2 Sheets—Sheet 1.

T. J. CHUBB.

Ore Separator.

No. 12,090. Patented Dec. 19, 1854.

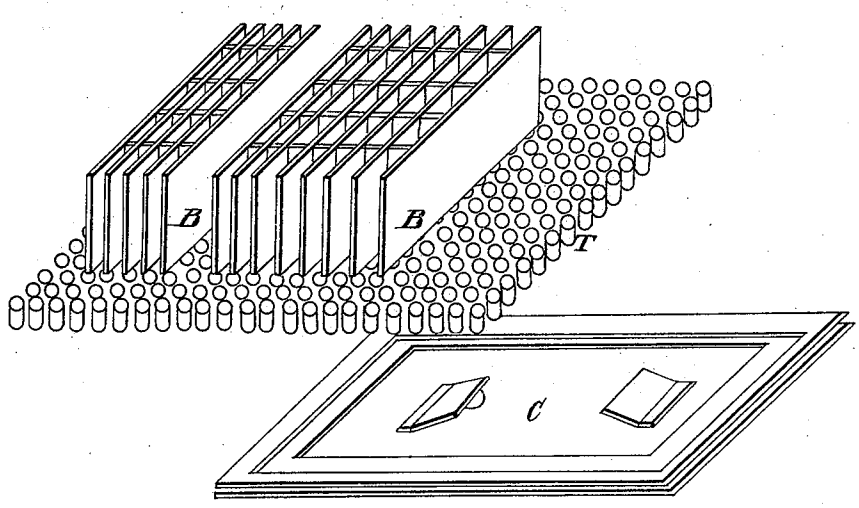
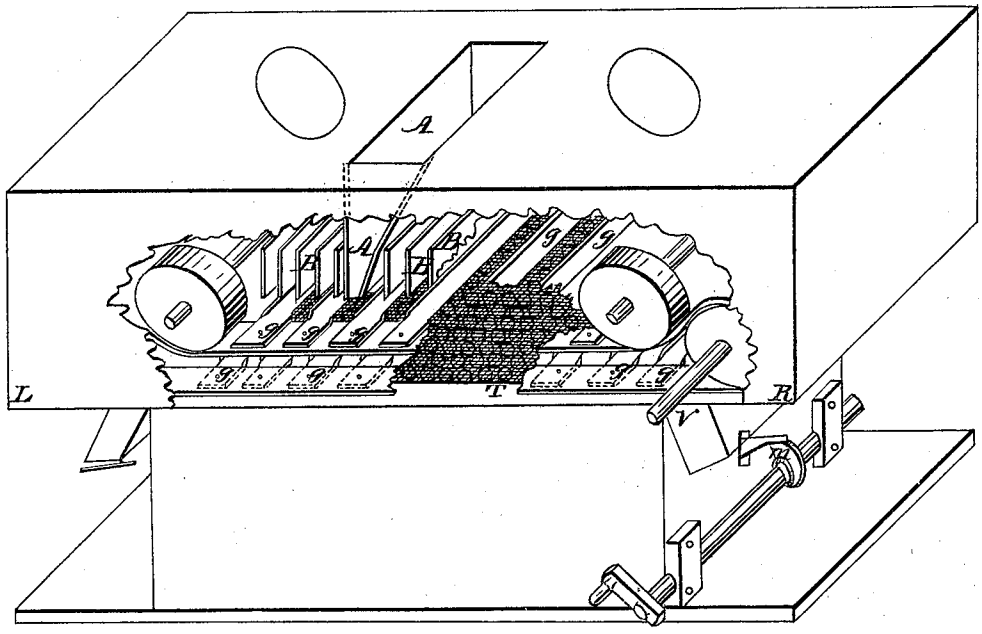


Fig. 2.



AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS)

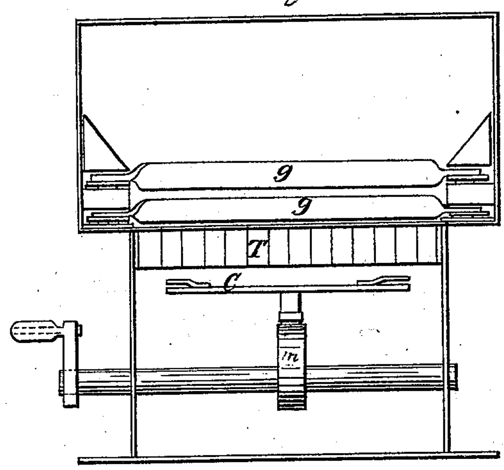
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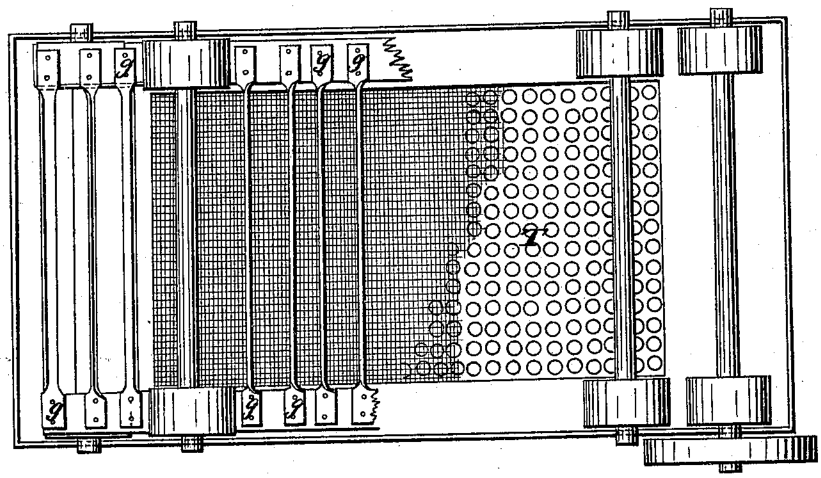
T. J. CHUBB.

Ore Separator.

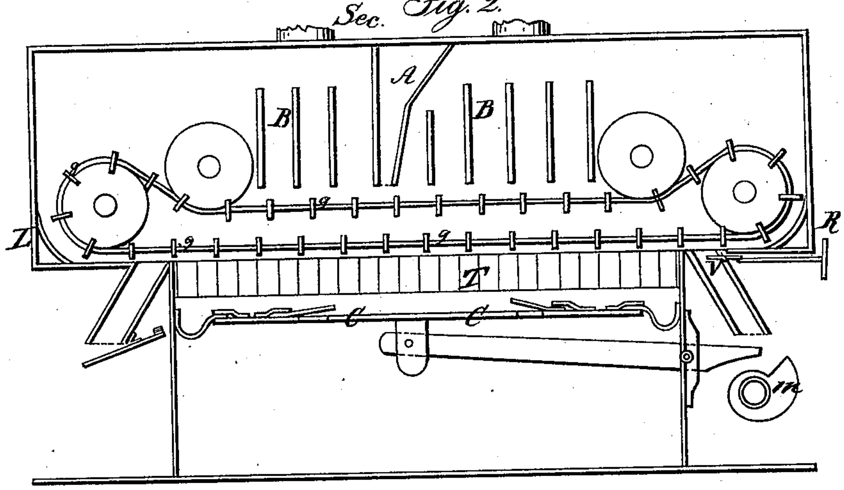
No. 12,090. Patented Dec. 19, 1854.

Fig. 3.





Sec. Fig. 2.



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UNITED STATES PATENT OFFICE.

THOMAS J. CHUBB, OF NEW YORK, N. Y.

METAL-SEPARATOR.

Specification of Letters Patent No. 12,090, dated December 19, 1854.

To all whom it may concern:

Be it known that I, THOMAS J. CHUBB, of the city of New York, in the county and State of New York, have invented a new and useful machine for separating all kinds of metals one from each other or metals from their ores or separating all metallic substances from rock, stone, sand, earth, mica, and all other substances or material that may be found in metallic ores of different specific gravities, which machine I name and designate as "Chubb's Metal Separator;" 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, making a part of this specification.

Figure 1 is a perspective view. Fig. 2 is a side elevation. Fig. 3 is a sectional view.

A is a hopper; B, compartment plates.

T are the tubes.

G is the guide plates.

C is the bellows board or plate.

m is the cam.

V is the discharge valve or gate for regulating the quantity of material or metal separated.

The nature of my invention consists in the arrangement of a series of tubes or plates of metal or boards T and B placed in a box and so arranged as to form a series of perpendicular compartments through which air may freely pass, the upper edges of the lower series of tubes or plates answering as a support for a sieve of wire or other cloth which I call a sieve bed T. The object of these compartments is to conduct the air always in a right perpendicular line or direction as also the material which is on the sieve rising and falling in said upper tubes or compartments and in said blast or current of air so as to always rise and fall in a line perpendicular coinciding with the line of the attraction of gravitation.

Secondly in the direct and simple manner of applying the blast by the means of a single board or plate of metal C which I call a bellows board or plate being placed on springs so as to produce a continual retarding vibrating motion a device essential to the accomplishment of a larger quantity of work with the same amount of power applied retarding until the cam *m* again sets the board in full motion said board is placed directly underneath the sieve bed and vibrating up close to the said sieve bed so as to leave as little space as possible between the material and the board where air will be compressed and again expanded without doing any work also giving to the material a peculiar sharp or sudden throw upward projecting the whole body of the material at once allowing the matter of the greatest specific gravity to fall through the remainder of the current of air first until all the heaviest matter in said material shall have worked its way to the bottom of the layers on said sieve and the lighter matter to the top thereof.

Thirdly in the construction of a combination of a series of guide plates or scrapers *g* attached to an endless belt or otherwise moved so as to move guide or scrape the material on said sieves backward or forward or both as the case may be required. The advantage obtained by the use of those plates or scrapers are first the spreading the material evenly all over the surface of the sieves so that the air may be equally compressed below the said sieve that it may raise the ore equally over said sieve and not be blown up by the current of air in one place more than in another, second the lower set of plates scrape all the heaviest matter toward the end R of the machine while the returning set of plates on the endless belt scrape the lightest matter on top the layers to the other end of the machine L if the gate or valve V at R end be shut all the heaviest matter in the machine would be worked to the R end the lightest matter therein will be worked to the other end L.

The gate or valve V can be so arranged as to let out any quantity of the material required according to the amount of metal or heaviest matter contained in the material under treatment.

To operate with this machine the ore is put in the hopper A which extends down to near the guide plates the ore is then spread on the sieves by the action of the guide plates. The feeding of the ore into the machine is regulated by the upper returning guide plates which scrape away an even quantity as they pass the mouth of the hopper A while the lower plates are carrying or scraping the heaviest matter which is settled to the bottom of the layer passed the hopper toward R where it is still further separated until it gets through the gate V where part of the lowermost layer is let

off while the remainder which is the uppermost part of the layer has to be taken or scraped back again to be further separated, while the very lightest matter will be passing off at L end. The whole mass except the very heaviest is at times lifted or suspended in the current of air and at other times laying in regular stratified layers on the sieve at this moment the plates or scrapers act upon the stratified layers causing a complete separation thereof provided the material has been properly sifted or separated into sizes first or before it is put in the machine.

Having thus fully described my new and useful machine, what I claim as my invention and desire to secure by Letters Patent is—

The arrangement of a series of guide plates or compartments B, B, above the sieve a series of tubes or plates T below the sieve which I call a sieve bed the bellows C for supplying the blast the guide plates or scrapers *g*, *g*, operated as and for the purpose herein set forth.

THOS. J. CHUBB.

Signed in presence of—
A. OAKSMITH,
H. V. G. HEUSKER.