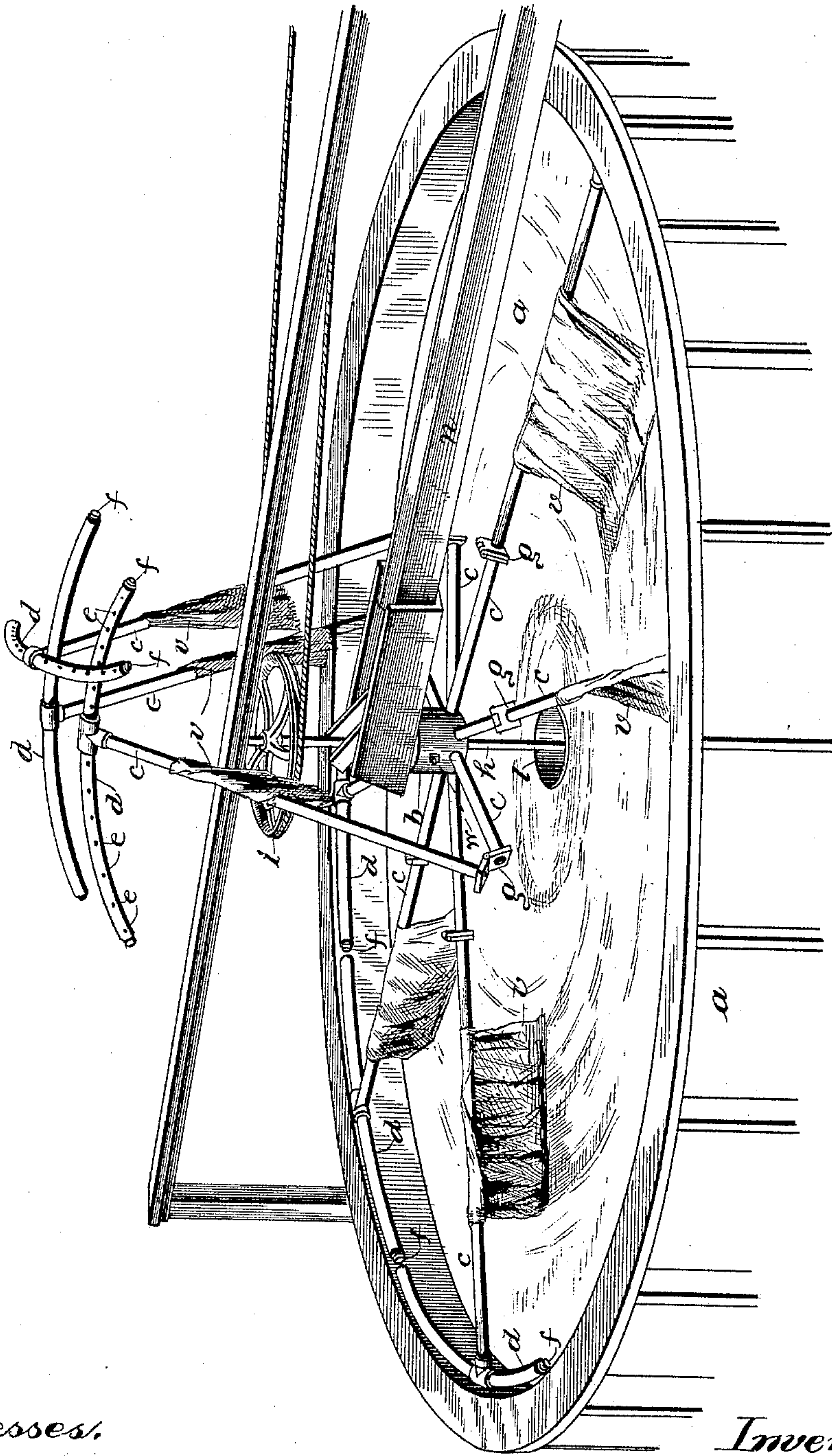


(No Model.)

A. EMMONS.
ORE SEPARATOR.

No. 440,587.

Patented Nov. 11, 1890.



Witnesses.

C. C. Burdine

Robert Boig.

Inventor

Alma Emmons

per

Charles, William B King attys.

UNITED STATES PATENT OFFICE.

ALMA EMMONS, OF GALENA, KANSAS, ASSIGNOR TO HIMSELF AND R. B. EMMONS, OF SAME PLACE.

ORE-SEPARATOR.

SPECIFICATION forming part of Letters Patent No. 440,587, dated November 11, 1890.

Application filed June 14, 1890. Serial No. 355,426. (No model.)

To all whom it may concern:

Be it known that I, ALMA EMMONS, a citizen of the United States of America, residing at Galena, in the county of Cherokee and State of Kansas, 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 relates to certain improved mechanism for washing ore, and more particularly to those devices which receive the ore in a pulverized condition, mixed with water, whereby the metal is washed free from foreign matter.

The object of my invention is to improve upon my former patent, No. 399,658, granted March 19, 1889, and to provide means whereby the same results can be accomplished in a more thorough and satisfactory manner.

With this end in view my invention consists in the peculiar features and combinations of parts more fully described hereinafter, and pointed out in the claims.

The figure represents a perspective view of my complete device.

Reference-letter *a* represents a main tank or basin adapted to receive the ore in a liquid state; but instead of supplying it to the center of the basin and allowing it to be washed out toward the circumference thereof, as in my prior patent, it is introduced in small streams at or near the circumference and flows toward a central outlet *l*. This is accomplished by means of a hopper or receptacle *b*, from which radiates a series of pipes *c*, and these extend almost to the inner wall of the tank and have upon their outer ends segments of pipe *d*, which communicate with said radiating pipes and are provided with perforations *e*, through which the liquid ore escapes into the tank. The opposite ends of these sections or segments of pipe are closed by plugs *f*, and each section is separate and independent from the other. The radiating pipes *c* are cut in two and provided with a hinge *g*, whereby their outer portions may be swung up and back over the center of the machine and out of the way, as shown. The central hopper *b* is secured to and turns with

a vertical spindle *h*, having upon its upper end a grooved pulley *i*, which rotates the spindle. A transverse bolt *w* secures the hopper rigidly to the vertical spindle *h* and permits the hopper and its radiating arms to be raised and lowered to accommodate them to the contents of the tank *a*. The radiating pipes *c* are each provided with a flexible skirt *v*, which hangs therefrom and trails over the ore, as in my former patent.

In using my device the pulverized ore is fed through the conduit *n* to the hopper *b*, and being thoroughly mixed with water it passes in a fluid state out of said receptacle to a point near the circumference of the tank through the radiating pipes *c* and transverse segments *d*. During this operation the radiating arms are kept constantly revolving through the medium of the pulley *i* upon the vertical spindle *h*. There being no other escape for the inflowing ore than by the outlet pipe *l*, it flows from the circumference of the tank toward the center, at which point the refuse matter passes down into the outlet and is conveyed away from the tank, while the metal and heavier particles settle and remain in the tank. The trailing aprons prevent eddying currents and keep the water thoroughly diffused over the upper surface of the material and also prevent the formation of channels, as set forth in my former patent. The advantages of this reversal of the direction of the inflowing ore is that a more thorough and equal distribution is effected, and there is consequently less waste and greater economy than before.

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

1. In combination with the main tank provided with a central outlet, of a central receptacle and its receiving-conduit, a series of hinged pipes radiating from said central receptacle, and perforated segments or sections secured to the outer ends of said pipes, in the manner and for the purpose substantially as described.

2. In an ore-separator, the combination of a main tank having a central outlet, a vertical spindle having a hopper secured to rotate

therewith, distributing-pipes radiating from the hopper, and trailing aprons suspended from said pipes, as and for the purpose described.

5 3. The combination, in an ore-separator, of a tank having a central outlet, a vertical spindle revolving in said outlet, a hopper secured to and revolving with the spindle, pipes radiating from the hopper, said pipes being
10 composed of two hinged sections and having perforated segments upon their outer ends, and trailing aprons adapted to revolve with the pipes, in the manner and for the purpose substantially as described.

15 4. The combination, in an ore-separator, of

a tank having a central opening, a vertical spindle revolving in said opening, a hopper vertically adjustable on said spindle and arranged to revolve therewith, and pipes radiating from said hopper and each consisting of 20 two or more sections hinged together and provided with perforated segments on their outer ends, substantially as and for the purpose described.

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

ALMA EMMONS.

Witnesses:

W. E. STICE,
C. C. MOORE.