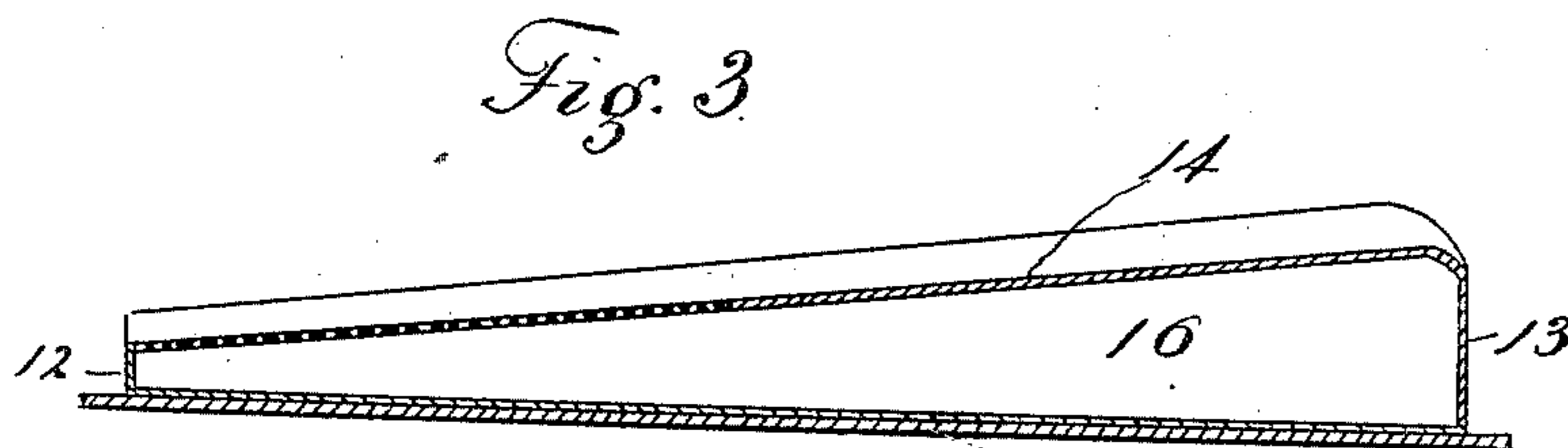
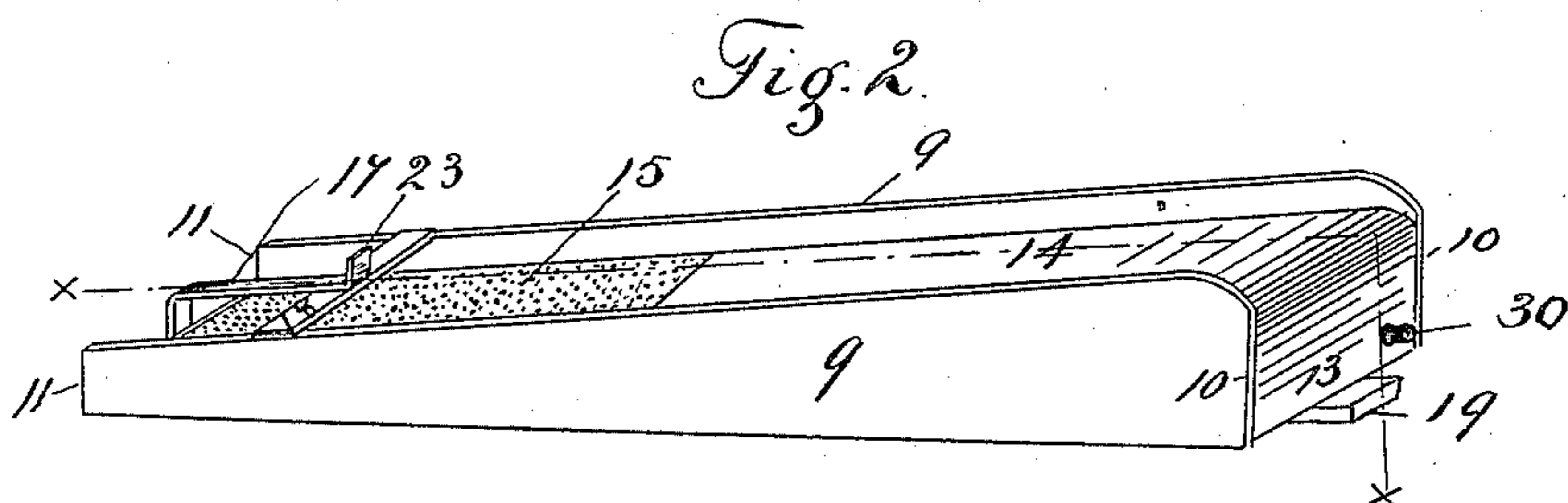
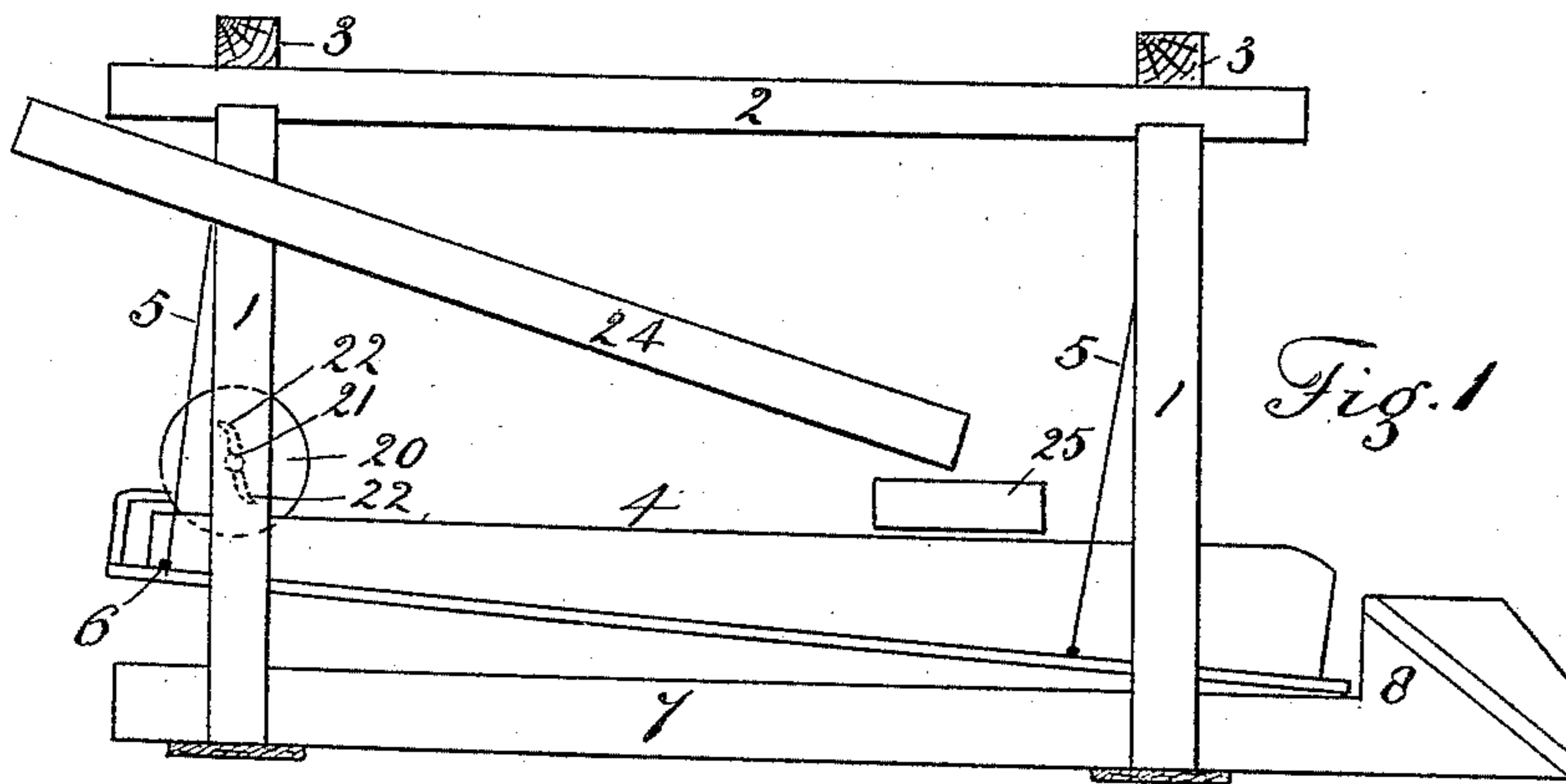


(No Model.)

F. C. L. SERGEANT.  
ORE CONCENTRATOR.

No. 444,785.

Patented Jan. 13, 1891.



WITNESSES:

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# UNITED STATES PATENT OFFICE.

FREDERICK C. L. SERGEANT, OF DENVER, COLORADO.

## ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 444,785, dated January 13, 1891.

Application filed February 10, 1890. Serial No. 339,846. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK C. L. SERGEANT, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Ore-Concentrators; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in ore-concentrators; and the object of my invention is to provide a device specially designed to catch the fine mineral which often times constitutes the larger proportion in value of mineral-bearing material and is too often lost because of the difficulty in obtaining a machine to successfully and economically handle this material.

My improved machine is designed to overcome the difficulty above mentioned and to successfully treat the class of ore referred to.

To this end my invention consists in the features hereinafter described and claimed.

In the drawings is illustrated an embodiment of the invention, in which drawings—

Figure 1 is a side view or elevation of my improved device supported in operative position within a suitable frame. Fig. 2 is a perspective view of the tank removed from the frame. Fig. 3 is a section taken longitudinally through the center of the tank shown in Fig. 2.

In the drawings, let the reference-numeral 1 indicate the vertical side bars, 2 the side top bars, and 3 the end top bars of a suitable frame within which my improved tank 4 is suspended by means of rods 5 or their equivalent. The lower extremities of these rods are suitably secured to the tank at 6, their upper extremities being made fast to the upper part of the frame in any suitable manner or in the ordinary way.

7 is the bottom of the frame, and 8 the end against which one extremity of tank 4 bumps during the operation of the device. The tank 4 is composed of the sides 9, which are wider at the end 10, whence they taper

gradually to the opposite end 11. The ends of this tank are closed at 12 and 13. The closure 13 turns abruptly at about two-thirds the height of the sides 9 and continues toward the opposite end of the tank, closing the top for a distance equal to about half its length, as shown at 14. The portion of sides 9 extending above the top 14 retains the material discharged thereon during treatment and prevents its falling over the sides of the tank. The portion 15 of the top of the tank is covered by a screen or sieve, and it is through this opening that the material from plate 14 passes into the inclosed receptacle 16 of the tank.

17 is a spring suitably secured to the end 12 of the tank. This spring is bent over and has a flanged extremity resting upon a cross-bar 18, secured within the two sides 9 of the tank.

To the bottom of the tank and projecting beyond the end 13 is a lug or plate 19, which engages the end 8 of the frame during the operation of the machine.

Motion is communicated to the tank 4 in any suitable manner.

As shown in the drawings, 20 is a pulley-wheel secured to a horizontal shaft 21. To this shaft are rigidly secured cams 22. Motion is communicated to the machine by running a belt or chain from any suitable motor to the pulley-wheel 21, causing the shaft to rotate and giving a rotary movement to the cams 22, which as they turn engage the flange 23 of the spring 17, giving a swinging or oscillating movement to the tank 4.

The tank is suspended in its frame about as shown in Fig. 1, though its inclination may be regulated to suit the purpose.

The material to be treated is fed to the machine through a chute 24 to a separator 25, from which it passes to the plate 14, together with a sufficient quantity of water for the proper treatment of the ore. As the material is fed to plate 14, the effect upon the ore of the movements of the table heretofore described will be to cause the heavier mineral to travel up over the end 13 of the table, where it may be caught in any suitable receptacle, while the finer and lighter mineral which is held in suspension by the water is carried by the force and natural flow of the

water through the screen, sieve, or foraminous opening 15 into the receptacle 16 below, whence it may be drawn off through the cock 30 as often as desired, or as often as the tank  
5 becomes full.

Having thus described my invention, what I claim is—

10 In an ore-concentrator, the tank inclosed by the sides 9, the ends 12 13, and the inclined top 14, the sides 9 extending somewhat above top 14, a foraminous opening 15, through which the lighter mineral passes with the water to the receptacle 16, a spring 17, bump-

ing-plate 19, and faucet 30, said tank being supported in a suitable frame, suitable propelling mechanism for giving an oscillating movement to the tank, and means of discharging the material to be treated upon plate 14, substantially as described. 15

In testimony whereof I affix my signature in presence of two witnesses. 20

FREDERICK C. L. SERGEANT.

Witnesses:

ISHAM R. HOWZE,

WM. McCONNELL.