

(No Model)

W. P. WYNNE & T. TREGURTHA.

CONCENTRATING TABLE FOR TREATING AURIFEROUS MATERIAL.

No. 582,570.

Patented May 11, 1897.

Fig. 1.

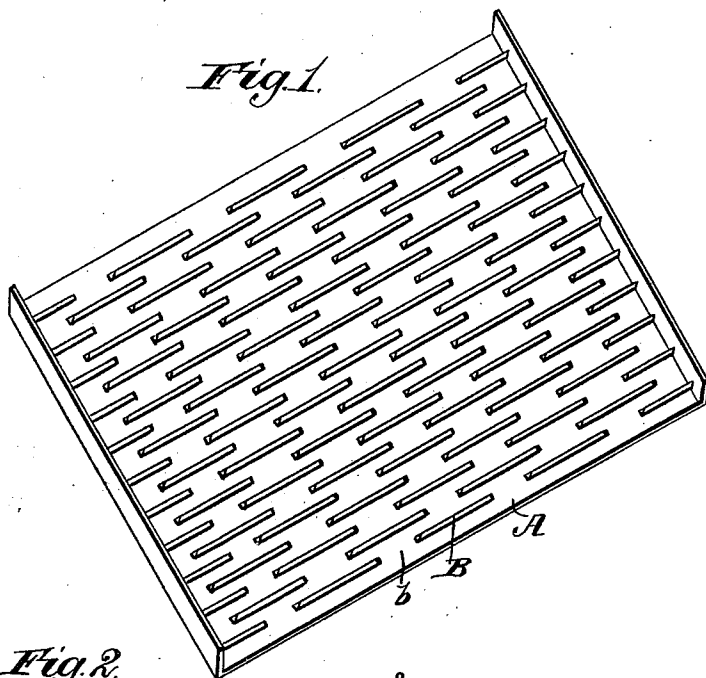


Fig. 2.

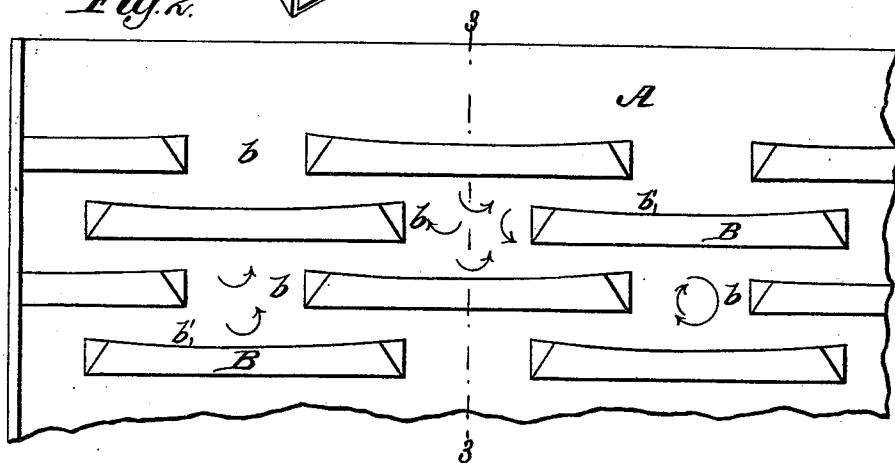
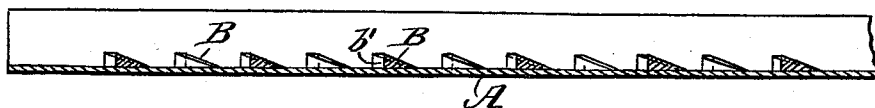


Fig. 3.



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UNITED STATES PATENT OFFICE.

WALTER PALMER WYNNE AND THOMAS TREGURTHA, OF BALLARAT,
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CONCENTRATING-TABLE FOR TREATING AURIFEROUS MATERIAL.

SPECIFICATION forming part of Letters Patent No. 582,570, dated May 11, 1897.

Application filed July 29, 1896. Serial No. 600,919. (No model.)

To all whom it may concern:

Be it known that we, WALTER PALMER WYNNE, manager, of 33 to 47 Armstrong Street, Ballarat, in the British Colony of Victoria, and THOMAS TREGURTHA, mining manager, of Speedwell Mine, Golden Point, Ballarat, aforesaid, subjects of the Queen of Great Britain, have invented an Improved Concentrating-Table for Treating Auriferous Material, of which the following is a specification.

The main object of this invention is to provide a table which will separate the particles of gold and pyrites from finely-crushed auriferous material without the use of quick-silver.

It consists, essentially, in an iron plate set at a suitable incline and formed with a number of rows of transverse ribs, ridges, or projections, preferably triangular in vertical cross-section and arranged with spaces between them endwise and in such manner that each rib alternates with two other ribs of the row next to it, the consequence being that the material flowing through the openings between the ribs and coming in contact with the face of the rib next to it produces, as it were, a small whirlpool, which causes the heavier particles of gold, as well as the pyrites, to deposit themselves, while the lighter particles of sand or quartz are carried away as tailings.

The accompanying drawings will serve to illustrate our invention, in which—

Figure 1 is a perspective view of our improved concentrating-table for treating auriferous material. Fig. 2 is a plan of a part of said table, drawn to a larger scale in order to better illustrate the arrangement of the ribs, ridges, or projections on it, while Fig. 3 is a vertical transverse section thereof on line 3 3, Fig. 2.

The same letters of reference indicate the same parts in all the figures.

A represents an inclined iron plate which is, according to our invention, formed or otherwise provided with rows of alternating ribs, ridges, or projections B. These are preferably made triangular in cross-section, as shown in Fig. 3, and they are so arranged that each one comes opposite to the space *b* be-

tween the two ribs in the next row, as clearly illustrated in Fig. 2.

The front side of each rib B is slightly curved, as shown at *b'* in Fig. 2, in order to assist in causing the small whirlpools to form, as indicated by the small arrows in said figure. By this means the heavier particles of material—that is, the gold and pyrites—are collected and the sand allowed to pass away to waste.

If preferred, more than one table might be employed, and they might be arranged in steps—that is, one at a slightly-lower level than the other.

We are aware that an amalgamating apparatus has been proposed having baffle-plates around which the material flows in order to bring the ore into intimate contact with the mercury. We make no claim to such an invention, as it would be impossible to use the same for our present purpose.

Our apparatus is a concentrator, and the material is intended to flow over instead of around the triangular ribs to form small whirlpools, by which the ore, sand, earth, &c., will be thoroughly agitated and the lighter parts carried away.

We construct the ridges or ribs B of the form shown, each being approximately in the form of a right-angled triangle in cross-section, the side corresponding to the base lying in the transverse line of the table, the side corresponding to the hypotenuse being inclined from the apex toward the lowest end of the board until it meets its surface, and the side corresponding to the perpendicular of said triangle being slightly concave at substantially a right angle to the board and facing toward the coming current. The ends of said ribs are beveled off or inclined in opposite directions, as best seen in Fig. 2.

By making the ribs B in triangular form in cross-section, with beveled or inclined ends and with inclined rear faces and slightly concave front faces, the latter being perpendicular to the surface of the table, we obtain the following results: The ribs thus formed being arranged at equal intervals of separation and in successive transverse lines upon the surface of an inclined table, the ribs in

one line alternating with those in the next, the water flowing over said ribs is thrown into rotation, as indicated by the arrows in Fig. 2, thereby forming water-pools in the open spaces between the ends of the ribs. This action is due to the inclined rear faces and beveled ends of the ribs, which offer less resistance to the flow of the water, and the rotary movement is primarily initiated by the concave vertical front faces of the ribs. By the latter the water is caused to recoil, and part thereof, being directed laterally, passes around each beveled end of a rib, the recoil, aided by the impetus given by the slightly-concaved front face of the rib, being relied upon to impart the rotary movement. When these whirlpools are once produced, they are maintained by the continuous flow of water over the table, and they have an important function in stirring up the disintegrated mass of ore and bringing every portion of it into movement. Moreover, these whirlpools detain the mass of ore upon the table longer. The rotary movement of the water in the open spaces also causes the small particles of gold and pyrites to be more perfectly separated and accumulated in the vortices, where they will remain, while the particles of quartz

and sand, as well as other material having less specific gravity than the pyrites and gold, will be thrown out of each vortex and carried off. The advantages of the construction are very important in all these respects.

Having now particularly described and ascertained the nature of our said invention, and in what manner the same is to be performed, we declare that what we claim is—

A concentrating-table consisting of an inclined iron plate having successive rows of transverse ribs, each rib being in cross-section, approximately in the form of a right-angled triangle, the base resting on and integral with the board, and the slightly-concaved face corresponding to the perpendicular standing at a right angle to the face of the board and facing toward the higher end, the ends of said ribs being suitably beveled, or inclined in opposite directions, and a space being allowed between the ends of ribs in the same row and between the successive, alternating rows of ribs, substantially as described.

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THOMAS TREGURTHIA.

Witnesses:

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