Sept. 3, 1946. G. W. REHFELD 2,407,034

JETTY WITH STABILIZER

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Fig. 1.

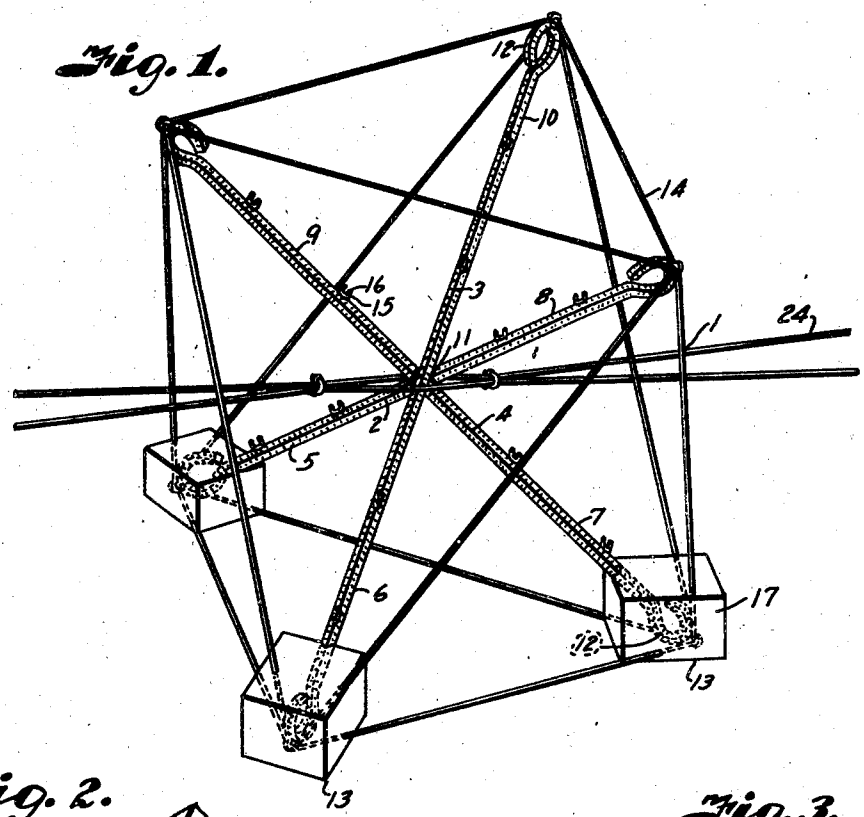


Fig. 2.

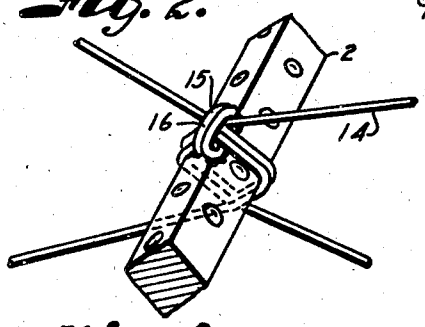


Fig. 3.

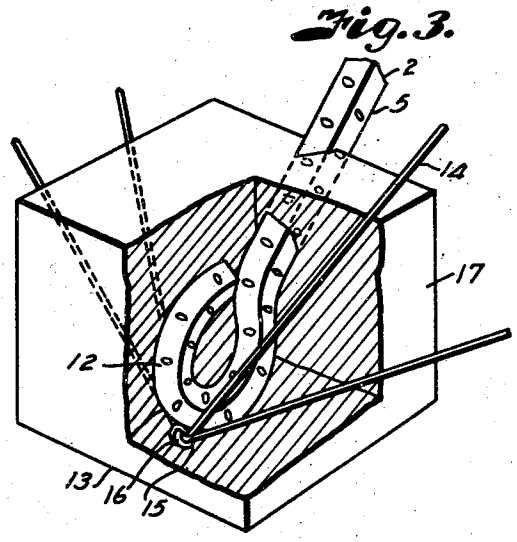
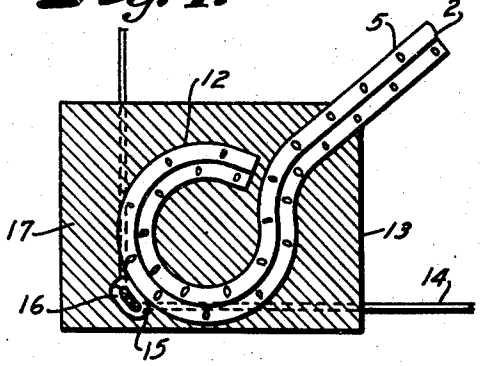


Fig. 4.



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Fig. 5.

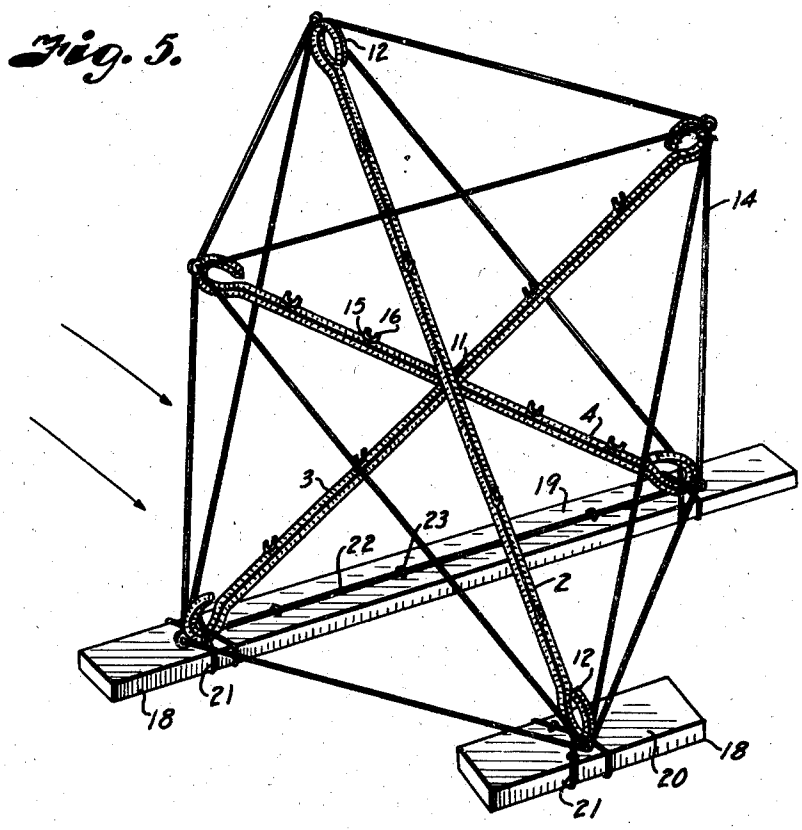
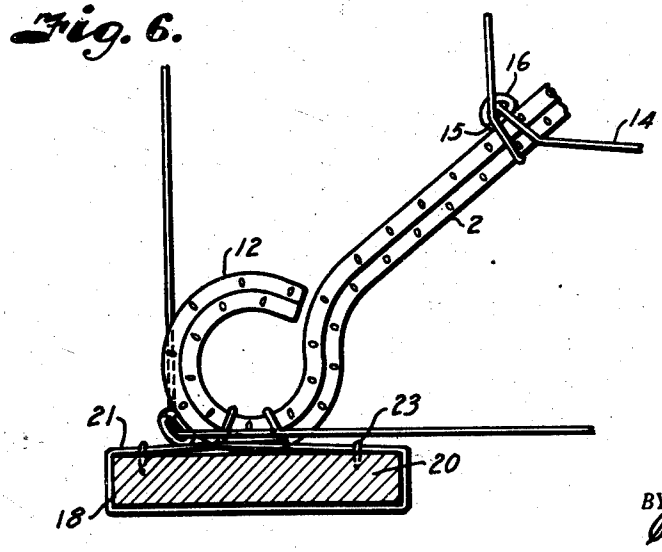


Fig. 6.



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JETTY WITH STABILIZER

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Application September 4, 1943, Serial No. 501,244

5 Claims. (Cl. 61—3)

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This invention relates to jetties for controlling the banks of streams, navigable rivers and lands subject to erosion. Such jetties usually consist of a frame having lower portions adapted for support on the river bed and upper portions connected by lacing for retarding flow and causing deposit of silt and debris. When the river bed contains quick sand, the current keeps the sand in motion so that the jetties settle into the sand until stopped by underlying strata of coarser sand or gravel. This settlement reduces the jetties or completely eliminates the effectiveness thereof, and many times it is necessary to recap the sunken jetties with one or more superimposed jetties.

Also a river bed may be of a character so that it provides insufficient anchorage for the jetties especially when the current is swift and the jetties are soon moved out of their desired locations.

It is, therefore, a principal object of the present invention to provide a jetty with stabilizing means arranged to control and maintain a desired position thereof.

Further objects of the invention are to provide leg portions of the jetties with terminals for anchoring the footing means therefor; to provide a jetty having arm portions, capable of protecting the hulls of boats when the jetties are applied in a navigable stream, and to provide a jetty with footing elements having the required weight or buoyance necessary in maintaining substantial stability relatively to the supporting surface.

In accomplishing these and other objects of the invention hereinafter pointed out, I have provided improved details of structure, the preferred form of which is illustrated in the accompanying drawings, wherein:

Fig. 1 is a perspective view of a jetty embodying the features of the present invention and equipped with stabilizing means capable of weighting the jetty and providing a positive footing therefor.

Fig. 2 is a fragmentary perspective view of a jetty arm, particularly illustrating one of the anchors for the jetty lacing.

Fig. 3 is a fragmentary perspective view of one of the footing elements partially broken away to better illustrate its connection with a leg member of the jetty.

Fig. 4 is a cross-section through the footing element.

Fig. 5 is a perspective view of a jetty equipped with a modified form of stabilizing means for promoting buoyance of the jetty.

Fig. 6 is a cross-section through one of the

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modified forms of footing element, particularly illustrating attachment of the jetty thereto.

Referring more in detail to the drawings:

1 designates a jetty which may comprise a plurality of elongated or rod-like members 2, 3 and 4 arranged in crossed relation to provide an open frame-work having substantially tripod leg portions 5, 6 and 7, and upwardly and outwardly directed arm portions 8, 9 and 10. The members 2, 3 and 4 are secured together at the crossing points thereof in any suitable manner, for example, by the welds as indicated at 11, Fig. 1. The ends of the leg and arm portions of the jetty are preferably shaped to form hooks, eyes or loops 12 which serve for attachment of stabilizing elements 13, later described.

While the ends 12 may be omitted from the arm portions 9, they are desirable on jetties installed in navigable streams since they prevent penetration of the arms in case a vessel should accidentally float into the jetty. The curved ends 12 provide an extended contact surface and are sufficiently yieldable to prevent damage to the vessel. They also increase the water retarding properties of the jetty and may be used to facilitate placement thereof particularly when the jetties are installed below the water level.

The jetty arm and leg portions are provided with lacing 14 that may be arranged in any suitable manner to brace the members and provide water retarding means for effecting settlement of materials carried by a stream.

In order to facilitate application and positive anchorage of the lacing, the arm and leg portions of the jetties as well as the curved terminals thereof may be provided with substantially U-shaped clips 15 as shown in Fig. 1, having bendable fingers 16 that are clinched over the lacing as shown in Fig. 2. The clips at the terminal ends of the arm and leg portions support the outermost lacing of the jetty so as to increase the effective dimensions thereof and maintain a maximum spread of the lacing with a given length jetty member.

In the form of the invention illustrated in Fig. 1 the stabilizing elements 13 may comprise one or more blocks 17 secured to the jetty. The blocks may be cast upon a part of the jetty, for example, about the curved terminals of the jetty including the portions of the lacing connected with the outermost anchors as clearly shown in Fig. 3. The stabilizing blocks are formed of concrete or other plastic material which may be cast in a suitable shape and of a size to provide the desired weight and bearing surface on the river

bed. The stabilizing blocks thus provide footing elements for the jetty to support it upon the river bed and the weight thereof assures retention of the jetty in a position in which it is placed.

The extended area of the stabilizing elements provides sufficient spread relatively to the supporting properties of the river bed so that they are retarded from sinking and thereby prevent reduction in the effective height of the jetty thus equipped.

The form of the jetty illustrated in Fig. 5 is similar to that of the jetty just described with the exception that the stabilizing elements **18** are formed of a material having a tendency to float when supported upon a stream having a mud or quick sand bottom. I find that one suitable material for constructing the stabilizers is wood, as wood has a tendency to float even in quick sand. The footing elements may be made of such size that the supporting surfaces thereof will provide the desired buoyancy for support in very loose river sand or mud.

In the illustrated instance, the stabilizers comprise a relatively long timber **19** having sufficient length to support the ends of the jetty members **3** and **4**, and a shorter timber **20** is provided for supporting the member **2** thereon. The timbers may be attached in any suitable manner, for example, by extending wire strands **21** around the timbers and through the curved ends of the leg portions of the jetties as illustrated in Fig. 6. In addition the lower runs **22** of the lacing may be anchored to the timbers **19** and **20** by staples **23** that straddle the lacing and are driven into the timbers as shown in Fig. 5.

In the form of jetty illustrated in Figs. 1 to 6, inclusive, the rod-like members **2**, **3** and **4** are preferably welded in assembly near the site of installation, after which lacing is applied and the stabilizers are poured around the curved ends of the jetty members. After setting of the concrete the jetties are secured together by lines of rods or cables **24**, as in conventional practice. The jetties are then moved into position on the river bed and the lines **24** are suitably anchored to the river bank.

In the form of the invention illustrated in Fig. 5, the timbers **19** and **20** are secured to the assembled jetties by applying the wire ties **21** and driving the staples **23** as shown.

While I have illustrated a single form of jetty structure, it is obvious that jetties constructed of various structural members, such as angle iron, wood, concrete, plastic, or the like, may be substituted for the rod-like members illustrated and described without departing from the spirit of the invention.

What I claim and desire to secure by Letters Patent is:

1. A jetty including a plurality of rod-like members arranged in crossed relation and having curved terminals, bearing means for supporting the jetty, and means connecting the bearing means with the curved terminals of the rod-like members.

2. A jetty including a plurality of rod-like members arranged in crossed relation to provide a plurality of radially extending leg and arm portions having curved terminals the curved terminals on the arm portions forming bumpers and the curved terminals on the leg portions providing means for anchoring the jetty.

3. A jetty including a plurality of rod-like members arranged in crossed relation to provide a plurality of leg and arm portions, and concrete blocks on said leg portions to support said jetty, said leg portions being of a shape to form a key with said blocks.

4. A jetty including a plurality of rod-like members arranged in crossed relation to provide a plurality of leg and arm portions, concrete blocks on said leg portions to support said jetty, said leg portions being of a shape to form a key with said blocks, and lacing connecting said arm and leg portions, with portions of said lacing being connected with said blocks.

5. A jetty including a plurality of members arranged in crossed relation and having reversely curved terminals, bearing means for supporting the jetty, and means connecting the bearing means with the reversely curved terminals of said members.

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