2 Sheets--Sheet 1.

J. BRADFORD.

Inclined Ways for Building Levees.

No. 140,458. Patented July 1, 1873.

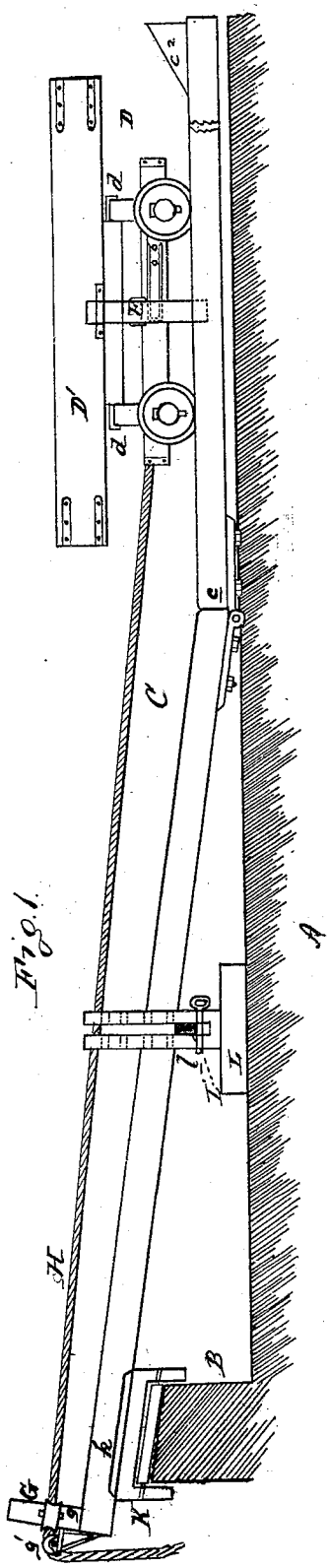

Fig. 1.

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2 Sheets--Sheet 2.

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Fig. 2.

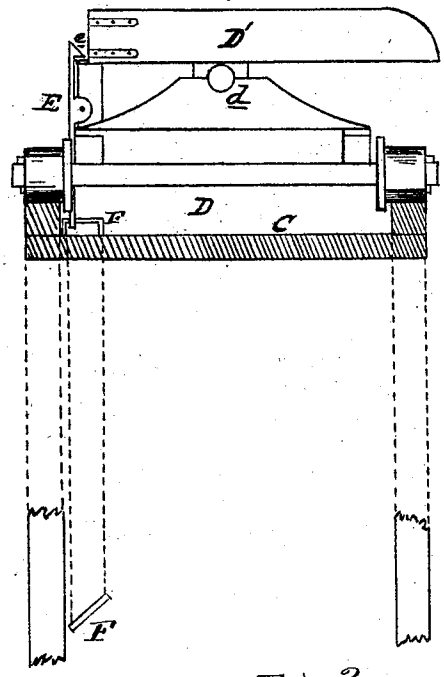
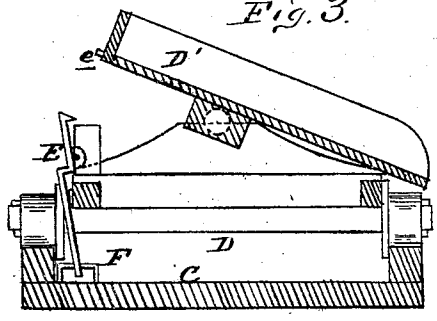


Fig. 3.



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UNITED STATES PATENT OFFICE.

JOHN BRADFORD, OF WILMINGTON, DELAWARE.

IMPROVEMENT IN INCLINED WAYS FOR BUILDING LEVEES.

Specification forming part of Letters Patent No. **140,458**, dated July 1, 1873; application filed May 19, 1873.

To all whom it may concern:

Be it known that I, JOHN BRADFORD, of Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Banking-Machine; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings which form part of this specification.

Referring to the drawings, Figure 1 is a side view of my invention. Fig. 2 is a vertical transverse sectional view, showing car in a horizontal position. Fig. 3 is a vertical transverse sectional view, showing the car in dumping position.

My invention consists of a machine or apparatus for making mud banks for lands subject to overflow from the tides and for repairing breaches in the same. The apparatus consists of an inclined movable track extending from the "guard" or flat to the bank or fence. Upon this track there is a car which runs down by its own weight, and is drawn up by a horse attached to a rope, said rope extending from the car through guide-pulleys in a head-block on the track, so that the horse has a footing, and can walk inside the bank. The car is so constructed, that on arriving at the top of the track or at any other determined position it will tilt automatically to one side and dump or discharge the load of mud shoveled upon it by the men on the guard. When the bank is completed at one point the track may be shifted, as hereinafter described, and the mud carried to another position.

Referring to the accompanying drawing, A shows the guard or flat; and B, a mud bank in course of construction. C is a track extending from the bank to a position on the guard, being jointed at *c*, where it meets the ground and having a support to prevent sagging or bending between the bank and said joint, this portion of the track being usually of such length—say, thirty-five feet, that a support is necessary. The part of the track C beyond the joint rests upon the flat in a horizontal position, or nearly so, and is provided with stops c^2 for preventing the car from running over the end of the track, and should also have handles for drawing the track sidewise when shifting is necessary. A plank should also be nailed to the under side of the track at the joint *c*, leaving one end projecting and raised, so as to serve as a handle for shifting purposes. The car is formed of a four-wheeled truck, D, on which a body, D′, is pivoted centrally at *d d*. This body has but three closed sides, the right-hand side being left open so that the mud may slide off when the car is tilted. The left-hand side of the body is weighted or made heavier than the right, so that when the mud, which should be thrown mainly upon the latter side, slides off, the body will automatically resume its horizontal position. To retain its horizontal position, I employ a spring-catch, E, pivoted to a standard, *f*, on the truck, and engaging with a lip, *e*, on the body. F shows a cam-block placed diagonally, attached to the bottom of the track or the left-hand rail thereof, and when the spring E comes in contact with this block it is withdrawn from its engagement with the lip *e*. The car thereupon tilts automatically, the weight of its load causing a depression of the right-hand side of the car. When relieved of its load the body returns to its position, and is held by the spring-catch which engages with the lip *e*, as before. G is a head-block on the track, provided with two pulleys, *g g*, mounted on vertical shafts, and another pulley, *g′*, mounted on a horizontal shaft, the object being to permit the rope H, by means of which the car is pulled up the track, to be drawn either straight out in the same line as the track, or to the right or left, thereby allowing the horse attached to said rope to walk away from the bank or alongside of it. K represents a low truck mounted on rollers, and placed on the top of the bank. The upper end of the track is placed upon this truck, resting between cleats or strips *k k*. L is a support for the upper joint of the track, consisting of a base, L, with standards *l l*, and a cross-piece, L′, made vertically adjustable, as shown, by means of holes and pins.

The operation is as follows: The track and car being placed in position, the mud is shoveled on the latter by the men standing on the guard, care being taken to place the load, as suggested, on the right-hand side of the body.

When a load is obtained, the horse attached to the rope H is started and the car drawn up the track. When the spring-catch comes in contact with the cam-block F the body is at once released and the load dumped in the required position, on the bank or on either side of it. When the bank has been completed at any point the track may be readily shifted, as follows: The car is first drawn to the upper end of the track and the rope passed once around the head-block; the horse is then started in the desired position, drawing the track along, the truck K sliding on the bank. At the same time the men shift the track at the joint *c*, and at the lower end by means of the handles, the support L being also shifted in the same direction.

By the aid of this apparatus four men, a boy, and a horse can do as much work as forty men with wheel-barrows, the men shoveling the mud into the car and helping to shift the track, and the boy driving the horse.

The work is also superior to that performed by a dredging-machine, as the latter takes the mud from a line right alongside of the bank, leaving a ditch, which is a very great disadvantage.

In order to prevent the track from adhering by suction to the guard at the point where the two sections join, I provide water-holes, which effectually obviates this inconvenience.

What I claim as my invention is—

1. A machine or apparatus for making mud banks and repairing breaches in the same, consisting of a portable track, made in horizontal and inclined sections, adjustable substantially as set forth.

2. The movable or shifting track C jointed at *c*, and having the oblique block or stationary cam F, or equivalent, and pulley head-block G, as set forth.

3. In combination with the truck and tilting body, the spring-catch, for the purpose set forth.

4. The truck K, arranged for operation on the bank, in combination with the track B, as set forth.

5. In combination with the track B, the shifting adjustable support L.

6. In combination with the automatic dumping-car D, having the spring-catch E, the oblique block or stationary cam F, for the purpose set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 8th day of May, 1873.

JOHN BRADFORD.

Witnesses:
ALBERT W. SMITH,
WILLIAM T. SHAW.