

(No Model.)

H. B. MEECH.

AMALGAMATOR.

No. 277,316.

Patented May 8, 1883.

Fig. 1

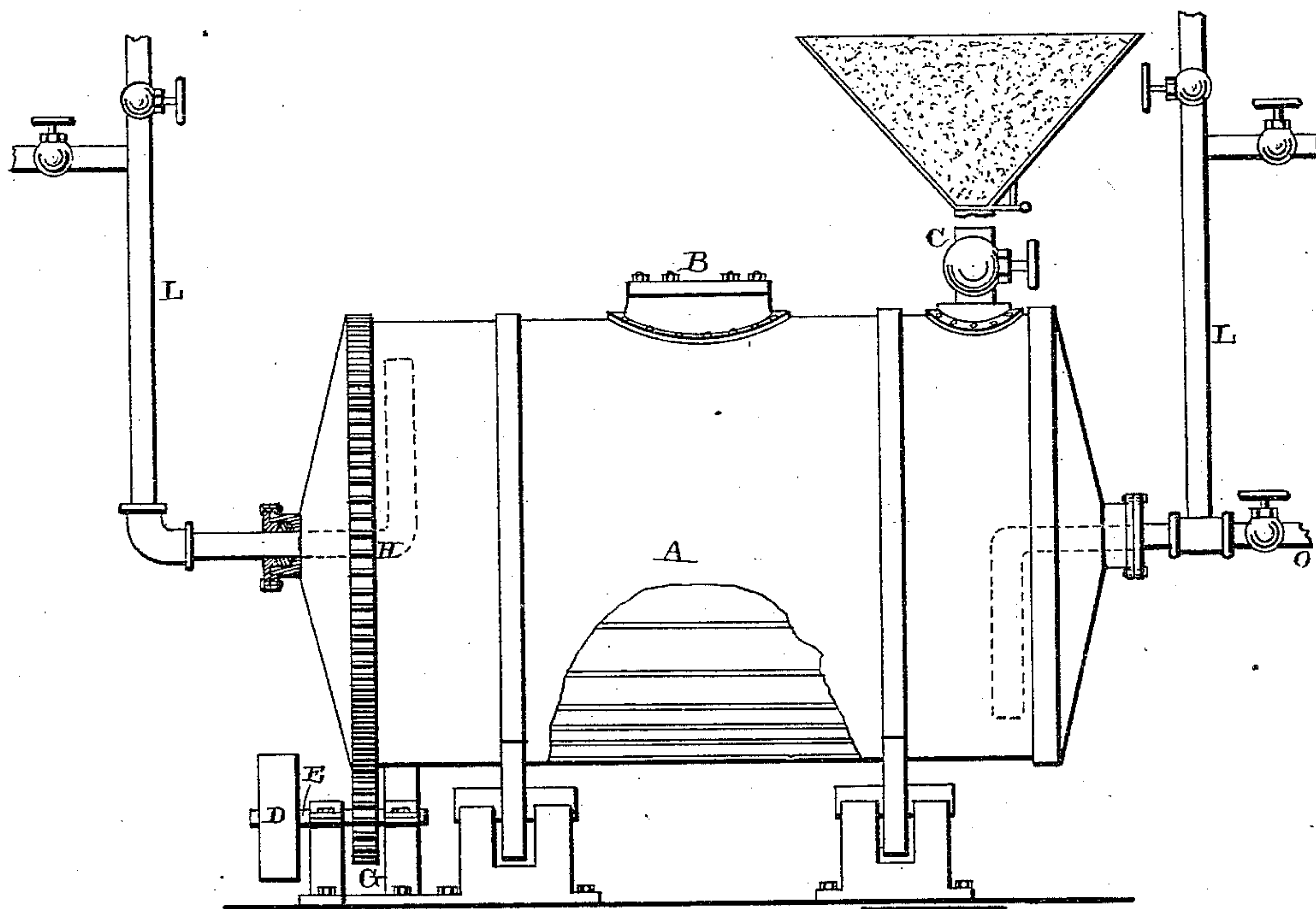
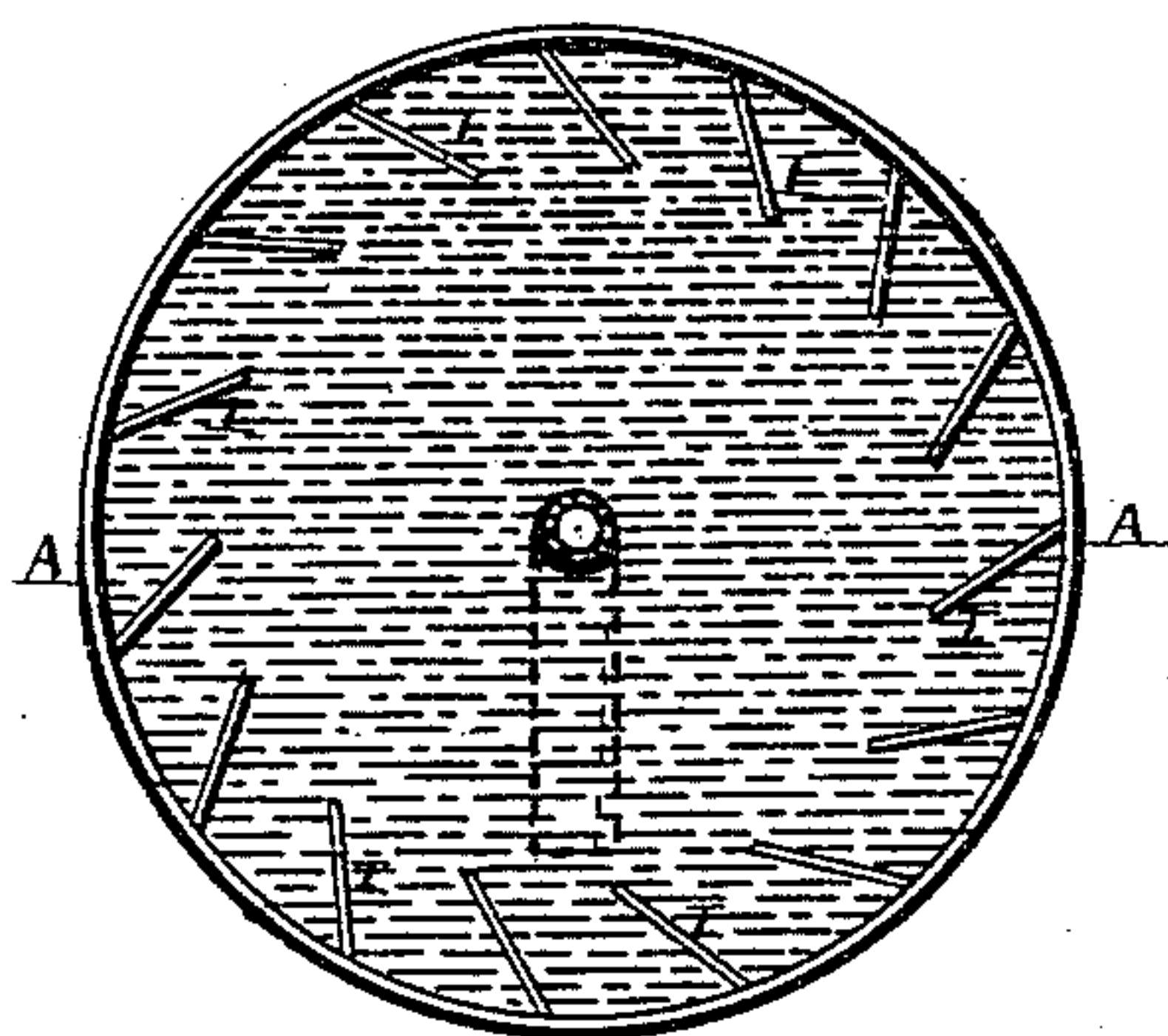


Fig. 2.



— Witnesses. —

Louis F. Gardner

J. W. Garner

— Inventor. —

H. B. Meach,

per

J. A. Lehmann,
Atty.

UNITED STATES PATENT OFFICE.

HARRISON B. MEECH, OF CHATHAM, NEW YORK.

AMALGAMATOR.

SPECIFICATION forming part of Letters Patent No. 277,316, dated May 8, 1883.

Application filed January 30, 1883. (No model.)

To all whom it may concern:

Be it known that I, HARRISON B. MEECH, of Chatham village, in the county of Columbia and State of New York, have invented certain new and useful Improvements in Amalgamators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

My invention relates to an improvement in amalgamators.

It consists in the combination, with a revolving cylinder, of suitable pipes attached to its ends, whereby a hydrostatic pressure is applied to the cylinder, and the water made, while passing through the cylinder, to carry off the mud at any gravity that may be required, as will be more fully described hereinafter.

The object of my invention is to provide a means by which the mercury can be made to constantly circulate through the reduced ore, and to enable the amalgamation and concentration of the metal to be carried on at the same time, so that but a single machine is required for both purposes.

Figure 1 is a side elevation of a machine embodying my invention. Fig. 2 is a cross-section of the cylinder, showing its interior shelves.

A represents a cylinder, which may be made of either wood or metal, and of any shape, length, and diameter that may be desired. This cylinder is provided with a man-hole, B, through which the amalgam can be removed, and with suitable means, C, through which the ore and mercury can be introduced. Connection is made between the hopper and the pipe C, whenever it is desired to run a charge of ore into the cylinder, and then the two parts are again disconnected. This cylinder rests upon a series of friction-wheels, and is given a revolving movement by means of the driving-pulley D, shaft E, and gear G. This gear meshes with suitable teeth, H, which are formed upon the periphery of the cylinder at one end. Secured to the inner side of this cylinder are a number of shelves, I, which

may have their inclination toward the center of the cylinder differ, so as to vary the point at which the quicksilver carried up by them will be discharged at the top. These shelves may be of any desired width and placed at any desired angle to each other, as their office is to carry up the quicksilver from the bottom of the cylinder and to drop it back upon the reduced ore, and thus keep the quicksilver circulating through it. Attached to each end, by means of a suitable coupling, is a pipe, L, which extends upward a desired distance, and one of them is connected with a fountain-head of water, while the other serves to carry off the mud at any desired gravity that may be required. The lower end of the inlet-pipe is made to extend down near the bottom of the cylinder, while the outlet-pipe is made to reach up near the top of the cylinder, and thus the incoming water is made to travel the greatest possible distance through the cylinder and rise upward through the mud and dirt, so as to dissolve and carry it off. The lower the point in the outlet-pipe at which the water escapes the heavier will be the specific gravity of the mud carried off, and the higher the point the less will the gravity be. Only a sufficient quantity of mercury is placed in the cylinder to amalgamate the ore; but when the water is turned on the cylinder is completely filled, and the hydrostatic pressure will be in proportion to the height of the head of water, or to the height of the point of discharge when a pump is used to force the water in. The fountain-head is placed a suitable distance above the cylinder for the purpose of causing a concentrating effect upon the metals in the ore, and thus causing them to sink to the bottom. If so desired, this same hydrostatic pressure may be exerted in the cylinder by means of a pump, and then a head of water is not necessary. As the water is forced in at one end of the cylinder it passes out through the other at any suitable elevation, and carries off the mud that has been separated from the ore.

By means of the construction shown and described all of the float-gold is secured, the metal is concentrated and amalgamated at the same time, and thus the work of two machines accomplished by a single one.

Attached to one of the pipes L will be a

suitable steam or hot-water pipe, O, through which either steam or hot water may be forced, for the purpose of raising the temperature of the ore to any desired point during cold weather, 5 when the water has a tendency to freeze, and for other purposes.

I am aware that a revolving cylinder open at both ends, so that the water can flow freely through, and which is provided with buckets 10 for carrying up the quicksilver, is not new, and this I disclaim. My invention differs from this in having the ends of the cylinder closed, so as to produce a hydrostatic pressure in the cylinder, and in having the ends of the pipes 15 so turned that the water must rise upward through the ore.

Having thus described my invention, I claim—

In an amalgamator, the combination of the cylinder A, closed at both ends, and provided 20 with the buckets I, the inlet and outlet pipes L, which have their ends turned in opposite directions, and a mechanism for revolving the cylinder, substantially as shown.

In testimony whereof I affix my signature in 25 presence of two witnesses.

HARRISON B. MEECH.

Witnesses:

F. A. LEHMANN,
LOUIS F. GARDNER.