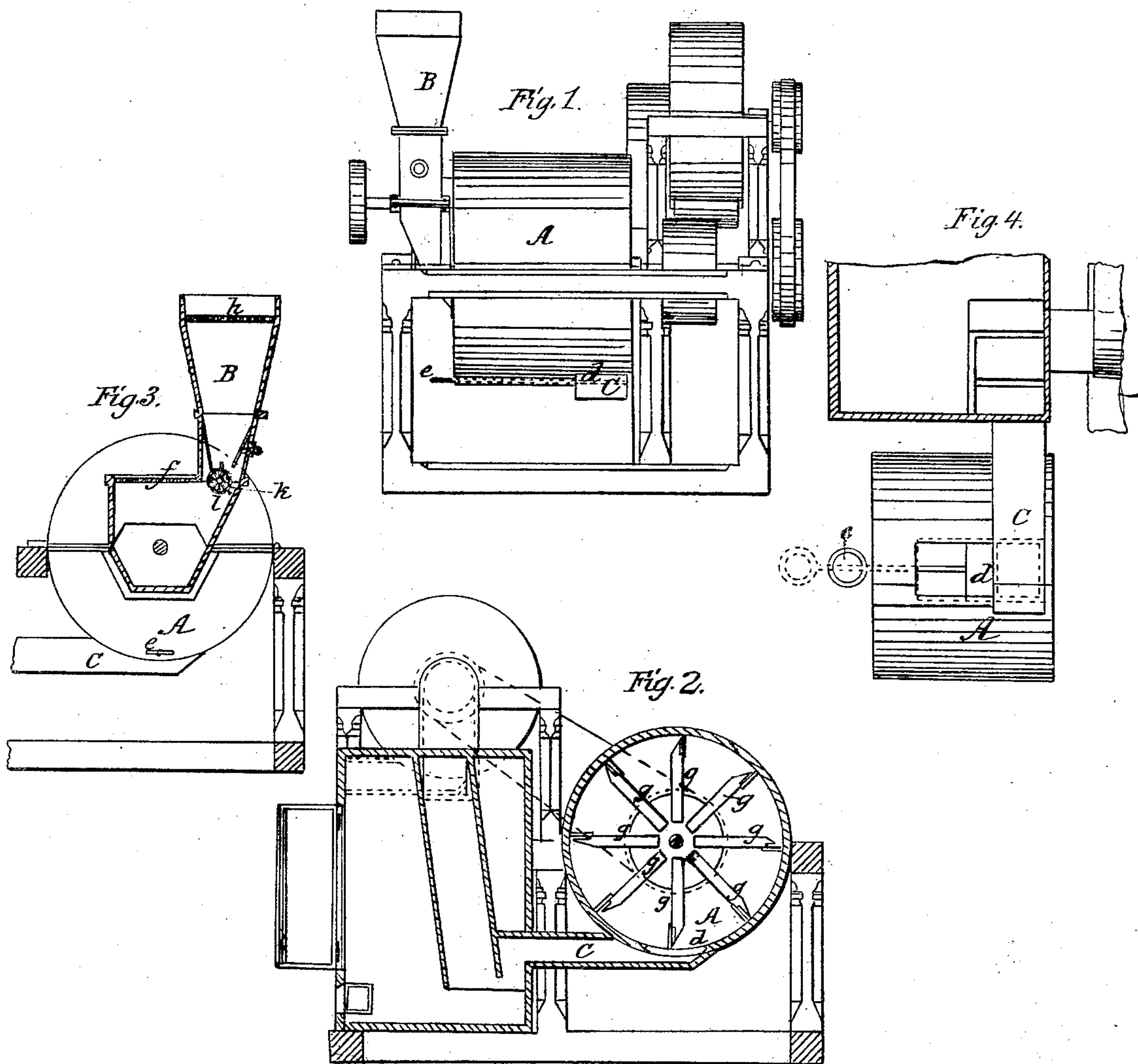


WHELPLEY & STORER.

Machine for Cleaning and Brightening Particles of Precious Metals.

No. 58,011.

Patented Sept. 11, 1866.



Witnesses;
Thos. Wainwright
Charles Bateman

Inventors;
James D. Whelpley
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UNITED STATES PATENT OFFICE.

JAMES D. WHELPLEY AND JACOB J. STORER, OF BOSTON, MASSACHUSETTS.

IMPROVED MACHINE FOR CLEANING AND BRIGHTENING PARTICLES OF PRECIOUS METALS.

Specification forming part of Letters Patent No. 58,011, dated September 11, 1866.

To all whom it may concern:

Be it known that we, JAMES D. WHELPLEY and JACOB J. STORER, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and useful Brightening-Machine; and we do hereby declare that the following full, clear, and exact description of the construction and operation of the same, reference being had to the accompanying drawings, forming a part of this specification, is sufficient to enable others skilled in the art to make and use our invention without other invention or experiment.

Figure 1 is an elevation; Fig. 2, a longitudinal section; Fig. 3, a section of the feed-hopper; and Fig. 4 a plan of the valve, exhaust-pipe, and precipitating-chamber.

Like letters indicate like parts in all the figures.

After roasting ores containing sulphur, which, in case of the ores of the precious metals, is now preferably performed after reducing them to powder, it is found that the particles of pure metal present are covered with a film or scum, the chemical constitution whereof is unknown as yet, but which effectually prevents amalgamation. It therefore becomes necessary to remove this impurity mechanically. To this end various machines, contrived for other purposes, have been applied with partial success; but the one we now present fulfills the purpose admirably.

It consists of a cylinder, A, of greater length than is usual in pulverizing-mills, intermittently fed from the feed-hopper B, and having a peripheral exhaust-pipe, C, at the opposite end of the cylinder from feed-hopper B. This exhaust-pipe may be closed or opened by valve *d*, operated by rod *e*, either by hand or power, at the will of the miller. When opened a current of air is drawn through the cylinder, entering at air-box *f* and leaving at exhaust-pipe C, and clearing the cylinder of its charge. When closed no air can pass through, and the air in the cylinder, set in motion by the rapid rotation of the paddles *g*, stirs up the particles and by their mutual attrition brightens the metal.

To collect these metallic particles we apply the principle of precipitation by the action of gravity in opposition to currents of air, devices for which are already patented by us,

said currents being set in motion by an auxiliary draft-wheel, which also we do not claim at this time. Our arrangement for this precipitation is shown on the left of Fig. 2.

As the paddles *g* are to be made comparatively light, it is of the utmost importance to keep any but the finest dust out of the cylinder, and we therefore employ, in combination with the feed-hopper B, a fine grating, *h*, to prevent coarse particles from entering the feed-hopper B, and as a fine material clogs the ratchet we have formerly employed as a feed-wheel, we use for a feed-wheel a revolving brush, *i*, which sweeps in its revolution over a stationary discharging-bar, *k*, and thus delivers all the dust with which it is loaded into the cylinder A.

We do not claim the use of revolving paddles, either alone or in combination, for their use is covered by other patents. Nor do we claim now the principle of dry precipitation, above described, nor the peripheral exhaust of the cylinder by itself; but

We claim as our invention, and desire to secure by Letters Patent—

1. Brightening metallic particles in finely-pulverized and desulphurized ores, when such brightening is effected on the principle of mutual attrition, in a cylinder, A, alternately closed during the brightening process, and opened to set free the charge by means of valve *d* in the exhaust-pipe C, intending to claim for this end the principle of alternately closing and opening the cylinder, so as to do the work in a closed cylinder, as well as the combination of cylinder A, valve *d*, and exhaust-pipe C, for the purpose, and substantially as described.

2. The combination, with feed-hopper B, of a fine grating, to prevent the passage of any but very fine dust into the cylinder, and the further combination, with said feed-hopper, and rendered necessary by the exclusion of any but very fine dust from the charge of the machine, the revolving brush *i* and its discharging-pin *k*, operating substantially as and for the purpose described.

JAMES D. WHELPLEY.
JACOB J. STORER.

Witnesses:

THOS. WM. CLARKE,
CHARLES BATEMAN.