

D. NEVIN.
ORE SEPARATOR.

No. 105,480.

Patented July 19, 1870.

Fig. 1

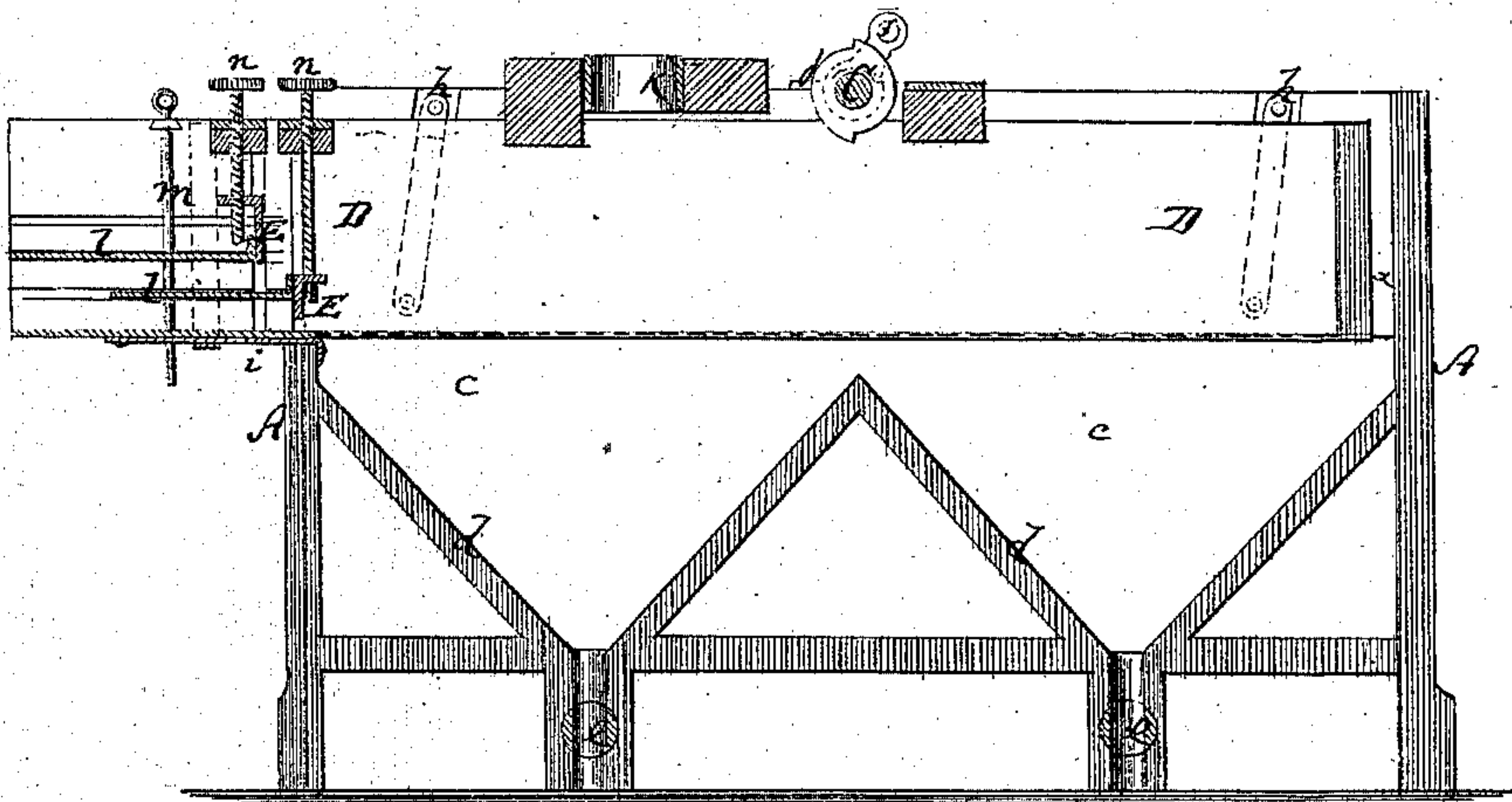


Fig. 2.

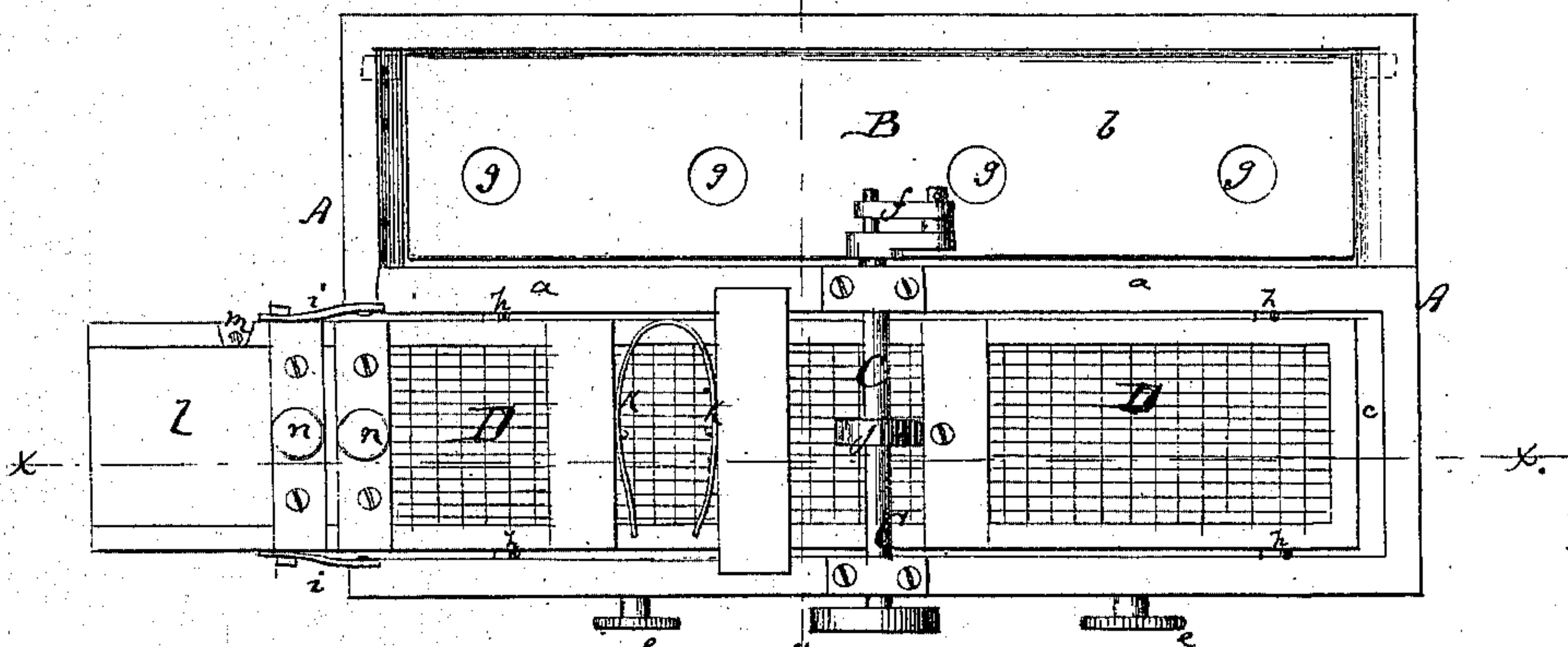
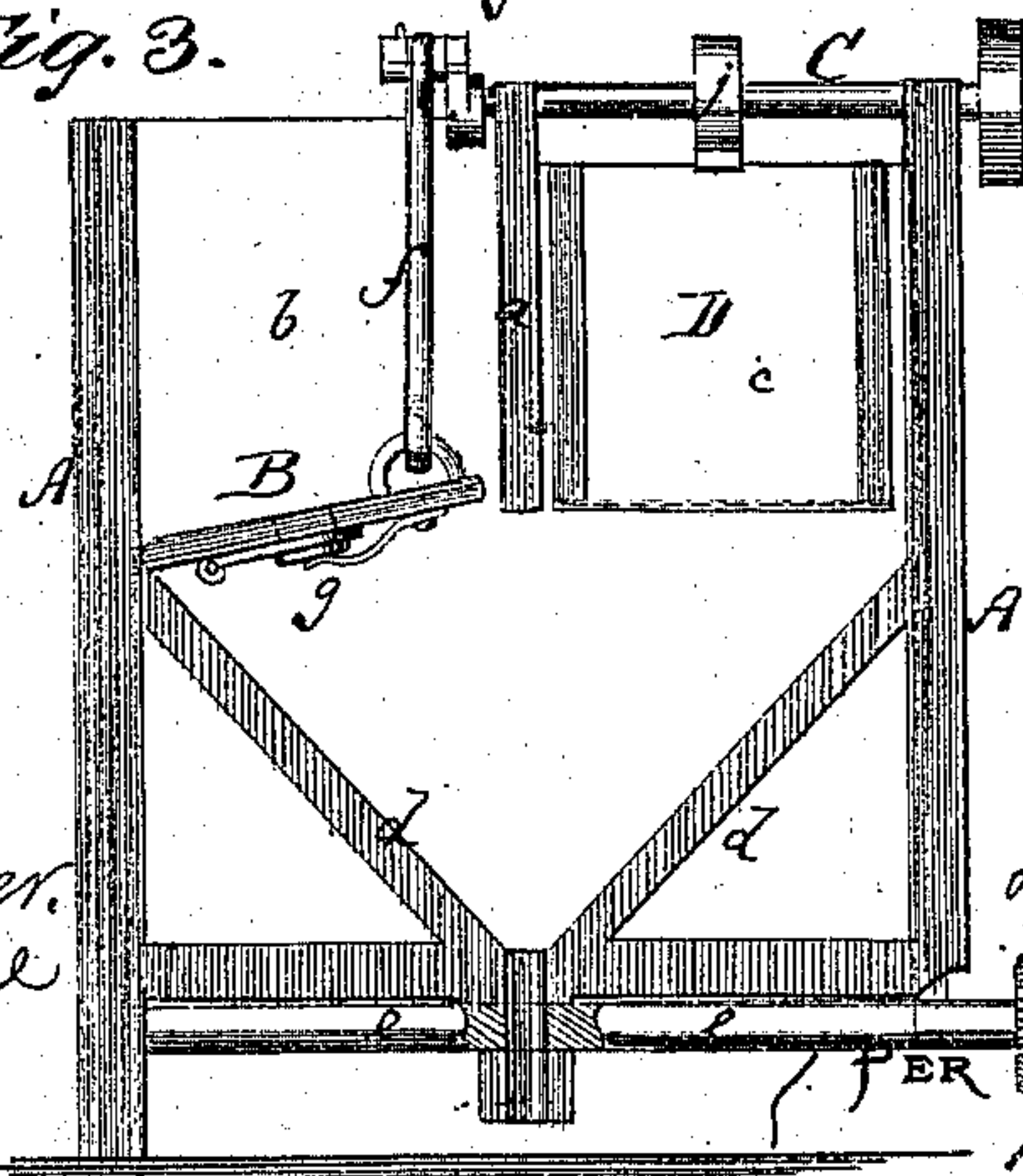


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

DAVID NEVIN, OF GEORGETOWN, COLORADO TERRITORY.

IMPROVEMENT IN ORE-SEPARATORS.

Specification forming part of Letters Patent No. 105,480, dated July 19, 1870.

To all whom it may concern:

Be it known that I, DAVID NEVIN, of Georgetown, in the county of Clear Creek and Territory of Colorado, have invented a new and Improved Ore-Separator; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing, forming a part of this specification, in which—

Figure 1 represents a vertical longitudinal section of my improved ore-separator, taken on the plane of the line *xx*, Fig. 2. Fig. 2 is a plan or top view of the same. Fig. 3 is a vertical transverse section of the same, taken on the plane of the line *yy*, Fig. 2.

Similar letters of reference indicate corresponding parts.

My invention relates to improvement in ore-separators, and more particularly in that in which an oscillating plunger is employed.

The invention consists in the combination and arrangement of an oscillating plunger with a reciprocating sieve, both simultaneously operated by the revolution of the same crank-shaft, and in the arrangement with the sieve of adjustable separating-plates and sluice-gates, as hereinafter specifically set forth.

A in the drawing represents a tank or other box of suitable size, divided longitudinally by a vertical partition, A, into two compartments, *b* and *c*.

The partition does not reach to the bottom of the tank, but allows the two compartments to be united underneath.

The bottom *d* of the tank is formed into one or more hoppers, as shown, the lower part of each hopper being closed by a stop-cock, *e*.

The compartment *b* contains a hinged horizontal plunger, B, which is, by means of a rod, *f*, connected with the crank of a transverse shaft, C, the said shaft being hung in bearings on top of the tank, as shown.

The plunger B contains a series of apertures, which are closed by downward-opening valves, *g*, as shown. When the shaft C is revolved it will cause the plunger to oscillate and to agitate the water with which the tank is filled. During the upward stroke of the plunger the valves will open to let the water down, and to prevent suction.

The other compartment *c* contains a longitudinal sieve, D, which rests on rails or is suspended from swinging bars *h*, and which projects through one end of the tank, the joints at the end being made tight by leather straps *i i*.

A cam, *j*, on the shaft C, together with a spring, K, serves to impart reciprocating motion to the sieve.

In the front part of the sieve are arranged one or more horizontal plates, *l l*, which are to divide the several grades of ore, and to guide them to separate receptacles. These plates are fitted into grooves provided for them in the sides of the sieve, and can be adjusted to any suitable height and distance from each other.

A pin, *m*, or equivalent fastening may be used to lock the plates *l* in the desired position. Sluice-gates E E, adjusted vertically by means of screws *n*, may also be arranged in front of the sieve.

The ore to be separated is thrown into the back part of the sieve, and is, by the agitation of the same, gradually carried forward.

The agitation of the plunger, which forces the water through the sieve, causes the ore and water to pulsate, and allows a more rapid separation and settlement of the heavier ore. The valves in the plunger prevent the ore from packing during the return stroke.

The different grades of ore are separated at the outlet by the arrangement of plates and adjustable sluices, which run them off into different tanks. The ore falling through the sieve is drawn off at the bottom of the tank through the stop-cock *e*.

Rotary motion is imparted to the shaft C by suitable mechanism.

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

1. The arrangement of the hinged and valved plunger B, the oscillating sieve D, shaft C, cam *j*, and rod *f*, to operate as shown and described.

2. The adjustable plates *l*, rod *m*, sluice-gates E, and screw-rods *n*, arranged in the sieve D, as shown and described.

DAVID NEVIN.

Witnesses:

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