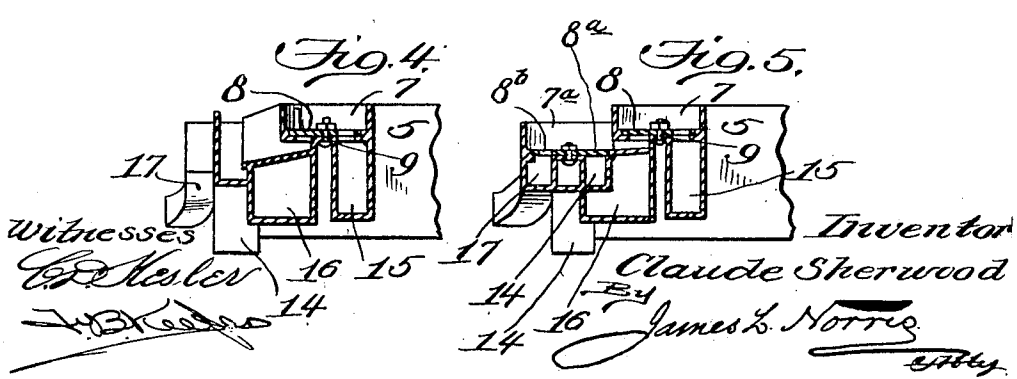
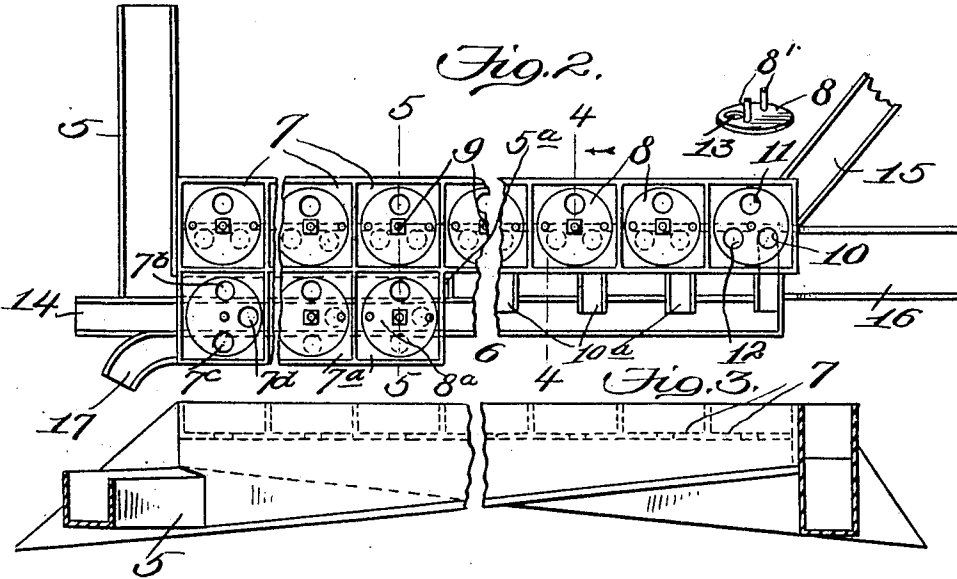
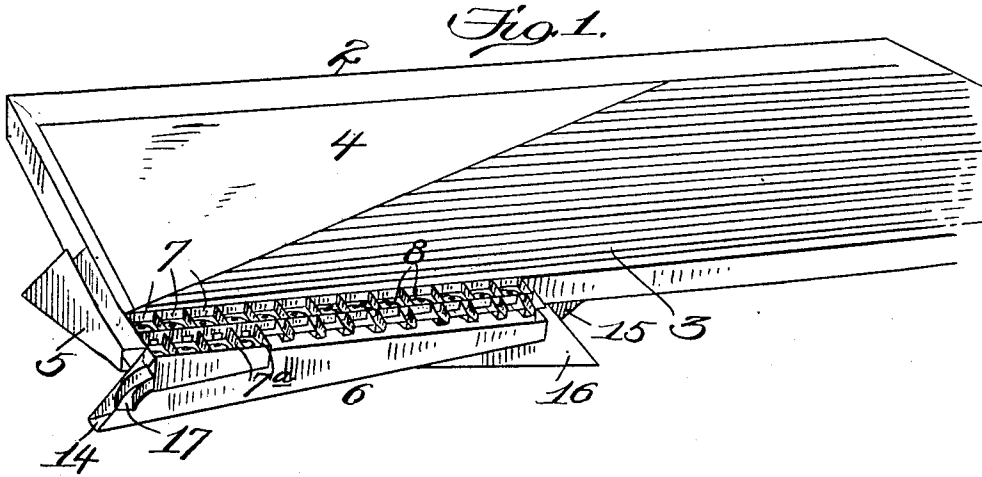


C. SHERWOOD.
ORE CONCENTRATING TABLE.
APPLICATION FILED NOV. 5, 1907.

906,464.

Patented Dec. 8, 1908.



UNITED STATES PATENT OFFICE.

CLAUDE SHERWOOD, OF BLACK BEAR, IDAHO, ASSIGNOR OF ONE-HALF TO ISRAEL WALKER, OF TAFT, MONTANA.

ORE-CONCENTRATING TABLE.

No. 906,464.

Specification of Letters Patent.

Patented Dec. 8, 1908.

Application filed November 5, 1907. Serial No. 400,876.

To all whom it may concern:

Be it known that I, CLAUDE SHERWOOD, a citizen of the United States, residing at Black Bear, in the county of Shoshone and State of Idaho, have invented new and useful Improvements in Ore-Concentrating Tables, of which the following is a specification.

This invention relates to ore concentrating tables, and particularly to an attachment to effect in a rapid and thorough manner proper grading or separation of metallic values without possibility of their subsequent accidental mixtures, waste, or the necessity of changing the adjustment or set of the table. The attachment may be employed with advantage in connection with various types of tables, but is of especial utility when used in connection with an endwise reciprocatory, transversely inclined table.

In the drawings: Figure 1 is a perspective view of a concentrating table provided with an attachment embodying my invention. Fig. 2 is a top plan view of the attachment detached from the table, one of the valves, hereinafter particularly described, being separated from said attachment and in perspective. Fig. 3 is a view of the attachment as seen from the table, two of the troughs thereof being in section. Figs. 4 and 5 are cross-sectional views on the lines 4-4 and 5-5, respectively, of Fig. 2.

Like characters refer to like parts throughout the several figures of the drawing.

In Fig. 1 a table of known type is shown and generally designated by the numeral 2, and is transversely inclined and given an endwise or longitudinally vibratory or reciprocatory motion by any suitable means for the purpose of stratifying the pulp supplied thereto. This table has on its upper side longitudinally disposed riffles with their forward ends arranged in step order or are upon a line extending diagonally of the table so as to leave a clear space, as 4, along which the lead separated from the pulp on the motion of the table is fed, the lead, when it leaves the table, falling into an inclined trough 5 secured to the head end of the table in any suitable manner. This trough is one feature of the improvement and directs the lead delivered thereinto into any suitable receptacle. The other feature of the improvement is designated in a general way by

6 and comprises several troughs, hereinafter more particularly described.

In addition to troughs, the member 6 includes an inner row of connected pockets 7 of any desirable number and disposed along the lower side of the table 2 commencing at the head end and extending toward the tail end of said table. Into these pockets lead and zinc middlings and other constituents are delivered and disposed of by means within the control of an attendant, as will be hereinafter made clear. The pockets or compartments may be made in one piece of any desirable metal or other suitable material, and while they may be of any shape they are represented as being substantially square. Each pocket 7 is shown as having countersunk in the bottom thereof a disk valve 8 provided with a pivot 9. The several valves 8 are operated by diametrically opposite handles 8' connected thereto and are held in their adjusted positions preferably by friction. By countersinking the valves in the bottoms of the respective pockets or partitions 7, said bottoms will not present on their upper surfaces any projections or protrusions upon or against which mineral values or the like might lodge or catch. In the bottom of each pocket or compartment 7 are three holes 10, 11 and 12. Each rotary disk valve 8 has through it a single hole or perforation 13 adapted to register with any one of the three holes or openings 10, 11 or 12 in the bottom of its respective pocket or compartment 7 for a purpose that will hereinafter appear.

In addition to the inner series of pockets 7 there is a second or outer series of pockets 7^a, and these pockets 7^a may be of any number; for instance, if thirteen of the pockets 7 are provided, four of the pockets 7^a would be preferably used. The numbers of the two series of pockets are simply mentioned, however, by way of illustration and will depend somewhat upon the size of the table and dimensions of the pockets. The pockets 7^a are constructed like the pockets 7 in all particulars, including the bottom openings, but to avoid confusion and facilitate an understanding of the apparatus, the openings in the pockets 7^a are designated by the characters 7^b, 7^c and 7^d, respectively, the pockets 7^a containing valves 8^a each provided with a single opening 8^b and operating and con-

5 structured exactly like the valves 8. The
 pockets 7^a are coincident with the first four
 of the pockets 7, by virtue of which the
 first four pockets 7 can discharge respectively
 10 into the pockets 7^a. The primary purpose
 of the pockets 7^a is to provide for the proper
 disposal of the iron that passes over the
 lower side of the table near the front end
 thereof, although these pockets can be used
 15 to dispose of the zinc or lead which may
 be therein by manipulating the valves 8.
 The valve 8 of each pocket 7 will be turned
 to register the opening 13 of the valve with
 the openings 10, 11 and 12 in accordance
 20 with the character of the material flowing
 into the several pockets, and if zinc flows
 into the pockets the opening 13 of the valve
 8 will be caused to register with the opening
 10; if middlings of zinc and lead are direct-
 25 ed into the pockets the openings 13 of each
 valve will be placed in registration with the
 openings 11, and if tailings flow into the
 pockets the openings 13 of the valves will
 be caused to register with the openings 12.
 In other words, the several valves 8 will be
 30 positioned to relieve the pockets of their
 contents in relation to the several troughs
 in accordance with the particular character
 of the material flowing into the pockets
 from the table. The registration of the
 opening 13 with any one of the bottom open-
 35 ings 10, 11 and 12 will result in a closure of
 the remaining two openings. It is the cus-
 tom to return the middlings back onto the
 table to be worked over, while the tailings
 can be deposited in a heap and also worked
 over at desired intervals.

Practically the same operation may be
 effected in the pockets 7^a as above noted or
 40 when materials of different kinds solely oc-
 cupy these latter pockets and under this
 condition of sole occupation of the pockets
 when the opening 8^b of each valve 8^a regis-
 ters with the opening 7^a, this is for the
 45 purpose of directing zinc through said open-
 ing 7^a. When the opening 8^b in said valve
 8^a registers with the opening 7^b, this is for
 the purpose of permitting lead to pass
 through said opening 7^b, and when the open-
 50 ing in said valve 8^a registers with the open-
 ing 7^c, this is for the purpose of causing
 iron to pass through said opening 7^c. By
 the manipulation, therefore, of the several
 valves or any one or more of them, the
 55 proper grading of the values and other ma-
 terials that pass off the table can be obtained.

The member 6 is provided with four longi-
 tudinally extending troughs 14, 15, 16 and
 17, the trough 14 being adapted to receive
 60 the pure zinc, the trough 15 the zinc and
 lead middlings, the trough 16 the tailings,
 and the trough 17 the iron. The trough 14
 discharges the mass within it forwardly or
 toward the head end of the table; the trough
 65 16 discharges the tailings therein toward the

rear or tail end of the table; the trough 15
 discharges into the middlings elevator, not
 shown, and the rear end of said latter trough
 is represented as somewhat deflected or in-
 wardly disposed for this purpose, and the
 70 trough 17 causes the delivery of the iron in
 a forward and slightly lateral direction.
 The four troughs and the trough 5 herein-
 before described are separated from each
 other in a watertight manner so as to pre-
 75 vent possibility of mixture of the materials
 therein, and the said troughs may be dis-
 posed in coöperative relation to the pockets
 7 and 7^a of the attachment in any desirable
 manner.

80 From the under side of the openings 10
 in all the pockets 7, except the first four of
 the latter, spouts 10^a project for the delivery
 of zinc which may pass through said open-
 85 ings 10 into the zinc trough 14. When the
 openings 13 of the several valves 8 register
 with the openings 11 of the pockets 7, lead
 middlings will be directed into the trough
 15. When the openings 13 of said valves 8
 register with the openings 12, the tailings
 90 will be delivered into the trough 16. When
 the openings 13 of the valves 8, except the
 first four thereof, register with the openings
 10, zinc will be directed by way of the spouts
 10^a into the trough 14, and when the open-
 95 ings 13 of the first four valves 8 register
 with the openings 10, the contents of said
 first four pockets 7 will be directed into the
 companion or outer pockets 7^a. The mate-
 100 rials delivered into the outer pockets 7^a will,
 therefore, be released and recovered in ac-
 cordance with the positions of the valves 8^a.
 Should the opening 8^b in one or all of the
 valves 8^a register with a coöperating opening
 or openings 7^a, zinc will be directed from
 105 the pocket or pockets 7^a into the trough 14.
 Should the opening 8^b in any one of said
 valves 8^a register with the coöperating open-
 ing 7^b, lead will be delivered from the first
 four pockets into the trough 5, said trough
 110 5 having an angular extension 5^a, as shown
 in Fig. 2, which extends under the several
 openings 7^b. Should the openings in the
 four valves 8^a register respectively with the
 openings 7^c, this will be for the purpose of
 115 directing iron into the trough 17. There-
 fore, by the manipulation of the several
 valves the constituents discharged from the
 table may be separately recovered or prop-
 erly graded. Should the valves 8^a be set for
 120 effecting the discharge of iron into the
 trough 17, and should it be seen by an at-
 tendant that zinc or lead is being delivered
 into the pockets 7^a, such latter materials can
 be directed into the proper troughs by a
 125 simple manipulation of the valves 8^a with-
 out changing the adjustment or set of the
 table, with respect to the pockets 7 and the
 valves 8.

From the foregoing description relating 130

to the discharge of the individual materials or substances through the outlets of the pockets 7 and 7^a and into the several troughs mentioned, it is not to be understood that
 5 different materials are simultaneously liberated from each pocket, but that when one kind of material is flowing into each pocket, that material may be liberated into the proper trough which has been devised for
 10 the purpose.

Having thus described the invention, what is claimed as new, is:

1. The combination of a concentrating table, a series of separate pockets extending
 15 along the discharge side of the table and each having a series of distinct outlets, a series of separate troughs to receive different classes of material from the outlets of the individual pockets, and shiftable means with
 20 an opening to register with the respective outlets for directing the different materials entering each pocket through the outlets into separate troughs.

2. The combination of a concentrating
 25 table, a lead receiving trough extending across the head end of said table, a series of separate pockets extending along a side edge of the table and each provided with a series of distinct outlets, separate troughs for receiving different materials from the indi-
 30 vidual pockets, and shiftable means in the pockets and provided with an opening for registering with the respective outlets for effecting the delivery of different materials through the said outlets into separate
 35 troughs.

3. The combination of a concentrating table, a series of pockets extending along an edge of said table for receiving material
 40 discharged therefrom, each pocket having several openings, a valve in each pocket having an opening therein to register successively with the respective openings in said pockets, and troughs to receive material dis-
 45 charged through the openings in said pockets.

4. The combination of an ore concentrat-
 50 ing table, a series of separate pockets extending along the discharge edge thereof, each pocket having at least three openings, a valve in each pocket having an opening adapted to register in succession with the re-
 55 spective three openings, two troughs discharging toward the rear end of the table for receiving material passing through certain of said openings, a third trough for discharging toward the front of the table, and spouts for conducting material from the
 60 pockets into said third trough.

5. The combination of an ore concentrat-
 ing table, separate pockets to receive materi-
 als discharged from said table and each
 provided with a series of distinct outlets,
 and rotatable means in each of the pockets

having a single opening and adapted to reg- 65
 ister in succession with said outlets for regulat-
 ing the discharge of different materials through the outlets.

6. The combination of a concentrating
 table, a series of separate pockets extending 70
 along the discharge edge of the table for receiving materials from the latter and each having a plurality of bottom openings, and shiftable means in each pocket provided with a single opening to register with the
 75 respective bottom openings of the pockets for controlling the discharge of different materials therefrom, the shiftable means closing the bottom openings not in registra-
 80 tion with the single opening therein.

7. An attachment for ore concentrating
 tables comprising a series of non-communi-
 cating pockets arranged in a row and each
 having a plurality of outlets, and movable
 means in the pockets for controlling the 85
 delivery of material from the several out-
 lets, each of the means having an opening to register with the outlets and when in regis-
 90 tration with one of the outlets closing the remaining outlets.

8. An attachment for ore concentrating
 tables comprising a series of pockets ar-
 ranged in a row and each having a plurality
 of outlets, a rotary valve in each pocket hav-
 ing an opening to register with the outlets 95
 in succession, and separate means for receiv-
 ing materials discharged through the outlets of the several pockets.

9. An attachment for ore concentrating
 tables comprising an inner series of pockets 100
 arranged in a row and each having a plu-
 rality of outlets, an outer series of pockets to receive materials from certain of the inner series of pockets and also having a
 105 plurality of outlets, and rotary valves hav-
 ing openings therein and disposed in the two series of pockets for controlling the dis-
 charge of materials from the latter, the openings in the valves being adapted to suc-
 110 cessively register with the outlets of the
 pockets.

10. The combination of a concentrating
 table, a series of pockets extending along the
 discharge side of the table, the pockets being
 non-communicating and provided with a 115
 plurality of outlets for discharging various
 materials at different points therefrom, and
 apertured means in the several pockets for
 successively opening and closing the outlets
 with relation to the interior of the pockets 120
 and to regulate the discharge of the various
 materials from each pocket.

11. The combination of a concentrating
 table, a series of pockets extending along the
 discharge side of said table, and a second 125
 series of pockets arranged beside the first
 mentioned series of pockets, each of the
 pockets being provided with a plurality of

outlets and adjustable apertured means for discharging various materials from the lower portions thereof at different points, a part of the first mentioned series of pockets having communication with the second series of pockets.

12. An attachment for ore concentrating tables comprising a series of pockets each having a plurality of outlets for discharging various materials at different points therefrom, apertured means movable within each of the pockets for successively opening and closing the outlets of the latter and to control the delivery of different materials from the said outlets, and a plurality of separate troughs into which the outlets of the pockets individually discharge.

13. An attachment for ore concentrating tables comprising a series of pockets each having a plurality of outlets, means operable at will for controlling the delivery of material from the several outlets, and a second series of pockets coincident with certain of the first mentioned series of pockets and adapted to receive materials from the latter through certain of said outlets, and means operable at will for controlling the discharge of materials from the second series of pockets.

14. An attachment for ore concentrating tables comprising a series of pockets each having a plurality of outlets, means for controlling the delivery of materials from the several outlets, and troughs corresponding in number with the outlets of each pocket, one trough being adapted to receive material from one outlet, and another trough being

adapted to receive material from another outlet.

15. An attachment for ore concentrating tables comprising a series of pockets each having a plurality of outlets, means for controlling the delivery of material from the several outlets, and troughs corresponding in number with the outlets of each pocket, one trough being adapted to receive material from one outlet, and another trough being adapted to receive material from another outlet, said troughs being out of communication with each other.

16. An attachment for ore concentrating tables comprising a series of pockets each having a plurality of outlets, and rotary valves countersunk in the bottoms of the respective pockets, each valve having an opening, and the valves rotatable to effect registration of the openings with certain of the outlets.

17. An attachment for ore concentrating tables, comprising two series of pockets arranged in rows side by side and each having a plurality of outlets, means for controlling the delivery of material from the several outlets, and troughs to receive such material, at least one of the troughs being common to both series of pockets.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

CLAUDE SHERWOOD.

Witnesses:

ELMER M. SUITER,
S. D. LEMIX.