No. 621,986. Patented Mar. 28, 1899.

G. W. WILLIAMS.

CONCENTRATOR.

(Application filed Mar. 28, 1898.)

(No Model.)

Fig. 1.

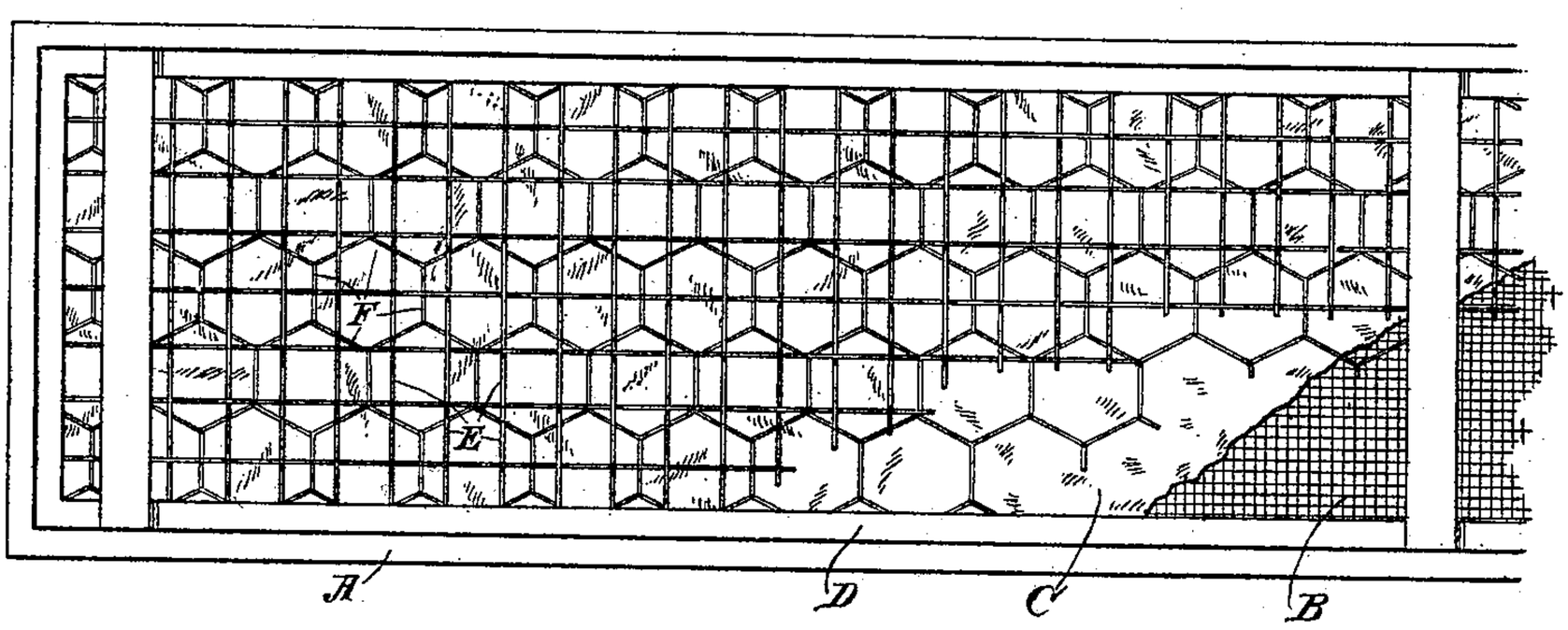
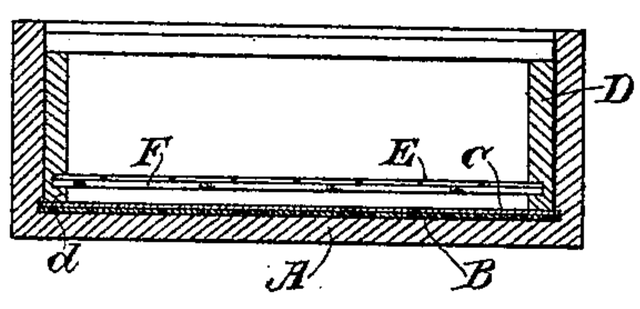


Fig. 2.



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UNITED STATES PATENT OFFICE.

GEORGE W. WILLIAMS, OF PAYETTE, IDAHO, ASSIGNOR TO THE WILLIAMS CONCENTRATOR AND AMALGAMATION COMPANY, LIMITED, OF IDAHO.

CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 621,986, dated March 28, 1899.

Application filed March 28, 1898. Serial No. 675,385. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. WILLIAMS, a citizen of the United States, residing at Payette, county of Canyon, State of Idaho, have invented an Improvement in Concentrators; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to an apparatus which is especially designed for the concentration of valuable heavy material and its separation from lighter pulp, slimes, or sand with which it may be associated.

My invention consists, essentially, of a combination of blanket and eider-down cloth with superposed screens so arranged with relation to the cloth and to each other that a large number of small openings are formed, in which the fine gold and black sand can reach the eider-down cloth and be retained thereby, while the peculiar disposition of the screens with relation to each other causes an under flow or current passing below the meshes of the screen rather than an overflow in the manner of ordinary riffles.

My invention also comprises details of construction, which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a plan view showing the arrangement of screens and also of the blanket and cloth. Fig. 2 is a lateral section of the same.

Various devices may be employed in carrying out this invention. I have found the following to be a convenient arrangement:

A sluice A is made of any length and width to suit convenience and set at a grade which will allow the material to flow through it. Upon the bottom is secured a blanket B, and upon the top of this is placed eider-down cloth C. These are held in place, and wire screens are fixed to a second framework D by a strip of wood or metal *d* about one-fourth of an inch thick, securely fastened along the lower edge of the framework D, which is sufficiently smaller than the sluice A so that the sides of the frame D will slip into it. This construction provides for a space under the fine-wire screen, and the undercurrent flowing through this space keeps the eider-down cloth moving up and down, causing a waving or whirling motion to the nap. This motion acts to settle the heavy gold and particles to the bottom of the nap, where it is retained until the nap is full.

The bottom of the framework D is covered with two layers of wire screen. The upper layer E is square-meshed, the meshes being approximately one-half an inch from center to center and the cloth made of No. 10 or No. 12 wire. The lower layer F is made of a hexagonal or square mesh, one inch across, so fitted that the edges of the coarse screen E will lap across the polygonal screen in an oblique direction. When the frame D is fitted into the sluice A and pressed down with the intervening strips above the eider-down cloth, the nap of the cloth will act as previously described, and the upper screen resting upon the lower screen forms thousands of small eddies, and a complete underflow between and through the screens will result. The nap of the cloth catches the heavy black sand and gold. The peculiar arrangement and superposition of the screens produce a flow through and between them which is especially serviceable in conjunction with the cloth in making a lodgment to catch and retain the valuable heavy material, while allowing the lighter portion to pass off. When a sufficient quantity of concentrates have been gathered, they are removed by lifting the screens and washing the eider-down cloth. The underlying blanket can also be washed at longer intervals.

Certain advantages exist in favor of my eider-down cloth and also in favor of the combination of such cloth and the blanket. Where "slimes," as they are called, are run over any closely-woven material, such as canvas or duck, it soon becomes so coated that everything will slip over it and be lost, whereas eider-down cloth is a loosely-woven goods, and when it is wet it is given a waving motion, caused by the current passing through the double wire screens. This motion constantly loosens up the material and causes the slimes, which cause most of the loss in fine gold, to pass through the eider-down cloth and settle in the blanket beneath. The combina-

tion of the two thus catch the small particles of gold which will pass through and which would otherwise be lost.

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

1. A concentrating-table consisting of a bottom having a blanket surface, a superposed surface of eider-down cloth, and superposed wire-nettings fixed above the cloth whereby an under current or flow beneath the netting is produced.

2. A concentrating-table consisting of a frame, a blanket fixed thereto, eider-down cloth superposed upon the blanket, a plurality of meshed wire screens fixed above the eider-down cloth, and consisting of a rectangular mesh screen resting upon the polygonal screen.

3. The combination in a concentrator of an inclined sluice having an eider-down cloth superposed upon a blanket surface on the bottom of said sluice, and wire-cloth screens of different mesh superposed upon each other and fixed above the surface of the eider-down cloth.

4. A concentrator consisting of a sluice of essentially upright sides, eider-down cloth superposed upon blanket material and fixed to form a bottom for said sluice, a second narrower sluice of similar form adapted to fit within the outer one, a bottom therefor formed of superposed screens of different mesh, and side strips beneath whereby the screens are raised above the fibrous surface of the outer bottom and an intermediate underflow is formed.

In witness whereof I have hereunto set my hand.

GEORGE W. WILLIAMS.

Witnesses:
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P. A. DEVERS.