

(No Model.)

D. NEALE.

SHORE OR BANK PROTECTOR AND METHOD OF AND APPARATUS FOR
CONSTRUCTING AND PLACING SAME.

No. 570,946.

Patented Nov. 10, 1896.

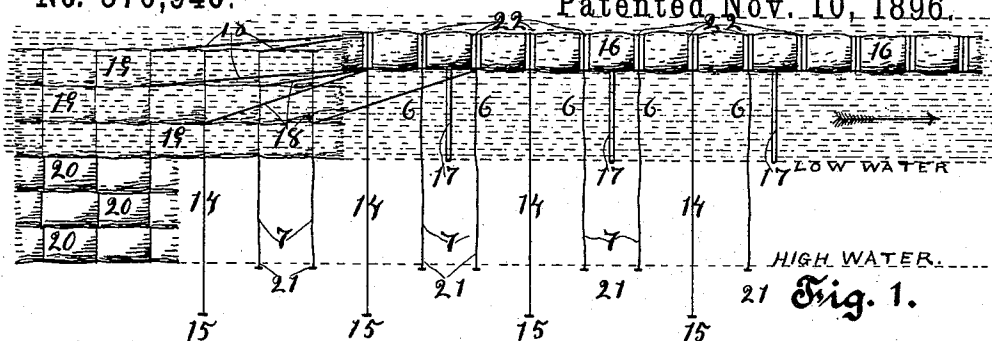


Fig. 1.

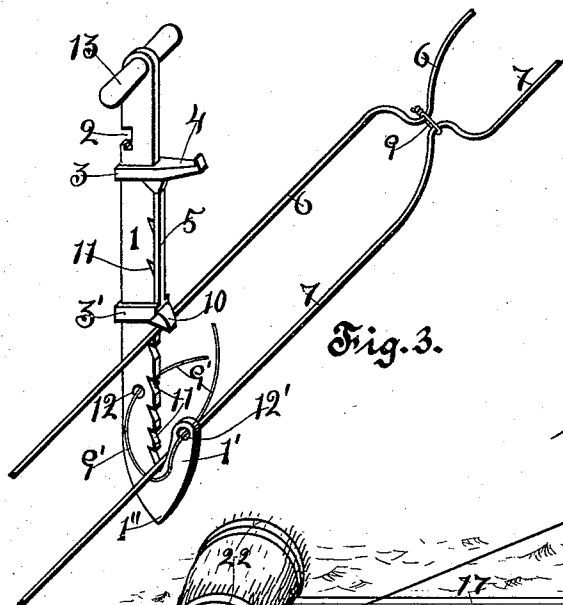


Fig. 3.

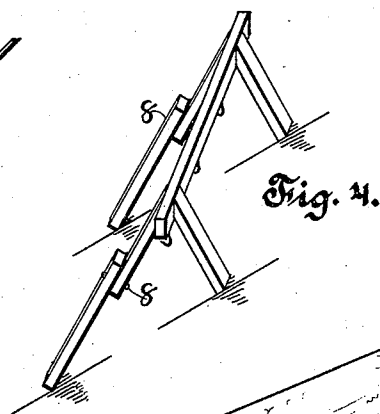


Fig. 4.

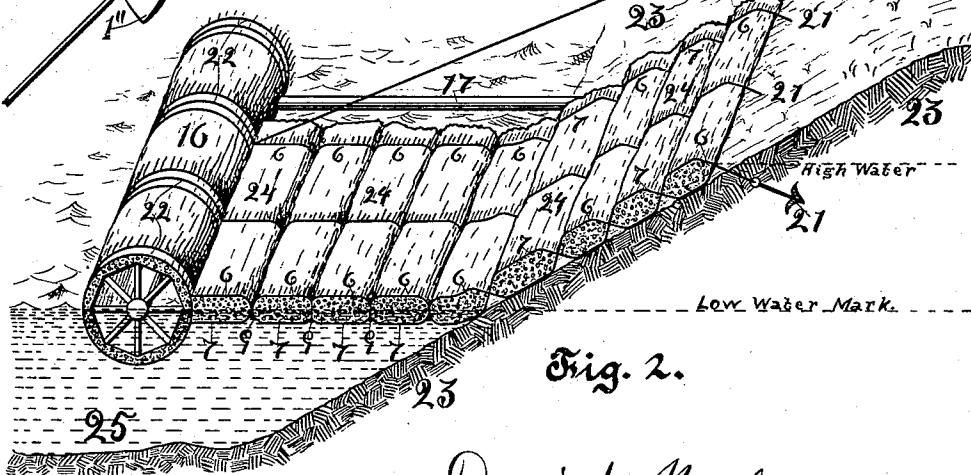


Fig. 2.

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UNITED STATES PATENT OFFICE.

DAVID NEALE, OF FORT CALHOUN, NEBRASKA.

SHORE OR BANK PROTECTOR AND METHOD OF AND APPARATUS FOR CONSTRUCTING AND PLACING SAME.

SPECIFICATION forming part of Letters Patent No. 570,946, dated November 10, 1896.

Application filed May 16, 1896. Serial No. 591,875. (No model.)

To all whom it may concern:

Be it known that I, DAVID NEALE, a citizen of the United States, residing at Fort Calhoun, in the county of Washington and State

of Nebraska, have invented a new and useful Improvement in Shore or Bank Protectors and the Method of and Apparatus for Constructing and Placing the Same, of which the following is a specification.

My invention relates to a continuous fabric or mattress to protect banks against the erosive action of running water or waves; and the objects of my invention are, first, to provide suitable anchorage for starting and retaining the upstream end of mattresses on river-banks; second, a method by which mattresses of brush or other disintegrate fibrous filling, with wire or cable binding or warp-lines, in pairs, may be easily and quickly made and placed, and, third, to provide apparatus for quilting the mattress while it is floating on the water, with other important features more fully hereinafter disclosed, and illustrated by the accompanying drawings, in which—

Figure 1 is a plan of the work as commenced. Fig. 2 is a perspective and cross-section looking downstream in the direction of the arrow in Fig. 1. Fig. 3 is a perspective view of the quilter applied to the warp-lines of the mattress, and Fig. 4 is a perspective view of a sidehill-trestle for carrying the warp-lines while weaving the mattress on the inclined bank.

Similar numerals refer to similar parts throughout the several views.

In the drawings the mattress or facing is represented as being made and placed on the bank of a river when it is at low-water mark.

In Fig. 1, 19 19 19 are three hollow fascines, each consisting of a framework covered with a permeable envelop of disintegrate fibrous material and adapted to accumulate silt or sand or receive within, through ports cut through its envelop, earth or rocks, whereby it is anchored to the bed or bank of the stream. A sufficient number of these are placed from the water-line out, and shorter ones 20 from the water-line in, up the bank and generally nearly parallel with the same, to give the required width of facing, and to these the end of the facing is attached as a starting and

permanent anchorage; also, the hollow fascine 16, which forms the lower or outer edge of the facing, is anchored at its upstream end to the fascines 19 by the cables 18.

The fascine 16 is hollow and continuous throughout the length of the facing or bank protected and constructed, as shown, preferably with a central core-log, radial arms connected by cross bars or wires and covered by brush bound on by the wire bands 22, which are shown tripled at each binding, the warp cables or lines 6 and 7 having their ends attached to the center band. This fascine is made, anchored, and floated as shown in Figs. 1 and 2, with the warp-lines attached ready to receive the filling 24, which is any disintegrate fibrous material, generally brush, and which is immediately inserted as soon as the fascine 16 is launched and before the accumulations of silt and sand sink the said fascine, which occurs soon in very turbid streams and may be retarded by attaching temporarily other more buoyant bodies. To retain the fascine at the desired distance from the bank, the booms 17 have their out ends attached to the fascine and the other ends seated in the bank; and to prevent the fascine from floating out the cables or guys 14 are attached thereto and to the piles 15, thus drawing it against the booms; and where the bank is high and the guys at a great angle to the booms the guys retard the sinking of the fascine. By this means the warp-lines are left slack enough so that the filling is easily introduced from the bank on the series of lines 7 and under the top lines 6, for that part of the facing which now rests on the water 25 and with the fascine 16 is sufficiently buoyant to bear up the workmen and their tools, but will ultimately be under the water when the hollow fascine 16 has accumulated sufficient to sink it or it has been weighted by deposits made through ports cut in the top of the envelop. The guy-lines are not always necessary, as the warp-lines in most cases will give draft enough to hold the fascine 16 against the booms and still be slack enough to receive the filling, and these lines or guys may be attached to the core-log instead of to the bands, as shown.

For that part of the facing which is constructed on the water the warp-lines 6 are

kept on top and the lines 7 are kept underneath the filling, which is introduced in instalments, either loose or bound in bundles, or the compound building-mats for which I received a patent September 25, 1894, No. 526,457, may be used, and the warp-lines drawn together or toward each other between the instalments of filling and secured by the wire-quilt stitches 9; but when the bank is reached the warp-lines are crossed between the instalments of filling, alternating each series from top to bottom, the upper lines temporarily suspended, while filling, from hooks on the under side of the trestle shown in Fig. 4, which has the adjustable legs 8 to adapt it to any slope of bank. It is found difficult to cross the warp-lines between the instalments of filling in that part of the mattress made on the water. Hence for this part of the mattress I use the construction set forth. On reaching high-water mark the warp-lines are secured to anchors 21, planted in the bank, and lateral binding-wires are secured at the crossings of the pairs of warp-lines near the upstream end of the facing and secured to the anchor-fascines 20. Other anchoring and features specifically set forth in Patent No. 547,024, granted to me October 1, 1895, may be used herewith when the nature of the work requires.

The quilter consists of a metal shank 1, having the transverse handle 13 at one end, the opposite end 7" pointed, and having a barb 1' to form a V-shaped hook-opening toward the handle. The shank has the hooked notches 11 in its edge adjacent to the barb. These notches are hooked or open toward and extend graduated to less distance apart into the V-shaped hook at the end of the shank. The sliding bar 5 has the loops or thimbles 3 and 3' at its ends to loosely receive and slide on the shank 1, the bar moving parallel with and along the notched edge of the shank, the end of the bar toward the hook having the spur 10 projecting from the shank and inclined toward the hook and to agree with the hooked notches, the end of the bar toward the handle having the lipped bracket 4, and the opposite edge of the shank has the rectangular hooked notch 2 to receive the loop 3 and retain the sliding bar at the end of the shank near the handle. The point of the barb 1' has the eye 12' to receive the end of the quilting or stitching wire 9', and a like eye is made through the shank at a point toward the handle.

The operation of the quilter is as follows: The quilting-wire 9' may be used right from the spool, when it will only be necessary to insert the end through the eye 12' in the point of the barb; but if used in short pieces it is inserted through both eyes, as shown in Fig. 4. The point 1" is then thrust down through between the instalments of filling and the line 7, engaged by the V-hook and drawn up by grasping the handle. At the same time the spur 10 engages the line 6, which is forced

down by the foot of the operator on the bracket 4, the inclined face of the spur drawing the line into the hooked notches as they are reached, which retain it, so that when the required tightness is gained the spur is moved toward the handle, and the loop 3, seated in the notch 2, retains it out of the way while the ends of the stitch-wire 9', which are brought through the filling on opposite sides of the warp-lines, are withdrawn and made fast, as at 9, and the quilter then removed. Where the filling is loose, the stitch-wires may be placed by hand without using either eye of the quilter, but not as conveniently.

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

1. In a shore or bank protector the combination of a mattress anchored at its upper or inner edge to the bank, with a hollow fascine having a permeable envelop, attached to the lower or outer edge substantially as described.

2. In a shore or bank protector the combination of a mattress consisting of suitable filling, and warp-lines running up and down the bank their inner ends anchored to the bank and their outer ends fastened to a hollow fascine having a permeable envelop, substantially as described.

3. In a river-bank protector the combination of a mattress anchored at its inner edge to the bank, its outer edge attached to a hollow fascine having a permeable envelop, and the upstream end of said mattress and said fascine anchored to a nest of like fascines placed against the bank and bed of the stream substantially as described.

4. The method of constructing and placing shore or bank protectors consisting in holding a floating body on the water above where the outer edge of the facing will come, attaching thereto and constructing on the water between said floating body and the bank a mattress anchored to the bank, and then sinking said floating body with the mattress attached, substantially as described.

5. The method of constructing and placing shore or bank protectors consisting in anchoring and floating a sinkable body above where the outer edge of the facing is desired, attaching thereto warp-lines and extending and anchoring them to the bank, placing in the warp-lines a filling and then sinking the anchored floating body substantially as described.

6. The method of constructing and placing shore or bank protectors consisting in anchoring a floating body on the water above where the outer edge of the facing is desired, attaching thereto warp-lines extending to and up the bank, and weaving into said warp-lines filling to form a mattress, and for that part of the mattress between the floating body and the bank, continuing one set of warp-lines under the filling and the opposite set on top of the filling and quilting it with stitches embracing opposite top and bottom warp-

lines, and for that part above the water on the bank, crossing the warp-lines between instalments of the filling, then anchoring the inner ends of the warp-lines in the bank and then sinking the floating body substantially as described.

7. The method of constructing and placing shore or bank protectors consisting in floating and anchoring along the line of the outer edge of the facing a hollow fascine having a permeable envelop, then constructing on the water between the fascine and the bank a mattress attaching its outer edge to the fascine and anchoring its inner edge to the bank and then allowing the mattress and fascine to sink by the accumulation therein of alluvial deposits substantially as described.

8. A quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress, consisting of a pointed shank having a hook formed by a barb having an eye near its point substantially as described.

9. A quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress, consisting of a pointed shank having an eye and having a hook near its point formed by a barb having an eye, substantially as described.

10. A quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress consisting of a shank having a hook to engage a line on one side of the mattress and a sliding spur to engage a line on the opposite side substantially as described.

11. In a quilter for inserting stitches to embrace binding-lines on opposite sides of a

mattress, the combination of a shank having a hook and hooked notches along its edge extending into the hook, with a spur to slide on the shank to and from the hook across the notches, substantially as described.

12. In a quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress, the combination of a handled shank having a hook to engage one line and a foot-operated sliding spur to engage an opposite line substantially as described.

13. In a quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress, the combination of a shank having a hook, with a spur connected to a thimble to loosely slide on the shank and carry the spur toward and from the hook, and a hooked notch on the shank to engage the thimble to temporarily hold the spur away from the hook substantially as described.

14. In a quilter for inserting stitches to embrace binding-lines on opposite sides of a mattress, the combination of a shank having a hook and along the shank notches hooking reversely toward the hook, with a thimble to slide on the shank and carry an inclined spur to and from the hook across the notches substantially as described.

Signed at Blair, in the county of Washington and State of Nebraska, this 12th day of May, 1896.

DAVID NEALE.

Witnesses:

LOU. VAUGHAN,
A. J. TAYLOR.