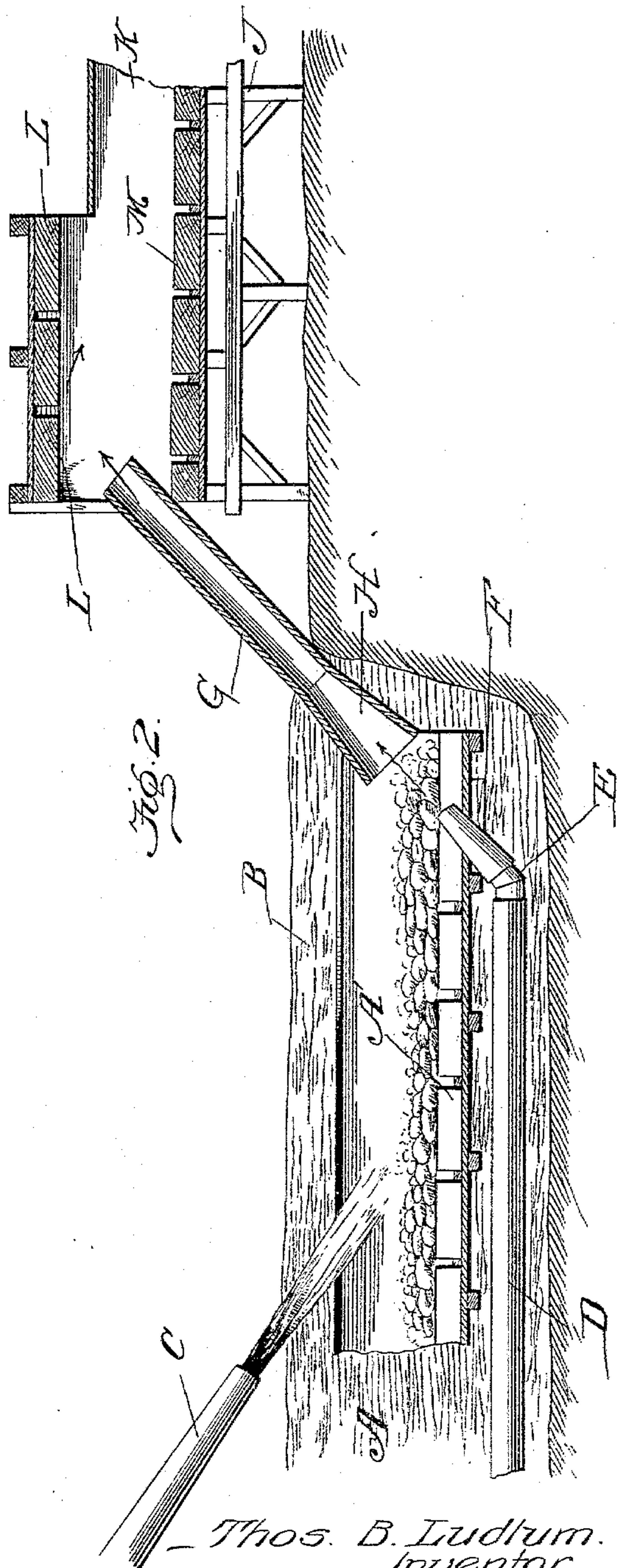
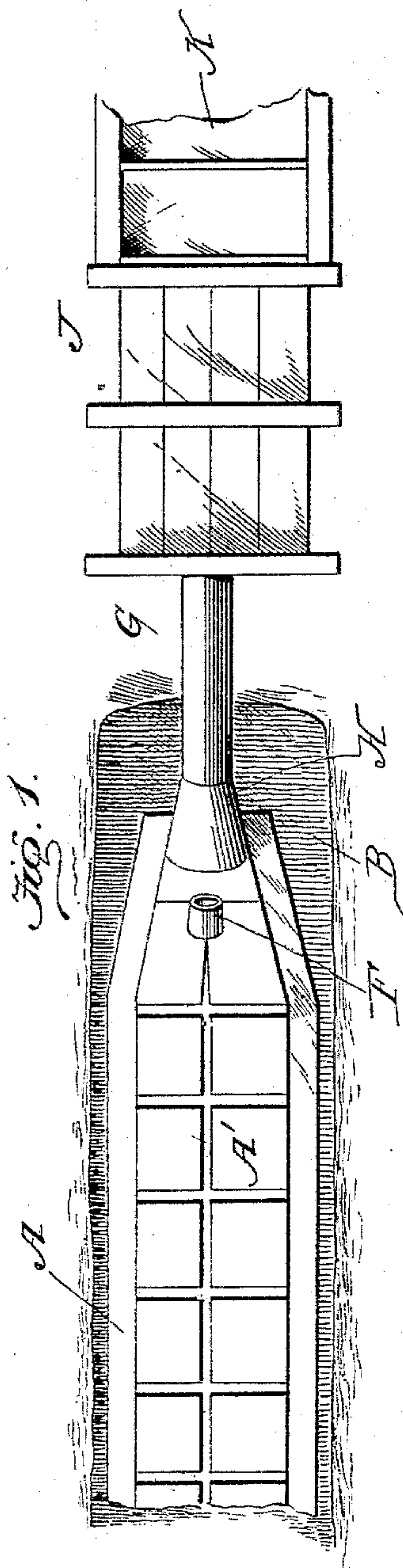


(No Model.)

T. B. LUDLUM.
HYDRAULIC MINING MACHINERY.

No. 563,604.

Patented July 7, 1896.



Witnesses:
Wm. C. Ashlee
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UNITED STATES PATENT OFFICE.

THOMAS BADGLEY LUDLUM, OF DENVER, COLORADO.

HYDRAULIC MINING MACHINERY.

SPECIFICATION forming part of Letters Patent No. 563,604, dated July 7, 1896.

Application filed May 3, 1895. Serial No. 547,986. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BADGLEY LUDLUM, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Hydraulic Mining-Machine, of which the following is a specification.

My invention is an appliance for the purpose of hydraulic washing below grade, where the stream is too nearly level otherwise to obtain sufficient incline and dump, and is utilized by raising the auriferous gravel and the water used for driving it from a lower to an upper sluice by force of water under pressure passing through a pipe and elbow set under said lower sluice; thence through a nozzle set into and passing up through the bottom of said lower sluice, pointing upward into a flared mouthpiece and conductor of uniform size, so set and constructed that the gravel and cobbles washed into said lower sluice by the driving-nozzles and driven and forced up through said mouthpiece and conductor into an elevated sluice above, whence they pass off in the ordinary way. The sluice above is provided with a wide entrance and is reduced beyond said entrance, and the upper wall of the upper sluice is provided with separating-blocks which act to separate the material and also to prevent clogging at the mouth of the upper sluice. I attain these objects by a mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a plan view or ground plan of the machine, and Fig. 2 is a vertical longitudinal sectional view thereof.

In the drawings, A is the lower sluice set into a bedrock cut B, into which the auriferous gravel, cobbles, and water are forced by the upper driving-nozzle C, said sluices being provided with riffles or blocks A'.

D is the force-pipe tapering to the elbow E.

H is the flared mouthpiece, receptacle, into which the auriferous gravel and water are driven by direct force of the water issuing from the nozzle F, whence they pass into and upward through conductor G into the upper box or sluice K, so set on an incline that said gravel and water are carried away thence by force of gravity. Either sluice may extend hundreds of feet, as circumstances may require.

J is the framework supporting the upper sluice or box K.

The lower sluice A has its inner end inclined or converged to closely fit the flared mouthpiece of the upper conductor, and the upper sluice-box has the entrance portion of greater width than the remaining portion thereof. By this construction it is evident that the material is driven or forced toward the tapered or converged inner end of the lower sluice, where it is forced upward by the lower conductor into the flaring mouth of the upper conductor, by which it is thrown with great force into the enlarged mouth portion of the upper sluice against the separating-blocks L, and settles down between the riffles M of the upper sluice.

It will be observed that the upper sluice is provided with the upper separating-blocks as well as with the lower riffles which serve to catch the ore and prevent it from being forced out and prevent clogging in the sluice. The peculiar construction of the lower sluice with its converging mouth and the upper sluice with its enlarged entrance with the upper separating-blocks and lower riffles is of vital importance, as by these features the ore is positively gathered by the riffles and cannot be washed away by the force of the stream.

I claim—

The hydraulic mining apparatus herein shown and described, consisting of the lower sluice-box provided with riffles and having its exit end tapered or converging, the upper conductor having the flaring mouthpiece fitting snugly in the converging end of said lower sluice-box, the upper sluice-box having the enlarged mouth portion and the reduced terminating portion the upper walls formed with the transverse separating-blocks and the lower walls of said upper sluice-box being provided with riffles and the forcing-nozzle above and below the lower sluice; whereby the forcing-nozzles serve to force or drive the material toward the converging end of the sluice-box through the conductor to the enlarged mouth of the upper sluice, the separating-blocks separating the gravel and lower riffles of the upper sluice receiving the ore and preventing it from being carried away and preventing jamming in the sluice.

THOMAS BADGLEY LUDLUM.

Witnesses:

WALTER H. JACQUES,
MELVIN P. DALTON.