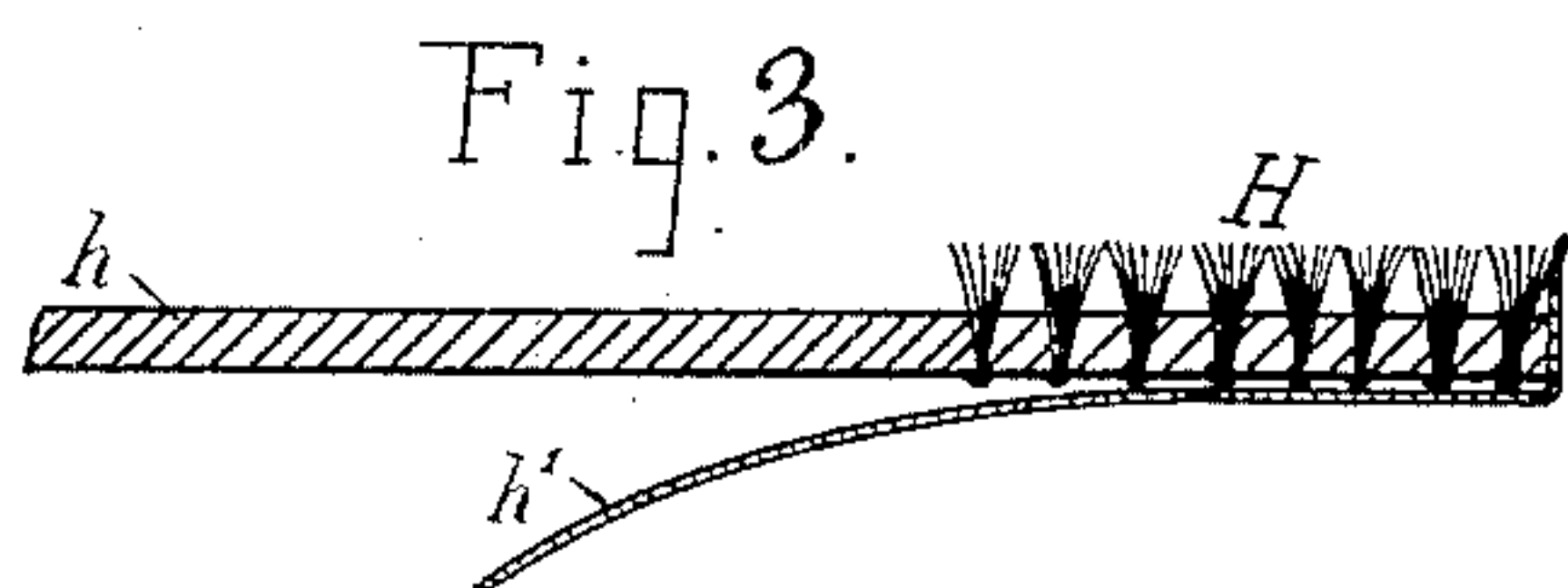
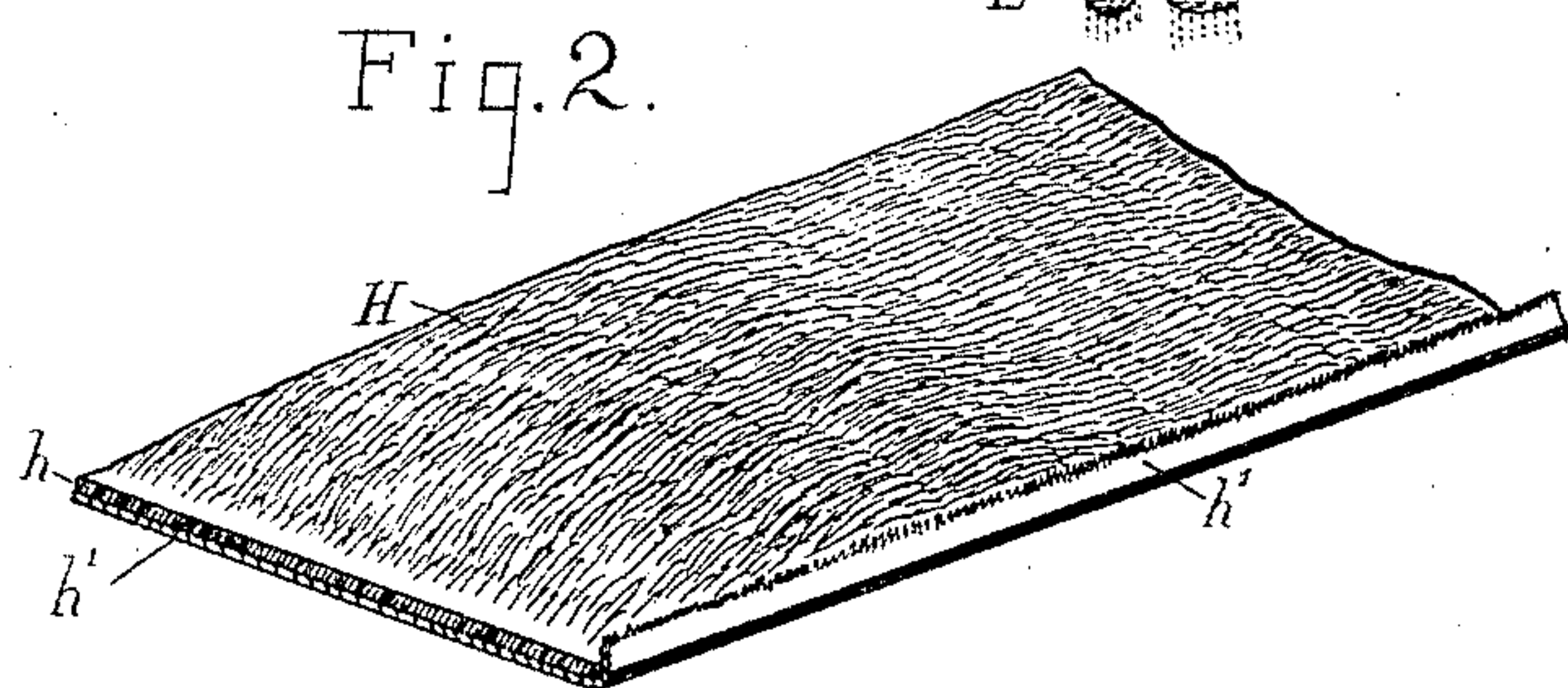
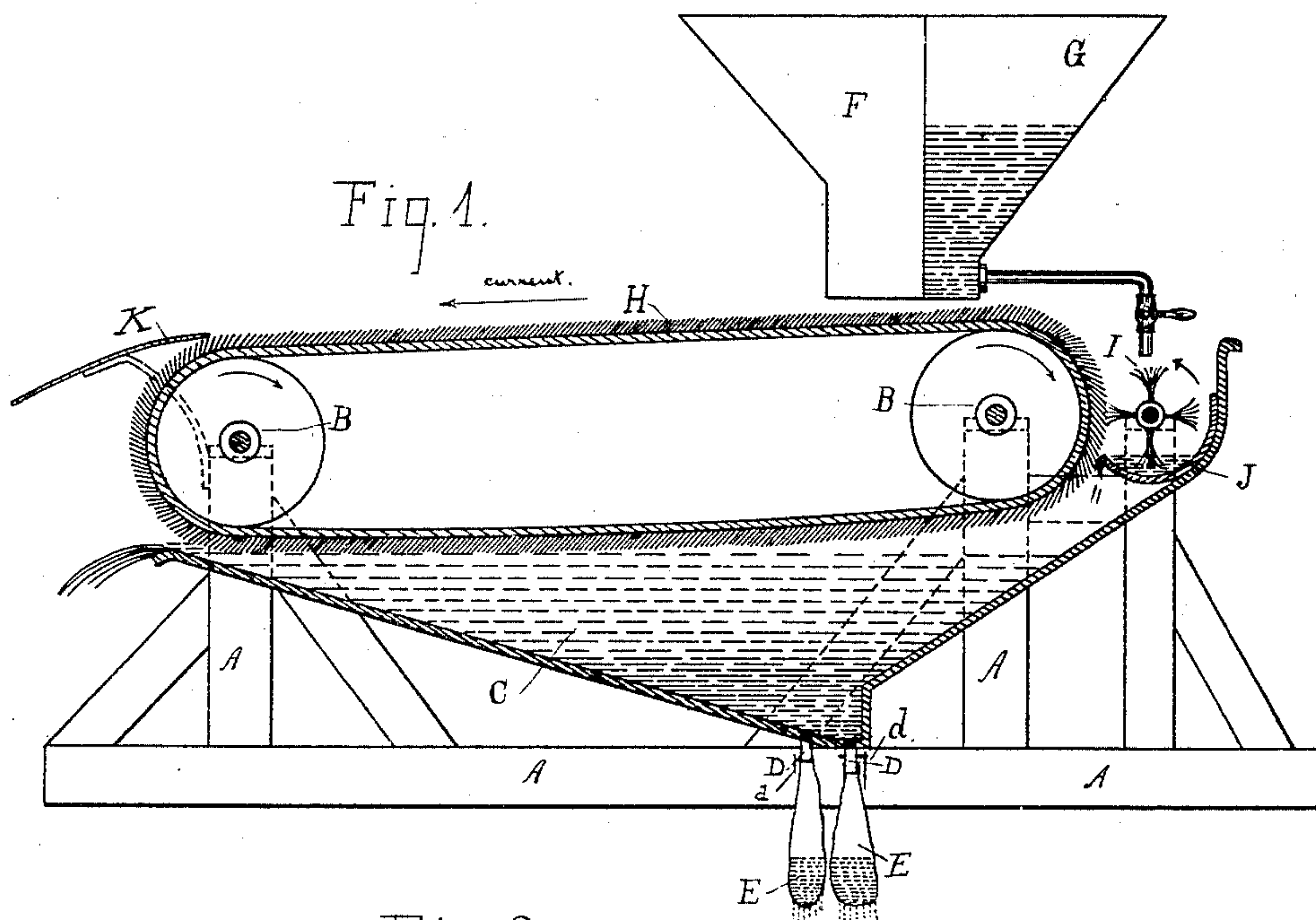


(No Model.)

J. R. MOFFITT.  
WET ORE CONCENTRATOR.

No. 327,708.

Patented Oct. 6, 1885.



Witnesses:

Wm Mayst.  
Jno Taggard

Inventor:

By his Atty. <sup>John R. Moffitt</sup>  
Edison



# UNITED STATES PATENT OFFICE.

JOHN R. MOFFITT, OF CHINESE CAMP, CALIFORNIA.

## WET-ORE CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 327,708, dated October 6, 1885

Application filed May 12, 1884. Serial No 131,112. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN R. MOFFITT, a citizen of the United States, residing at Chinese Camp, Tuolumne county, in the State of California, have invented certain new and useful Improvements in Wet-Ore Concentrators; and I do hereby declare that the following is a full, clear, and exact description of my invention and of the manner in which I construct and use the same, reference being had to the accompanying drawings.

My invention relates, first, to the production of a concentrating-surface of novel character, and, secondly, to the construction and combination of certain parts in connection with such a belt, producing a wet-ore concentrator of the endless-belt variety, as hereinafter set forth and claimed.

In the drawings referred to, Figure 1 is a side elevation of an ore-concentrator constructed according to my invention, the parts being generally represented in section, and the direction of the motions and the travel of the current indicated by arrow. Figs. 2 and 3 show details of construction of the belt or concentrating-surface.

A represents the timbers or parts of a suitable frame with bearings for the journal of a belt-carrying roller or small drum, B, at each end. One of these drums is set higher than the other to give a slant to the upper surface of the belt and one of them is a driver.

C is a trough set in the frame and immediately beneath the lower portion of the belt. It is of proper width to take in the belt, and its ends, which are sloping, extend beyond the rollers to catch the particles of matter as they are discharged from the concentrating-surface by gravity and the action of the water. These sloping ends are of suitable height to produce a trough or chamber of considerable depth, from which the overflow of the water will carry only the lightest particles of the earthy matter in suspension. The inclined portion of the trunk at the front end of the machine has a greater pitch than that at the rear.

The concentrations from the bottom of this settling-chamber are drawn off through spouts D D, each one having a gate, d, to control the discharge. The matter is drawn through these outlets into strainer-bags E, of canvas, tied over

its spouts and removed when full. By this means the surplus water is extracted and the concentrations are in a condition for convenient handling and transportation. Across the lower or tail end of the belt is set a curved apron, K, formed of a flat plate fixed in place by brackets, with its front edge resting just clear of the belt-surface. The office of this plate is to carry off the water and tailings and keep the bristle-surface from becoming choked before it reaches the upper portion of the down-flowing current of water and matter from the hoppers above.

F is a hopper for supplying the material upon the concentrating-surface. It is provided with a gate or valve for regulating and shutting off the feed. G is a water hopper or tank for supplying water for the general concentrating operation and for moistening and furnishing water to the washing-out brush, hereinafter described.

H is the concentrating belt or surface.

My improvement in this part of the machine consists of a concentrating-surface composed of a flexible back or body with fibers projecting endwise and a backing of flexible textile material, as set forth. To produce this surface, I use bristles or fibers possessing suitable length and stiffness and the property of retaining the stiffness under the action of the water. Whalebone fiber can be used; but I prefer to make these bristles of the fiber of the mata plant as being the best suited to the purpose, and inexpensive as well. The belt is a strip of leather of proper width and length with a backing of canvas or similar textile material. The bristles are fixed into the leather after the manner of forming brush-surfaces, either in tufts or thick clusters and in regular order, so as to produce a thick even surface. After the bristles are set, the canvas backing is fixed by means of waterproof-cement, and the belt is stretched over the two drums. This backing covers the base of the fibers and the tying threads or wires and protects the leather body, the edges being covered, as well as the back, by turning up the edges of the canvas along both sides and fixing them with cement. I prefer to set the fibers of this brush-surface at about forty-five degrees to the plane of the belt.



As the effect of running a stream of pulp or the pulverulent matter and the water over a surface of this character is to catch and retain the heavier particles among the bristles, and as the belt is constantly traveling against the current it follows that some means or device must be used to dislodge this matter and concentrate or collect it at some point in the travel of the belt, as well as to clean out the fibers after they have passed under the hopper and before the same surface is brought around again to meet the current and become charged. For this purpose I carry the belt around a drum of such diameter at the upper and as to cause the bristles or fibers to spread apart and set out radially as they turn over the belt, and then, by means of a rapidly-revolving brush-roller, I, and a stream or several streams of water, I brush and wash out and remove the particles from between the bristles.

The brush-roller is driven by a belt or other suitable connection with some moving part of the machine, and is set to run close to the surface and in the opposite direction to the travel of the belt. It is set in a trough, J, from which it throws and dashes the water with considerable force against the fibers, and this trough overflows directly into the trough or settling-compartment beneath. As an adjunct to this part of the apparatus I may use beaters to act against the back of the belt as the concentrating-surface passes over the trough; but as this operation would tend to agitate

the water in the trough and disturb the settling, especially if the surface of the belt were carried into the water, I prefer to rely on the action of the brushing and washing out device at the drum or roller.

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

1. A concentrating-surface composed of a flexible back-projecting fiber and a backing of textile material, also flexible, substantially as described.

2. The combination, with the flexible back having the inserted fibers, of the canvas backing cemented thereto and turned up along the edges, substantially as described.

3. The combination, with an endless traveling concentrating-belt having a brush or stiff fiber surface, of the washing-out device consisting of the brush-roller I, water-receptacle J, in which it revolves, and a water-supply, substantially as described.

4. In an ore-concentrator, the combination, with the endless traveling concentrating-belt, of the settling-trough C, having a gradual inclination from the rear of the machine and a more precipitate inclination from the front, and strainer-bags E at the junction of the inclines, substantially as set forth.

JOHN R. MOFFITT.

Witnesses:

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