H. W. KING.

Ore-Separator.

No. 216,740. Patented June 24, 1879.

Fig. 1.

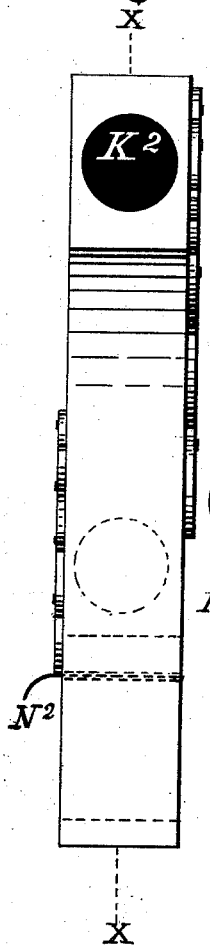
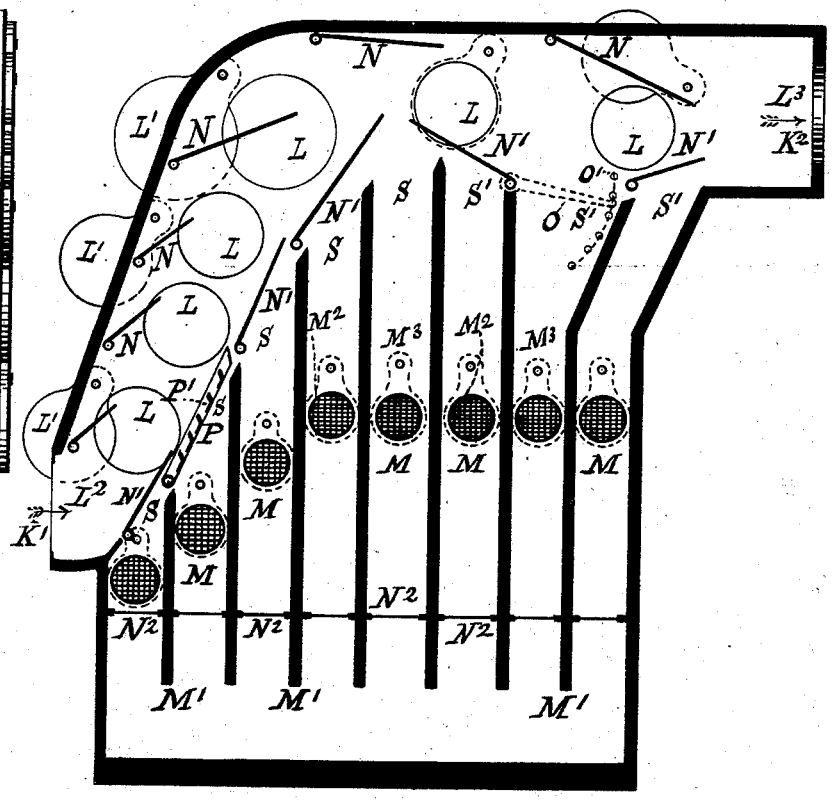


Fig. 2.



Witnesses.

C. L. Pond

Amos W. Langster.

Inventor.

Horace W. King:

By James Langster

atty.

UNITED STATES PATENT OFFICE.

HORACE W. KING, OF ALDEN, ASSIGNOR OF ONE-HALF HIS RIGHT TO ROBERT DUNBAR AND GEO. H. DUNBAR, OF BUFFALO, N. Y.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. **216,740**, dated June 24, 1879; application filed November 1, 1878.

To all whom it may concern:

Be it known that I, HORACE W. KING, of Alden, in the county of Erie and State of New York, have invented certain new and useful Improvements in Separators, which improvements are fully set forth in the following specification and accompanying drawings, in which—

Figure 1 is a front view; and Fig. 2, a vertical longitudinal section through line X X, Fig. 1.

The object of this invention is to provide the means for separating metals or other materials from their ores or other matter; and it consists of a series of pockets, M^1, in the separator, arranged so that the first two or more of the series have their openings S arranged one above the other, and the remaining pockets have their openings S′ arranged so as to be horizontal, or nearly so, in combination with a double series of adjustable gates, N and N′, arranged so as to be easily adjusted, and rigidly fastened in position by means of an arm, O, on each gate, (shown by dotted lines in Fig. 2,) which may be moved to any point desired, and fastened at that point by means of a spring and pin at the end of the arm and the holes O′.

P represents one of the adjustable gates, having a series of angular cross-strips, P′, which are so formed as to leave a pocket between each, having an opening at the bottom, as shown, the object being to increase the number of openings, which, by their projecting edges and openings, produce eddies from the main current of air as it passes through the separator, and thereby present an additional number of openings to receive the heavier particles as they are carried up by the main current. It is designed to have one or more of such gates.

The second part of my invention consists of a series of pockets, M^1, in combination with an opening, M, arranged at some convenient point in each, and provided with a screen, M^2, and a cover, M^3, that may be opened or closed and fastened at any point desired, for the purpose of regulating the upward flow of air in said pockets. It will be readily seen that the main current would create a current upward through the pockets, and that a more or less enlargement of the openings M will regulate its strength.

The third part of my invention consists in an apparatus for separating metals or other materials, in which an exhausting device of any suitable construction is used for drawing a current of air through it, the combination of a series of openings, L, having adjustable covers, L^1, arranged so that the size of said openings may be controlled, and a series of adjustable gates, so that the direction and strength of the current of air flowing through it may be controlled or regulated.

The operation is such that as the main current passes through the separator any change in the size of any one, or number, or all of said openings will affect its strength or produce eddies therein at any point where such change may be made, thereby affording the means for a complete control of the force of the main current, and the action and direction of the other currents created by the combined action of the adjustable openings and gates.

Any suitable exhausting apparatus for producing the main air-current may be connected to the separator at L^3. The direction of the main air-current is shown by the arrows K^1 K^2, Fig. 2.

I claim as my invention—

1. In a separator, the combination of a series of vertical pockets, M^1, having lateral openings M, with a passage extending over the mouths of said pockets, and a series of adjustable gates, N N′, arranged in said passage, and adjustable openings L, communicating laterally with said passage, as and for the purposes described.

2. In an ore-separator, the combination of a series of vertical pockets, open at the top and of different heights, and a draft-channel extending across the mouths of said pockets, as set forth.

3. The combination of one or more gates, P, having a series of angular strips, P′, and openings, substantially as specified, with one or more pockets, M^1, as described.

4. In a separator, the combination of a se-

ries of pockets having their openings S arranged one above the other, as specified, with a series of pockets having their openings S′ arranged horizontally, or nearly so, as set forth.

5. In a separator, the combination of a series of vertical pockets, provided with lateral openings M, with adjustable covers and adjustable gates N′ at the mouths of the pockets, as and for the purposes specified.

HORACE W. KING.

Witnesses:
C. W. BIGDEN,
JAMES SANGSTER.