W. HOOPER.

TROUGH-JIG.

No. 190,324. Patented May 1, 1877.

Fig.1.

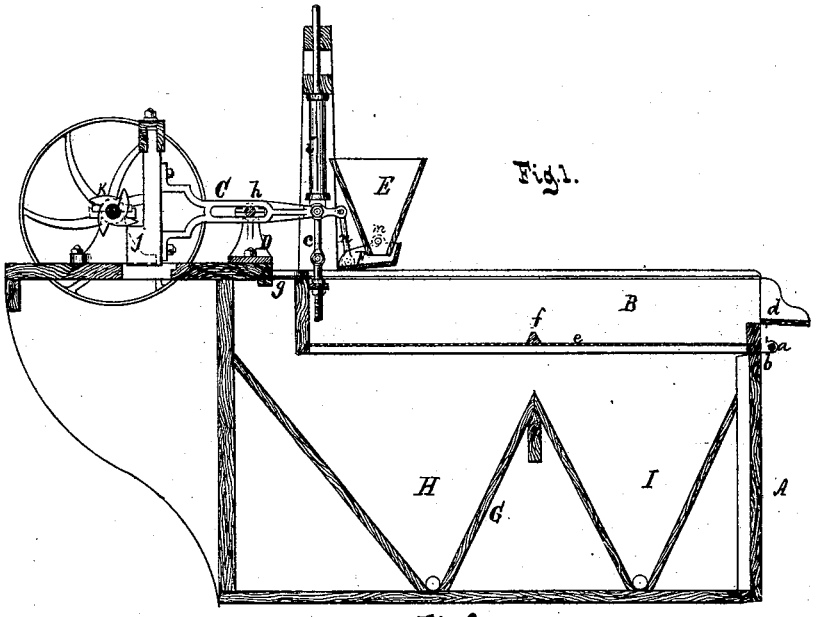


Fig.2.

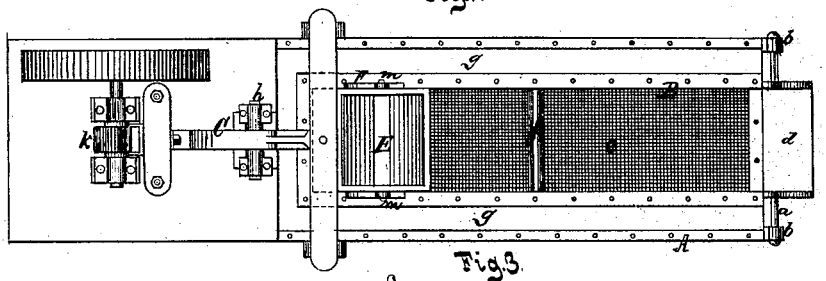
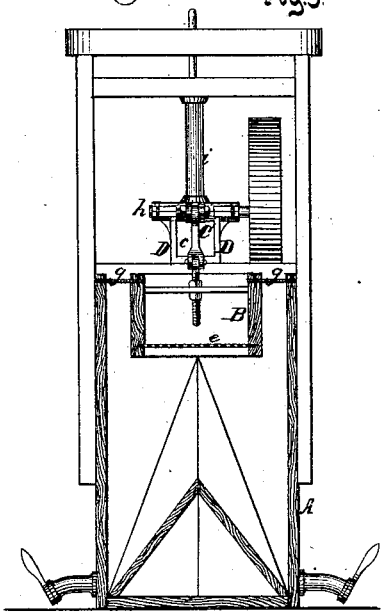


Fig.3.



Witnesses.

Otto Hupeland.

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by

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UNITED STATES PATENT OFFICE.

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

IMPROVEMENT IN TROUGH-JIGS.

Specification forming part of Letters Patent No. **190,324**, 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 Improved Trough-Jig, which invention is fully set forth in the following specification, reference being had to the accompanying drawing, in which—

Figure 1 represents a longitudinal vertical section. Fig. 2 is a plan or top view. Fig. 3 is a transverse vertical section.

Similar letters indicate corresponding parts.

This invention consists in the combination of a jig hinged at one end, with a tossing mechanism connected to, and acting on, the free end of the jig, and with a tank which contains the jig and supports its hinged end, so that when the tossing mechanism is set in motion the pulverized ore, which is fed into the jig, is rapidly separated. The top edges of the jig and those of the tank are connected by strips of india-rubber or other flexible material, to prevent the water contained in the tank from splashing out. With the jig, the tank, and the tossing mechanism is combined a shoe, which is hinged to the bottom edge of the hopper, so that the feed is controlled by the action of the tossing mechanism, which imparts motion to the jig, and that the supply of ore to the jig is adapted to the demand.

In the drawing, the letter A designates a tank, which is made of plank or other suitable material, and which is so constructed that it is capable to hold water. In the upper part of this tank is situated a jig, B, the outer end of which is supported by a rod, *a*, which turns in lugs *b*, secured to the tank, while the inner end of said jig is suspended from a lever, C, to which it is connected by a jointed rod, *c*, that can be lengthened or shortened, for the purpose of placing the jig at any desired inclination.

The jig is closed at its rear end and at its sides, but the head at its front end is partly cut away, and to said front end is secured a chute, *d*, which forms the discharge for the tailings. The bottom of the jig consists of a sieve, *e*, and it is provided with a traverse, *f*, which forms a dam, for the purpose of promoting the separation of the ore. From the top edges of the jig extend sheets *g* of india-rubber or other flexible material to the top edges of the tank, for the purpose of preventing the water in the tank from being splashed out by the action of the jig.

The lever C has its fulcrum on a rod, *h*, which has its bearings in standards D. The front end of said lever is secured to a spring, *i*, of india-rubber, or any other suitable material, which has a tendency to depress the same together with the jig, while the rear end of said lever is provided with a shoulder, *j*, which is exposed to the action of a tappet-wheel, *k*, mounted on a shaft, *l*, to which a revolving motion is imparted by a belt and pulley, or by any other equivalent means. As the tappet-wheel revolves, the front end of the lever C is raised, and the spring *i* is compressed, and whenever one of the cams of the tappet-wheel passes the shoulder *j* of the lever, the front end of said lever and the rear end of the jig are violently depressed, and by these means the required tossing motion is imparted to the jig.

The lever is adjustable on its fulcrum, so that the stroke of the jig can be increased or diminished.

The ore is fed to the jig in a pulverized state through a hopper, E, to the bottom end of which is attached a shoe, F, which swings on pivots *m*, and is connected by a rod, *n*, with the front end of the lever C. By the action of this lever, therefore, a jumping motion is imparted to the shoe F, and for each stroke of the lever a certain quantity of ore is fed to the jig.

By the tossing motion imparted to the jig, the heavy particles of ore arrange themselves on the bottom of the jig, while the light particles accumulate on the top, and as the operation progresses, the heavy particles pass through the meshes of the jig, and drop down into the tank A, while the light particles or tailings discharge over the chute *d*. The separation of the ore is materially promoted by filling the tank A with water, which, when the jig descends, passes up through the meshes in its bottom, and throws up the ore, which lodges on said bottom, so as to bring the

heavy particles down and the light particles up.

In the tank A is secured a W-shaped partition, G, whereby two compartments, H I, are formed for the reception of different grades of ore, the heaviest particles being received in the compartment H, and the lighter particles in the compartment I, while the tailings pass off over the chute *d*, as previously stated.

If desired, two or more of my jigs can be placed side by side, and operated by one and the same driving-shaft.

It must be remarked that the shoe F under the hopper E receives its motion by the same tossing mechanism which imparts motion to the jig, so that the supply of ore to the jig is adapted to the demand.

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

1. The combination of sheets or strips *g*, of india-rubber or other flexible material, with a jig hinged at one end, and connected at its opposite end to a tossing mechanism and with a tank, which contains the jig, and supports its hinged end, substantially as and for the purpose set forth.

2. The combination of a shoe, F, hinged to a hopper, with a tossing mechanism, and with a jig, which is situated in a tank, to which it is hinged at one end, its opposite end being connected to the same tossing mechanism, which imparts motion to the shoe, whereby the supply of ore to the jig is adapted to the demand, substantially as shown and 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:
J. P. CONKLING,
J. B. RAMSAY.