

(Model.)

W. THURMOND.

ORE CONCENTRATOR.

No. 248,234.

Patented Oct. 11, 1881.

Fig. 1.

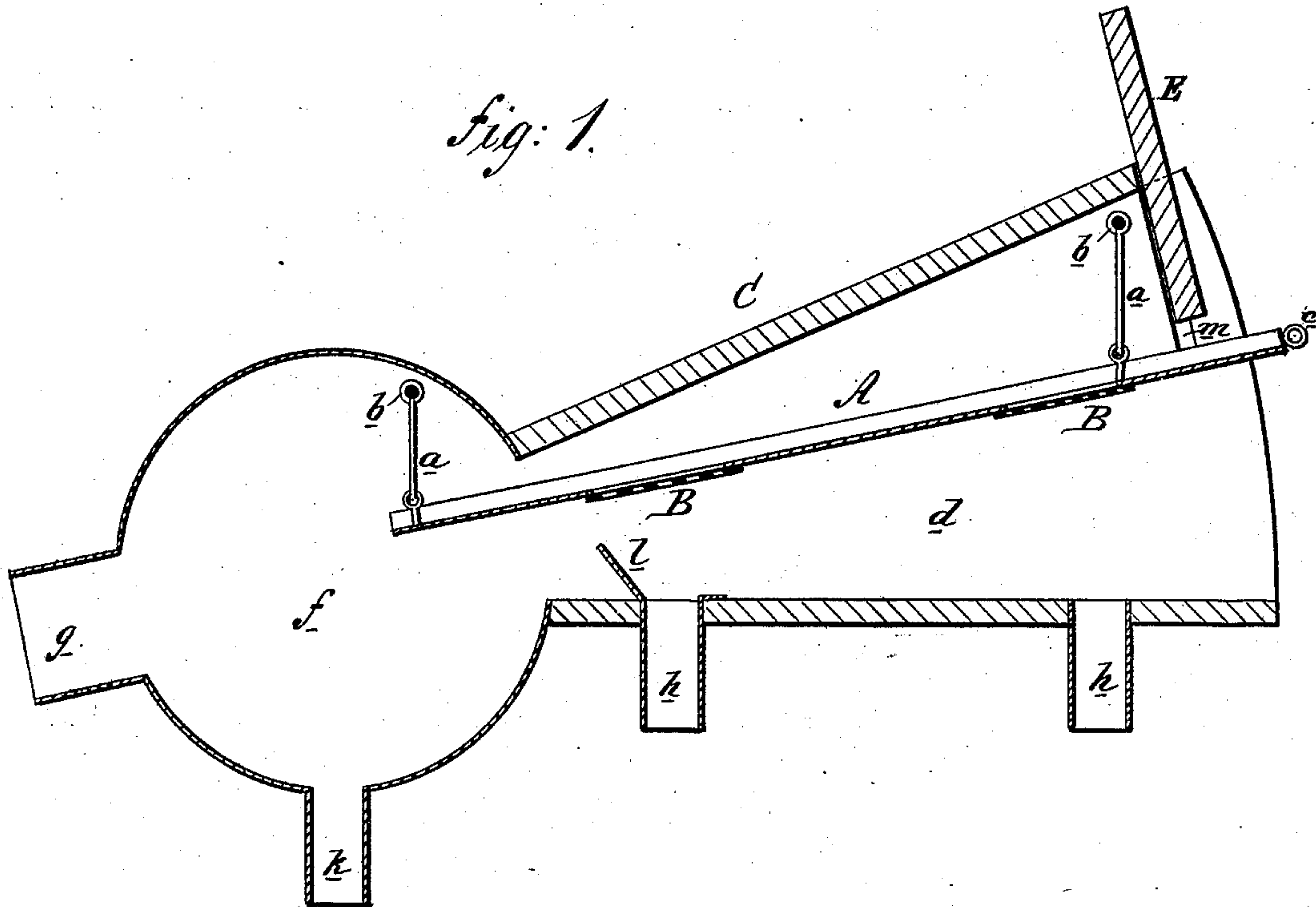
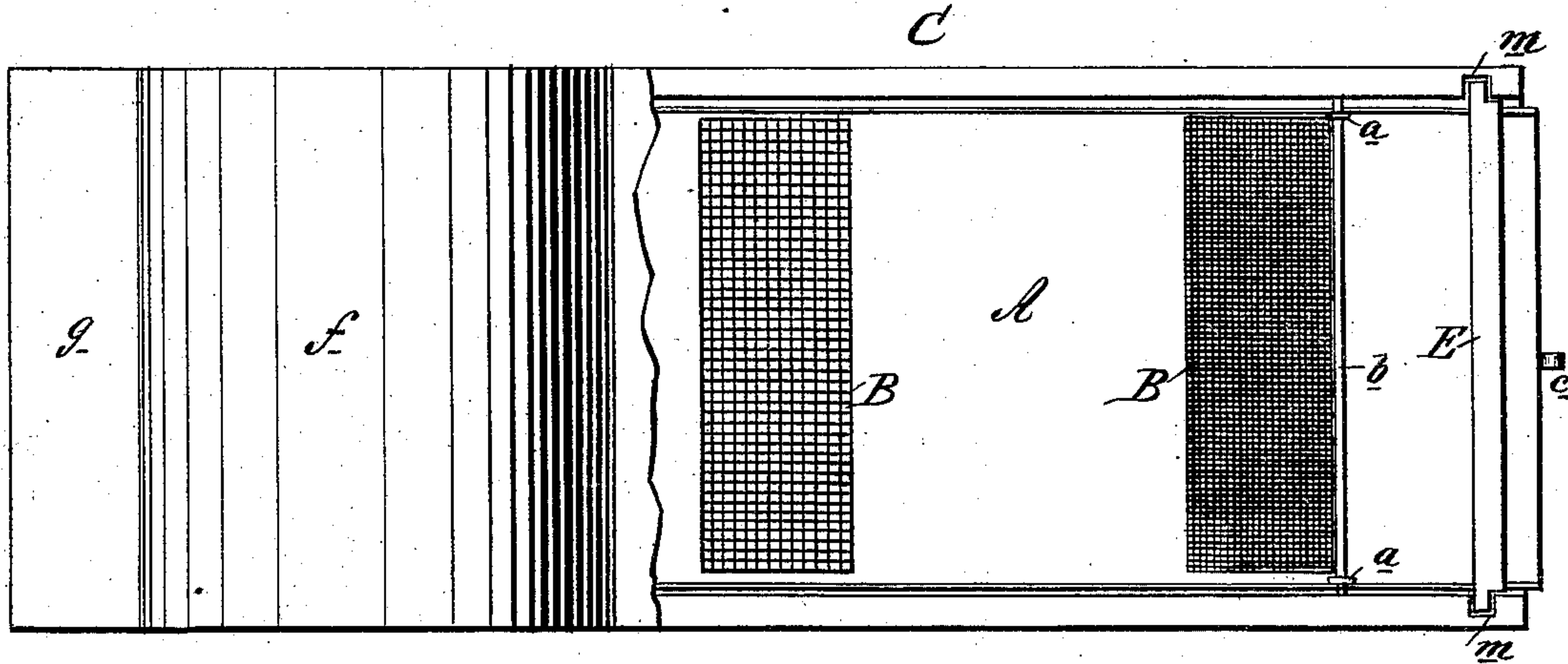


Fig. 2.



WITNESSES:

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WILLIAM THURMOND, OF ROSITA, COLORADO.

ORE-CONCENTRATOR.

SPECIFICATION forming part of Letters Patent No. 248,234, dated October 11, 1881.

Application filed March 7, 1881. (Model.)

To all whom it may concern:

Be it known that I, WILLIAM THURMOND, of Rosita, in the county of Custer and State of Colorado, have invented a new and Improved Ore-Concentrator, of which the following is a specification.

The object of this invention is to provide an improved device for the concentration of ores by means of screens and air-currents.

The invention consists of a frame in which are fixed screens of various degrees of fineness, movably supported in the longitudinal axis of a box that is open at both ends, and is designed to be connected at one end with an exhaust-fan, said box being provided with suitable devices for regulating and directing the current of air passing through it for the purpose of acting upon the ores to be concentrated.

Figure 1 is a longitudinal sectional elevation of the device. Fig. 2 is a plan of the same with parts broken away to exhibit other parts.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents a rectangular frame, in which are fixed screens B B, of different grades, suspended nearly horizontally within a box, C, by links *a*, from transverse rods *b*, that end of said frame A which extends beyond the receiving end of the box C being provided with an eye or loop, *c*, for the attachment of the mechanism by means of which said frame A is to be rocked back and forth in the longitudinal axis of said box C. The said box C is constructed, preferably, with a V-shaped chamber, *d*, having an enlarged cylindrical chamber, *f*, attached transversely to its smaller end, from which cylindrical chamber *f*, opposite its connection with the chamber *d*, is extended an open neck, *g*, for the convenient attachment of said box C to an exhaust-fan.

In the bottom of the box C, beneath the screens B B, are open necks or chutes *h*, into and through which the ore passing through said screens B falls to be conducted thereby into suitable receptacles.

In the bottom of the cylindrical chamber *f* is a like chute, *k*, which is designed to conduct the gangue falling therein into a proper receptacle.

From the lower side of the second chute *h* an inclined plane, *l*, is extended upward to-

ward the coarsest and last screen B, for the purpose of checking the current of air passing through the device and deflecting it up through said coarse screen B.

At the larger and receiving end of the box C the sides thereof are grooved, as shown at *m*, and in these grooves *m* a vertical slide, E, may be adjusted to regulate the passage of air through the said box C.

Any number of screens B may be used, the finest of them being nearest the large receiving end of the box C, where the ore enters, and each succeeding screen B being a little coarser than the preceding one. The frame A may be suspended, as shown, or may be made to rest on rollers fixed within said box C, and be oscillated or rocked back and forth by any suitable mechanism.

The device when in use is placed at an inclination with the end where the ore enters the highest. The box C being contracted by degrees from its large open end to the cylindrical chamber *f*, the air as it is drawn through the said box C is moved with greater velocity and force about and through the coarser screens B, on which is the coarser ore, the finer particles of ore and other material having passed through the preceding finer screens B into the receptacles placed to receive them.

The dust and lightest particles of the ore are drawn by the current of air through the neck *g* and expelled through the exhaust-fan. (Not shown.) In the enlarged cylindrical chamber *f* the air passing through the device is expanded, thereby permitting the coarser particles of gangue or worthless material to settle or fall into the chute *k*, from which they may be removed at will.

The object in concentrating and thereby increasing the force of the current of air as it reaches the coarser screens B is that the air may better buoy up the coarse particles of worthless material and conduct them into the chamber *f* to fall into the chute *k*.

The slide E may be used to contract or enlarge at will the larger end opening of the device, thereby diminishing or increasing the force of the moving current of air in that part of the box C.

This concentrator is designed to be connected with crushing-rolls or other crushing machin-

ery, or to receive the ore directly from them, the ore having first passed through the crusher.

It will be seen that in this concentrator the current of air moves upward and forward at the same time, and that its force can easily be graduated or regulated.

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

10 1. An ore-concentrator constructed substantially as herein shown and described, consisting of rocking or vibrating frame A, provided with screens B B, movably supported in a box, C, constructed with V-shaped chamber *d*, that
15 terminates in an enlarged chamber, *f*, operated as set forth.

2. In an ore-concentrator, the combination,

with the rocking or vibrating frame A, provided with suitable screens, B, of the box C, having V-shaped chamber *d*, provided with 20 vertical slide E, substantially as herein shown and described, whereby the current of air through said box and screens is regulated, as set forth.

3. In an ore-concentrator, the box C, constructed with V-shaped chamber *d* and enlarged cylindrical chamber *f*, and provided with discharge necks or chutes *h k*, substantially as herein shown, and for the purpose described.

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Witnesses:

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