

(No Model.)

H. H. TAYLOR.
ORE SEPARATOR.

No. 482,853.

Patented Sept. 20, 1892.

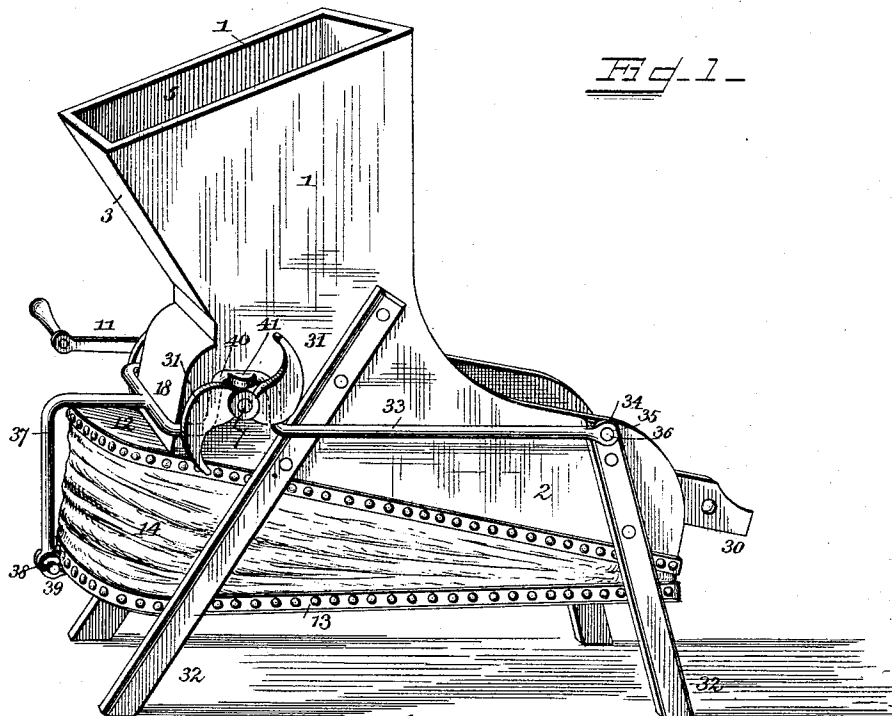


Fig. 1-

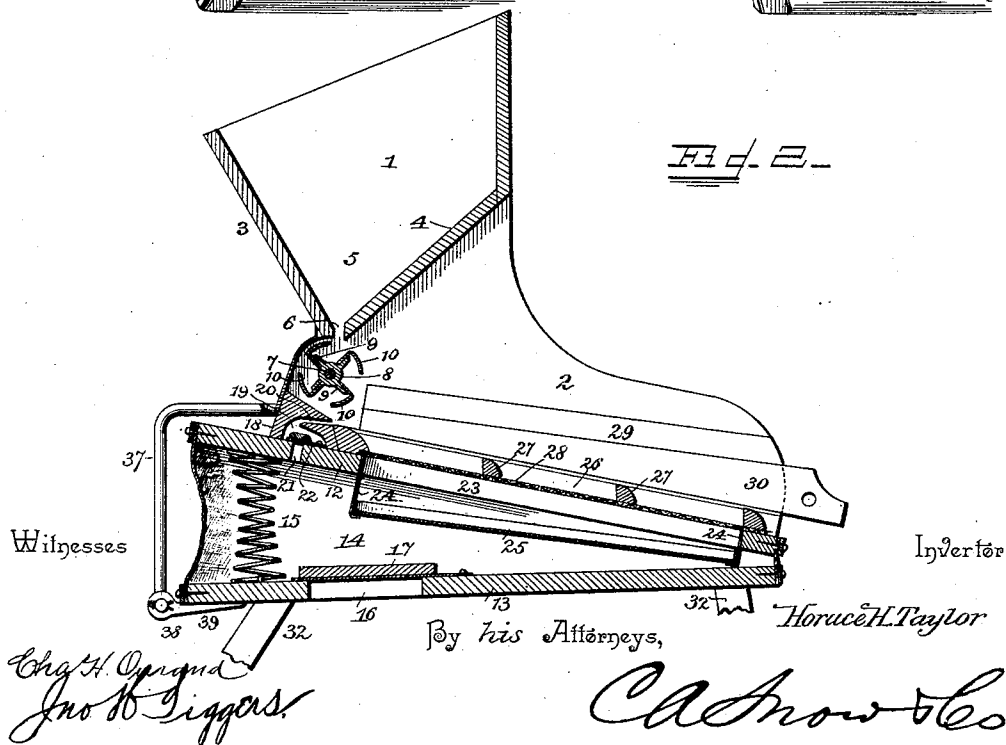


Fig. 2-

Witnesses

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HORACE H. TAYLOR, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR OF ONE-HALF TO ROBERT POLLARD, OF SAME PLACE.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 482,853, dated September 20, 1892.

Application filed April 26, 1892. Serial No. 430,698. (No model.)

To all whom it may concern:

Be it known that I, HORACE H. TAYLOR, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented a new and useful Ore-Separator, of which the following is a specification.

My invention relates to ore-separators of that class known as "dry separators" and employed for separating gold from sand without the use of water, mercury, or other agents, but simply by a blast of air.

The objects of my present invention are to provide a separator of the above class which may be of cheap and simple construction, efficient in operation, and especially adapted for use by prospectors, or, in other words, light and portable.

Other objects and advantages of the invention will appear in the following description, and the novel features thereof will be particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a perspective of a separator constructed in accordance with my invention. Fig. 2 is a vertical longitudinal section thereof.

Like numerals of reference indicate like parts in both figures of the drawings.

In constructing the separator I employ opposite side walls 1, the front edges of which are extended, as at 2. The side walls 1 have their rear edges inclined and are connected at their upper portions by a rear inclined wall 3, which combines with a front inclined wall 4 and the opposite side walls 1 to constitute a hopper 5. The lower edges of the walls 3 and 4 terminate short of each other, thereby forming a discharge 6 at the lower end of the hopper.

Below the hopper there is journaled in bearings formed in the walls 1 a transverse shaft 7 and the same is provided at its center with a hub 8, from which radiates a series of spokes 9. Each spoke carries an L-shaped cut-off 10. A crank 11 is secured to one end of the shaft 7 and is designed to be manually operated, so as to bring the cut-offs 10 successively under and to close the opening 6 of the hopper. The cut-offs 10 are separated so that the hopper is opened to discharge after the removal

and before the arrival of the succeeding cut-off.

12 designates the upper member of a bellows, and the same is secured fixedly to the lower edges of the walls 1, which, as shown, are slightly inclined, as is therefore the member 12.

13 designates the lower or movable member of the bellows, and the same is connected at its edges to those of the fixed member by the flexible surrounding apron 14, the edges of which are tacked or otherwise secured to the said members. The members are normally spread apart by an intermediate coiled spring 15, the terminals of which are secured, as shown, to the under side of the upper member and the upper side of the lower member of the bellows. The lower member is provided with an air-inlet 16, which is covered normally by a valve 17, adapted to open inwardly. The upper member is surmounted by a transverse bar 18, which is directly under or slightly in rear of the cut-off. This bar is provided upon its under side with a cavity 19, from which leads a forwardly-disposed discharge-passage 20, located directly under the cut-off. A discharge-port 21 is formed in the upper member 12, the same being considerably smaller than the air-inlet opening 16 of the lower member and normally covered by a valve 22, located in the cavity 19 and adapted to open upwardly therein.

The upper member of the bellows is provided with an opening 23, and from the same depends hangers or straps 24, which support a pan 25. A riffle-frame 26 is mounted above and seated upon the upper member 12 of the bellows and is provided with the usual transverse riffle-bars 27 and with the foraminous or reticulated bottom 28. A pair of cleats 29 are secured to the inner faces of the walls 1 and are inclined or at an angle with relation to the side bars of the riffle-frame. The riffle-frame is locked in position by means of wedge-shaped keys 30, forced between the cleats and the side bars of the frame.

Upon the opposite ends of the shaft 7 diametrically-opposite cam-fingers 31 extend, the same being rearwardly disposed with relation to the direction of rotation of the shaft.

Legs 32 support the machine, the same being located near the front and rear ends of the machine and bolted to the opposite side walls 1 thereof.

- 5 33 designates a U-shaped bail, the terminals 34 of which embrace loosely the opposite side walls of the separator and terminate at their rear extremities in eyes 35, which are pivotally mounted upon lateral lugs 36, projecting from the upper ends of the legs 32. 10 The bail merges into an L-shaped arm 37, which extends rearwardly over and depends beyond the rear end of the bellows, where it is hinged or pivoted, as at 38, to a bracket 39, 15 hinged or pivoted to the member 13 of the bellows. The terminals 34 are upwardly bent, as at 40, so as to take over or pass above the shaft 7 between the side walls 1 and the cam-fingers 31, and at their upper portions are provided 20 with lateral offsets 41, extending into the path traversed by the cam-fingers during their rotation.

This completes the construction of the separator, and the operation of the same is as follows: The sand and gold are poured into the 25 hopper 5 and the machine started by means of the crank 11, heretofore described. Small quantities of the mixed sand and gold are delivered successively from the hopper by the rotating cut-off and fall from the latter onto 30 the riffle-frame. The rotations of the shaft 7 cause a similar rotation of the diametrically-opposite rearwardly-curved cam-fingers 31, and these serve to raise and lower the bail 33, by taking under the lateral offsets 41 of the 35 terminals thereof, so that, as will be obvious, the bellows will in this instance be operated twice to each single revolution of the shaft 7. It will be obvious that by a reduction of the 40 number of cams but a single operation of the bellows may take place, or its movement may be accelerated by an increase in the number of cams. However, it will be seen that as the lower member of the bellows may be thus 45 raised it may be subsequently returned by the coiled spring, heretofore mentioned. The operation of the bellows causes blasts of air in rapid succession to be forced through the discharge 21, the valve of which is thereby raised 50 into the cavity 19 and out through the discharge 20, thus blowing the sand and gold equally over the riffle-frame. The sand and gold is here met with a blast of air from the under side of the frame, the air coming up through the 55 opening 23, and thus the sand, being the lighter constituent, is blown from the gold, the large nuggets being caught by the bars of the riffle-frame, while the gold-dust drops through the meshes of the frame, falls upon 60 the pan 25, and may be subsequently collected. The blasts issuing from the discharge 20 serve to distribute the gold and sand equally over the riffle-frame, or, in other words, prevent it from accumulating directly under 65 the discharge or cut-off or at the head of the frame.

It will be obvious that the machine is very

simple in its construction, may be cheaply manufactured, and by reason of its few parts is light and portable, thus being especially 70 adapted to accompany prospectors into rough countries, where transportation of a full-sized separator would be impracticable.

It will be seen that the construction of my invention may be adapted for the large separa- 75 tors as well as for the purpose specified, the elements operating in the same manner and requiring simply a change in proportion.

Having described my invention, what I claim is— 80

1. In a separator of the class described, the combination, with the framework, the bellows, the superimposed hopper, the cut-off located between the discharge of the hopper and 85 the bellows, an air-blast leading from the bellows, and the shaft for supporting the same to a point below the cut-off, of a riffle-frame located in front of the cut-off, a lever pivoted to the frame, connected with the bellows, and 90 resting upon the cut-off-supporting shaft, and a cam on the shaft for raising and lowering the lever as said shaft rotates, substantially as specified.

2. In a separator of the class described, the combination, with the framework, the bellows, the air-blast leading therefrom, and the 95 superimposed hopper, of the riffle-frame located under the hopper and in front of the blast, the transverse cut-off shaft, cams mounted thereon, a bail having a lateral offset extending in the path of the cams and having 100 its front end pivoted to the framework, and connections between the lower movable member of the bellows and the bail, substantially as specified. 105

3. In a separator of the class described, the combination, with the framework, the bellows having its upper immovable member secured rigidly to the frame and provided with a perforation, a transverse bar mounted on 110 the bellows and having a cavity communicating with the perforation and terminating in a discharge orifice or passage, and an upwardly-opening valve mounted in the cavity over the perforation, of means for operating the 115 bellows, a superimposed hopper, a cut-off for the same, means for operating the cut-off, and a riffle-frame located in front of the cut-off and air-blast, substantially as specified.

4. In a separator of the class described, the 120 combination, with the opposite sides 1, having the supporting-legs, the hopper in the upper end of the same, and the bellows at the lower end of the frame and having its upper immovable member connected rigidly therewith, 125 of the transverse cut-off shaft located between the bellows and hopper and having the rearwardly-curved cam-fingers 31 on the opposite ends of the same, the cut-off mounted on the shaft, the riffle-frame located under 130 the cut-off, the U-shaped bail 33, embracing the side walls of the separator and pivoted at its front end to the opposite sides of the frame, the terminals 34 of said bail being upwardly

bent, as at 40, to take over the shaft 7 and
laterally bent, as at 41, and projecting into
the path of the cam-fingers, said bail being
further provided with the bent arm 37, and
5 the bracket 39, pivoted, as at 38, to the lower
end of the arm and at its inner end connected
to the lower or movable member of the bel-
lows, substantially as specified.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in 10
the presence of two witnesses.

HORACE H. TAYLOR.

Witnesses:

L. L. MOORE,
G. E. SHORE.