S. STUTZ.
Ore Separator.

No. 198,432. Patented Dec. 18, 1877.

Fig: 1.

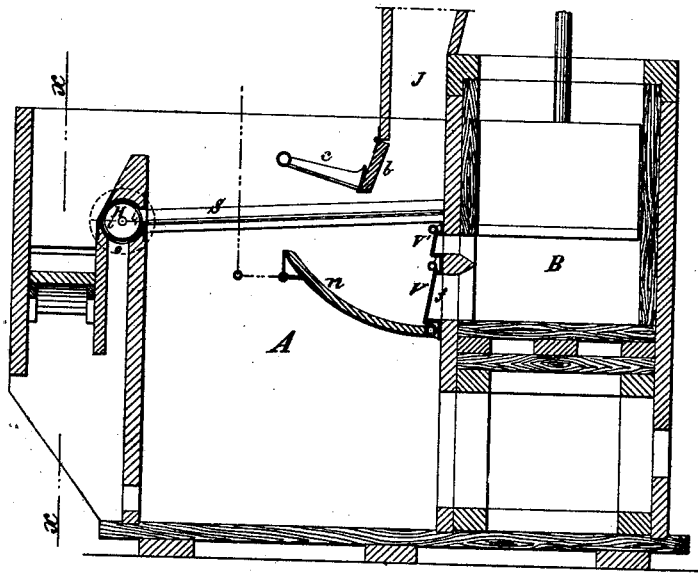


Fig: 2.

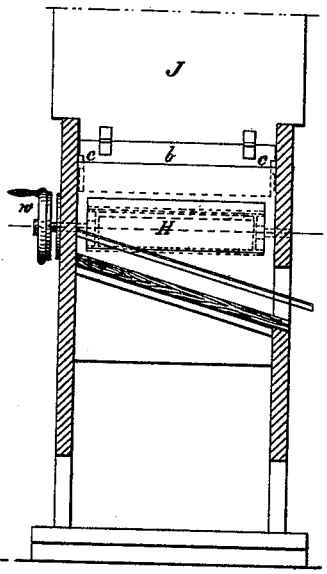


Fig: 3.

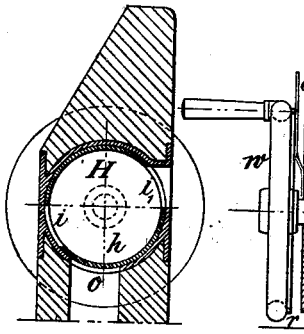
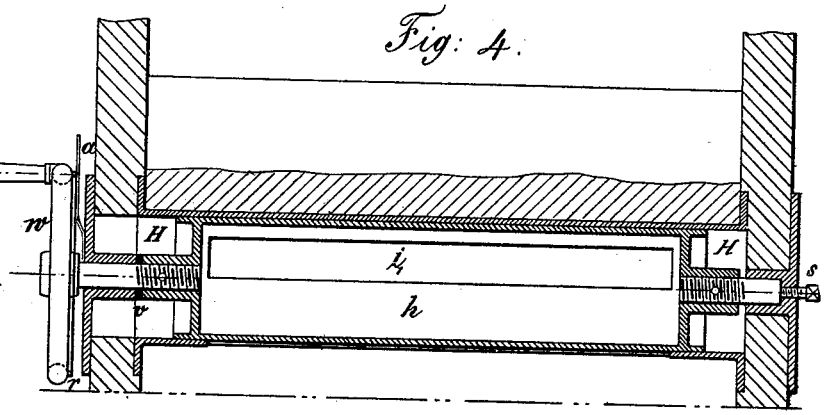


Fig: 4.



Witnesses:
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UNITED STATES PATENT OFFICE.

SEBASTIAN STUTZ, OF PITTSBURG, PENNSYLVANIA.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. **198,432**, dated December 18, 1877; application filed October 17, 1877.

To all whom it may concern:

Be it known that I, SEBASTIAN STUTZ, of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coal and Ore Separators; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, and of which—

Figure 1 is a vertical longitudinal section taken through the middle of the separator. Fig. 2 is a vertical cross-section taken at line *x x* of Fig. 1, and Figs. 3 and 4 represent details.

This invention relates to improvements of the apparatus for separating coal and ore from their impurities, for which Letters Patent have been granted to me March 20, 1877, and August 14, 1877.

It consists, first, in the combination and arrangement of the valve-seat H and the hollow valve *h*, for the better outlet of the impurities from the sieve S. The hollow valve *h* is provided with two ports, *i i*, so arranged that the port communicating with the outside is closed while the one communicating with the inside of the box is open, and vice versa. As represented by the drawings, the valve is open with the inside and closed with the outside. The slate and impurities can enter into the valve *h*, and may fill it up to the height of the center-line or the level of the sieve S. To let escape the impurities to the outside, the valve must be turned in order to bring the port *i* together with the opening *o*, which is done by means of the hand-wheel *w*.

By the use of slide-valves for the same purpose, the loss of water during the escape of the impurities is a great objection, as it carries with it pieces of coal. This is entirely obviated, and only the water contained in the hollow valve *h*, with the impurities, can be lost. The regulation of the valve is effected by means of the set-screw *s* and the washers *v*. One side of the hand-wheel *w* is provided with a circular rib, *r*, having notches, in which a spring, *a*, engages, to prevent the valve from turning.

Instead of letting out the impurities by the attendant of the apparatus, movement may be given to the valve *h* from the plunger, and the escape of the stones, &c., may be so regulated that each opening of the valve corresponds to a certain number of strokes of the plunger.

Another improvement of the separator consists in the arrangement of the valves V V′ between the plunger-box B and the washing-box A, to prevent the back suction of the water. The addition of one or more smaller valves, V′, above the larger one, V, has for its object to forward more rapidly the material from the rear to the front. Besides this it allows to give to the valve V less width, thus making it stronger. Both valves, V and V′, are hinged to an iron frame, *f*, receiving also the pallet *n*.

A third improvement is shown in the hinged gate-board *b*. Its object is to force the material to pass near the bottom of the sieve S before reaching the delivery-bridge. This is necessary for a good separation. The opening may be varied by means of the arms *c c*.

What I claim as new is—

1. In a coal or ore separator, the valve-seat H and the hollow valve *h*, having ports *i i*, and so arranged that one port is open while the other is closed, all in combination with the sieve S, as described, and for the purpose set forth.

2. In a coal and ore separator, two or more valves, V V′, to prevent the back suction of the water, in combination with the plunger-box B, as described and set forth.

3. In a coal and ore separator, the hinged gate-board *b*, with its regulating-arms *c c*, in combination with the chute J, as described, and for the purpose set forth.

SEBASTIAN STUTZ.

Witnesses:

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