

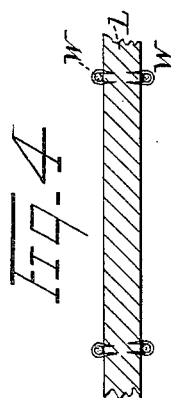
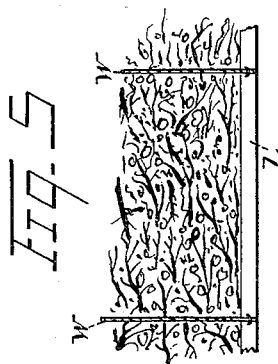
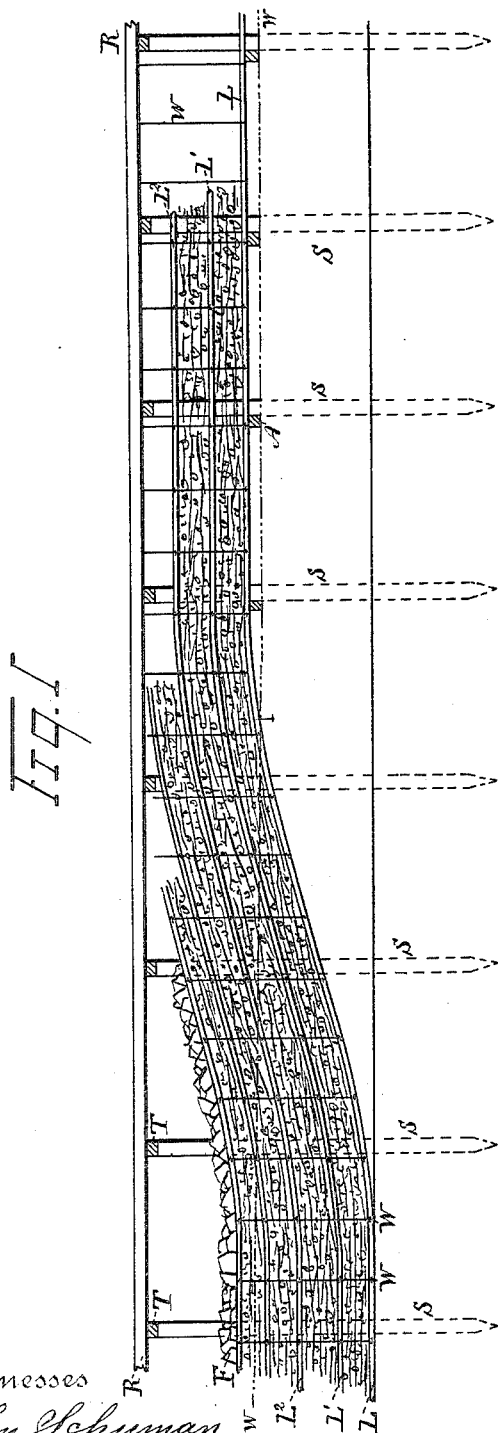
(No Model.)

2 Sheets—Sheet 1.

G. Y. WISNER.
JETTY.

No. 419,237.

Patented Jan. 14, 1890



Witnesses

John Schuman.
Effie I. Croft.

By his

Attorneys

Parker & Burton

Inventor

George Y. Wisner

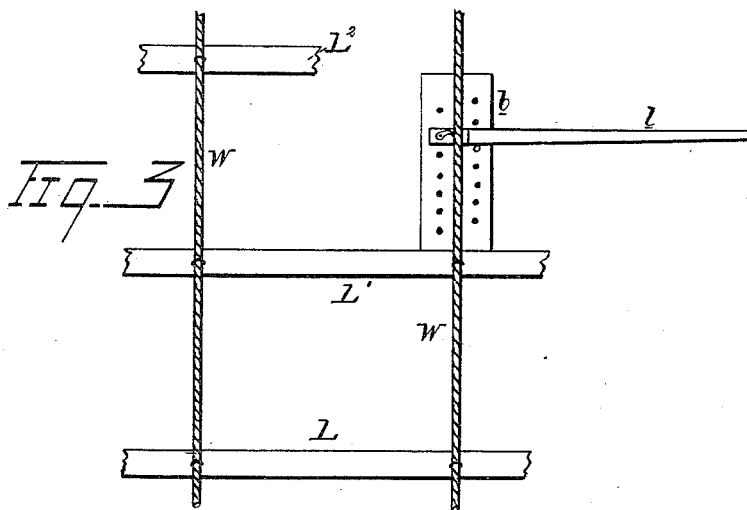
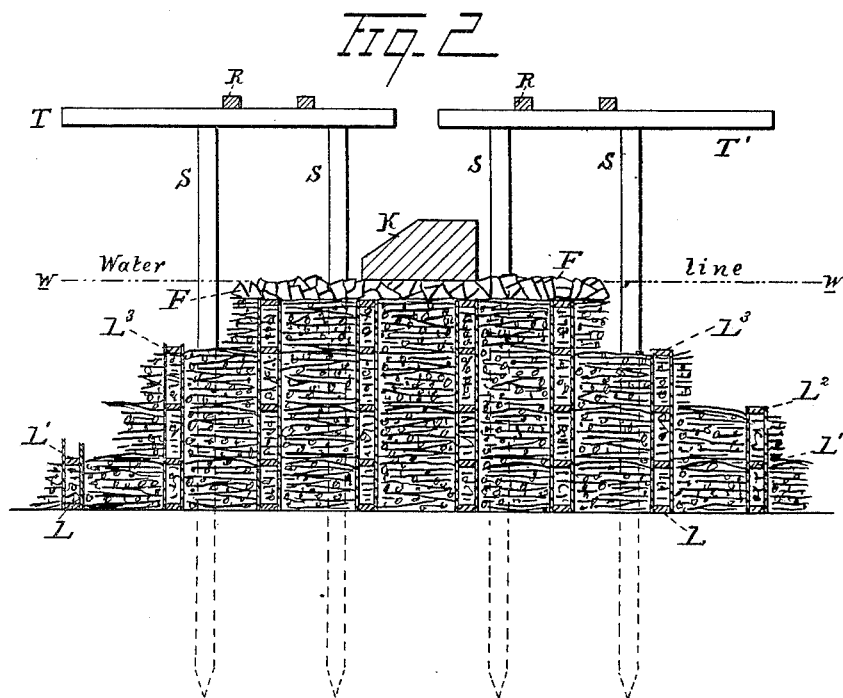
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UNITED STATES PATENT OFFICE.

GEORGE Y. WISNER, OF DETROIT, MICHIGAN.

JETTY.

SPECIFICATION forming part of Letters Patent No. 419,237, dated January 14, 1890.

Application filed June 19, 1889. Serial No. 314,825. (No model.)

To all whom it may concern:

Be it known that I, GEORGE Y. WISNER, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Jetties, of which the following is a specification.

This invention relates to a jetty or dike, and has for its object the production of a jetty which can be economically constructed, which can be readily and with certainty located and anchored in position, and which effects the objects for which jetties are constructed in a simple and satisfactory manner.

The well-known purpose for which jetties are built is to confine bodies of running water between fixed embankments or limits for the purpose of preventing the overflow of the water upon adjacent lands, or for the purpose of compelling the confined body of running water to scour out and carry away the sand and mud on the bottom of the channel, and thus provide a deeper body of water, and which is navigable by vessels of deeper draft than could be used in the unimproved channel. This has been accomplished by building embankments on either side of the channel through the shallow water, and by using in building such embankments any material which would prevent the water from spreading sidewise out of the channel, and it has been customary to make use of brush and reeds laid together in masses, the practice being to construct them at some convenient spot and then move them to the place where they are to be located and sink them, using the mattress when sunk as a foundation of basis over and around which to build a superstructure of stones and mud or other material with which to confine the water. Sometimes the mattress has been built in the place where it is to be used and then sunk and loaded or otherwise fastened to the ground.

My improvement consists in employing a single continuous mattress, or at least a mattress made in very long lengths, and extending practically unbroken from one end of the work to the other, or such lengths as may be desirable, all compactly bound together and having the loading material all interspersed throughout the brush-work, so that the combined brush-work and loading material to-

gether form a homogeneous mass that is of itself stable in position in the water and so compact as to reduce to a minimum the percolation of water through or under it. The construction, also, is such as to protect the brush-work almost entirely from the destructive action of the teredo—a result which is especially useful in work in the waters adjacent the Gulf of Mexico, where the teredo abounds.

Figure 1 represents a longitudinal section of my jetty with the mattress in process of construction, showing the completed part of the mattress at the bottom of the water. Fig. 2 shows a cross-section, showing the mattress sunk, and a loading of compression-stones on top of it and a concrete coping on top of the stone. Fig. 3 shows a detail of the manner in which the longitudinal stringers are pressed and held together. Fig. 4 shows one of the stringers in longitudinal cross-section, showing a cross-section of the wire or rope ties and the method of holding the wire tie to the longitudinal stringers. Fig. 5 is a section showing the connection between the brush-work, the binding-ties, and the longitudinal stringer.

Along the course where the jetty is to rest I drive two or more rows of piles S S S S, across the top of which are placed tie-timbers T T T, and upon the tie-timbers is laid a rail R R for a temporary railway-track. The driving of the piles and the building of the railway are carried on in advance of the construction of the mattress. From the ties T, or from the rails R R, I suspend longitudinal timbers L L. These timbers may be hung directly to the suspending-wires W W, or they may be laid upon cross-timbers A A, suspended from the timbers T T. The height of the trestle-work or railway above the surface of the water, which is indicated by the dotted line *w w*, should be sufficient to allow for working-room between ties T T and the suspended mattress-strips L L. On the timbers L thus suspended I place a layer of brush or reeds, mingling with the brush as it is placed on the timbers broken stone, gravel, shell, or clay, so as to fill the interstices in the brush and form a homogeneous mass of mingled brush and weighting material. The brush is placed on alternate layers at right angles to

each other, one layer lying across the timbers L, a second layer lying at right angles to that, and a third layer lying again cross-wise of the timbers L, and when a sufficient thickness of brush has been built up a second longitudinal timber is placed above the brush against the suspending wire or rope W, and the two longitudinal timbers are pressed together by means of the device shown in Fig. 3, or any equivalent device, the device consisting of a means of obtaining a grip on the suspending-wire, and with that as a fulcrum pressing down on the upper timber L' by means of the lever I and the perforated pressure-block b. When the layers of brush have been compressed in this way between the timbers L and L', a staple is driven over the tie-wire into the timber L'. Upon the timbers L' a second layer of mattress-work is built, and the operation is repeated until a sufficient depth of mattress-work is built up. When the trestle-work becomes so filled up that it is inconvenient to work on top of the brush-work under the cross-timbers of the trestle-work, the upper ends of the suspending wires or ropes W are let go and the mattress sinks until its upper surface is nearly level with the surface of the water. If at this time it has not sunk so low as to rest on the bottom, the construction is continued until a sufficient depth of mattress has been built to reach from the bottom to the surface of the water. The building of the mattress continues from one end to the other of the jetty, or such length as may be desired, there being a sufficient flexibility in the long lines of stringers to allow the constructed part to rest on the bottom, while the forward part of the structure is still at the surface and the portion between the forward and rear part is in process of construction and in process of sinking.

Upon the top of the submerged mattress, after that has been completed and sunk, I place a layer of stone, or stone and earth F F. This is for the purpose of further consolidating and weighting the mattress, and also for the purpose of furnishing a firm and comparatively smooth surface for the support of a concrete coping K, which is built on the sub-structure, and which extends above the surface of the water and finishes the dike in a very substantial and permanent manner. The coping K is made of concrete or béton, and

being made in large blocks assists very materially in holding down the mattress-work, and is itself very firmly supported in place by the mattress beneath it. This form of construction provides a homogeneous structure, in which the interlacing brush-work serves to keep the included earth and rock work safe from the scouring action or erosive action of the moving water, and on the other hand the included earth and rock work serves to fill all the interstices of the brush-work and to prevent the percolation of water through the dike. The water is thus more securely confined in the desired channel and acts with greater efficiency in scouring out the channel. The lines of piles supporting the trestle-work aid materially in giving stability to the structure and are usually allowed to remain.

Having thus described my invention, its method of construction, and its mode of operation, what I claim as novel, and desire to be secured to me by Letters Patent, is—

1. The process of constructing a jetty or dike, consisting in first building a trestle-work along the line of the proposed jetty, then suspending timbers by means of wire or ropes attached to the timbers of the trestle-work, then building upon the timbers a mattress of brush and earthy material, the said structure to be either continuous from one end to the other of the proposed jetty, or of such shorter length as may be desirable, and the sinking of said mattress progressively as fast as completed.

2. A mattress for use in building jetties, composed of brush and earthy material intermingled so as to form a uniform structure throughout, and bound together by timber and ties, substantially as described.

3. A jetty consisting of a continuous mattress of brush and earthy material mingled in a homogeneous mass and bound together by timber and ties, substantially as described.

4. A jetty consisting of the combination of a homogeneous mass of mingled brush and earthy material held together between timber and ties, and one or more rows of piles driven along the course of the jetty and around and between which the brush-work rests, substantially as described.

GEO. Y. WISNER.

In presence of—

ALEX. E. KASTL,
E. S. DEWEY.