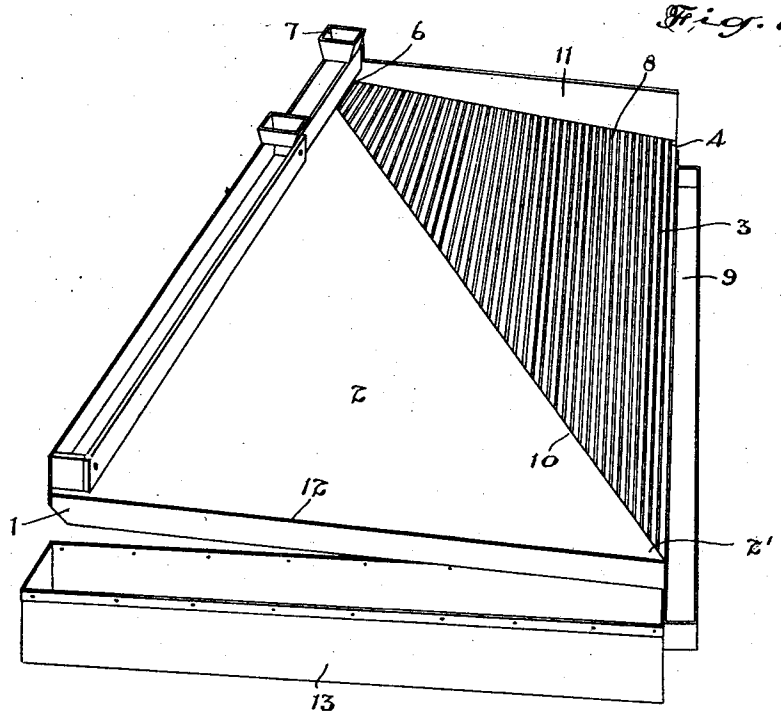
Nov. 18, 1930. F. C. DYER 1,781,810

ORE CONCENTRATING TABLE

Filed Feb. 3, 1928

Fig. 1.



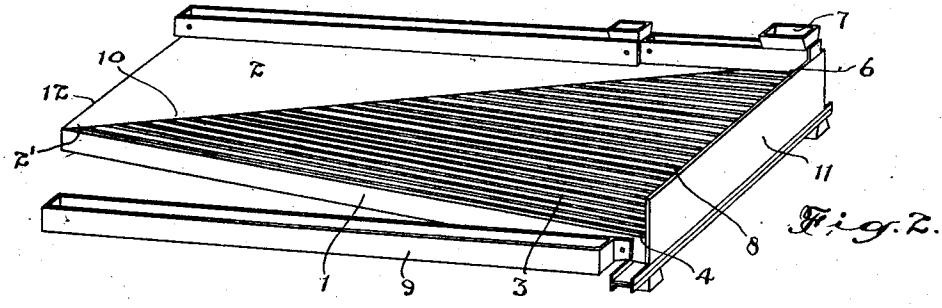


Fig. 2.

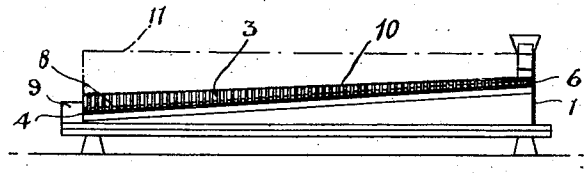


Fig. 3.

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UNITED STATES PATENT OFFICE

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ORE-CONCENTRATING TABLE

Application filed February 3, 1928. Serial No. 251,607.

The principal objects of the invention are, to effect economy in the process of separating the concentrates from the gangue or tailings, and to devise a construction of table which will utilize the maximum area for dissipating the non-valuable portion of the ores.

The principal feature of the invention consists in the novel construction of the concentrating table, whereby the plane of the table is depressed in a diagonal direction outwardly and toward its receiving end.

In the drawings, Figure 1 is a perspective view of my improved table looking at the discharge end.

Figure 2 is a perspective view on a reduced scale looking from the receiving end.

Figure 3 is an end elevational view looking at the receiving end with the end board removed.

In the ordinary form of concentrate table the surface is arranged in a common plane which slopes from the feed to the delivery side and the table usually lies horizontally in its length or very slightly inclined toward the receiving end.

The terminal tapered ends of the riffles usually extend in a diagonal direction from the feed side of the table to the outer discharge end corner and it is usually found that as the table is reciprocated back and forth, the concentrates follow the diagonal line of the end of the riffles and spill over the discharge end of the table into a suitable trough receptacle and the tailings follow the general direction of trend of the diagonal line formed by the riffles and spill over the longitudinal edge of the table adjacent to the discharge end.

Such tables are very commonly used and they have certain distinct limitations of capacity and will handle a certain definite tonnage of ore in a certain definite period of time.

It is the object of this invention to increase the tonnage per time unit handled by a concentrating table and the result is accomplished in a very simple but most effective manner.

The table 1 is constructed of the usual dimensions but it is so formed that the portion 2 of the table surface to the upper side of the diagonal line extending from near the feed corner to near the outer discharge corner 2′ is of the customary slope and arrangement, but the portion 3 of the table extending backward from the diagonal line toward the feed end and along the tailings discharge side, is sloped away from the diagonal in a downward direction so that the corner 4 at the feed end is depressed considerably below the level of the discharge corner 2′ and it is also considerably lower than the feed corner 6.

The table is reciprocated upon suitable supports in the usual manner and the crushed ore is fed on to the table surface through a suitable feed sluice to the hopper 7 arranged adjacent to the feed corner 6 and the material thus deposited is immediately spread out by the reciprocating action of the table.

The rapid downward slope of the end 8 from the feed corner to the trough 9 which extends in a line depressed below the diagonal line 10 effects a very quick separation of the larger particles so that they roll down over the riffles and become distributed over the feed end of the table right close to the end board 11 and they continue in their downward course with very little end movement and are delivered into the trough 9.

The small particles of lighter rock progress farther forward along the riffles before being discharged and so on the graduated particles are spread out over the entire riffle surface while the concentrates are taken care of in the usual manner by dropping through to the linoleum surface and being washed therealong between the riffles, the concentrates being carried as usual on the upper surface 2 to the discharge end 12 and are delivered into the trough 13.

The result of this novel construction of the table surface is that practically the entire area of the riffle portion is covered with crushed rock during the separation process.

It has been proven in practice that the usual form of table quite adequately takes care of the concentrates and prevents any waste and the present table has been designed to produce a very definite increase in the volume of tailings.

The result of this novel construction is that a very great increase in the quantity of ore handled per unit of time is effected and without detrimental interference with the results in securing the values from the ore.

I have not described any particular framing or constructional detail of the table, other than that it is formed with a plane sloping from the feed side and also sloping from a diagonal extending substantially from the feed corner to the discharge corner.

What I claim as my invention is:—

1. A concentrating table having a sloping plane surface extending from the upper feed side to a diagonal sloping to the discharge end, and a riffle surface extending downwardly from said diagonal to the tailings discharge side, the riffled surface being inclined longitudinally upwardly from the head end to the diagonal.

2. A reciprocating ore concentrating table having a surface presenting two plane areas one at each end of the table and connected by a common straight dividing ridge line, the transverse slope of the feed end of said table being materially greater than that of the discharge end, and such that the lower corner of said feed end is depressed below the horizontal level of the discharge end corner of said table, said table being sloped obtusely downward from the ridge line toward the discharge end thereof.

3. A reciprocating ore concentrating table having a surface presenting two plane areas, the meeting sides of which are refined by a common straight line ridge extending diagonally of the table from near the feed corner to the opposite corner, each of said plane surfaces sloping transversely downward in the same direction from the feed side of the table, the upper of said surfaces sloping toward the discharge end, and the lower of said surfaces sloping longitudinally downward toward the feed end, the feed end of said table presenting a greater transverse slope than the discharge end and having its lower corner depressed below the horizontal level of the discharge end corner of said table.

4. A reciprocable ore concentrating table having its surface formed with two substantially plane surfaces each permanently fixed and sloping obtusely downward relative to the other from a common diagonally disposed straight line ridge extending continuously from corner to corner of the table, each of said surfaces being sloped in opposite directions longitudinally from said ridge and sloped laterally, the lateral slope of the feed end surface being materially greater than the slope of the other, and such that the lower corner thereof is depressed below the horizontal level of the corresponding lower corner of the other surface, and means for feeding the material to be classified on to the surface having the greatest slope.

5. A reciprocable ore concentrating table having its surface formed with two substantially plane surfaces each sloping obtusely downward relative to the other from a common diagonally disposed straight line ridge extending continuously from corner to corner of the table, each of said surfaces being sloped downwardly in opposite directions longitudinally from said ridge and sloped laterally, the lateral slope of the feed end surface being materially greater than the slope of the other, and such that the lower corner thereof is disposed below the horizontal level of the corresponding corner of the other plane surface, riffles secured to the plane surface having the greatest slope, said riffles extending in a direction parallel with the direction of reciprocation of the table from the end thereof and terminating at said ridge line and means for feeding the material to be classified on to said riffled surface at the upper side of said table.

6. A reciprocating ore concentrating table having a surface presenting two plane areas, the meeting sides of which are defined by a common straight line ridge extending diagonally of the table from near the feed corner to the opposite corner, each of said plane surfaces sloping transversely downward in the same direction from the feed side of the table and in opposite directions longitudinally from the ridge line, the feed end of said table presenting a greater transverse slope than the discharge end, one of said plane areas having riffles arranged thereon extending longitudinally from the head end of the table and terminating at the diagonal dividing ridge leaving the other surface plain, the lower corner of said riffled plane area being lower than the remaining portions thereof, and below the horizontal level of the corresponding corner of the plain unriffled surface, and means for feeding the material to be classified on to the riffled portion of said table at its highest side.

FREDERICK C. DYER.