

M. C. LAWTON.  
Constructing Levees.

No. 215,943.

Patented May 27, 1879.

Fig. 1.

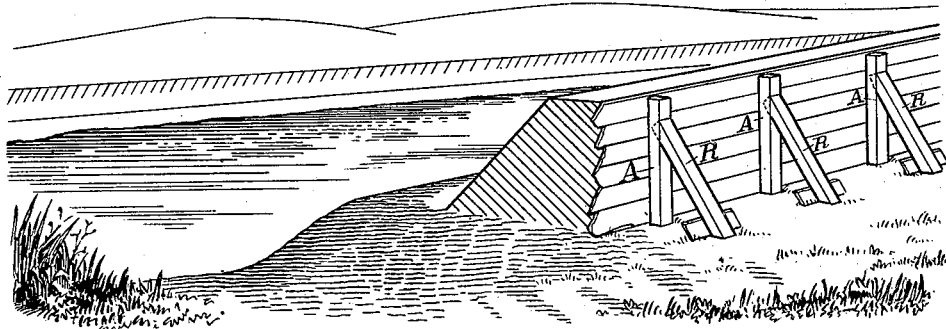


Fig. 2.

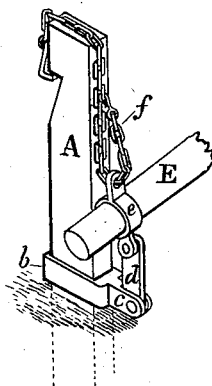
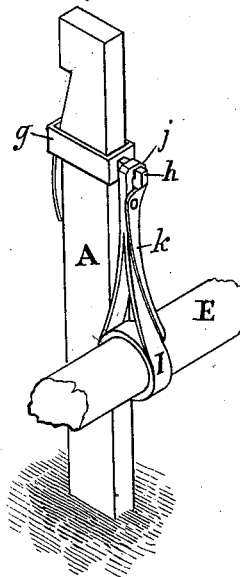


Fig. 3.



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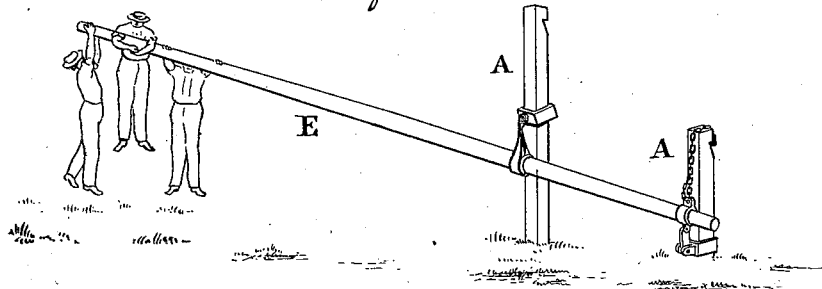


Fig. 2.

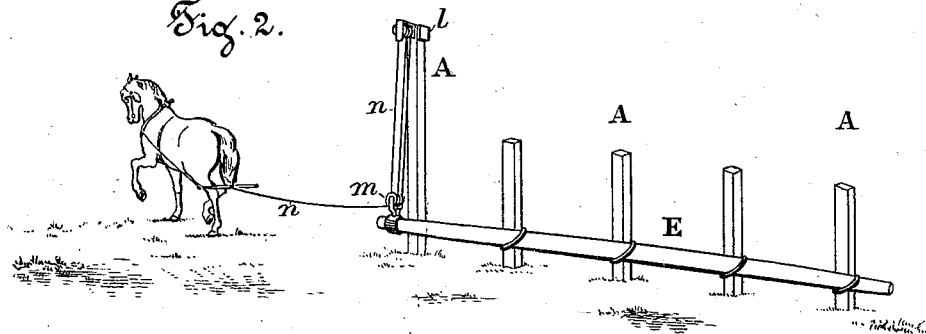
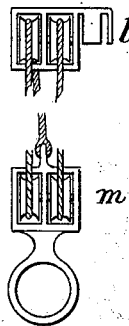


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# UNITED STATES PATENT OFFICE.

MANLEY C. LAWTON, OF SAN FRANCISCO, CALIFORNIA.

## IMPROVEMENT IN CONSTRUCTING LEVEES.

Specification forming part of Letters Patent No. **215,943**, dated May 27, 1879; application filed February 5, 1879.

*To all whom it may concern:*

Be it known that I, MANLEY C. LAWTON, of the city and county of San Francisco, and State of California, have invented certain Improvements in Constructing Levees; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the drawings accompanying this specification, and forming a part of the same.

My invention consists in improved devices for constructing levees, and particularly in an improved device for driving the main posts and braces, as will be hereinafter explained.

Referring to the accompanying drawings, Figure 1, Sheet 1, is a view of a levee built according to my system. Fig. 2 is a view of the last driven pile used as a fulcrum. Fig. 3 is a view of the pile to be driven. Fig. 1, Sheet 2, represents the way of driving the piles by man-power. Fig. 2 represents the way of driving the same by horse-power. Fig. 3 shows the cap-piece and blocks used in the last-named case.

In building my improved levee, I first construct the retaining-wall, against which the levee material is deposited. This wall I build far enough from the river-bank to form the outside wall of the levee. These levees are usually constructed on soft, marshy soil, as such places are most subject to overflow, and in California particularly is this the case. The posts or piles A of the retaining-wall are therefore easily driven down after they are once started and the sod or upper crust is penetrated. I have therefore devised a simple arrangement by which a few laborers can, by means of a lever, drive or sink these posts or piles with expedition, so that the cost of building the wall is greatly reduced. To do this I use the last pile or post driven as a fulcrum for the leverage which drives the next succeeding pile, and soon until the entire number of piles are driven. To avoid a direct upward strain upon the fulcrum or driven pile, I employ a loose band, *b*, which slips down over it easily. This band has a lug, *c*, on one side, to which one end of a link, *d*, is attached by a bolt or other joint. To the opposite end of this link I attach a ring or band, *e*, through which one end of the long lever E will pass. This band is sus-

tained in position by a chain, *f*, one end of which passes over the upper end of the pile. The next post or pile to be driven having been put into position, I slip a similar loose band or ring, *g*, over it. This band has a hook-shaped lug, *h*, on one side of it, as shown.

On the lever E is a band, I, which can be moved to any desired point in the length of the lever, and it has a hook-shaped projection, *j*, extending upward from it. *k* is a bar, which is bolted to the projection *j* below its hooked upper end, and the upper end of this bar is bent at right angles, as shown. Now, when the band *b* has been slipped down over the last pile driven, and the next pile is placed in position, the link *d* of the band *b* is raised to a vertical position and the end of the lever inserted in the ring or band *e*. The loose band *g* is then slipped over the pile to be driven until it is at the desired distance from the ground. The band I is then adjusted on the lever E opposite the pile to be driven, and its hook-shaped projection *j* is hooked over the hook-shaped projection or lug of the band *g*. The bar K is then turned until its upper bent end passes under the lug of the band *g*, thus temporarily attaching the band I of the lever to the band *g*. Upon pressing down upon the outer end of the lever, the loose bands *b g* are cramped upon the pile, so as to gripe it firmly. Sufficient pressure now forces the pile to be driven down into the earth, while the fulcrum-pile retains its position. When the outer end of the lever has been depressed far enough for a single stroke it is raised upward, thus carrying the loose band *g* up along the pile to a new position, after which the last driven pile is used for a fulcrum for driving the next one. The braces R are driven in the same way.

When horse-power is used, I employ a modification of my invention, in which I lash the pole or lever E in a horizontal position to the last two or three driven piles, as shown at Fig. 2, so that its end will project almost to the next pile to be driven. I then apply a metal cap-piece, *l*, over the upper end of the pile to be driven. One end of this cap-piece projects from the top of the post, and is formed into a double-pulley block, as shown. This double pulley I connect with a fall-block, *m*, by means

of a rope, *n*, and the fall-block I attach to the end of the horizontal pole or lever *E*. The horse is then hitched to the rope *n* and driven away from the pile, by which means it is drawn or forced downward into the earth.

To drive the braces I use the pile or post that is to be braced as the fulcrum of my lever, and this can be done as fast as the piles are driven; or I can first drive the piles and then drive the braces afterward.

The peculiar nature of the soil in which these piles or posts are driven prevents them from being drawn by the power applied to them to sink the next pile or its brace, as the suction of the boggy material in which they are driven will resist the upward strain.

When the piles are all driven in a row, as shown, I board them up on the side next the river, and the wall is ready to receive the levee material.

The usual material used for making levees is silt, mud, or earth taken from the bottom of the river. This material I now deposit against

the wall on the river-side until it has been built to the desired height, allowing the inside face to slope downward at an angle, the inner wall and top being formed like a parapet.

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

1. The combination, with a pile, *A*, of the loose band *b*, link *d*, ring *e*, chain *f*, and the lever *E*, all constructed and adapted to be applied in the manner and for the purposes set forth.

2. The combination, with a pile, *A*, of the band *g*, having the hooked projection *h*, the band *I*, having hook *j*, bar *k*, and the lever *E*, all constructed and arranged substantially as and for the purposes set forth.

In witness whereof I hereunto set my hand and seal.

MANLEY C. LAWTON. [L. S.]

Witnesses:

W. FLOYD DUCKETT,

W. F. CLARK.