

R. Staler,

Ore Separator.

No. 12,576.

Patented Mar. 20. 1855.

Fig. 1.

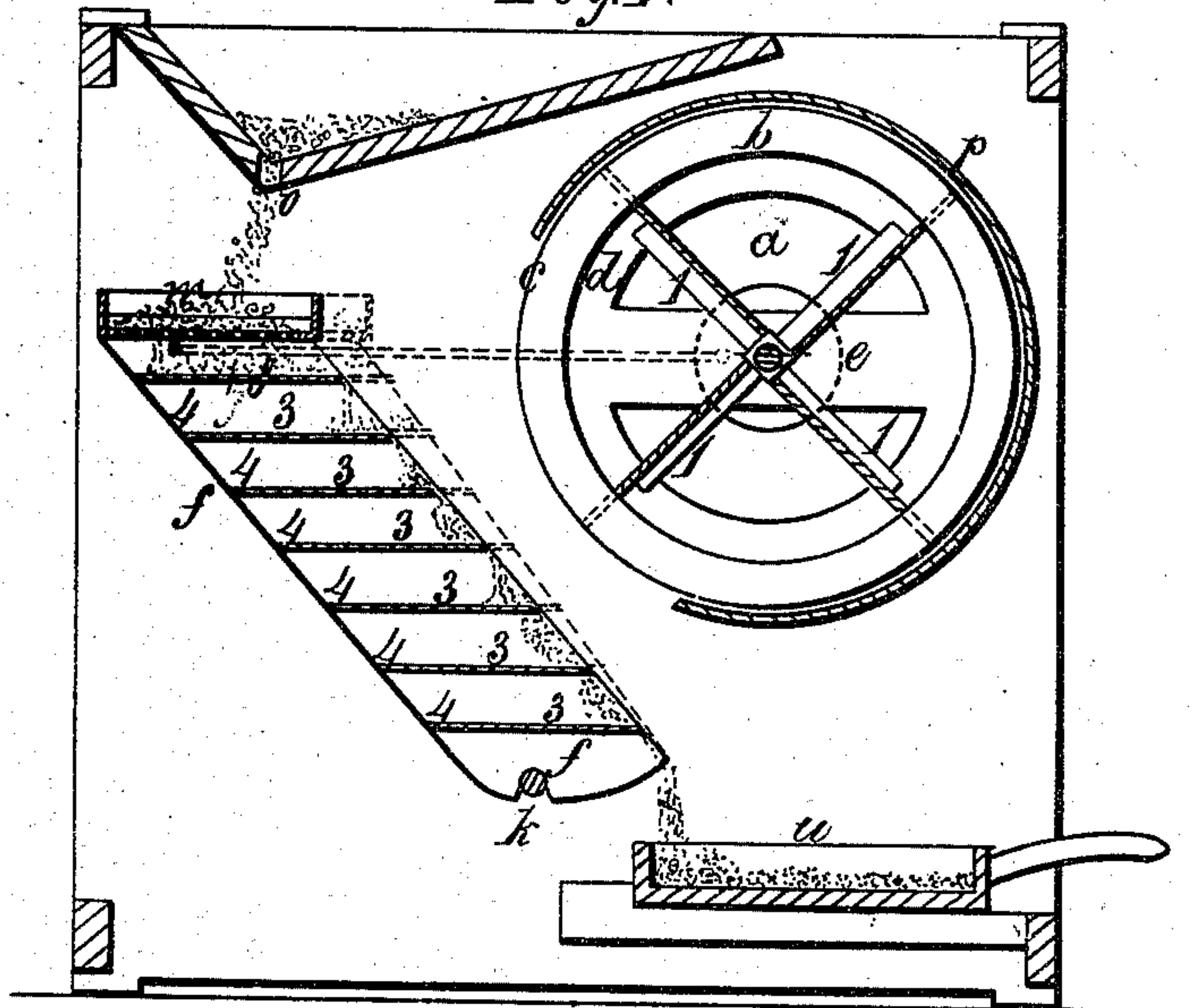
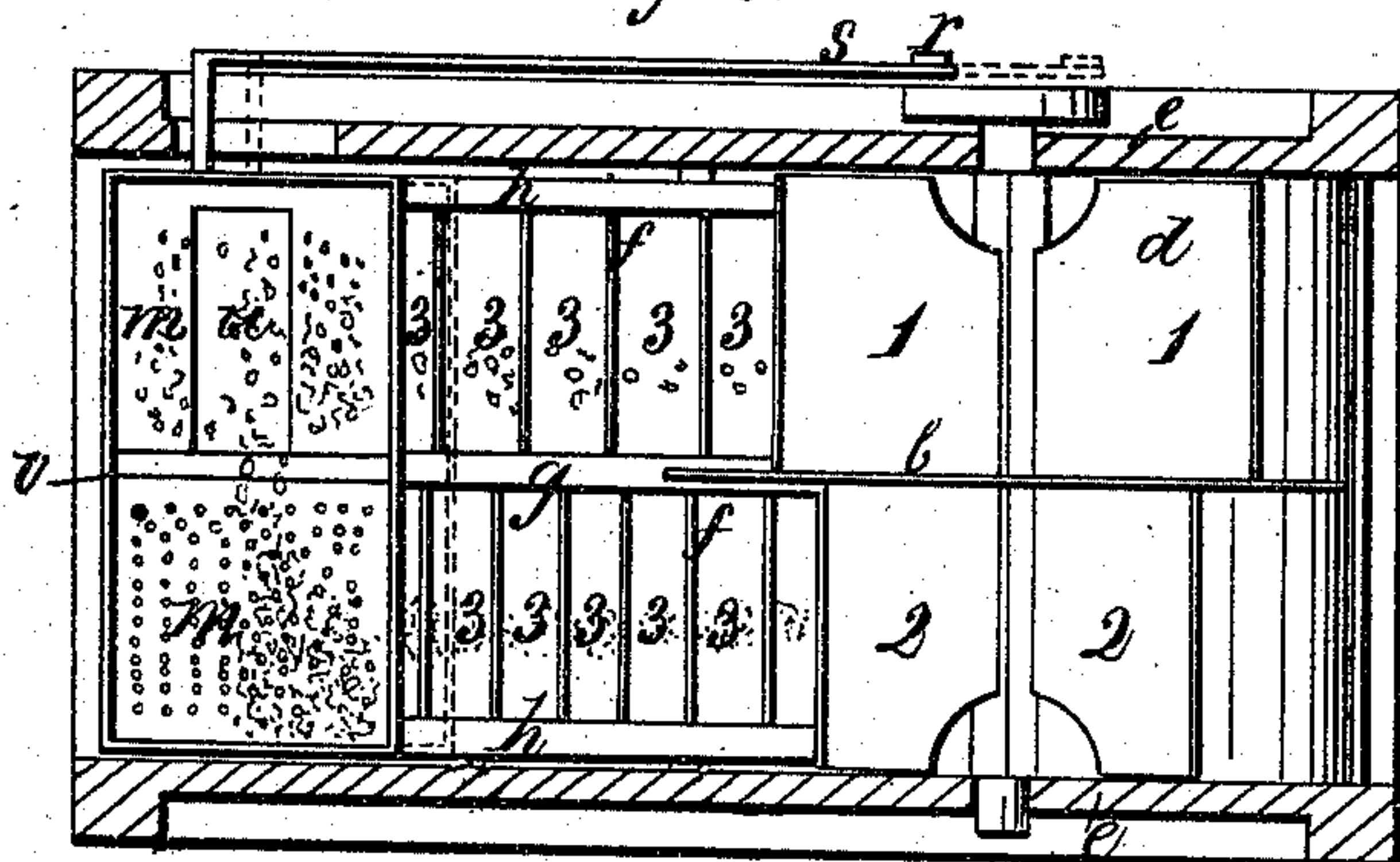


Fig. 2.



UNITED STATES PATENT OFFICE.

REUBEN SHALER, OF MADISON, CONNECTICUT.

ORE-SEPARATOR.

Specification of Letters Patent No. 12,576, dated March 20, 1855.

To all whom it may concern:

Be it known that I, REUBEN SHALER, of Madison, in the county of New Haven, the State of Connecticut, have invented a new and useful Improvement in the Machine for Separating Gold; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon.

In the machines which separate gold by forcing away the impurities with wind the following difficulty is exhibited, but not overcome, namely. When a strong blast is employed so as to carry away the sand and other coarse impurities much of the fine gold is also forced away and lost. On the contrary, when a moderate blast is used, too much of the coarse earth is deposited along with the gold in the receptacle box. Hence the utility of my invention. The nature of which consists in the employment of a blower or fan, which produces two blasts of unequal force, or power, and an arrangement of mechanism, which exposes the fine earth with the fine particles of gold, to a moderate blast or current of wind, and at the same time exposes the coarser part of earth and gold to a strong blast, and thereby a perfect separation is insured.

To enable others skilled in the art to make and use my invention I will proceed to describe its construction and operation.

The framework and its lining, the hopper and the gear wheels also the pitman and its connections for agitating the shelves are all like those of the common fanning mill. The blower A, see the accompanying drawings is constructed and adjusted in the machine in the common form, except an alteration which I make in each wing 1, 1, 1, 1, by taking off from the outer edge about two inches, one half the length of the wing—commencing at the end, as shown in Figure 1. The circular partition *b*, is attached to the shoulders of the wings—is made of sheet metal—and is in width equal to the strip taken off from each wing and its inner circumference equals the circle described by the shorter part of the fans. Or a similar partition may be made and permanently attached to the case *p*, on its inner side so as to inclose the longer part of the fans 1, 1, Fig. 2.

The two sets of shelves or inclined planes *f*, are adjusted in the two end pieces *h*, *h*

and the partition *g*. These three pieces of board are attached to each other at suitable distances apart, by common mechanism. The two sets of shelves, 3, 3, are adjusted in their places by means of slots made in the end pieces *h*, *h*, and in the partition *g*,—are placed one above another (three or more in number) about two inches apart, and are about eight inches wide. When the frame containing the two sets of oblique shelves is completed it is suspended in the machine on pivots at *K* or in any suitable form, but its relative position with the blower, *a*, should be nearly as represented by Fig. 1, and the inner edge of the lower shelf should project about three inches beyond that of the next one above it and so on up through the whole set—both sets in this respect are alike. But it may be important in some cases to have the inclination of one set, more than the other.

The screen *M*, is adjusted over the top shelves which is a screen made by perforating sheet metal with holes of any desirable size and has sides, forming a box about four inches high. This box extends over the whole of the surface of the two top shelves and has a partition *v*, across its center, this partition is about one inch high. That part of the box over the set of shelves which front the short part of the fans 2, 2, is perforated, and that part over the other set of shelves has an aperture *w*, so large as to admit anything which may ever enter that part of the box. This screen has an inclination toward the aperture. The opening in the hopper at *o*, is directly over the perforated part of the screen.

Operation: By revolving the blower two currents of air are produced, the larger part of the wings produces a powerful blast and the smaller a moderate blast, and the partition *b* serves to keep the two blasts separate. The frame containing the two sets of shelves is agitated by the pitman *s*, and crank *r*. The earth with which gold is mixed is put into the hopper, it descends to the screen *m*, where the finer portion of it passes through the perforations and the coarser goes to the aperture, *w*. Now that which passes through the perforations goes down on the shelves which are situated in front of the short fans or wings and consequently is exposed to a moderate blast. But that which goes through the aperture, *w* passes down on the set of shelves fronting

the large part of the wings, and is there exposed to a powerful blast and thus both the fine and coarse earth is blown away, while the gold is deposited in the receptacle box *u*, situated under the edge of the two bottom shelves for that purpose. Copper may be separated in the same way as gold by this machine. The earth, or whatever impurities are to be forced away from the metal should be dry before it is put into the machine.

I disclaim the use of the screen *m*, except when used in combination with the two sets of shelves 3, 3, and the blower *a* which produces two blasts of unequal force.

I disclaim also the use of two sets of shelves when used in combination with a blower of common construction.

What I claim as my invention and desire to secure by Letters Patent—

The herein described combination of mechanism which separates the fine earth and small particles of gold from the coarse, and exposes the finer portion of impurities and gold to a moderate blast and the coarser portion to a more powerful blast. The said combination embraces the blower *A*, which produces two blasts, of unequal force. The two sets of shelves or inclined planes, 3, 3, and the screen *m*, or its equivalent. This combination I claim when the several parts are used substantially as herein specified.

REUBEN SHALER.

Witnesses:

JOSEPH N. DUDLEY,

HENRY L. SHALER.