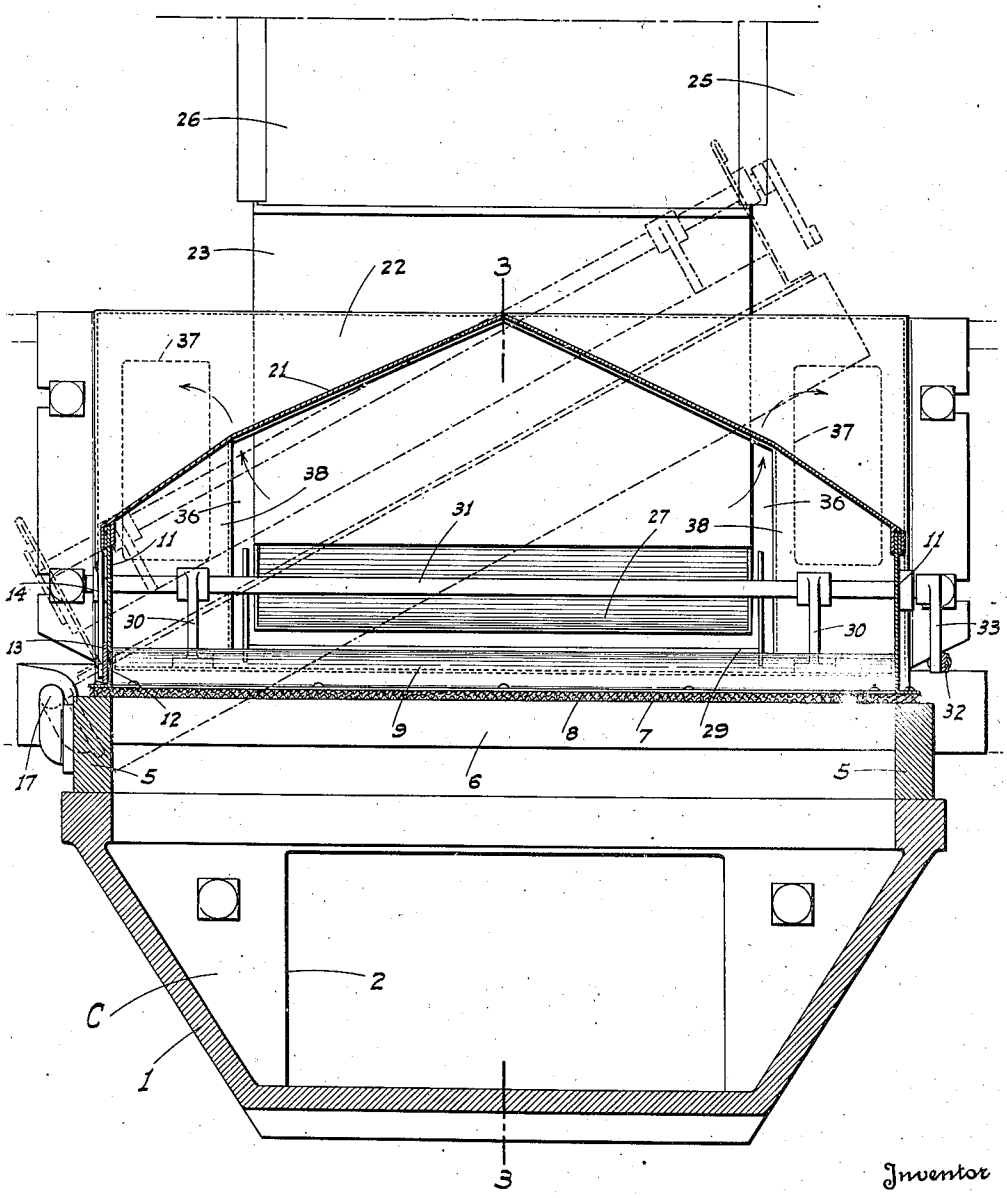
Attorneys

Jan. 15, 1946. E. A. GLYNN 2,392,914

DRY CONCENTRATING TABLE

Filed May 14, 1943 4 Sheets-Sheet 2

Fig. 2



Inventor

E. A. Glynn

By Webster & Webster

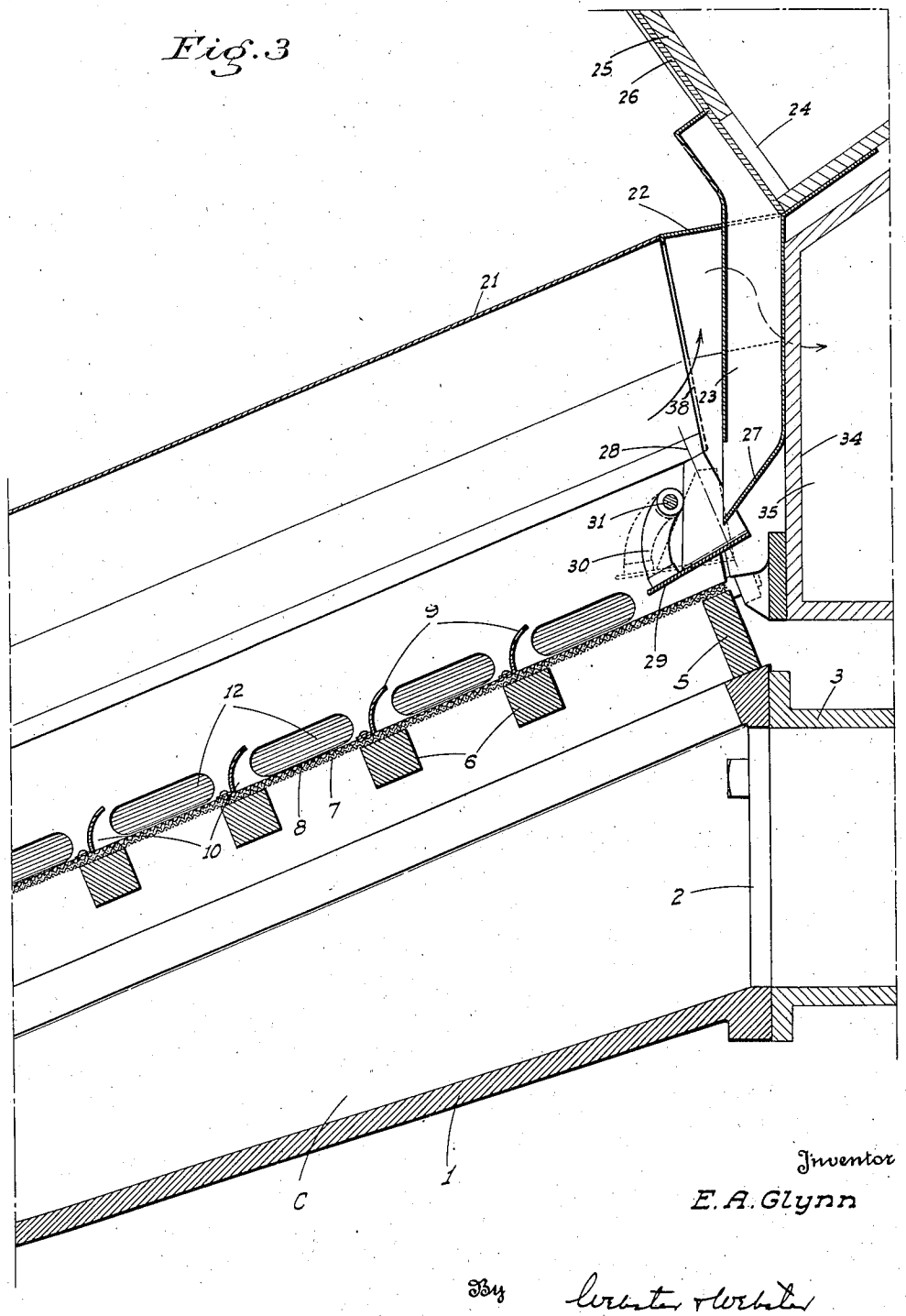
Attorneys

Jan. 15, 1946. E. A. GLYNN 2,392,914

DRY CONCENTRATING TABLE

Filed May 14, 1943 4 Sheets-Sheet 3

Fig. 3



Inventor
E. A. Glynn

By Lorenz & Webster

Attorneys

Jan. 15, 1946. E. A. GLYNN 2,392,914

DRY CONCENTRATING TABLE

Filed May 14, 1943 4 Sheets-Sheet 4

Fig. 4

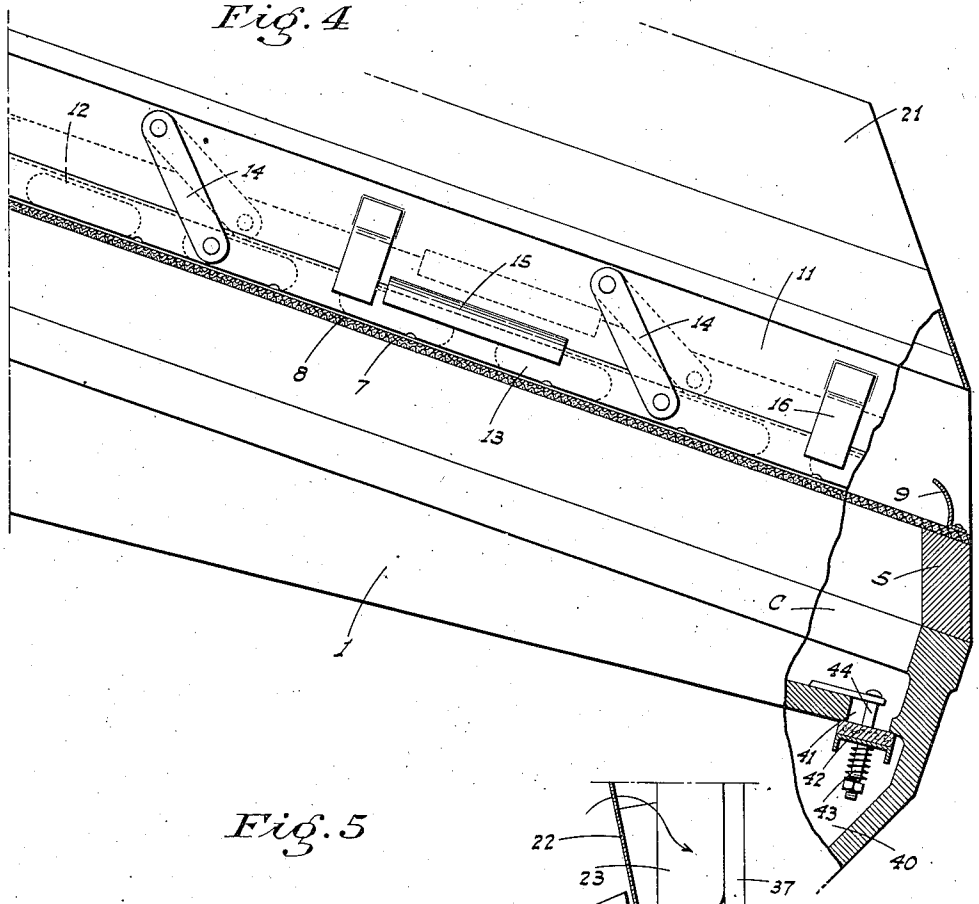
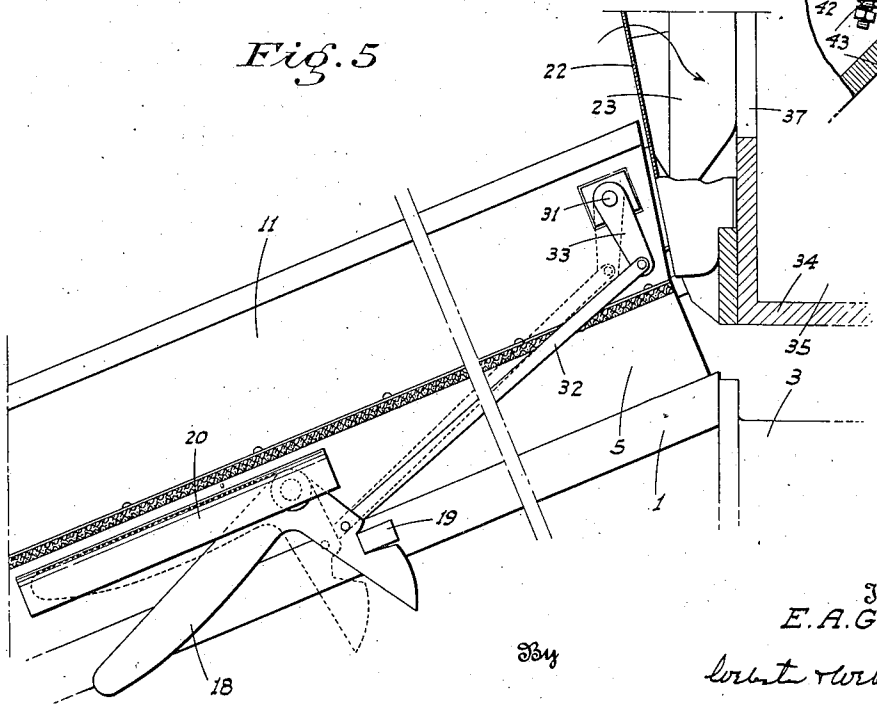


Fig. 5



Inventor
E. A. Glynn

By

Attorneys

Patented Jan. 15, 1946

2,392,914

UNITED STATES PATENT OFFICE

2,392,914

DRY CONCENTRATING TABLE

Edwin A. Glynn, Lodi, Calif., assignor to Super Mold Corporation of California, Lodi, Calif., a corporation of California

Application May 14, 1943, Serial No. 486,962

6 Claims. (Cl. 209—490)

This invention relates in general to the art of recovering precious metals or values from finely conditioned ore by the process known as dry concentrating, and in particular the invention is directed to, and it is an object to provide, an improved pneumatically actuated dry concentrating table of the transverse riffle type; said table being especially designed for use in connection with a dry concentrator of the kind as is shown, for example, in U. S. Letters Patent No. 2,148,068.

Another object of the present invention is to provide a dry concentrating table assembly which includes a table having transverse riffles, said table being mounted for lateral tilting movement toward one side from a normal transversely horizontal position, and including normally closed but openable ports in the corresponding upstanding side of the table at the ends of the riffles whereby when the ports are opened and the table tilted laterally, the values or concentrates accumulated in the riffles are quickly and readily discharged through said ports into a catch bin or the like.

An additional object of the invention is to provide a dry concentrating table assembly as in the preceding paragraph, which includes an ore deflector plate extending transversely across the concentrating table at the head thereof, said deflector plate normally projecting in adjacent relation under an ore chute disposed above and slightly beyond the upper end of the table, and said deflector plate being swingably mounted on the table whereby when swung to a predetermined position to clear said chute and permit unobstructed lateral tilting of the table; there being a manually releasable latch normally preventing tilting of the table, and means between said latch and the deflector plate to swing the latter clear of the chute when said latch is released preparatory to tilting of said table.

A further object of this invention is to provide, in a dry concentrating table assembly of the type described, and which includes an inclined pressure-vacuum chamber below the riffle table, an automatically functioning gate mounted at the lower end and in the bottom of said chamber, said gate opening and closing with alternation of the pressure and vacuum in said chamber, whereby when the gate is open to discharge into the catch bin therebelow any values or concentrates which may feed through the fabric-topped table into said chamber, thus recovering values heretofore difficult of recovery.

It is also an object of the present invention to provide a dry concentrating table of the fabric-topped pneumatically actuated type, which includes, in combination with a border frame having spaced transverse riffle supporting ribs mounted therein, a taut screen covering the frame and ribs, the fabric being applied on top of said screen and secured to the frame, whereby the screen limits up-and-down play of the fabric, producing more uniform action and increasing the life thereof.

A further object of the invention is to produce a simple and inexpensive device and yet one which will be exceedingly effective for the purpose for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a foreshortened plan view of the improved dry concentrating table, with the lid removed.

Figure 2 is an enlarged fragmentary cross section on line 2—2 of Fig. 1.

Figure 3 is a fragmentary longitudinal section on line 3—3 of Fig. 2.

Figure 4 is a fragmentary side elevation, partly in section, of the concentrating table, taken at the discharge end thereof.

Figure 5 is a fragmentary side elevation, partly in section, taken from the side opposite Fig. 4, showing the upper or ore receiving end of the table; the lid being removed.

Referring now more particularly to the characters of reference on the drawings, the improved dry concentrating table assembly comprises an elongated, downwardly inclined pan 1 which is transversely horizontal; said pan being rectangular and initially open at the top, and at its upper end being formed with a port 2 of substantial size. At said upper end the pan is fixed in connection with a matching open-ended housing 3 in which pressure and vacuum are alternately created by means including a rotary valve and as shown in the hereinbefore identified United States patent. The pan 1 is supported adjacent its lower end by suitable means such as a horizontal frame member 4.

An initially separate, rectangular concentrating table matchingly seats on the initially open-topped pan 1, said table comprising a rectangular bordering frame 5 which includes a plurality of transverse riffle supporting ribs 6 disposed in spaced parallel relation. A sheet of metallic screen 7 is secured on and covers the frame 5 at the top, said screen being taut and a sheet of

relatively tightly woven fabric 8 is stretched over the screen in covering relation thereto and secured to the frame 5.

Upstanding transverse riffles 9 extend across the table above and parallel to each rib 6 to which said riffles are secured; the riffles from end to end thereof seating firmly against the fabric on the table. The riffles are curved outwardly and upwardly as shown to form transverse values or concentrate-accumulating pocket 10. The table includes full-length upstanding sides 11 of substantial height disposed at the ends of the riffles, one of said sides having ports 12 therethrough at the end of corresponding riffles 9.

The ports 12 are normally closed by a one-piece closure plate 13 mounted for upward and downward sliding movement on the outside of said one side of the table by means of parallel pivotally mounted links 14. The closure plate 13 includes a laterally projecting finger grip 15 by means of which the operator can raise or lower the closure plate 13; said plate being held in place for such movement by guides 16.

On the same side as the ports 12, the table is hinged at opposite ends as at 17 for upward and lateral swinging movement; such movement normally being prevented by means of an inverted L-shaped latch 18 pivotally mounted on the opposite side of the frame 5 and normally engaging a latch element 19 on the adjacent portion of the pan. The latch 18 cooperates with a fixed grip 20 on frame 5 above said latch, and by which the table is tilted when the latch is pulled up to a release position.

The above described concentrating table is normally covered from end to end by a removable lid 21 which seats on the upper edges of the sides 11 of the table; said lid being closed at its lower end whereby the table is open at said end only for the height of the sides 11.

At its upper end, which is open, the lid 21 matchingly engages with an ore feed chute housing, indicated generally at 22, and which housing includes a chute 23 formed and mounted to communicate with the feed opening 24 of a feed hopper 25 mounted some distance above and beyond the upper end of the concentrating table; passage of ore through the feed opening 24 being controlled by a slide gate 26 operated from above. At its lower end the chute 23 is formed with a forwardly inclined bottom 27, said bottom portion 27 terminating at a point to permit of lateral tilting movement of the concentrating table assembly without obstruction; i. e., the discharge point of the chute bottom 27, as indicated by the broken line 28, is somewhat ahead and above the extreme upper end of the concentrating table. In order to assure that ore from the chute be deposited on the table a deflector plate 29 extends transversely of the table from side to side thereof, said plate being of a width that it normally projects well under the chute 23, as well as normally overhanging the upper portion of the table. This plate is swingably mounted by arcuate arms 30 in depending relation from across shaft 31, whereby said plate 29 may be swung forwardly to clear the chute 23, and particularly the bottom 27 thereof, preparatory to lateral tilting of the concentrating table.

This forward swinging of the deflector plate is accomplished automatically when the latch 18 is released, by means of a pull link 32 which pivotally connects between the latch 18 and the outer end of a radial arm 33 secured on the adjacent end of cross shaft 31. With movement of the latch 18 to released position, the link 32 is pulled to swing the arm 33 to the position shown in dotted lines in Fig. 5, whereupon the deflector plate 29 is swung forwardly to the position shown in dotted lines in Fig. 3. With the deflector plate in such position, the concentrating table can be tilted laterally without obstruction.

The chute housing engages at the back and to the sides of chute 23, with a hollow housing 34 having a suction chamber 35 which is constantly in communication with the suction pump (not shown) of the ore concentrator substantially as in the identified patent. To the sides of chute 23 the chute housing 22 includes passages 36 which communicate with ports 37 in the housing 34; said passages 36 being partially baffled at the front by baffle skirts 38 whereby the upward air flow over the concentrating table, and which is caused by the vacuum in chamber 35, must flow directly over the ore discharging from chute 23 before entering passages 36. This accomplishes more effective carry-off of the dust from within the lidded concentrating table, and which dust is more intense at the point of entry of the ore.

In operation, the ore from the hopper 25 feeds through chute 23 onto the deflector plate 29, which in turn discharges the material onto the concentrating table above the uppermost riffle 9. As in the identified patent pressure and vacuum is created alternately in the housing 3 and consequently in the chamber C of pan 1. This alternate pressure and vacuum produces an up and down pulsating motion of the fabric 8 between the riffles 9, causing values or concentrates to collect in the pockets 10, while the lighter material is thrown over the riffles and feeds down the table, ultimately discharging from the lower end thereof into a carry-off chute which is disposed substantially at point 39.

After a predetermined length of time flow of ore onto the concentrating table is shut off and the table continued in operation until all of the non-values material has been discharged from the lower end of said table. Thereafter the latch 18 is released, which automatically swings the deflector plate 29 forwardly, and then the table is tilted laterally. This causes the values or concentrates in pockets 10 to run toward the ports 12, which are opened so that said values discharge therethrough and fall laterally of the concentrating table into a catch bin or chute 40.

In operation of this type of dry concentrating table certain of the very fine values or concentrates find their way through the fabric 8 and fall into the bottom of the sloping pan 1. In order to facilitate recovery of these values from the lower end of said pan the following arrangement is provided:

The pan 1 at the bottom and at its lower end is formed with a transverse slot 41 therethrough, said slot normally being closed from below by means of a matching resiliently faced valve 42 which is yieldably held in place by springs 43 which engage said valve from underneath. The springs are carried on fixed bolts 44 which extend in guiding and relatively slidable relation through the valve.

The values which fall into the pan sooner or later find their way down the bottom of said pan and into the slot 41; the valve 42 remaining closed when vacuum is created in pan chamber C but being opened automatically when pressure is created in said chamber. Thus, when the valve 42 opens the values which have accumulated in slot 41 are blown downwardly and out of said

slot into the catch bin 40 below the concentrating table assembly.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. Concentrate discharge mechanisms for a concentrating table which includes transverse riffles and upstanding sides at the ends of said riffles; said mechanism comprising means mounting said table for lateral tilting movement about an axis along one side of said table, said one side of the table having ports therethrough at the ends of the riffles, and movable closure means normally closing said ports, concentrates accumulated in said riffles being discharged therefrom upon lateral tilting of the table and opening of said ports said movable closure means comprising a closure plate slidably engaging said one side on the outside thereof, and parallel links connecting said closure plate with said one side for movement to and from a port closing position.

2. Concentrate discharge mechanism for a concentrating table which includes transverse riffles and upstanding sides at the ends of said riffles; said mechanism comprising means mounting said table for lateral tilting movement toward one side, said one side of the table having ports therethrough at the ends of the riffles, movable closure means normally closing said ports, concentrates accumulated in said riffles being discharged therefrom upon tilting of the table and opening of said ports, a releasable latch operative to normally prevent tilting movement of the table, a transverse ore deflector plate extending across the table at its upper end and normally projecting beyond said end of the table, means mounting said deflector plate for predetermined shifting movement toward the table means, and actuating means operative to so shift said plate upon release of said latch; said deflector plate being adapted to normally be disposed under and adjacent an ore feed chute, and when so shifted toward the table to be clear of said chute, whereby to permit of unobstructed lateral tilting movement of the table.

3. A concentrate discharge mechanism as in claim 2 in which said latch includes a release handle pivotally mounted on one side of the table; the deflector plate mounting means being a transverse shaft, and said actuating means for said plate comprising a radial lever fixed on said shaft on the same side of the table as said handle, and an actuating link pivotally connecting said handle and lever.

4. A concentrates discharge mechanism for a concentrating table including with said table, means mounting the table for lateral tilting movement to discharge, a fixed ore feed chute disposed at one end of the table, a deflector plate mounted on the table and normally overhanging said one end of the table and projecting under the adjacent end of the feed chute and means to move the plate to a position clear of the chute prior to a tilting movement of the table.

5. A concentrates discharge mechanism for a concentrating table including with said table, means mounting the table for lateral tilting movement to discharge, a fixed ore feed chute disposed at one end of the table, a deflector plate mounted on the table and normally overhanging said one end of the table and projecting under the adjacent end of the feed chute, a releasable latch normally preventing tilting of the table and including a movable release member mounted on the table, and means between the member and the plate to move the latter clear of the chute upon movement of said member to a release position.

6. Concentrate discharge mechanism for a concentrating table which includes transverse riffles and upstanding sides for said riffles; said mechanism comprising means mounting said table for lateral tilting movement about an axis extending along one side of said table, said one side of the table having ports therethrough at the ends of the riffles, and movable closure means normally closing said ports, concentrates accumulated in said riffles being discharged therefrom upon tilting of the table laterally and opening of said ports, said movable closure means comprising a closure plate slidably engaging said one side on the outside thereof, parallel links connecting said closure plate with said one side for movement to and from a port closing position, guide elements maintaining the closure plate in face to face relation with said one side, and a hand grip secured on and projecting outwardly from the closure plate.

EDWIN A. GLYNN.