(No Model.)

D. O. CRANE.

AMALGAMATING ORE SEPARATOR.

No. 259,633. Patented June 13, 1882.

Fig. 1.

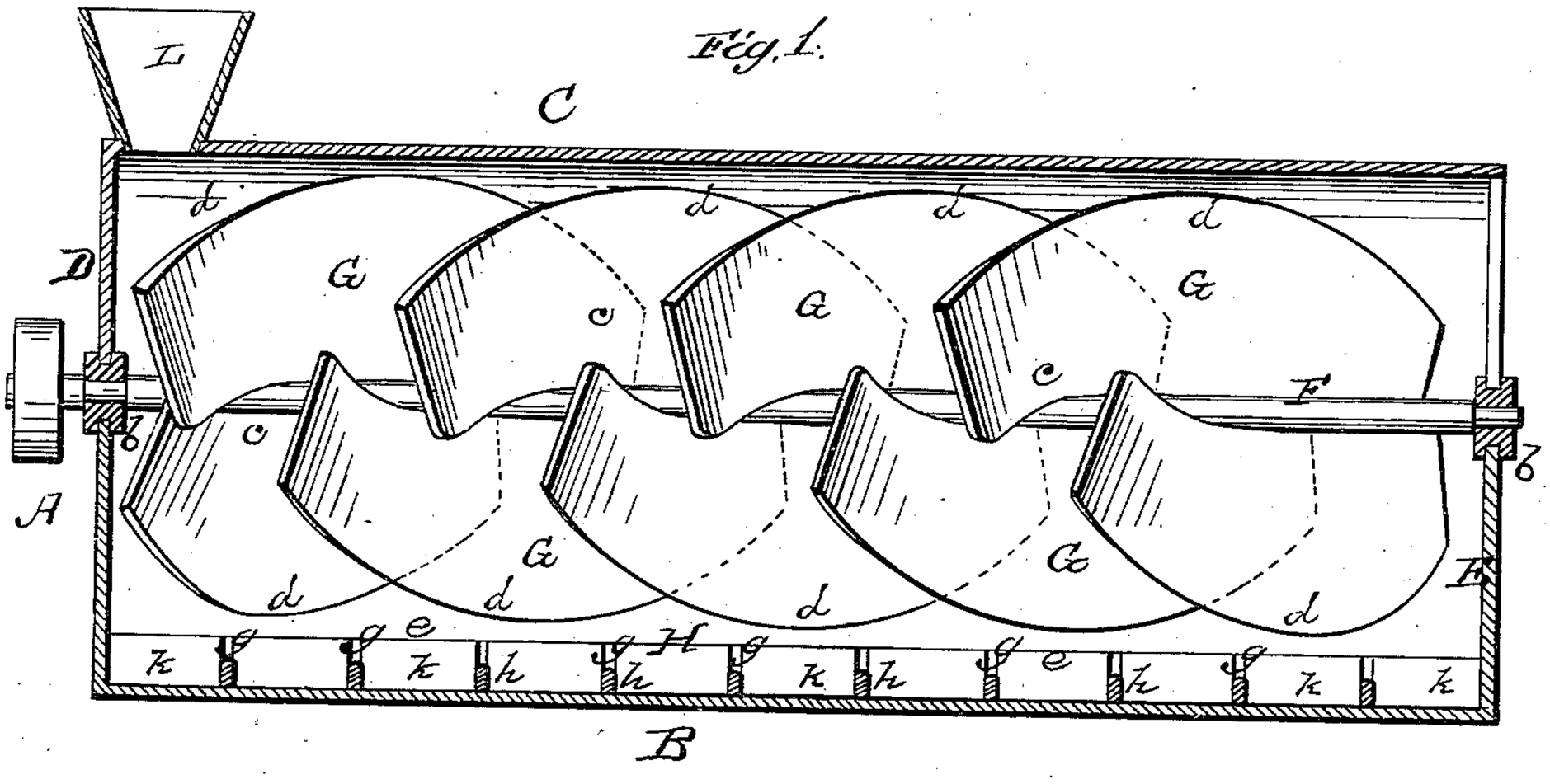
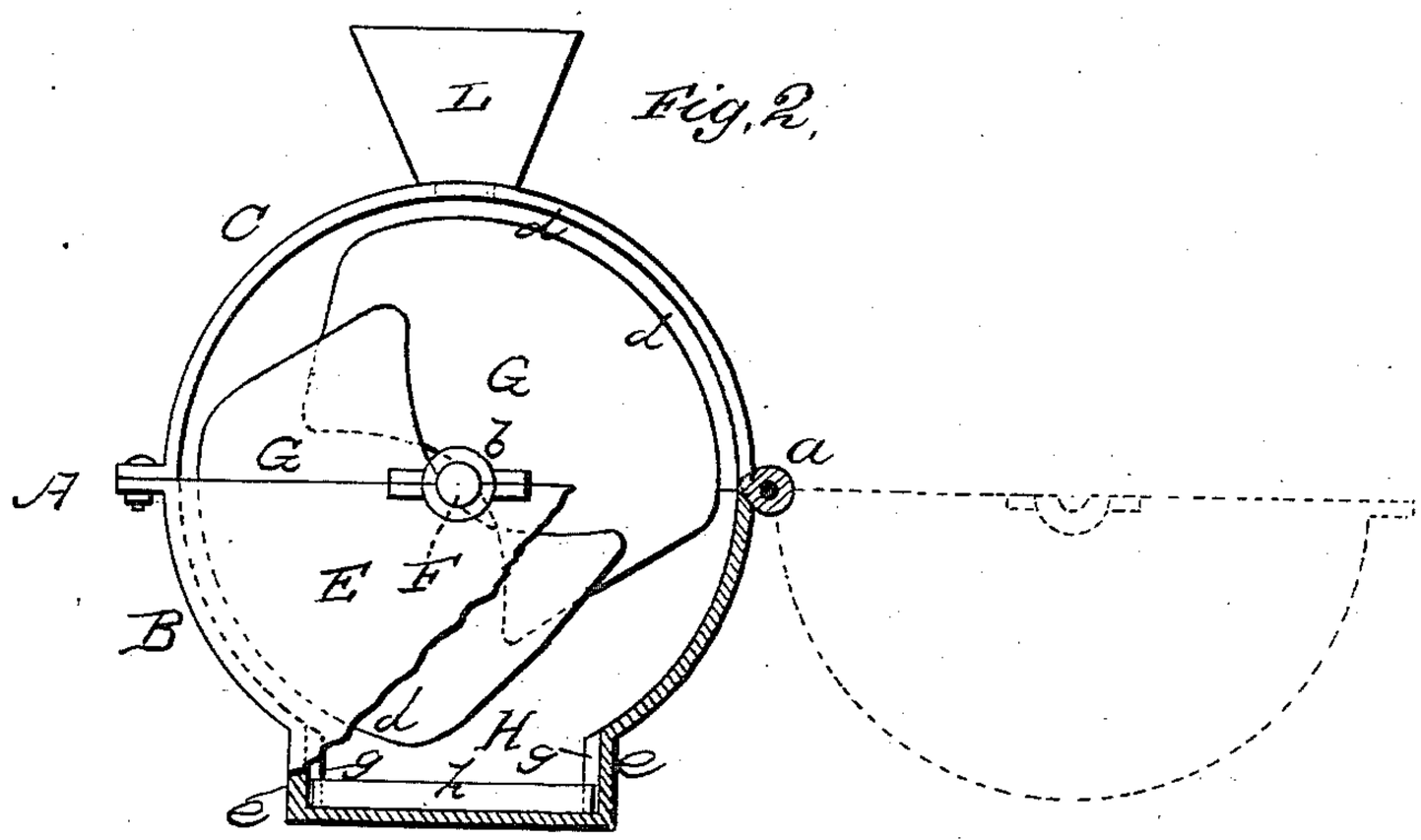


Fig. 2.



WITNESSES

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UNITED STATES PATENT OFFICE.

DAY O. CRANE, OF WASHINGTON, DISTRICT OF COLUMBIA.

AMALGAMATING ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 259,633, dated June 13, 1882.

Application filed February 21, 1882. (No model.)

To all whom it may concern:

Be it known that I, DAY O. CRANE, a citizen of the United States, resident at Washington, in the District of Columbia, have invented certain new and useful Improvements in Amalgamating Ore-Separators; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

Figure 1 of the drawings represents a vertical sectional view of my improved ore-separator; and Fig. 2 is an end view, partly in section, of the same.

This invention has relation to ore-separators which operate on the amalgamating plan, and its object is to provide a washing-machine whereby the tailings from a stamp-mill can be effectively acted upon and a large proportion of the gold therein saved.

The invention consists in the construction and novel arrangement, in connection with a washing cylinder-case having a flat base-trough, of opposite series of inclined blades extending in parallel directions on a rotating shaft journaled at the ends of the cylinder-case, and in connection therewith of the riffles transversely arranged in the base-trough, all as hereinafter set forth.

In the accompanying drawings, the letter A designates the cylinder-case, consisting of a base-section, B, and a cover-section, C, these parts being formed or cast separately and hinged together, as at *a*.

At one end the cylinder has a full end wall, D, while at the other, which is the discharging end, the upper section, C, has no end wall, the base B only being closed at the end by the half-wall E, over which the water and sediment are designed to flow in passing from the machine. In some cases perforations may be made through the half-wall E; but this will seldom be necessary.

F indicates a rotary shaft extending lengthwise through the central portion of the cylinder, and being journaled in the boxes *b b* at its ends. To this shaft are securely attached, on opposite sides, series of inclined but parallel copper flume-blades G, which are interspaced, as at *c*, and have curved outer margins, *d*, of elliptical form, moving, as the shaft F is turned, near the case-wall, as indicated in the drawings.

H represents the base-trough, which is cast at the bottom of the lower section, B, of the case, and forms an offset therefrom. This trough is shallow and its floor is flat, extending from end to end of the case.

In the side walls, *e*, of the trough are vertical grooves *g*, in which are seated a series of transverse riffles or ribs, *h*, these being, by means of the grooves *g*, easily removed and replaced. The upper edges of the riffles are designed to lie quite near the margins of the flume-blades, so that the particles of gold passing therefrom will be quickly stopped in the interspaces or cells *k* between the riffles, in which the quicksilver is placed.

Near the closed end D of the case is placed in the cover-section an entrance spout or hopper, L, through which water and sediment from the stamping-machine pass into the case A, falling on the first flume-blades of the series, whereon the sediment is washed, and, as the blades turn and assume the vertical position, passes downward in the interspaces, the upper portion, however, being caught by the succeeding flume-blades and further washed, and again falling through the interspaces as the shaft rotates.

The broad rotating flume-blades are covered with quicksilver, and are designed to catch, during this operation, the lighter particles of gold—floating or "flour" gold, as it is termed, which is not sufficiently dense to fall through the mass to the base-trough.

As the heavier portions of the sediment fall from the flume-blades through the interspaces they are received by the riffles in the base-trough, which prevent their rapid passage, so that the particles of gold therein, being of superior gravity, fall and are caught in the cells of the trough.

As the lower section of the case is closed at the discharge end by the half-wall E, the water cannot flow out under the mass and wash off the heavy particles of gold, but must overflow, passing over the half-wall and leaving the valuable portions of the sediment therein to be acted on again and again by the current and the rotating blades.

It is not new to cause the ore-pulp to circulate in a trough or sluice, so that it will constantly return and pass over the same points until exhausted of its gold or silver, by means of driving apparatus lined or covered with plates capable of surface-amalgamation, and such old devices are not claimed herein.

Having described this invention, what I claim, and desire to secure by Letters Patent, is—

1. In an amalgamating ore-separator, the opposite series of inclined flume-blades G, having their faces coated with quicksilver, and arranged in parallel directions on opposite sides of a rotating shaft, in combination with said shaft, journaled at the ends of a cylinder-case, substantially as specified.

2. In an amalgamating ore-separator, the combination, with the cylinder-case A, provided with the base-trough H, having the grooves *g* and the removable transverse riffles *h*, of the inclined flume-blades G, coated with mercury, and arranged on opposite sides of a rotating shaft and in parallel inclined directions, and having the elliptically-curved margins *d*, working near the case-wall and near the upper edges of the riffles, substantially as specified.

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

DAY O. CRANE.

Witnesses:
THEO. MUNGEN,
PHILIP C. MASI.