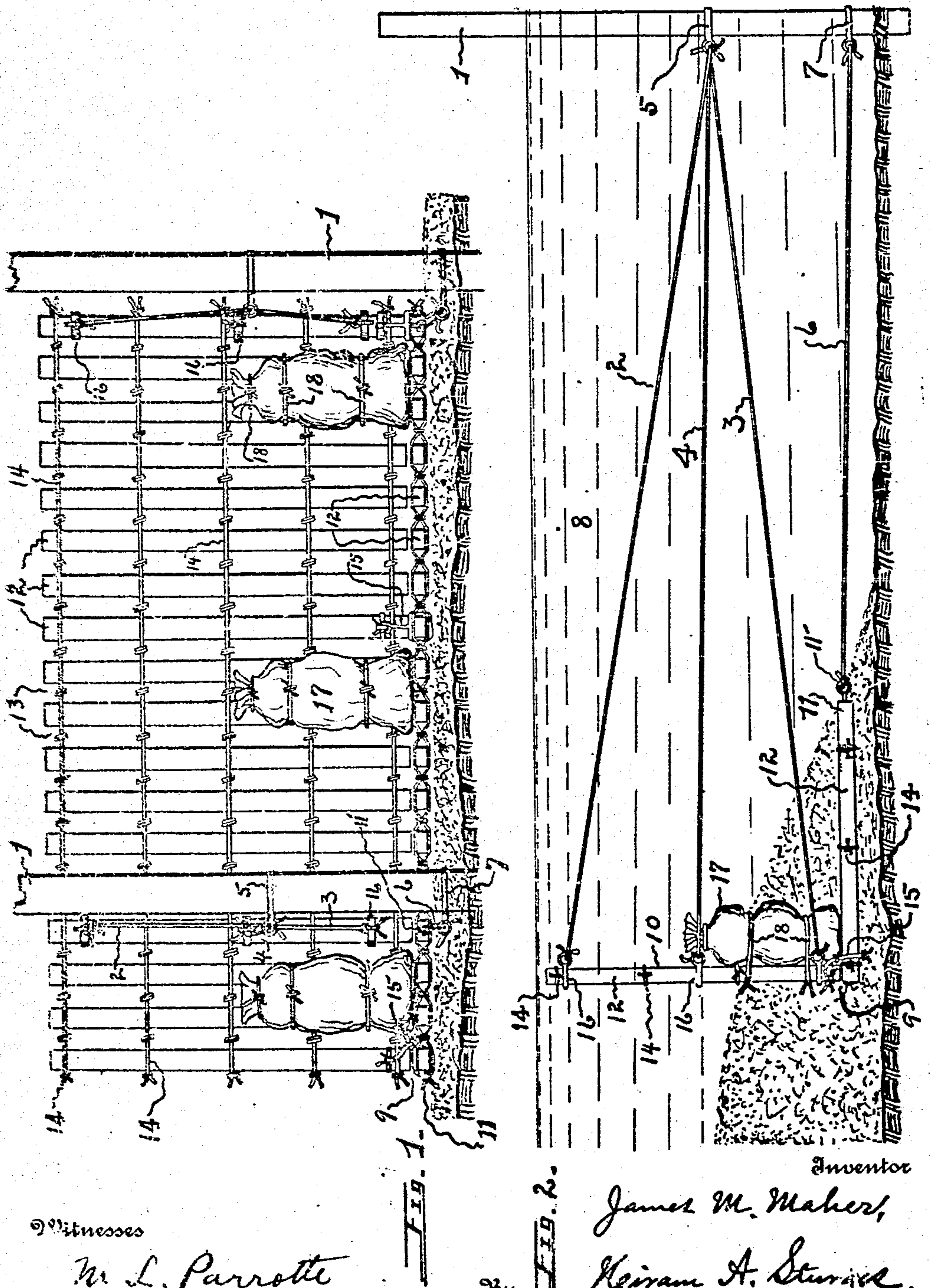


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Witnesses

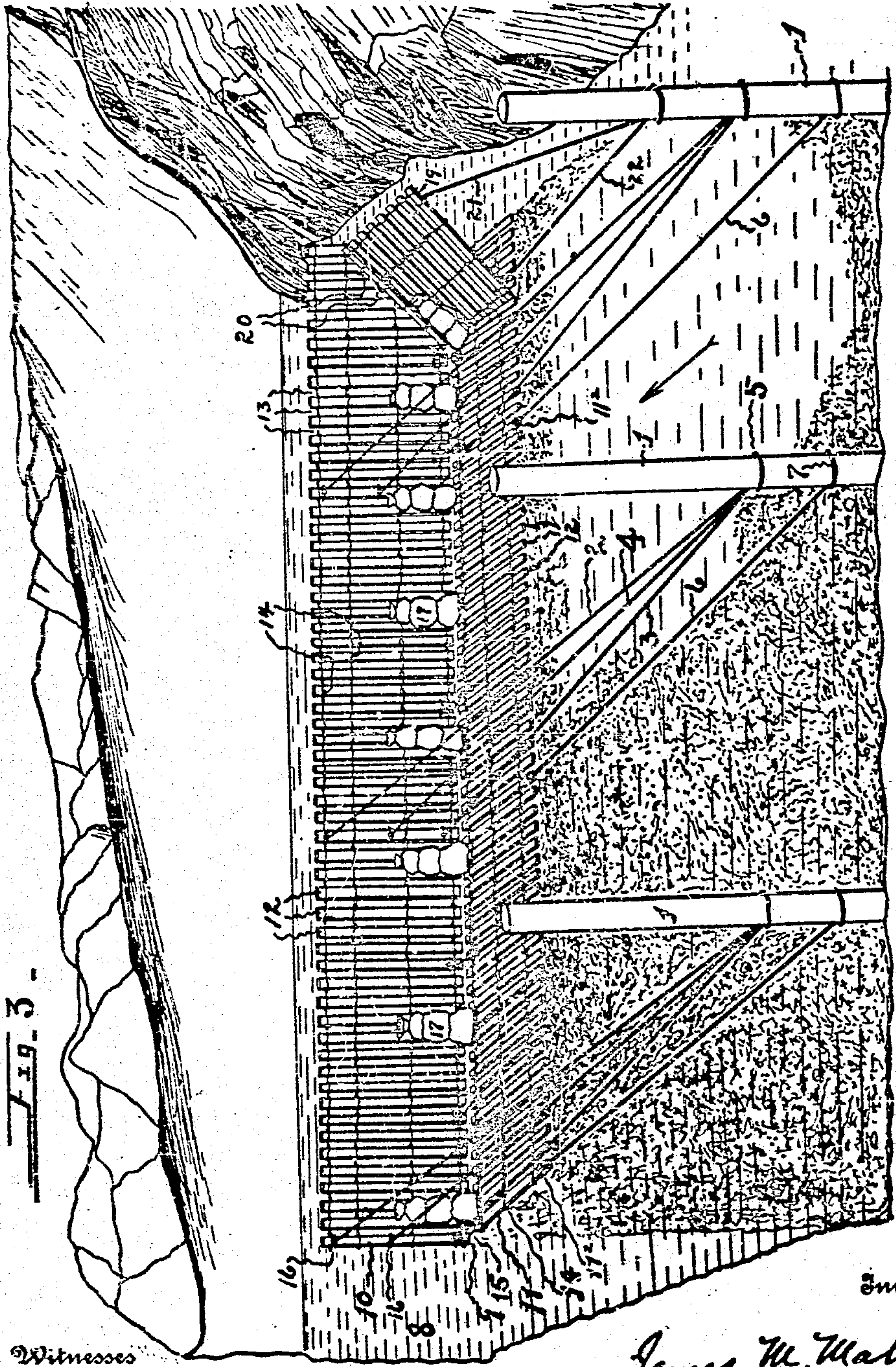
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FIG. 2.

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UNITED STATES PATENT OFFICE.

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RIPRAPPING SYSTEM.

975,551.

Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed April 23, 1910. Serial No. 557,117.

To all whom it may concern:

Be it known that I, JAMES M. MAHER, a citizen of the United States, residing at Fremont, in the county of Dodge and State of Nebraska, have invented certain new and useful Improvements in Riprapping Systems, of which the following is a specification.

This invention relates to improvements in systems for riprapping or diking for use in water currents carrying a percentage of silt, and also useful to prevent the cutting away of banks of streams during high water or floods and to cause the formation of alluvial deposits where banks of streams have been eroded or cut away, and to fill channels in the beds of streams or tide waters.

The invention broadly includes a means for changing the direction of water currents by reforming the bed, bottom or banks of the river or stream, said means to consist of few and simple parts so that construction will be economical and which will be reliable in operation, and includes structural parts which may be conveniently rolled into bundles for transportation.

With these objects in view, the invention consists of the novel construction, combination and arrangement of parts as described herein and claimed and as illustrated in the drawing, wherein,—

Figure 1 is a vertical front view of the several parts employed. Fig. 2 is a vertical end view of the parts shown in Fig. 1. Fig. 3 is a perspective view of the same.

Referring now to the drawing for a more particular description, numeral 1 indicates piling, said piles having wires, strands or cables 2, 3 and 4 secured thereon in any convenient manner between their ends as upon clips 5; and at 6 are indicated wires, cables or strands of less length than the other cables and secured in like manner to clips 7, clips 7 being securely mounted upon and near the lower ends of the piles.

In the moving water current 8, "down stream" from piles 1 is indicated a current deflector, fascine or flexible barrier member 9, the same being substantially V-shaped and consisting of wings 10 and 11. These wings are substantially alike, each consisting of a plurality of individual fascines or slats 12, disposed adjacent to each other and in alinement and spaced apart uniformly to provide longitudinal recesses 13, therebetween, these slats being secured together by

means of wires or strands 14 extending longitudinally of said wings; a sufficient number of strands 14 are employed at or near the terminals of the slats and also intermediate their terminals so that they will be held in fixed relation with reference to each other, the slats being circumscribed or entwined in any suitable manner by the strands, for this purpose.

At 15 are indicated holding members or connecting strands; they are mounted upon and operate to secure together the adjacent or inner ends of wings 10 and 11; they are employed at longitudinal intervals of the fascine or barrier-member so that the wings will be reliably connected.

In operation, clips 5 and 7 are first secured upon the piles, and cables 2, 3, 4 and 6 are secured upon the clips as described. The piles may be of wood but metallic piling is preferred and the same may be of any suitable length. After the piles have been driven into the soil in the bottom of the stream at a desired location, the opposite ends of cables 2, 3 and 4 are secured in any convenient manner, respectively, to the upper and lower ends and upon the middle of the slats of wing 10, as upon clips 16, strands or cables 6 being secured to the ends of the slats of wing 11, as to eyebolts 11' shown in Figs. 1 and 2 or upon clips 11" shown in Fig. 3. The operator then causes wings 10 and 11 to assume substantially a right angle, and weights or sand bags 17 are secured in any suitable manner to the slats of wing 10 as by use of strands 18, these weights also being so arranged that their bottoms will rest upon wing 11, and it will be understood that when the fascine is placed in the current "down stream" from piling 1 the same will sink to the bottom by reason of the weights mentioned, and by reason of the adjustment of strands 2, 3, 4 and 6, as described, wing 10 will assume a substantially vertical position and wing 11 will be disposed horizontally and will extend from wing 10 in a direction of the piling; strand 6, as already explained, having a less length than strands or cables 2, 3 and 4. In the construction thus described, only a sufficient number of weights are employed to cause the lodgment of the barrier-member or fascine upon the bottom of the stream. Wing 11 will be reliably held upon the bottom by reason of the weights 17 resting thereon, also by reason of the tension of cables 6.

Any number of piles found to be necessary, may be employed; also any desired number of cables 2, 3, 4 and 6 may be employed to resist the water current directed against the barrier-member.

The herein described structure has been found to be inexpensive in construction, convenient in management or handling and effective for the purposes mentioned. In practice the current is deflected and retarded while passing between the slats of wing 10, and silt, sand and other solids will pass downward and will be deposited rearwardly of the vertical wing and an alluvial deposit will be formed upon both sides of the upright wing. The function of wing 11 is to prevent water-cutting or removal of the soil from beneath wing 10, and since wing 11 extends in the direction mentioned and is sustained in its position horizontally below wing 10, it will operate effectively for this purpose.

At 19, in Fig. 3, is indicated a short section or wing constructed of slats disposed adjacent to each other and held together in a manner already described, said section being disposed inclinedly, and the lower part of the section may be connected to wing 11, and one of its ends may be connected to wing 10 by any convenient means, the means herein shown being the use of strands 20.

At 21 is indicated a wire or cable having one of its ends secured upon and near the upper end of this inclined section, and at 22 is indicated a like cable having one of its ends secured upon the lower part of this section, the opposite ends of cables or strands 21 and 22 being secured to one of the piles. The section as described may be used to advantage for the protection of river banks or to straighten the banks of streams and may be disposed inclinedly when secured to the vertical or horizontal wings as described for deflecting the water current, and in operation alluvial deposits will be formed adjacent to the bank.

While clips and eyebolts have been shown and described as a means for securing the cables or wires upon the piling or upon parts of the barrier-member, I do not limit myself to these means and many of the details of construction may be changed without departing from the spirit of the invention, the scope of said invention being determined by the claims.

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

1. A fascine comprising a flexible body, weights secured to the face at the lower portion of said body, anchoring cables secured to said flexible body and leading forward therefrom, and metallic piling located in advance of said flexible body to which said cables are secured.

2. A fascine comprising a flexible body, consisting of a plurality of slat members spaced in suitable relation and connected by means of strands, weights secured to the face of said flexible body and anchoring cables secured to said flexible body for anchoring the same in an upright position in a stream.

3. A fascine comprising a flexible vertical body, wires transversely engaging said body, and weights secured to the face of said vertical body at its lower end.

4. A fascine composed of a flexible body, weighted elements secured near the base of said body, and anchoring cables secured to said flexible body.

5. A fascine comprising a plurality of suitably spaced wires, slat members interwoven between said wires, weighted elements secured to the front face of said slat members, and anchoring cables secured to the front faces thereof.

6. A fascine embodying an upright body composed of a plurality of slat members, weighted elements secured to said body near the base thereof, and a plurality of longitudinal tie wires engaging each of the slat members for securing the same in their stated relation.

7. A water current deflector comprising a pair of connected longitudinal wings disposed in angular relation with reference to each other, each wing consisting of a plurality of connected slat members disposed substantially in alinement, weights secured to one of said wings, and anchored strands connected with and adapted to maintain the wings in opposed relation to said water current.

8. A water current deflector comprising a pair of connected longitudinal wings, said wings being disposed at substantially right angles, each wing consisting of connected slat members disposed adjacent to each other and substantially in alinement; a plurality of stationary piling; strands connecting the wings and said piling; and weighted elements secured to one of said wings and disposed intermediate said wings.

9. In combination with a support, a water current deflector for the purpose described; an upright wing; a horizontal wing connected with the upright wing, each of said wings consisting of flexibly connected slat-members; means connected with the support and with said wings for maintaining said wings in opposed relation to the water current; and a plurality of weights secured to the upright wing and disposed upon the horizontal wing intermediate the upright wing and said support.

10. A system of riprapping comprising a pair of connected wings, each comprising a plurality of rigid, substantially parallel, flexibly-connected adjacent bodies; means

for maintaining said wings at substantially right angles in a water current, one of said wings being disposed in an upright position, the other of said wings extending upwardly of said water current.

11. A current deflector comprising a pair of longitudinal wings, each of said wings comprising a plurality of slat members: means for anchoring the current deflector in

a stream, and means for maintaining the wings at substantially right angles to each other.

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

JAMES M. MAHER.

Witnesses:

EDWIN D. SMAILS,
RALPH H. BUSS.