

W. HOOPER.
WET ORE SEPARATOR.

No. 190,323.

Patented May 1, 1877.

Fig. 3.

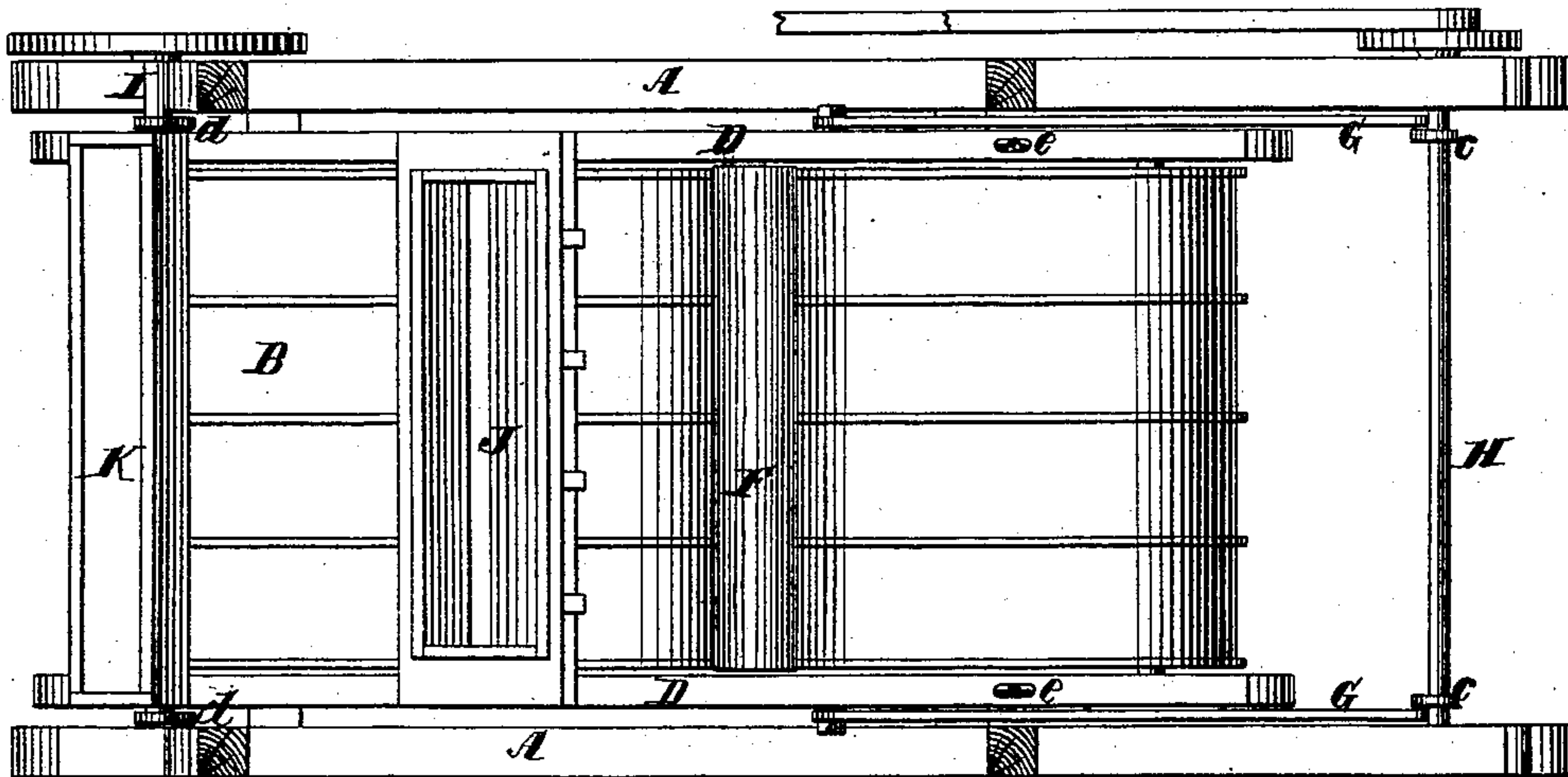
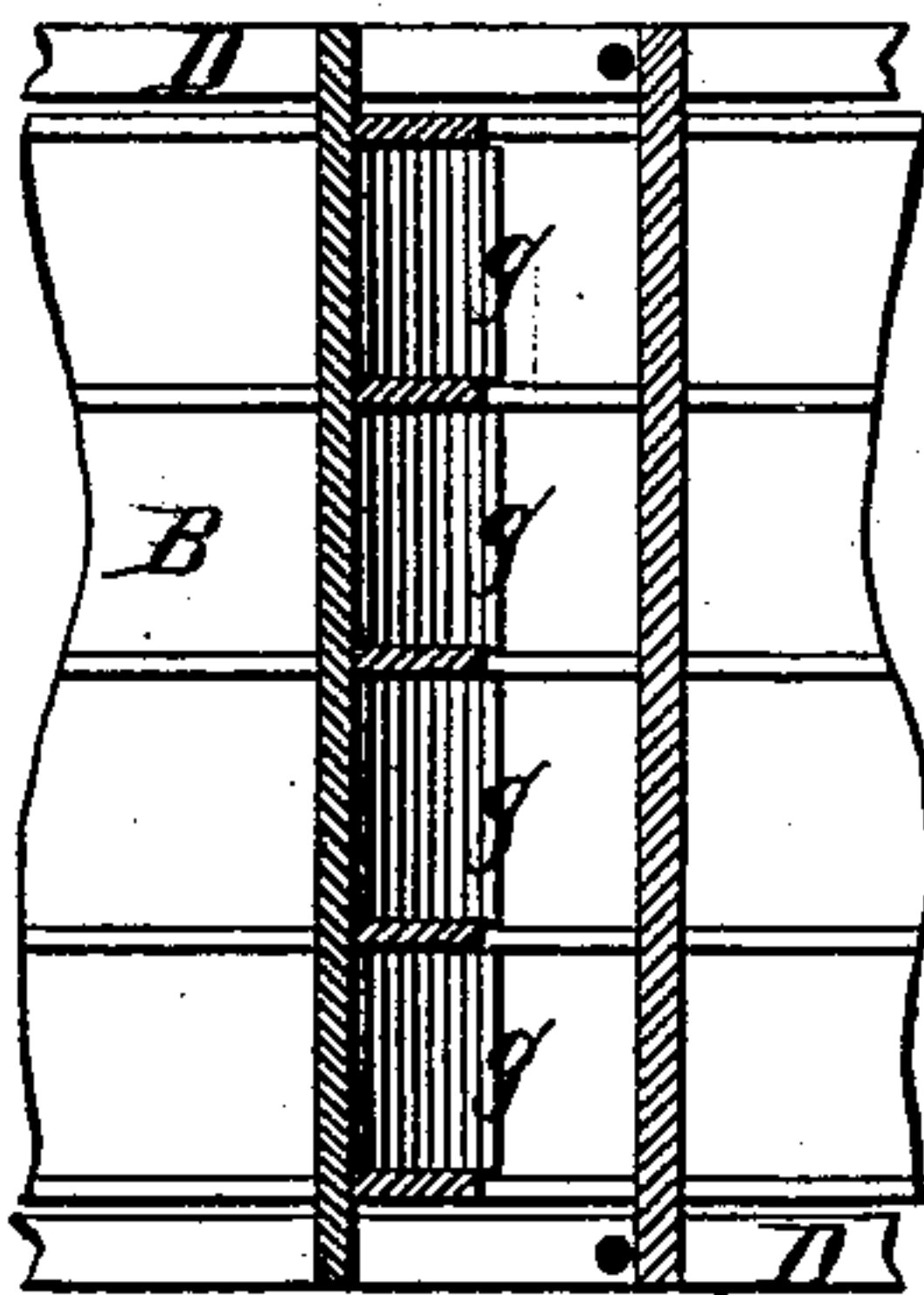


Fig. 4.



Witnesses
Otto Hupeland
Robt. E. Miller.

Inventor.
William Hooper
by
Van Hook & Hauff
his attorneys

UNITED STATES PATENT OFFICE.

WILLIAM HOOPER, OF TICONDEROGA, NEW YORK, ASSIGNOR TO NEW YORK ORE SEPARATOR COMPANY.

IMPROVEMENT IN WET-ORE SEPARATORS.

Specification forming part of Letters Patent No. **190,323**, dated May 1, 1877; application filed October 27, 1876.

To all whom it may concern:

Be it known that I, WILLIAM HOOPER, of Ticonderoga, in the county of Essex and State of New York, have invented a new and useful Improvement in Wet-Ore Separators, which improvement is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a side elevation of a separator containing my improvement. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a horizontal section of the same. Fig. 4 is a horizontal section of the feed apparatus, taken in the plane *x x*, Fig. 2.

Similar letters indicate corresponding parts.

My invention relates to that class of ore-separators for which Letters Patent of the United States were granted to me March 21, 1871, (antedated March 10, 1871,) No. 112,919, and for improvements on which a patent was allowed to me by the Commissioner of Patents July 21, 1876.

My present improvement consists in arranging a roller above the top part of the sluiced apron and in the shoe, to assist in tightening said apron, and also for the purpose of forming a depression therein, in conjunction with two rollers, which are placed, respectively, on each side of said upper roller and beneath the top part of the apron, the object of said depression being to prevent the stream of water, which is allowed to flow over the apron for the purpose of separating the ore, from taking too great force; further, in hanging the shoe, which supports the sluiced apron and concomitant parts, at its upper end by means of suitable links, and at its lower end from a cross-piece of the machine-frame by means of jointed bars, said shoe being, moreover, connected at or near one end to one or more rods connected to a crank, in such a manner that when the crank-shaft is revolved a reciprocating motion is imparted to the shoe and apron, and thereby the separation of the ore is facilitated; also, in subjecting the reciprocating shoe to the action of a spring, which assists in moving it, as will be hereinafter described.

In the drawing, the letter A designates the

frame of my machine, and B is the sluiced apron passing over rollers or cylinders O O, which are mounted in a shoe, D. At any suitable point between the rollers O O and beneath the lower part of the sluiced apron B is arranged a roller, E, which has its bearing in boxes sliding in or on the shoe D, and which are moved up or down by adjusting screws *a*, so that the said roller E is rendered adjustable. When this roller E is moved upward the sluiced apron B is tightened, and vice versa. Hence, any desired tension can be given to the apron by the said roller E. Above the upper part of the sluiced apron B is placed a roller, F, having its bearings in the shoe D and on opposite sides of said roller F; but below the upper part of the apron are arranged rollers *b b*, also having their bearings in the shoe. The roller F is so arranged as to depress the sluiced apron B between the rollers *b b*, as shown in Fig. 2, and by this means the water flowing over or down the apron is caused to move slowly, and the danger of cutting up the layer of ore on the apron is obviated. The roller F also assists in tightening the sluiced apron B.

A reciprocating motion is imparted to the shoe D in the direction of its length by means of rods G, which are connected to cranks *c*, secured to a shaft, H, and to permit of thus moving the shoe it is hung at its upper end from pins I by means of links *d*, and at its other end from a cross-piece of the frame A by means of jointed bars *e*. Those bars *e* are provided with a screw-thread, and contain a nut, *f*, which is situated above the said cross-piece of the frame, so that the said bars *e* are rendered adjustable, and, by moving the same up or down, the shoe D, together with the sluiced apron B, can be inclined to a greater or less degree.

Contiguous to one or both the sides of the shoe D is arranged a spring, O, which acts in conjunction with the crank *c* for imparting a reciprocating motion to the shoe. Said spring O is secured to the frame A, and bears against a lug, *i*, projecting from the side or sides of the shoe, and it may be made of metal, rubber, or wood.

The ore is fed to the sluiced apron B from a hopper, J, extending across the apron, and which discharges into ways *g*, formed beneath the hopper, said ways *g* being arranged to empty respectively in the sluices of the apron.

Above and at or near the upper end of the sluiced apron B is arranged a tank, K, which is intended to contain water, and with this tank is combined a plunging-block, L, which is attached to a rod, *h*, connected eccentrically to a shaft, N, so that when this shaft N is revolved the plunging-block L is immersed in the water contained in the tank K at regular intervals, and thereby the water is splashed over on the surface of the apron.

It may be remarked that the stroke of the crank *c* can be shortened or lengthened by providing the same with a radial slot, and pivoting the rod G in said slot.

What I claim as new, and desire to secure by Letters Patent, is—

1. The combination of the roller F and rolls *b b*, forming a depression in the sluiced apron B, with said apron, its two supporting-rollers, C C, and the shoe, substantially as described.

2. The combination of suspended links *d*, jointed bars *e*, connecting-rods G, cranks *c*, crank-shaft H, and springs O (one or more) with the shoe D and sluiced apron B, substantially as and for the purpose described.

In testimony that I claim the foregoing I have hereunto set my hand and seal this 4th day of October, 1876.

WILLIAM HOOPER. [L. S.]

Witnesses:

JOHN P. CONKLING,
J. B. RAMSAY.