

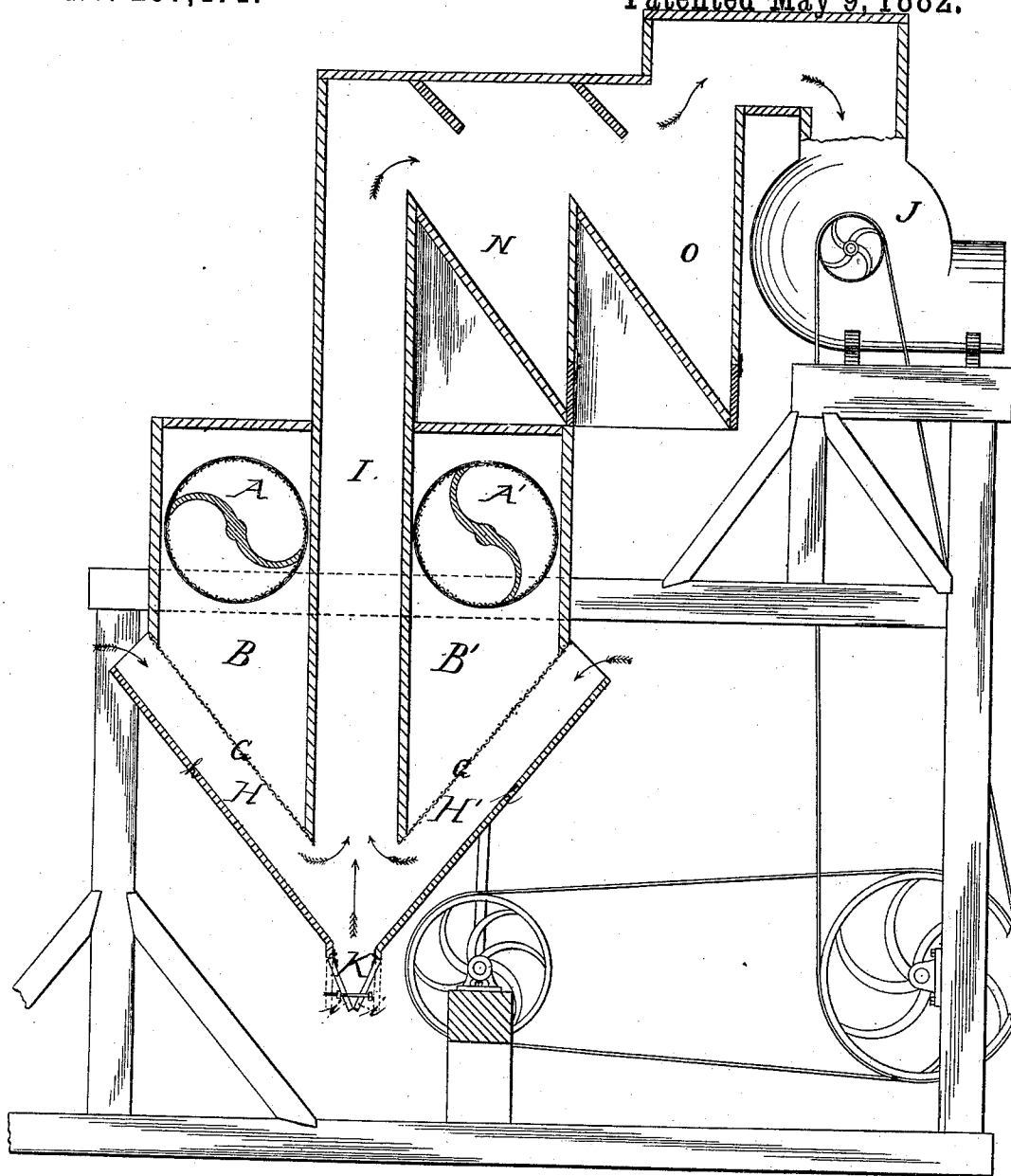
(No Model.)

D. CAR-SKADEN.

ORE SEPARATOR.

No. 257,471.

Patented May 9, 1882.



WITNESSES
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UNITED STATES PATENT OFFICE.

DELOS CAR-SKADEN, OF CHICAGO, ILLINOIS.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 257,471, dated May 9, 1882.

Application filed January 18, 1882. (No model.)

To all whom it may concern:

Be it known that I, DELOS CAR-SKADEN, of Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Ore-Separators; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, which forms a part of this specification.

This invention relates to machines for separating ore from the earth or its accompanying gangue without the use of water, and by means of a suction-blast, in connection with screens for sizing the earthy particles of the crushed quartz carrying the minerals or mineral-bearing rocks; and it consists in certain improvements on the machine described in Letters Patent No. 250,983, granted to me December 13, 1881, which improvements will be hereinafter described, and pointed out by the claim.

In the accompanying drawing, the figure represents a longitudinal vertical section of the machine, in which—

A and A' denote two rotary sifters of any construction, but preferably of a style as specified in another application of even date herewith, and B B' are the air-tight chambers, inside of which said sifters are arranged. Between the two chambers B and B' is an air-duct, I, that communicates with an exhaust-fan, J. The bottom ends of the chambers B and B' are downwardly inclined toward the air-duct I, and each has a coarse wire screen, G, stretched over its end, and below these wire screens are arranged two air-channels, H and H', that are downwardly inclined toward the center or meeting-point, where they form a junction with the air-duct I. The bottoms *h* of these air-channels H H' are solid, for heavy material that is dropped thereon to slide down upon them. These air-channel bottoms do not quite meet, but leave an opening, K, through which the minerals and mineral-bearing rocks will drop, said opening being provided with wing-valves *i*, that can be adjusted to admit currents of air differing in intensity. The material from the sifters A A' will drop through the chambers B B' and through the screens G into the channels H H',

while a strong current of air will pass through these channels that will separate and carry off all light earthy material, and will assist the down-feed of the material, and when such material has arrived at the opening K it is exposed to another upward current of air that is allowed to enter between the wing-valves *i* for carrying off any light material that was allowed to remain while the material was passing down the channels H H'. Any material containing remaining particles of mineral of greater gravity than the earth and gangue will collect in the pockets N and O, and only the worthless refuse will pass through the exhaust-fan.

The object of the channels H H' is that the strong current produced by the exhaust-fan J will form an air-current feed between the coarse screens G and the solid bottoms *h*, in which all material discharged from the rotary sifters A A' into and through the chambers B B' will come in contact with the air-currents in channels H H', thereby insuring each particle of material being separately carried to the point of contact with the upward current through the passage K between the wing-valves *i i*. Here the mineral particles which have not already been separated from the earth and gangue in the air-currents through channels H H' will separate at the junction of the upward air-current through K with the downward currents. What I gain with this latter arrangement is that the mineral and earthy particles are carried by the downward currents to a point of contact with the vertical current, when separation takes place.

It is a well-known fact that it is difficult to feed minute particles of matter which have an affinity for each other from a chute or solid surface without these particles adhering one to the other to a less or greater extent, thereby defeating the very object desired, which is to feed these minute particles into a current of air of required strength separately from each other as they escape from the meshes of the rotary sifters.

The channels H H' I extend far enough outward from the wall of chambers B' to form guides for admitting the air in currents parallel with the bottoms *h*, so as to be of uniform force and straight direction, as otherwise

the air-current would be of irregular force and follow a curve-line.

What I claim is—

5 In an ore-separator, the chambers B B', sifters A A', wire screens G, intermediate air-duct, I, and exhaust-fan J, in combination with the downwardly-inclined air-channels H H' and the opening K, having wing-valves i, the whole being constructed and arranged sub-

stantially as and for the purpose described and shown. 10

In testimony that I claim the foregoing as my invention I affix my signature in presence of two witnesses.

DELOS CAR-SKADEN.

Witnesses:

F. W. KASEHAGEN,
E. H. FROMMANN.