(No Model.) 2 Sheets—Sheet 1.

G. CONKLING.

MACHINE FOR REDUCING ORES AND OTHER MATERIALS.

No. 385,596. Patented July 3, 1888.

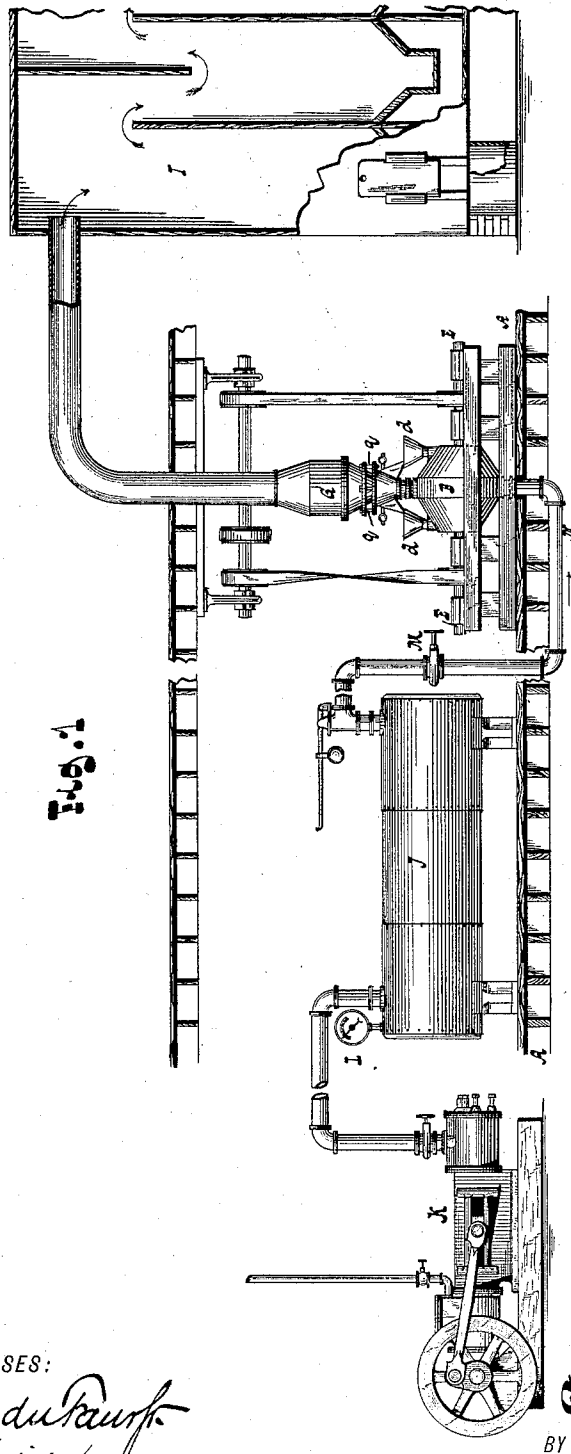


Fig. 1.

WITNESSES:

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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

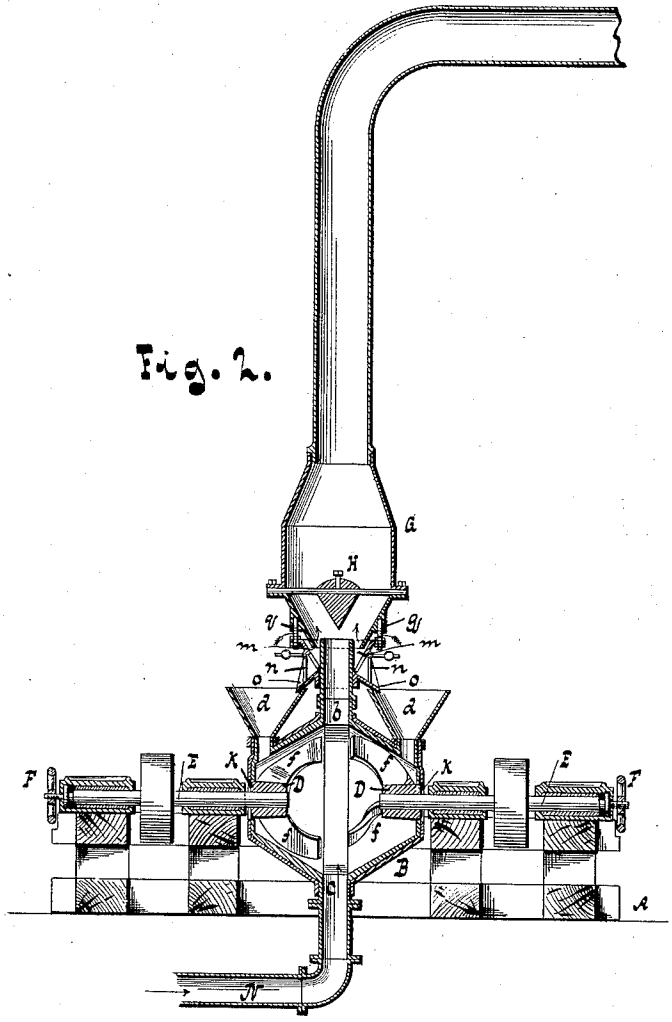
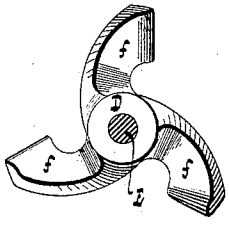


Fig. 3.



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UNITED STATES PATENT OFFICE.

GURDON CONKLING, OF GLENS FALLS, NEW YORK.

MACHINE FOR REDUCING ORES AND OTHER MATERIALS.

SPECIFICATION forming part of Letters Patent No. 385,596, dated July 3, 1888.

Application filed February 23, 1888. Serial No. 264,960. (No model.)

To all whom it may concern:

Be it known that I, GURDON CONKLING, a citizen of the United States, residing at Glens Falls, in the county of Warren and State of New York, have invented new and useful Improvements in Machines for Reducing Ores and Other Materials, of which the following is a specification.

This invention relates to an improvement in machines or apparatus for reducing ores and other materials, such as set forth in United States Letters Patent No. 293,787, of February 19, 1884; and by means of this device the degree of reduction can be regulated as set forth in the following specification and claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a side elevation, partly in section, of an apparatus for reducing ores. Fig. 2 is a sectional side elevation of part of the apparatus of Fig. 1 and on a larger scale than in Fig. 1. Fig. 3 is a detail view of rotary arms or blades.

Similar letters indicate corresponding parts.

In the drawings, the letter A indicates a frame or support. B is a hollow body or case having openings *b c* and inlet throats or hoppers *d*. In the body are rotary heads D, carried by independent shafts E. The shafts E can be adjusted endwise by screws F. Each rotary head D carries a series of arms or blades, *f*. The heads D being made to rotate in opposite directions, the pieces of ore which are fed through the hopper *d* are thrown against the case B and against one another, so as to be broken or reduced in size.

Air-inlets *k* are provided, as shown, and the rotation of the blades *f* causes air to enter through the inlets *k* and to pass out through the openings *b*. To effect the separation of the material, the discharge-opening *b* is caused to lead into the chamber G, having a deflector, H. The air and lighter matters, although deflected by the deflector H, will continue in their course and will pass from the chamber G to the receiving-chamber I, divided by vertical partitions into compartments designed to receive material of different grades or degrees of fineness. The heavier particles, which need further reduction, are caused by the deflector H to pass into the hopper *m*, which communicates, through weighted valves *n*, with discharge-spouts *o*, leading to the feed-hoppers *d*. When sufficient weight of material presses against the valves *n*, said valves open and the material passes back into the case B. The chamber G is supported by bolts *q*, and by properly operating said bolts said chamber G can be adjusted from or toward the case B.

It will be noticed that the rotation of the blades *f* causes a current of air to flow through the opening *b* with sufficient intensity to carry particles of a certain size from the case B through said opening *b*. If it is desired to force particles of a larger size through said opening *b* into the receiving-chamber I, a current of air is forced through the tube N into the case B, which current, acting in conjunction with the current caused by the blades *f*, will carry particles of larger size from the case B than the current from the blades *f* acting by itself would carry.

The tube N connects with a storage-chamber, J, in which air can be stored at any desired suitable pressure. A gage, L, can be made to indicate the pressure in the storage-chamber, and an air-forcing apparatus or engine, K, can be made to produce the requisite pressure for forcing the air through the tube N with the proper velocity. A valve, M, applied to the tube N can be made to regulate the current flowing through the tube N. By causing the current to flow through the tube N with greater or less velocity larger or smaller particles of ore are carried to the storing-chamber I, as desired.

I do not herein claim anything set forth in United States Letters Patent, No. 293,787. In the apparatus shown in said Patent No. 293,787 the pressure of air is only caused by the rotating heads, and consequently the pressure of air is limited and only particles of comparatively small size are carried from the case B, while by my apparatus herein set forth the pressure of air can be increased so as to carry particles of considerable size from the case B. I have found that by my apparatus particles as large as one-quarter of an inch in diameter can be carried from the case B.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the case B, having a feed-hopper, *d*, an air-inlet, *k*, and an outlet,

b, and the rotary arms *f*, for acting on the ore and inducing an air-current through the inlet, of an air-conducting tube, N, opening into the case, and an independent air-forcing apparatus located outside the case and communicating with said tube for forcing air therethrough and through the case in addition to the induced current, substantially as described.

2. The combination, with the case B, having an outlet, *b*, the hopper *d*, and the rotating blades *f*, of an air-storing apparatus made to hold air under pressure and to communicate with said case, substantially as set forth.

In testimony whereof I have hereunto set my hand and seal in the presence of two subscribing witnesses.

GURDON CONKLING. [L. S.]

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.