

(No Model.)

C. W. STICKNEY.

ORE SEPARATOR.

No. 270,259.

Patented Jan. 9, 1883.

Fig. 1.

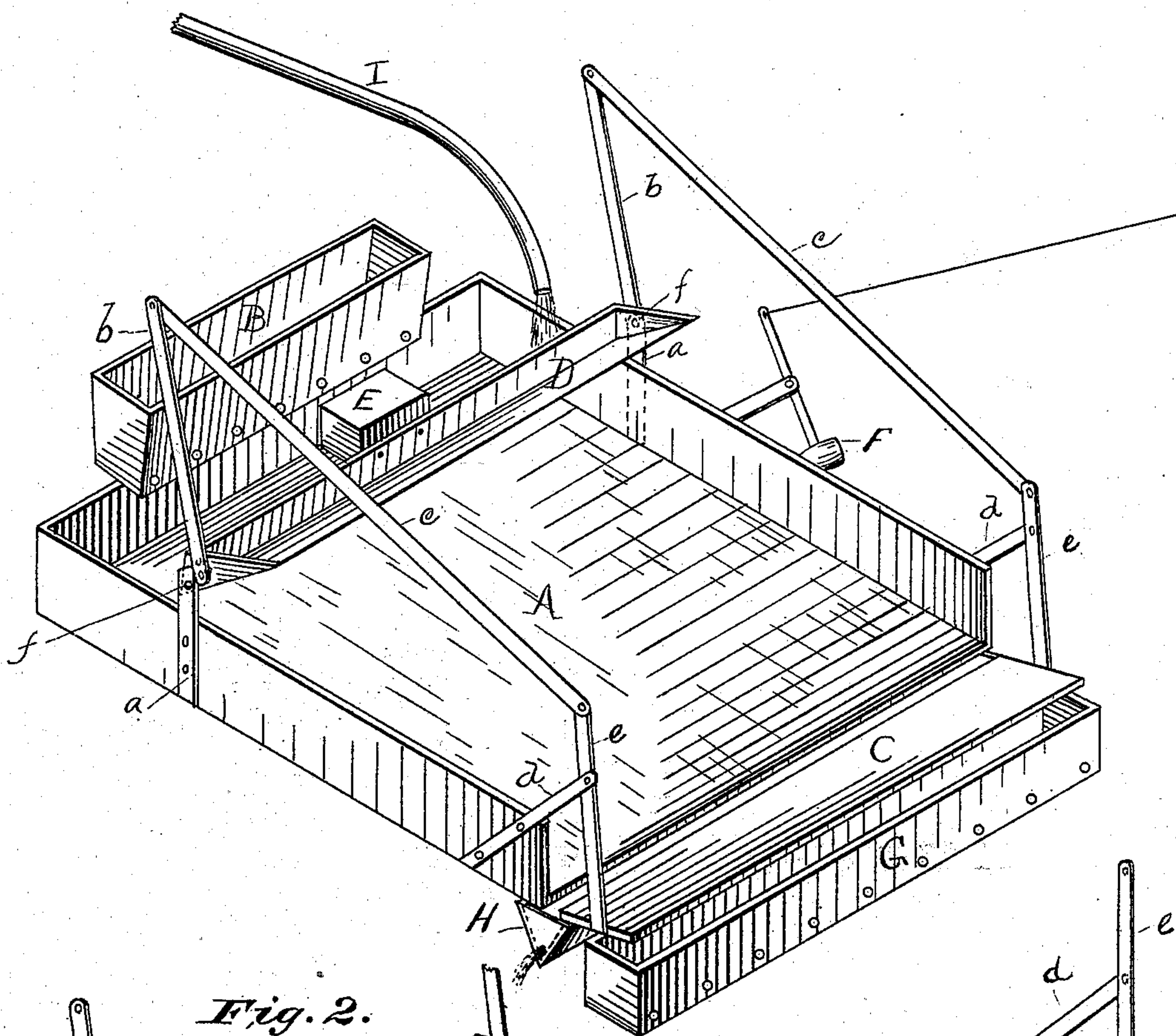


Fig. 2.

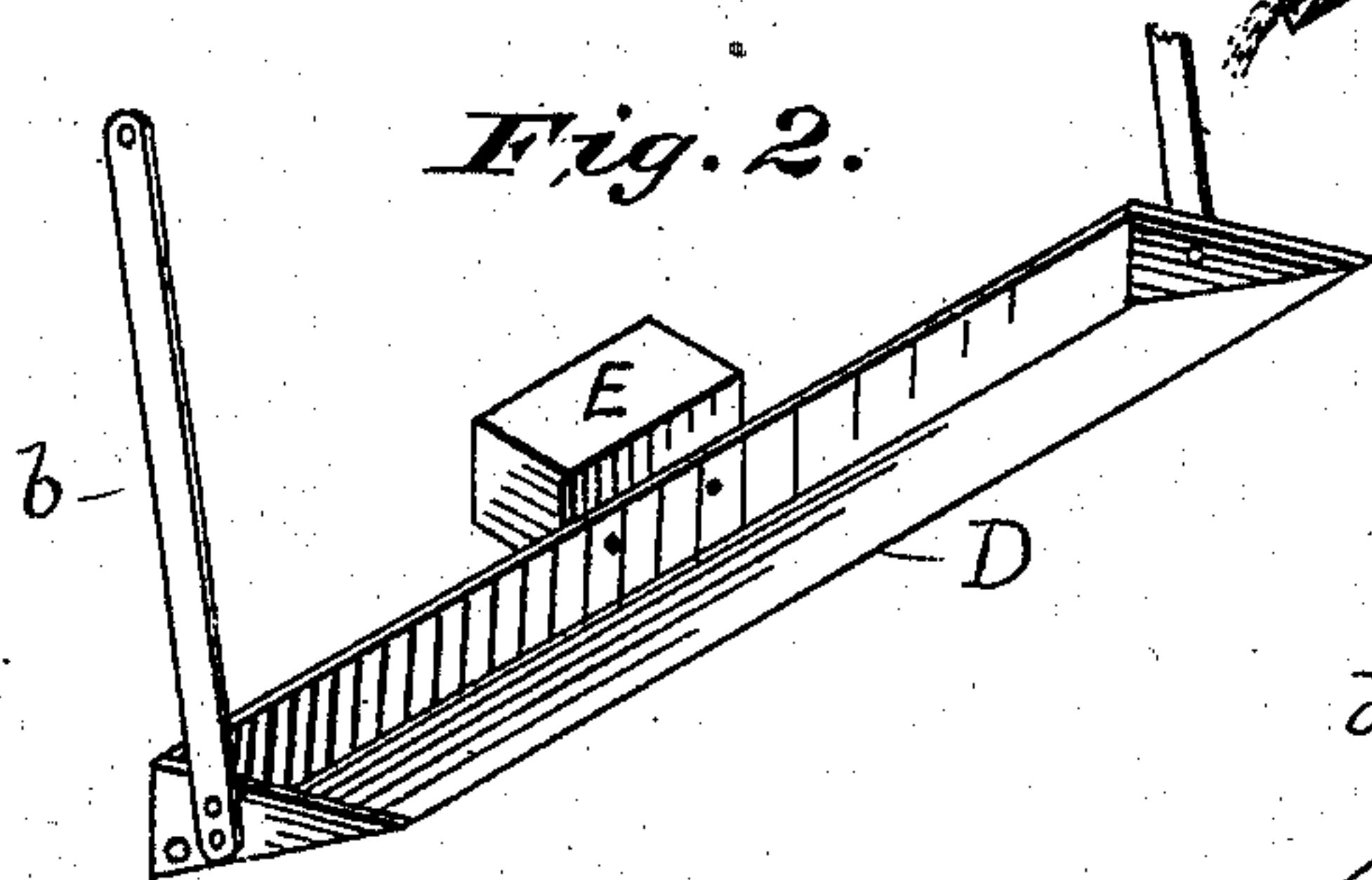
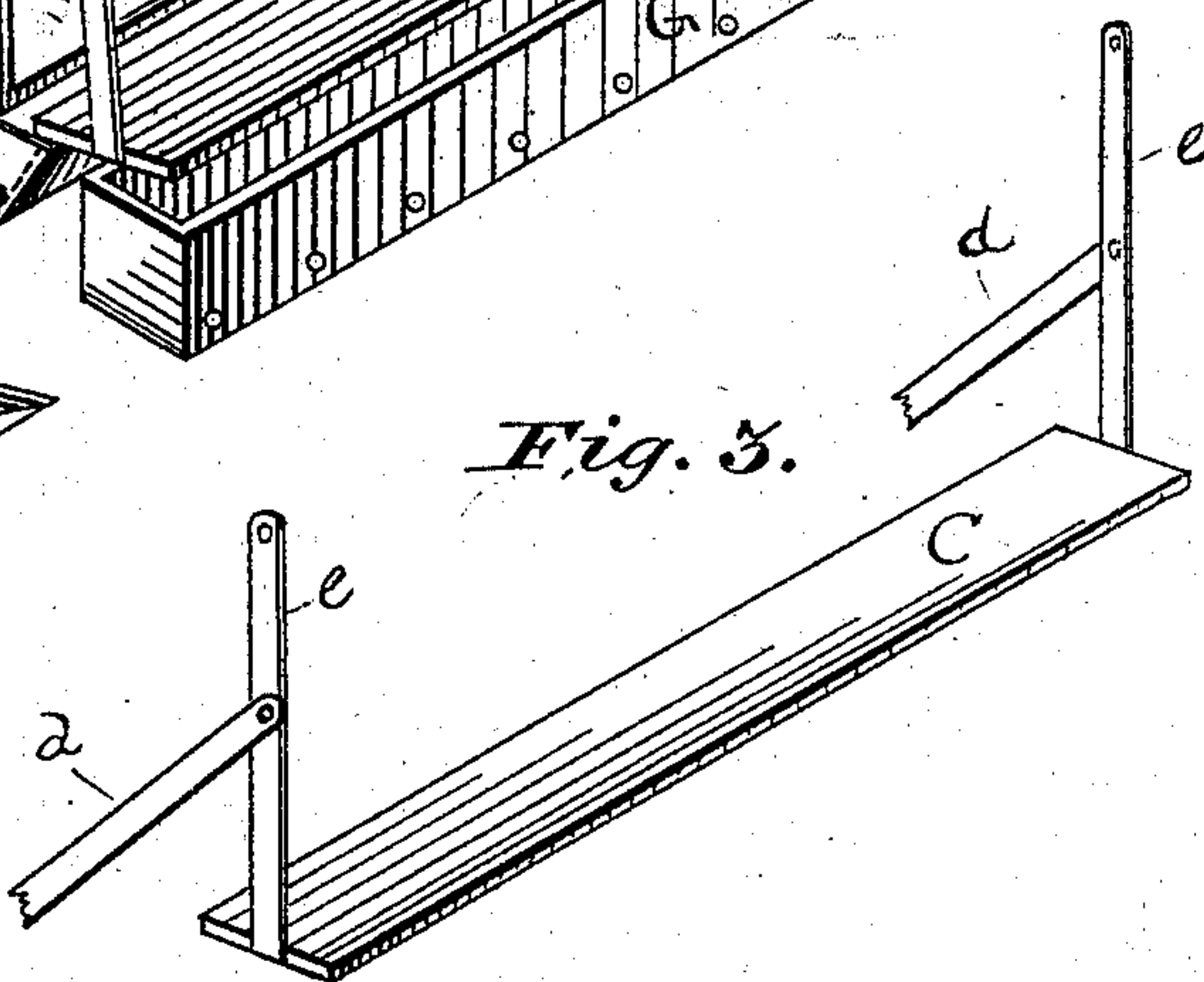


Fig. 3.



Witnesses:

J. C. Brecht.
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Inventor:

Charles W. Stickney.

UNITED STATES PATENT OFFICE.

CHARLES W. STICKNEY, OF WASHINGTON, DISTRICT OF COLUMBIA.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 270,259, dated January 9, 1883.

Application filed September 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. STICKNEY, a citizen of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Ore-Separators, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention is a machine for separating ore from tailings. The principle on which it works is the gradual washing away of the tailings and leaving behind the ore by reason of its greater specific gravity. The advantage I gain is in the working of the machine without labor or attention, by which the separation is effected, and the means for regulating the period of time between successive automatic movements, and the quantity of water to be used.

Figure 1 represents the ore-tray A slightly inclined, with feed ore-box B, swinging shelf C, flood-trough D, weight-box E, and hammer F. Fig. 3 shows the swinging shelf C, slats E, and stanchions *d* disconnected from the tray. Fig. 2 shows the flood-trough D and weight-box E, likewise disconnected.

I make a broad shallow box or ore-tray, A, to receive the ore from the feed-box B. There is no end to this box at its lower end. At the other end or head of the tray I make a feed ore-box, B, provided with a crack or small holes at its bottom to feed the ore and water gradually to the tray. I make a flood-trough, D, with boards of unequal width, so that when the top of the trough is level one side will stand vertical and the other oblique, as in Fig. 2. I hang this on pivots *ff*, between stanchions *aa*, so that when filled with water it is in unstable equilibrium over the head of the ore-tray. I attach rigidly to the ends of flood-trough D two upright staves, *bb*, and to the middle of its upright side a box, E, for sand, stones, or any convenient weight.

At the foot of the ore-tray I erect two stanchions, *dd*, one on each side, and between them I swing a hanging shelf, C, by slats *ee*, pivoted to the stanchions *dd*, which slats *ee* project also above the stanchions and have their upper ends connected to the staves of the flood-trough by pivoted slats *cc*. The shelf is so hung that when swung toward the

tray A its nearer edge comes under the edge of the tray, and its inclination is away from the tray. Directly beneath the edge of the tray A is a trough, H, to carry off waste water and tailings, and next to it, farther from the tray A, is the feed ore-box G of an apparatus similar to that just described, a series being placed one after another on a slope. Along the side of the series runs a water-race, which, by an appropriate pipe or trough, I, supplies the flood-trough and operates hammers placed beside each tray, which constantly tap the tray by any common device, such as a water-wheel, crank, and rod connected to the handle of each hammer.

The operation is as follows: Ore from a stamp-mill and water flow into the first feed-box B and gradually spread over the tray A. The surplus water and part of the tailings run to waste over the tray's lower edge, the heavier part remaining on the tray A. Meanwhile the flood-trough D has been filling, the time of which experience regulates by the weights put in the weight-box E. When the water rises in the trough high enough to overcome this weight the flood-trough D dumps its water and washes everything off the tray; but at the same time the swinging shelf C, connected with the trough, is swung up under the edge of the tray by the motion communicated to it from the moving trough D through the staves and slats *b*, *c*, and *e*, and the ore, instead of flowing into the waste-trough H, is flooded over the shelf into the next ore-feed box G. After dumping, the flood-trough is turned back by its weight-box, and the shelf is swung away from the tray. By passing down a series of trays the tailings are gradually and automatically washed away, leaving the heavier ore in a suitable box at the bottom of the series. The running off of the tailings is facilitated by the constant tapping of the hammers F.

Any convenient form of weight may be used instead of the weight-box E, such as iron or stone hung to a nail in the side of the flooding-trough D by a rope or chain.

I am aware that a water-trough for distributing water evenly over the ore-tray and hung on trunnions to admit of dumping by hand-power is not new, as shown in Evans' Patent No. 189,928. I am aware that a trap at the

end of the ore-tray, to be operated by hand for separating ore from tailings, is not new, as shown in the same patent and elsewhere. I am aware that Hooper's Patent No. 139,390 shows a dumping-buddle hung on trunnions, to be dumped by hand, and that Davis' patent, April 28, 1836, and Wilder's Patent No. 149,622 show devices for jarring the ore-tray by hand. I claim none of these devices.

10 I claim—

1. In an ore-separator, a water-receptacle suitably supported in equilibrium and provided with a weight for keeping it upright until filled with water, in combination with the means herein described for separating the ore from the tailings, consisting of the tray, a swinging shelf, and means whereby it is actuated simultaneously with the said water-receptacle, substantially as described.

20 2. In an ore-separator, a water-receptacle

suitably supported in equilibrium and provided with a weight for keeping it upright until filled with water, in combination with the means herein described for separating the ore from the tailings, consisting of the tray, a swinging shelf, means whereby it is actuated simultaneously with the said water-receptacle, and the hammers, substantially as described.

3. In an ore-separator, the combination of a water-receptacle, means for supporting and operating the same, and an adjustable weight, whereby the water-receptacle is periodically dumped and brought back to its normal position, substantially as described.

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

CHARLES W. STICKNEY.

Witnesses:

LLOYD F. KELEHER,
EDMOND BRODHAG.