S. MAN.

Ore Amalgamator.

No. 29,438. Patented July 31, 1860.

Fig 1

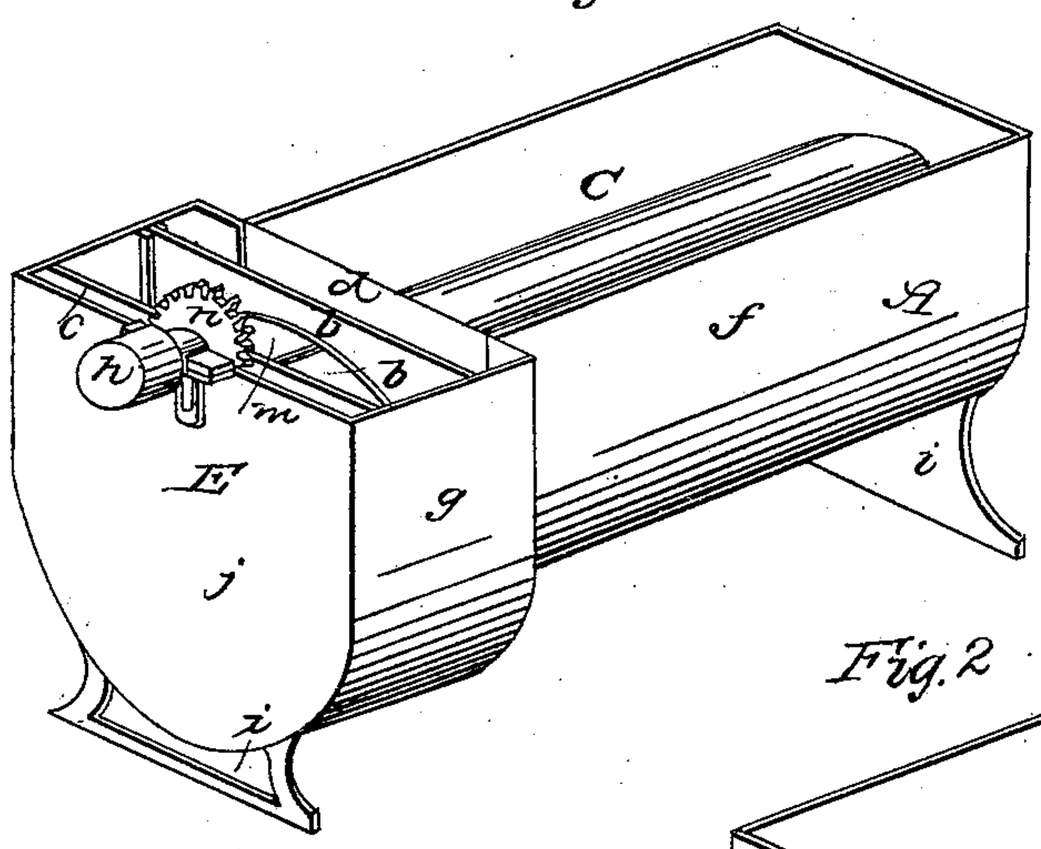


Fig. 3

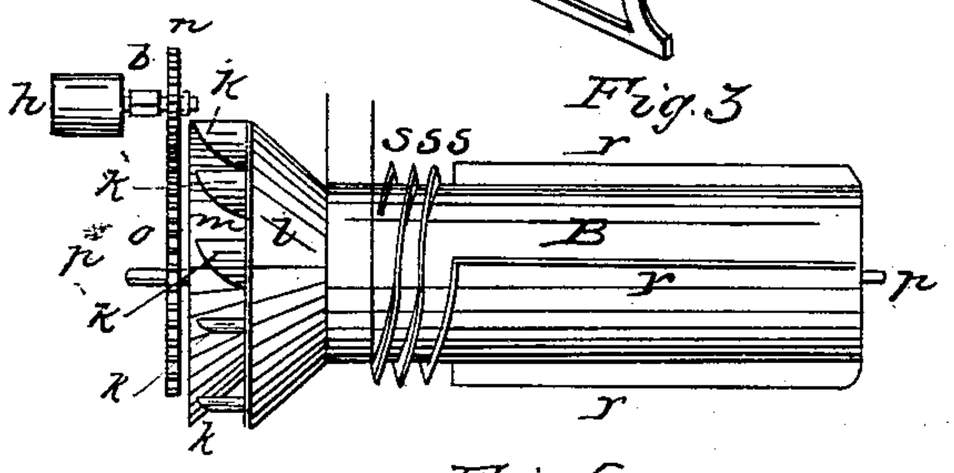


Fig. 2

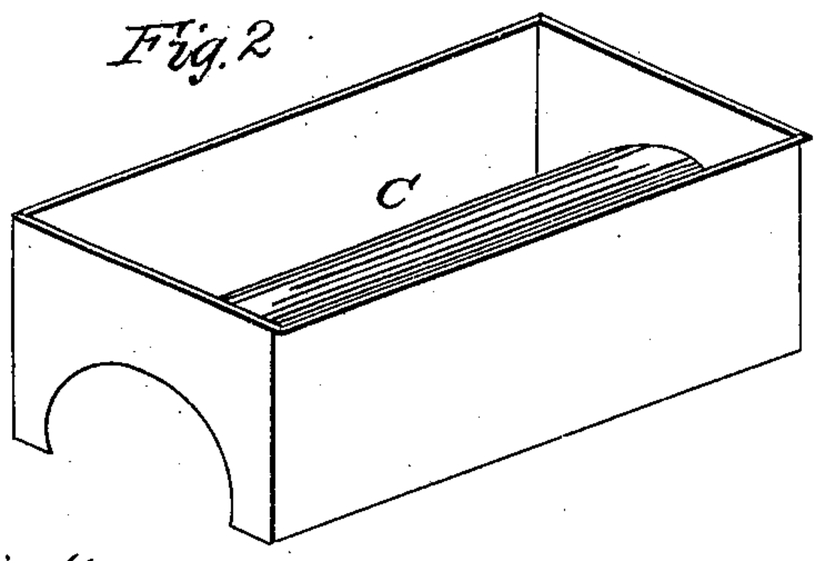


Fig. 4

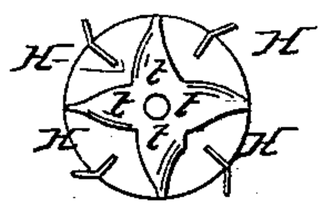
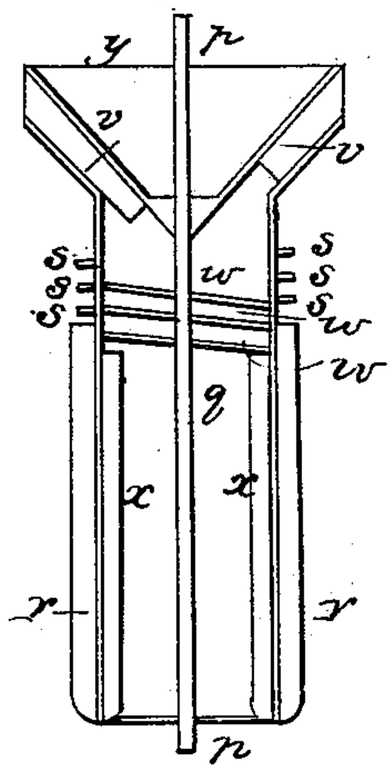


Fig. 5



Attest
Howard Grant
LeRoy Curtis

Inventor
Samuel Man

UNITED STATES PATENT OFFICE.

SAML. MAN, OF CHICAGO, ILLINOIS, ASSIGNOR TO HARRY V. MAN, OF SAME PLACE.

ORE-SEPARATOR.

Specification of Letters Patent No. 29,438, dated July 31, 1860.

To all whom it may concern:

Be it known that I, SAMUEL MAN, of the city of Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Amalgamators or Separators by which the Precious Metals may be Separated from Quartz, Rock, Sand, Ore, or any other Substances; and I do hereby declare that the following is a clear and exact description of the same, reference being had to the accompanying drawings, making a part of this specification, in which—

Figure 1, shows the exterior of the machine in perspective. Fig. 2 is the cover or concave under which the cylinder operates. Fig. 3, represents the outer surface of the cylinder. Fig. 4, is an end view of the revolving cylinder, showing the internal arrangements. Fig. 5, shows a longitudinal section of cylinder with both the internal and external mechanism.

The nature of my invention consists in the construction, and arrangement of a revolving cylinder, having at one end, a conical elevating wheel with spiral buckets, also spiral or screw flanges, and a series of longitudinal leaves or projecting wings, on both the external and internal surfaces, the straight part running horizontally between two concave surfaces, they forming a smooth hollow cylinder, in which the mercury and minerals are retained while in the process of amalgamation, and separation.

To enable others skilled in the art, to make and use my invention, I will describe it more fully, referring to the drawings and the letters, marked thereon.

The frame, and receptacle of my improved amalgamator, or separator of the precious metals from other substances, may be made of metal, or of any other material that will retain the mercury, as seen in (Fig. 1,) the main body (A,) being in the form of a trough, or concave, placed in a horizontal position, and supported on legs, or brackets (*i*, *i*,) at each end. Into the concave is placed, so as to revolve, a peculiarly constructed hollow cylinder (B,) hung on the journals (*p*, *p*,) shown in (Fig. 3). Over the cylinder (B,) is fitted a cap, or concave cover (*c*,) as shown in (Fig. *e*) detached, but when in its place on the machine helps to complete the circle, for the cylinder (B,) to revolve in. The revolving cylinder (B,) is made hollow, of any size, and length desired, having a shaft (*q*,) running longitudinal through the center of it forming the journals (*p*, *p*,) at both ends, which have their bearings in boxes, secured inside of the trough (A,) so that there is no leakage. The cylinder (B,) is supported central, and secured to the shaft, or arbor (*q*,) by curved wing shaped arms (*t*, *t*, *t*,) seen in (Fig. 4). At the the driving end of the cylinder (B,) is a cone shaped flange (*y*) of about twice the diameter of the cylinder which forms the end rim of an inclined elevating wheel (*m*). On the surface of this cone shaped flange (*y*,) toward, and extending to the internal arrangement of the revolving cylinder (B,) are a series of curved buckets (*k*, *k*, *k*, *k*,) which are covered with another cone shaped flange (*l*,) extending from the periphery of the elevating wheel (*m*,) to the surface of the cylinder (B,) so that by the revolving of the same, the contents are elevated by the buckets (*k*, *k*,) above the cylinder, and by their gravity, are discharged into it, where they are thoroughly agitated and mixed, by being drawn along by the screw flange (*w*, *w*, *w*,) and the action of the wings (*x*, *x*,) as seen in (Fig. 5,) until discharged at the other end, when they again are brought in contact with wings or flanges (*v*, *v*,) on the outer surface of the cylinder, so that the agitation is still kept up, to a greater degree, in the trough, until it is carried along by the spiral flange (*s*, *s*, *s*,) on the outer surface of the cylinder, till the dirt and refuse material is carried off by a flow of water.

The elevating and discharging wheel, and cylinder are put in motion by a cogwheel (*o*,) fastened to the shaft (*q*,) running inside of the box. There is a pinion (*n*,) driven by a band pulley (*h*,) which works the machine by power, or it may be operated by hand by putting a crank to the pulley shaft.

The end or receiving part of the machine (E,) is enlarged to admit of the turning of the elevating and discharging wheel (*m*,) and is divided into three compartments, by sliding partitions (*c*, *d*, and *e*.) The end space is for the gear wheels (*n*, and *o*) to work in. The space between the partitions (*c* and *e*,) is the place where the materials are put into the machine, as also the pit for the wheel (*m*.) The space between the partitions (*c*, and *d*,) is the water course, from which the refuse is discharged,

The operation of my machine is very

simple and efficient. The substance to be amalgamated, and separated, is raised by the curved buckets, which by their inclined position discharge their contents into the inside of the revolving cylinder where they are thoroughly agitated, and mixed with the mercury until it is discharged from the end into the trough, or stationary cylinder, where it continues to be more agitated as it is carried back by the wings and spiral flanges on the surface of the cylinder, to the space where the refuse material is discharged by a flow of water, thereby obviating the necessity of pressure to immerse the material to be separated.

The advantages of my machine are that it may be made portable, cheap, and durable, of any desired size, and of any suitable material, is not liable to incrustation, or waste of the mercury, while it thoroughly mixes every particle of the matter contained in it, and operates easily by hand or power with very little friction or wear to the machinery.

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

The construction and arrangement of the conical elevating and discharging wheel (*m*,) to which is attached the revolving cylinder (B,) having spiral flanges, and longitudinal wings on both the internal, and external surfaces, in combination with the stationary cylinder and trough, substantially as, and for the purposes herein specified.

SAMUEL MAN.

Witnesses:
HIRAM GRUNT,
LE ROY CURTISS.