

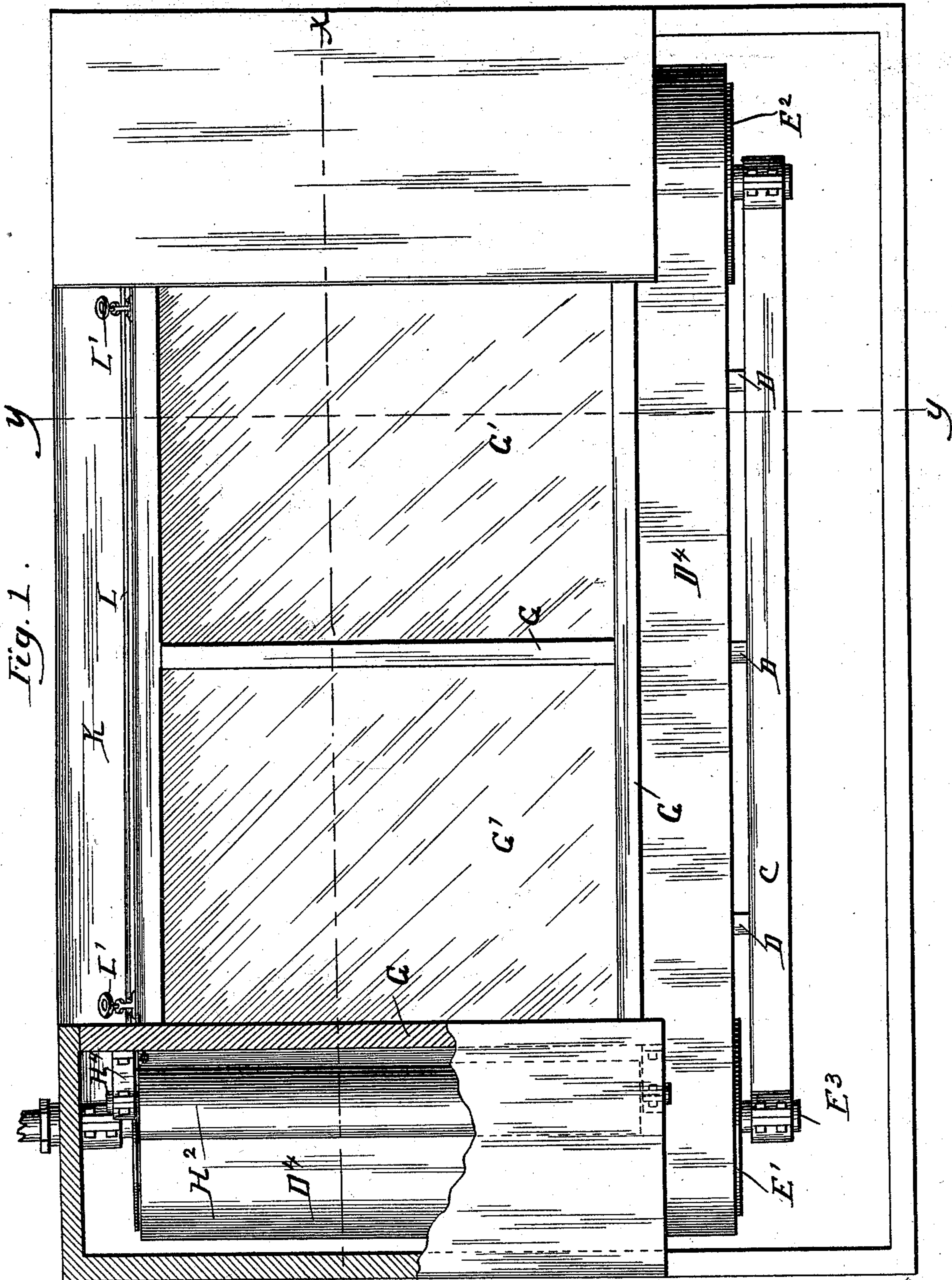
(No Model.)

3 Sheets—Sheet 1.

I. BESLY.
CONCENTRATING MACHINE.

No. 519,316.

Patented May 8, 1894.



Witnesses:

Celeste R. Chapman

David J. Johnson

Inventor:
I. Besly

by *Francis M. Parker*
Attorney.

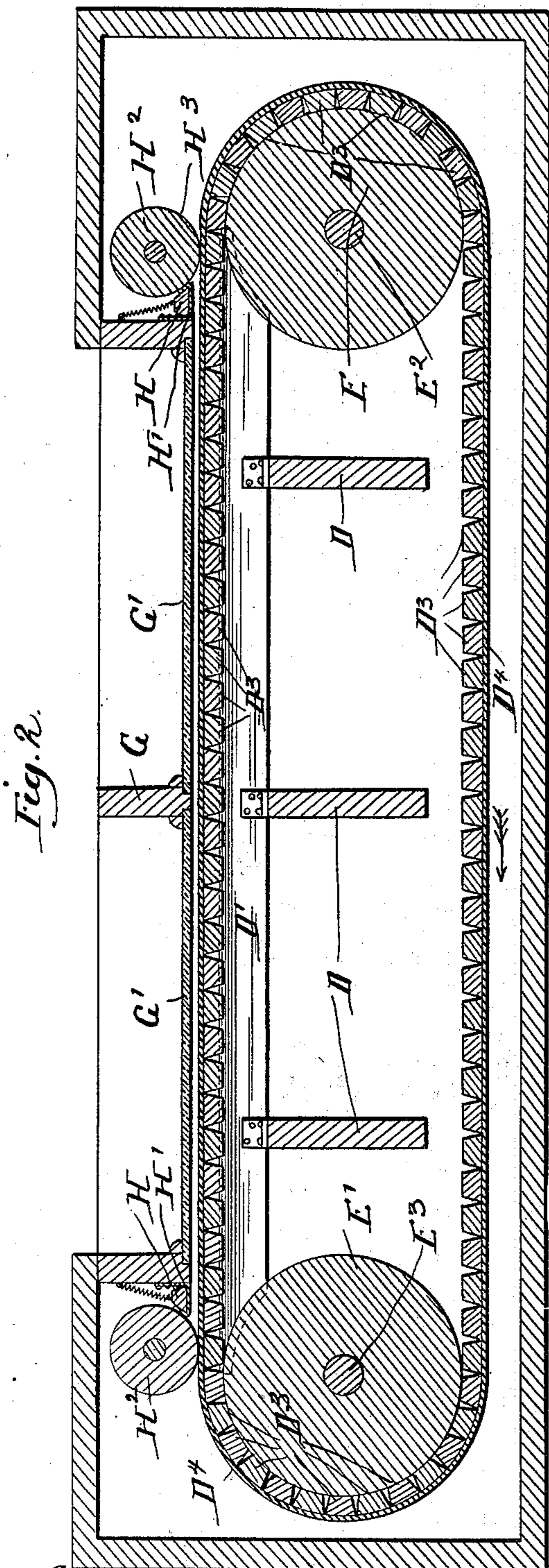
(No Model.)

3 Sheets—Sheet 2.

I. BESLY.
CONCENTRATING MACHINE.

No. 519,316.

Patented May 8, 1894.



Witnesses:
Clement B. Chapman.
David J. Johnson.

Inventor:
Irving Besly.
by Francis W. Parker
Attorney.

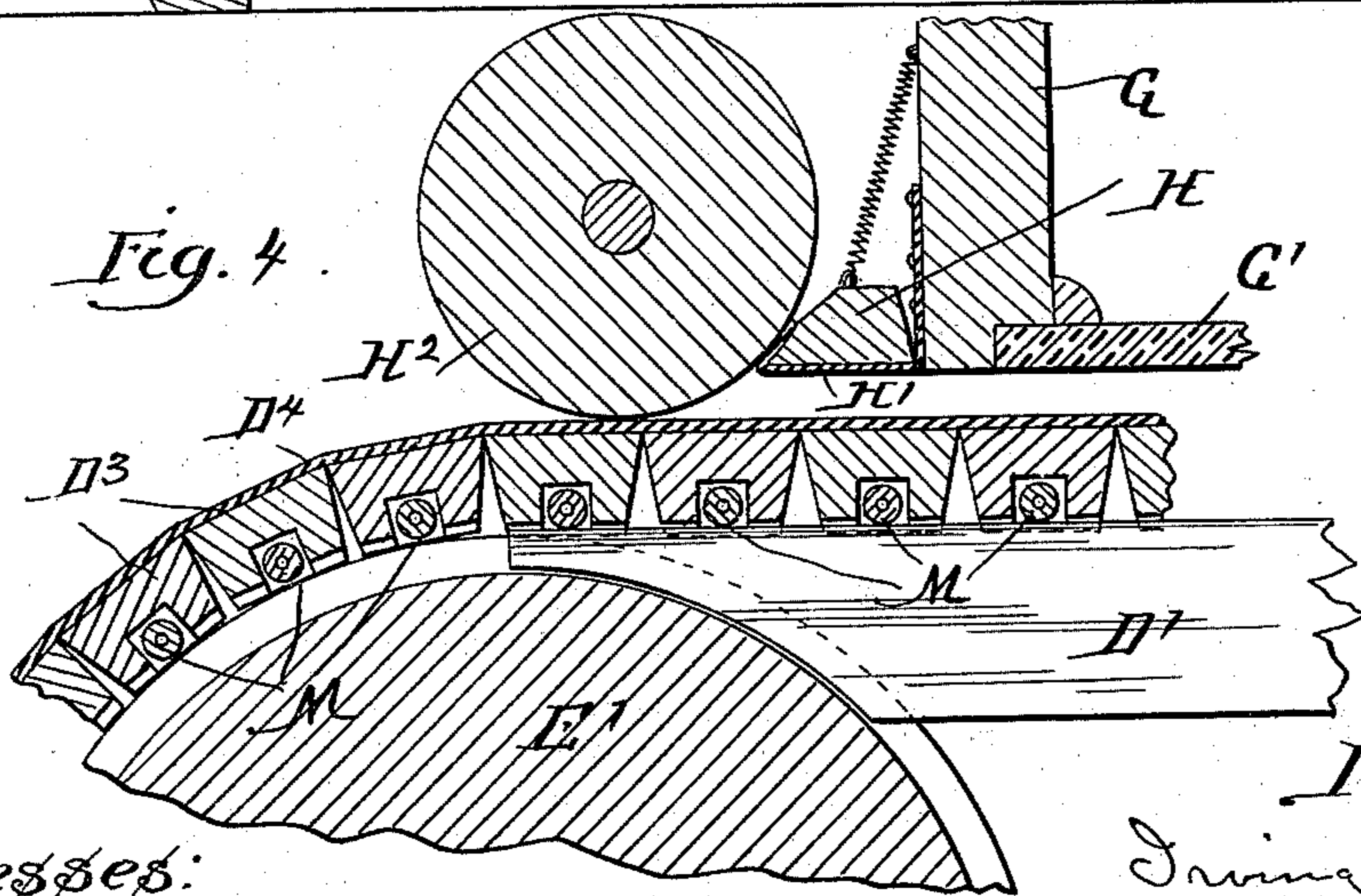
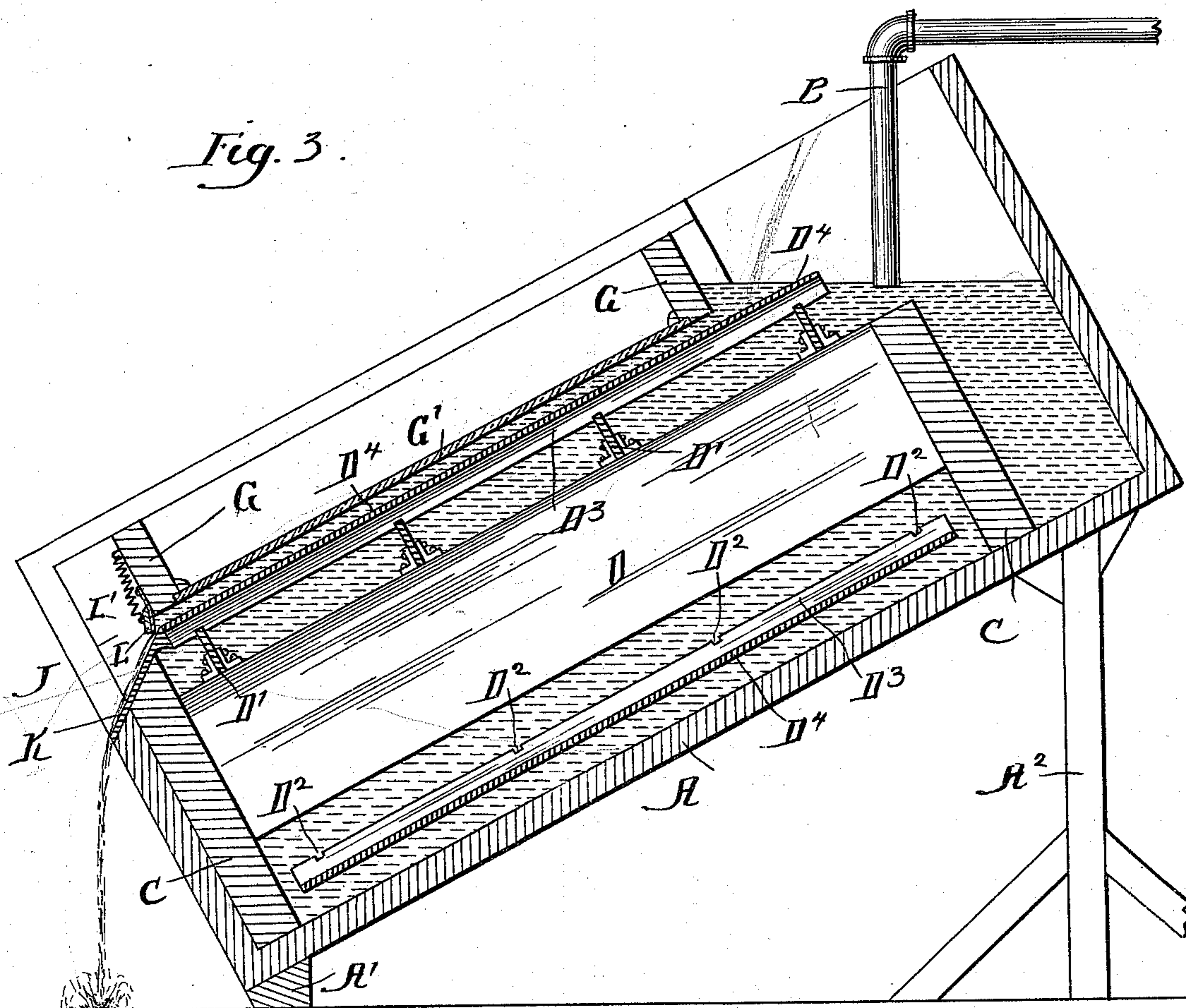
(No Model.)

3 Sheets—Sheet 3.

I. BESLY.
CONCENTRATING MACHINE.

No. 519,316.

Patented May 8, 1894.



Inventor:

Irving Besly.

Witnesses:

Celeste P. Chapman.

David J. Johnson.

By James W. Parker,
Attorney.

UNITED STATES PATENT OFFICE.

IRVING BESLY, OF LEADVILLE, COLORADO.

CONCENTRATING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 519,316, dated May 8, 1894.

Application filed January 4, 1890. Serial No. 335,944. (No model.)

To all whom it may concern:

Be it known that I, IRVING BESLY, a citizen of the United States, residing at Leadville, in the county of Lake and State of Colorado, have invented a new and useful Concentrating-Machine, called an Ore-Concentrator, of which the following is a specification.

My invention relates to a concentrating machine which may be used for separating a material from a mixture of itself with one or more other materials by means of taking advantage of the difference in size, shape and specific gravity between the materials constituting the mixture. Its main application is the concentration and separation of mineral in ore. By the use of this machine the mineral is separated from the rock and dirt in the ore and the different kinds of mineral separated each by itself. The crushing of the ore to a suitable size is done by any kind of crushing machinery that may be convenient.

The object of my invention is to provide a cheap and convenient ore concentrator. The means by which I accomplish this is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view. Fig. 2 is a longitudinal section on the line X X. Fig. 3 is a cross section on the line Y Y. Fig. 4 is a detail of the roller and belt.

Like parts are indicated by the same letter in all the figures.

A is a box supported at a suitable inclination on the standards A' A'.

B is a water pipe from which the box is supplied with water as indicated.

C C are timbers within the box between which are firmly secured the cross pieces D D, the same passing between the folds of the belt.

D' D' are a series of ways secured upon the pieces D D and adapted to engage the notches D² D² on the slats D³ D³ of the endless belt D⁴. The belt passes over the pulleys E E' on the shafts E² E².

Secured to the upper portion of the box A is the frame G provided with the glass plates G' G' through which the operation of the machine may be observed. At the side edges of this frame and within the box are the hinged cleats H, with the elastic coverings H', adapted to engage the rollers H², which are jour-

naled in the frame of the box A parallel with the rollers E E' and near the same. These rollers are journaled upon the hangers H⁴, secured as above suggested to the frame G, which really forms part of the frame of the box A. The lower portion of the box A is cut out mid-way at J, and an inclined board or strip K is placed so as to cover the edges of the frame A and timber C, as indicated in Fig. 3. Thus it will be seen that a space is left between the glass pieces G' G' and the rollers H² H² and the belt D⁴; and that this space communicates with the water in the box or case A and opens out upon the strip K at its lower end. M M are rollers sunk into the slats D³ and in contact with the ways D', along which such slats move.

Some suitable mechanism (not shown in the drawings) is used to give the belt D⁴ a reciprocating motion, the motion of said belt in one direction, say, that designated by the arrow in Fig. 2 being greater than its reverse motion so that said belt will move forward by steps in the indicated direction.

The use and operation of my invention are as follows: The case being tilted in the position shown in Fig. 3 and filled with the water to the extent there shown, it is apparent that a current of water will pass through the space between the glass G' and the belt D⁴ being downwardly discharged over the plate K. The belt D⁴ is given a reciprocating motion causing it to advance in the direction of the arrow by a step by step motion with intermittent retrograde motions. If now a quantity of pulverized ore be placed along on the belt D⁴ at the upper portion of the glass it will begin to roll down over the belt D⁴, if induced so to do by the flow of the water over such belt, by the inclination of such belt, by its advancing reciprocating motion. By this means the heavier and smaller particles of metallic substance are carried on the belt longer than the lighter and larger portions, which tend to roll down the belt with the current of water, so that eventually the metallic portions are carried with the belt and underneath the rollers A², and are deposited in the bottom of the case A. The refuse matter is carried off over the plate K. The metallic portions gathered in the bottom of the case may be removed therefrom in any desirable

way. I have not deemed it necessary to show the doors and means whereby this can be accomplished as they will be apparent. The presence of the glass above the belt permits the inspection of the operation of the machine.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water.

2. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water, and rollers parallel to such belt and adjacent to the plate so as to form a chute

between the belt and surface for the escape of the water from the box.

3. In an ore concentrator the combination of a case for containing water with rollers, and a belt which passes through the same and is inclined to the surface of the water therein, and a plate parallel with and adjacent to such belt, the space between such plate and belt opening within the box at the surface of the water and opening out of the box at a considerable distance below the line of the surface of the water, and rollers parallel to such belt and adjacent to the plate so as to form a chute between the belt and surface for the escape of the water from the box and a hinged strap across the lower end of such plate whereby the flow of water can be regulated.

4. In an ore concentrator the combination of an inclined surface of concentration with means for carrying a current of water thereover and an adjustable outlet for such water whereby the rapidity of flow may be regulated independent of the inclination of such surface.

IRVING BESLY.

Witnesses:

WILLIAM H. NASH,
J. F. LEWIS.