(No Model.)

A. LANDON.

SAND AND WATER FEEDING MECHANISM.

No. 345,976. Patented July 20, 1886.

FIG. 1.

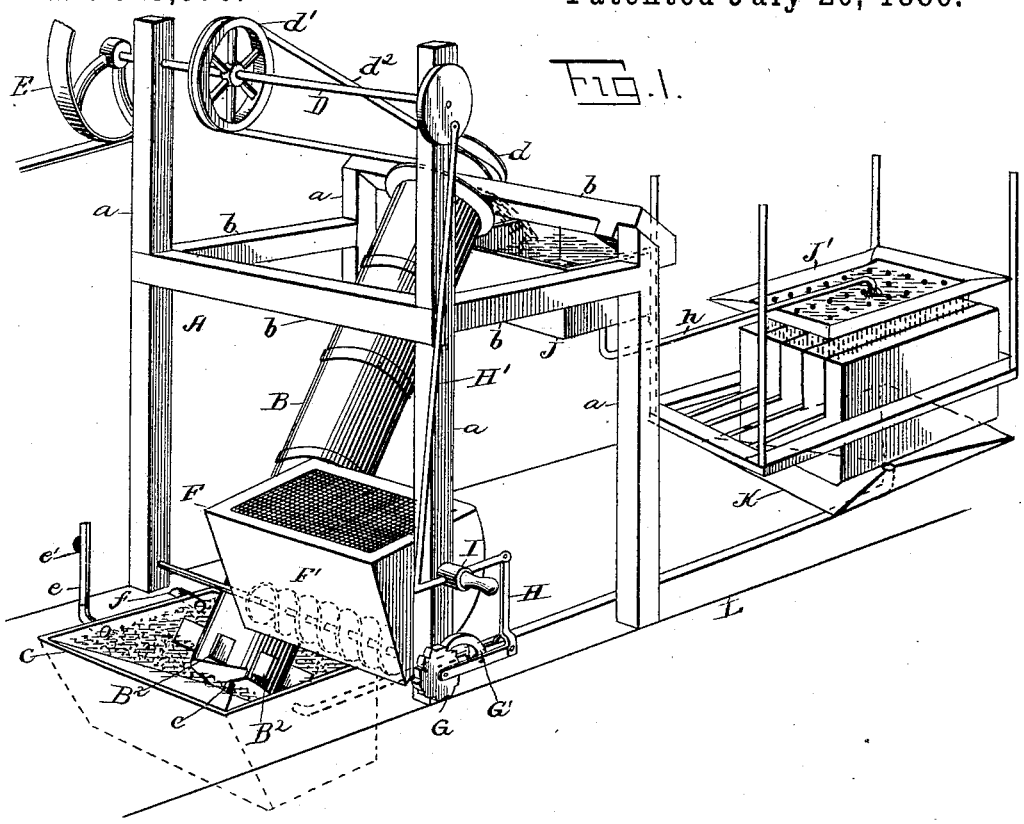
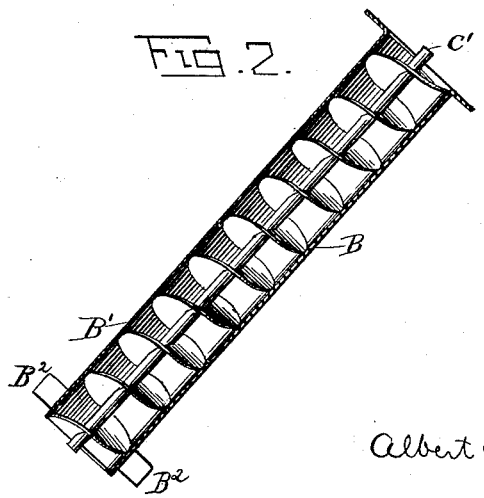


FIG. 2.



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UNITED STATES PATENT OFFICE.

ALBERT LANDON, OF RUTLAND, VERMONT.

SAND AND WATER FEEDING MECHANISM.

SPECIFICATION forming part of Letters Patent No. 345,976, dated July 20, 1886.

Application filed September 24, 1885. Serial No. 177,995. (No model.)

To all whom it may concern:

Be it known that I, ALBERT LANDON, of Rutland, in the county of Rutland and State of Vermont, have invented a new and useful Improvement in Sand and Water Feeding Mechanism; and I do hereby declare that the following is a full and exact description of the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

My invention relates to improvements in sand and water feeding mechanism for use in connection with stone-sawing or other purposes requiring a similar application of sand and water.

My object is to supply mixed sand and water to the saws or rubbing-beds and afterward return it to the tank from whence it was taken, to be freed from all impurities, and to be re-applied to its original purpose on the stone or other bed. This I accomplish by mechanism so cheap and simple and with machinery operating so slowly and regularly that the destructive effect of sand and water common to all other devices for similar uses is almost completely overcome. Such mechanism is illustrated in the accompanying drawings, to which attention is invited, and in which—

Figure 1 represents my improved sand and water feeding mechanism, combined with a block of stone and a gang of saws, and Fig. 2 a vertical section of the screw-pump employed for lifting the mixed sand and water.

Like letters of reference denote corresponding parts.

A denotes a suitable frame-work or support consisting of four uprights, *a a*, and as many cross-beam, *b b*. Within this frame-work stands the inclined screw-pump B, made preferably in the form of the old Archimedean screw, and inclosed by a metal or wooden casing, B′, provided near its lower end with an annular series of paddles or agitators, B^2, for a purpose hereinafter explained. The spindle or shaft running through the center of the screw-pump B may be a hollow cylinder or pipe, and so arranged that its lower end may inclose and set on a pivot, *c*, placed in a tank, C, which pivot should be sufficiently long to reach a socket inclosed in said spindle or shaft above the surface of the sand and water in the tank and out of the reach of its wearing action. From the upper end of the pump projects the spindle *c′*, which passes loosely through one of the cross-beams *b* of the frame A, and carries a pulley, *d*, which connects with a pulley, *d′*, on the main shaft D by means of a cross-bolt, d^2. This main shaft D is mounted in the two front uprights *a a* of the frame A, and is driven by a large driving-wheel, E, which imparts revolution to the screw-pump B through the intermediate gearing above described. The tank C, which supports the lower end of the screw-pump, is sunk below the level of the floor and should set low enough to give proper fall to the water and sand returning from the saw-gangs. This tank receives the water and sand to be raised by the screw-pump, and is provided with a water-supply pipe, *e*, having a cock, *e′*, to regulate the supply, and with an overflow-pipe, *f*. Sand is fed into the tank C from a hopper, F, which should be large enough to hold as much sand as may be required. This hopper is located above the tank C, and has a covering of wire screen, which separates all gravel and mud from the sand as it is thrown into the hopper.

In the bottom of this hopper is arranged a screw-conveyer, F′, operated by a spur-wheel, G, mounted on one end of the same, an engaging-pawl, G′, and a pitman, H, pivoting to the vibrating arm of a lever, H′, having connection with one end of the main shaft D. The feed or speed of the screw-conveyer F′ is regulated by moving the vibrating arm of the lever H′ through the screw-hub I, mounted on the side of one of the front uprights *a* of the frame. On the revolution of the screw-pump B its paddles or agitators thoroughly mix the sand and water and cause the lighter impurities to rise and pass out through the overflow-pipe *f*. The sand and water raised by the pump is discharged from its upper end into a trough, J, from whence it is conveyed by a pipe, *h*, to a trough, J′, located above the stone to be sawed. This trough has a perforated bottom, through which the sand and water passes to the stone and saw-gangs, and is caught by a pan, K, below the stone. From this pan the sand and water is returned to the tank C by means of a pipe, L. The screw-pump B should be long enough to discharge the sand and water at a point high enough to have proper fall down to the saw-gangs, and the

distance between its threads is preferably about equal to one-fourth of its diameter, and when thus constructed should stand on an angle of about sixty-five degrees.

A screw-pump like the one herein described, is made twelve inches in diameter and geared to make sixty-five revolutions per minute, will lift each minute eighty gallons of sand and water to any desired height. To empty the pump, its motion is reversed by crossing the belt d^2 the other way.

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

1. In an apparatus of the character described, the combination of a sand-and-water tank and a revolving shaft carrying a spiral, and having bearings in the frame and tank, and inclosed by a cylinder having paddles or agitators on the outside of its lower end, substantially as described.

2. In an apparatus of the character described, the combination of a sand-and-water tank having supply and overflow pipes, a sand-feeding hopper arranged above said tank, and a revolving shaft carrying a spiral, and having bearings in the frame and tank, and inclosed by a cylinder having paddles or agitators on the outside of its lower end, substantially as described.

3. In an apparatus of the character described, the combination of a revolving screw-pump, a tank below the same, and a sand-feeding hopper having a wire screen, and a screw-conveyer arranged in its bottom, substantially as and for the purposes described.

4. In an apparatus of the character described, the combination, with a screw-conveyer arranged in the bottom of the sand-hopper, of intermediate gearing with the driving-shaft for operating and regulating the speed of said conveyer, substantially as and for the purposes described.

5. In an apparatus of the character described, the combination, with the screw-conveyer F′ of the hopper F, of the spur-wheel G, pawl G′, pitman H, screw-hub I, and lever H′, having a vibrating arm passing through said hub and pivoted to said pitman, substantially as described.

6. In an apparatus of the character described, the combination of a revolving shaft carrying a spiral, and inclosed by a cylinder having paddles or agitators on the outside of its lower end, and the sand-and-water tank C, provided with the pivot *c*, having its socket or bearing in said shaft above the surface of the sand and water, substantially as and for the purposes set forth.

In testimony whereof I affix my signature in presence of two witnesses.

ALBERT LANDON.

Witnesses:
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