No. 694,002. Patented Feb. 25, 1902.

H. W. DAVIS.

MINING ELEVATOR.

(Application filed Aug. 12, 1901.)

(No Model.)

Fig. 2.

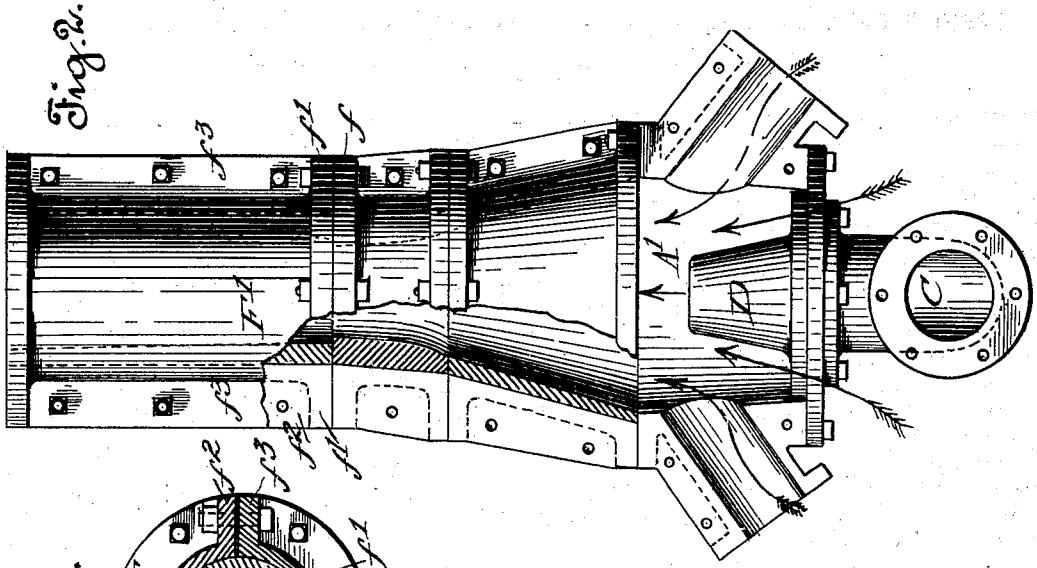


Fig. 3.

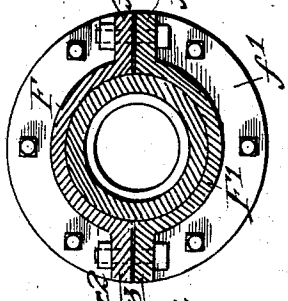


Fig. 1.

Witnesses.

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UNITED STATES PATENT OFFICE.

HOWARD W. DAVIS, OF AUBURN, CALIFORNIA.

MINING-ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 694,002, dated February 25, 1902.

Application filed August 12, 1901. Serial No. 71,811. (No model.)

To all whom it may concern:

Be it known that I, HOWARD W. DAVIS, a citizen of the United States, residing at Auburn, in the county of Placer and State of California, have invented certain new and useful Improvements in Mining-Elevators, of which the following is a specification.

My invention relates to mining apparatus, and more particularly to elevators in which by the injection of water at high pressure at the base of a tubular column or pipe gravel, debris, water, and suitable material generally are drawn into the pipe and elevated to a higher position for further treatment, such as the separation of the auriferous portion.

My improvements relate especially to the construction of the elevator-tubing both in general and in its relation to an interior wear-resisting lining. Heretofore when linings have been used they have been inclosed by cylindrical or tapered exterior sections tightly fitting, and this construction has rendered it difficult to separate the parts for inspection, refitting, or repair. This disadvantage is overcome by the construction herein described, and shown in the accompanying drawings.

Figure 1 is a side elevation of one-half of an elevator-casing with suction-pipes as used in sinking to bed-rock. Fig. 2 is a broken elevation of the same elevator fitted for working at bed-rock or in other normal relation to the material to be elevated. Fig. 3 is a cross-section at *x x* of Fig. 1.

A represents the base-chamber of the elevator, formed in two sections. The part A is provided with two suction openings or passages *a a'*, to which through the elbows *b* are connected the suction-pipes B B'.

C is the high-pressure water-pipe, which extends up into the base and is provided with any suitable nozzle D. In practical operation when sinking to bed-rock water, gravel, or other material never enters through both suction-openings simultaneously; but two of such openings are used in order to economize time by a successive use of them, making a continuous sinking operation—that is to say, that as the pit is sunk lengths of pipe are added to one or the other of the suctions, so that they alternate in receiving the material until the pit has reached the required depth. A further advantage of providing two suctions is that one can be kept closed with a board or other stop across its bottom, so that if the one through which material is passing should become choked—as, for instance, with a large rock—the board can be taken off, the other suction admitting air and causing the water to drop back and loosen the rock. When the bed-rock has been reached, and in normal operation as an elevator generally, the front half of the base-chamber is removed, leaving the other half and the halves of the suction-openings and forming a wide single inlet-mouth for the inflow of material.

Above the base is the tubular elevator composed of any suitable number of sections secured together. The lower section D' tapers upwardly to the contracted throat E, while above the throat the passage is preferably slightly and continuously expanded in order to secure a free passage and egress to the material. Each section comprises a wear-resisting lining which is of complete tubular form and an external casing, formed of a plurality of pieces secured together. I prefer to use two semitubular parts F F' for each casing-section, as shown in Fig. 3, comprising the semitubular body F, (or F',) semicircular flanges *f f'* at top and bottom, and vertical side wings or ribs f^2 f^3, connecting the top and bottom flanges. Then in assembling the elevator the complete casing is fitted to inclose the lining by bolting flanges *f* to abutting flanges *f'*, Fig. 2, and by bolting ribs f^2 to abutting ribs f^3, so as to lock the sectional casing firmly around the lining, which it fits closely. Hence in case of needed repairs, refitting, inspection, or withdrawal of one or more lining-sections it becomes simply a case of removing bolts, and so separating casing-sections, in order to expose the lining.

The base-section of Fig. 1 and its suction-passages are formed in the same manner as the elevator-section described—that is, in half-tubular parts having flanges and connecting-ribs, as shown.

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

1. In a mining-elevator, and in combination an exterior casing formed in sections placed end to end, and each section formed of a plurality of arc-shaped parts placed edge to edge,

and all formed with vertical ribs and horizontal flanges, whereby they are secured together to form a connected tubular structure, and an inner lining composed of a number of single-piece tubes abutting end to end and unsecured, but held and inclosed by the exterior sectional casing.

2. A mining-elevator comprising an exterior casing formed in sections placed end to end, and each section formed of a plurality of arc-shaped parts placed edge to edge, and all formed with vertical ribs and horizontal flanges, whereby they are secured together to form a connected tubular structure, an inner lining composed of a number of single-piece tubes abutting end to end and held and inclosed by the exterior sectional casing, a base-section in two parts, each being formed with halves of two suction-passages, abutting ribs by which said halves are secured together, an upper flange by which the base-section is connected to the lower casing-section, flanges on the suction-halves by which they are connected to suction-pipes, and an injector entering the base-section.

3. A base-section for mining-elevators formed in two parts adapted to be connected to form a hollow chamber, each part being formed with halves of two suction-passages, abutting ribs by which said halves are secured together, an upper flange by which the base-section is connected to an adjacent section, and flanges on the suction-halves by which they are connected to exterior suction-pipes.

In testimony whereof I have affixed my signature, in presence of two witnesses, this 18th day of July, 1901.

HOWARD W. DAVIS.

Witnesses:
J. H. LINDSEY,
J. B. LANDIS.