

F. H. Fisher,

Hydraulic Mining Steps.

No. 110,222

Patented Dec. 20, 1870.

Fig. 2.

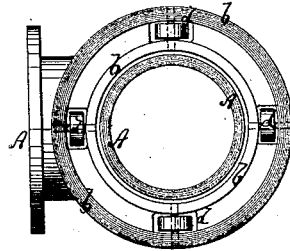


Fig. 1.

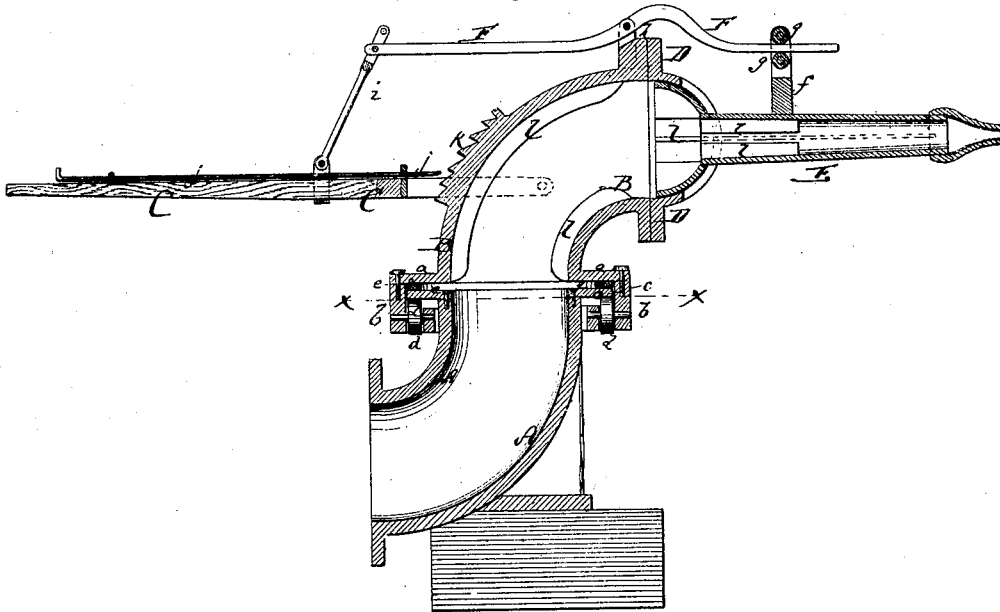


Fig. 3.

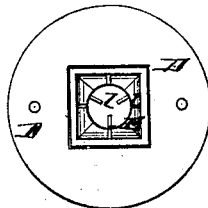


Fig. 4.



Witnesses.

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UNITED STATES PATENT OFFICE.

FRANK H. FISHER, OF NEVADA CITY, CALIFORNIA.

IMPROVEMENT IN HYDRAULIC MINING APPARATUS.

Specification forming part of Letters Patent No. **110,222**, dated December 20, 1870.

To all whom it may concern:

Be it known that I, FRANK H. FISHER, of Nevada City, in the county of Nevada and State of California, have invented a new and Improved Hydraulic Mining Apparatus; 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 drawings, forming part of this specification, in which—

Figure 1 represents a longitudinal section of my improved mining apparatus. Fig. 2 is a horizontal section of the same, taken on the plane of the line *x x*, Fig. 1. Fig. 3 is an inner end view of the discharge-nozzle. Fig. 4 is a transverse section of a part of the same.

Similar letters of reference indicate corresponding parts.

This invention relates to a new apparatus for discharging water against hills and mountains for mining purposes, and has for its object to permit the directing of the discharge-nozzle to any suitable height or at any suitable angle horizontally and vertically. The proper washing of the surface can thus be produced without great exertion or difficulty.

A in the drawings represents the outer end of the pipe, through which the water is forced by the natural pressure of water conducted from higher points, in pipes or otherwise, or by a steam-pump or other suitable machinery. This outer end I prefer to have in form of an upward-bent elbow, as shown in Fig. 1.

Upon the elbow A is secured another swivel-elbow, B, whose lower flange, *a*, is secured to a ring, *b*, that embraces the upper flange, *c*, of the elbow A. The ring *b* carries friction-rollers *d d*, that fit against the under side of the flange *c*. Packing *e* is interposed between the flanges *a c*, as shown. The elbow B, to which

is pivoted a handle, C, can thus be freely turned on the elbow A, and will still always form a water-tight joint.

To the outer end of the elbow B is screwed a plate, D, which has semicircular projecting ears and flanges on the same to receive the semi-cylindrical end or ball joint of the discharge-pipe E. The pipe E, carrying the nozzle, has a projecting slotted post, *f*, which has friction-rollers *g g*, that work above and below a lever, F, passing between them. The lever F is pivoted to a post, *h*, that projects from the elbow B, and is connected with the lever C by a rod, *i*, while its front end passes through the slotted post *f*, as shown. The ball-and-socket joint formed by the discharge-pipe E on the elbow B permits the same to be swung up or down at will, while it can be swung horizontally with the elbow B. All the motions can be executed by means of the handle C, which is pivoted to swing up and down. It may be provided with a pawl or slide, *j*, to lock into a rack or toothed projection, *k*, of the elbow B, for the purpose of securing the nozzle at any desired elevation. The pressure of the water holds the ball-joint closed and water-tight. The discharge-pipe, as well as the swivel-elbow, may have inner ribs or partitions, *l*, for guiding the water straight forward.

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

The swivel-jointed nozzle and pipes A B D E, combined, as described, with the lever F, (working through slotted post *f*,) strap *i*, lever C, and pawl and ratchet *j k*, for the purpose specified.

FRANK H. FISHER.

Witnesses:

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B. F. STOAKES.