(No Model.)

2 Sheets—Sheet 1.

G. MARSH.

MOVABLE JETTY.

No. 431,524. Patented July 1, 1890.

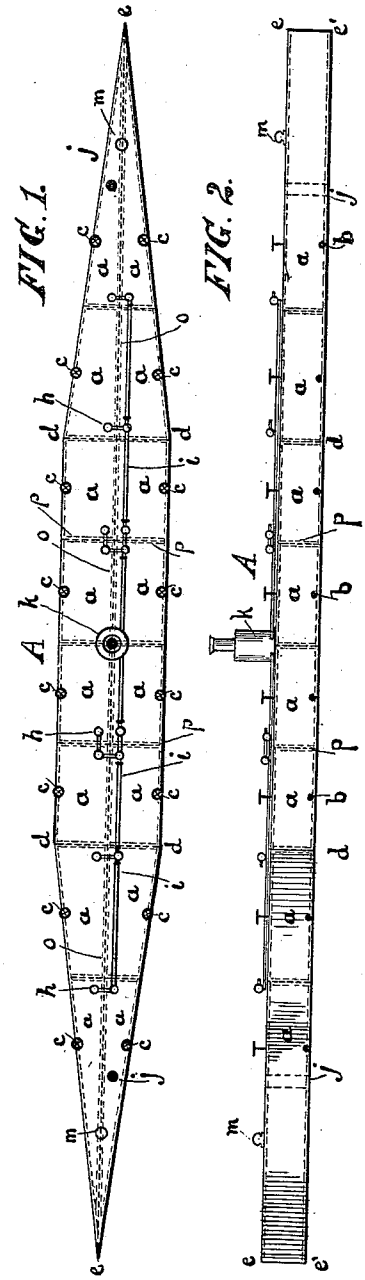


FIG. 1.

FIG. 2.

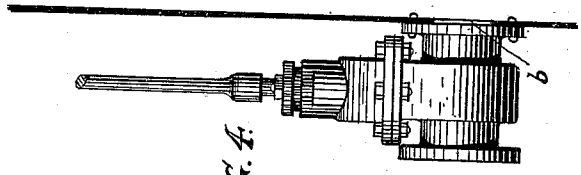


FIG. 4.

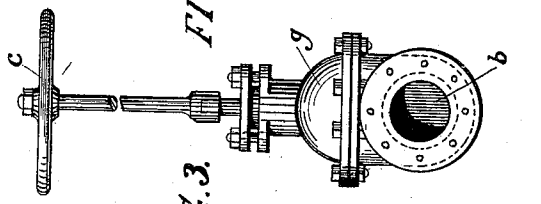


FIG. 3.

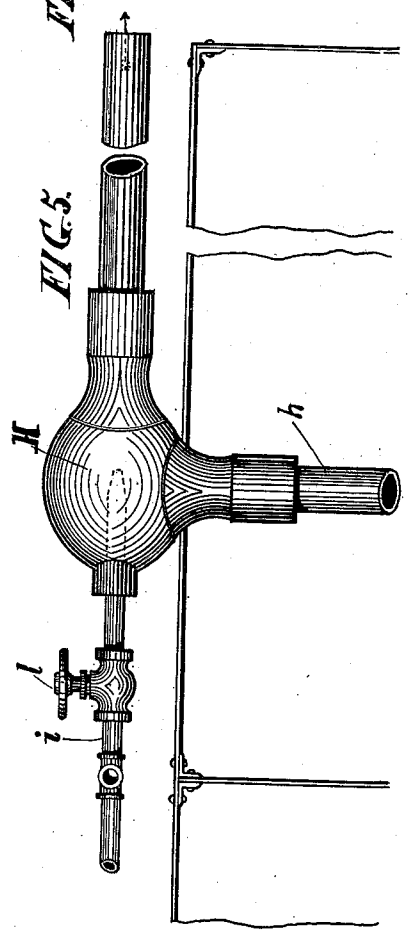


FIG. 5.

WITNESSES
Jos. W. Crooker
[illegible]

INVENTOR
Grant Marsh by
Paul Bakewell
his attorney

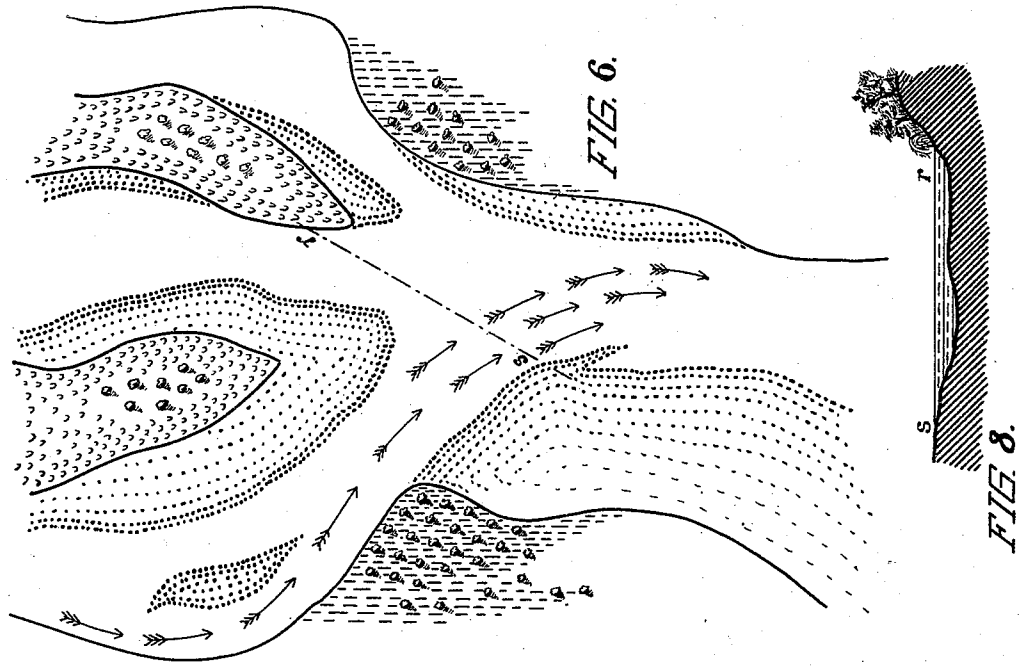
THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

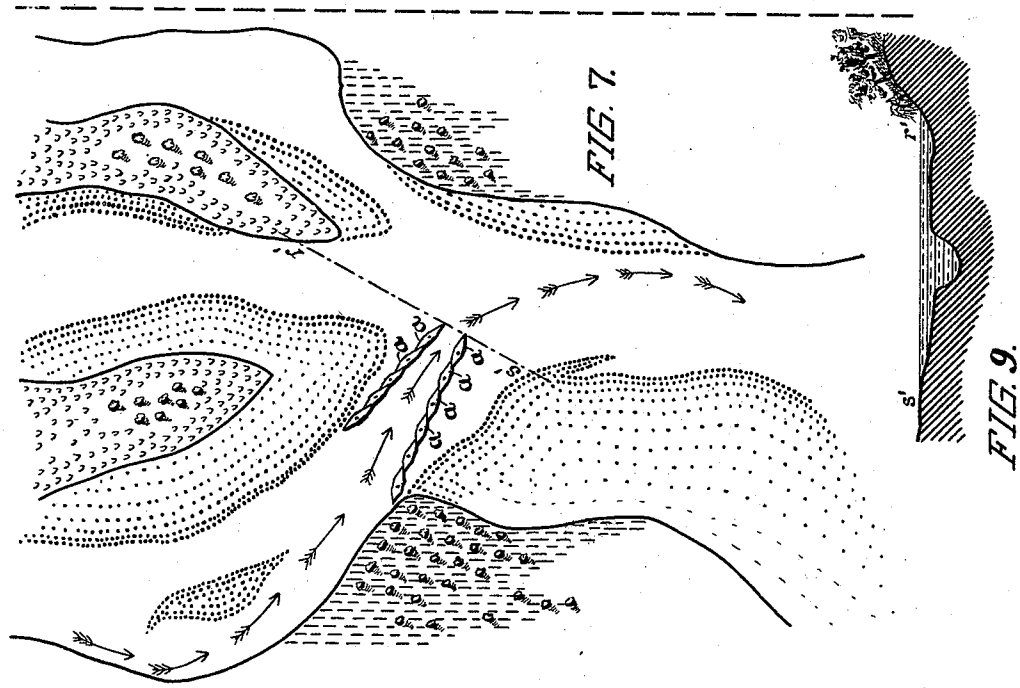
(No Model.) 2 Sheets—Sheet 2.

G. MARSH.

MOVABLE JETTY.

No. 431,524. Patented July 1, 1890.





WITNESSES
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UNITED STATES PATENT OFFICE.

GRANT MARSH, OF CAPE GIRARDEAU, ASSIGNOR OF THREE-FOURTHS TO TURNER T. LEWIS AND OLIVER L. GARRISON, OF ST. LOUIS, MISSOURI, AND JAMES H. REES, OF MEMPHIS, TENNESSEE.

MOVABLE JETTY.

SPECIFICATION forming part of Letters Patent No. 431,524, dated July 1, 1890.

Application filed March 17, 1890. Serial No. 344,260. (No model.)

To all whom it may concern:

Be it known that I, GRANT MARSH, a citizen of the United States, residing at Cape Girardeau, in the county of Cape Girardeau and State of Missouri, have invented certain new and useful Improvements in Movable Jetties, of which the following is a full, clear, and exact description.

My invention relates to improvements in means and devices for deepening the shallow places in the channels of navigable streams.

The object of my invention is to confine and direct the water flowing through a navigable water-way to a certain part of such water-way, thereby increasing the relative flow or current, and consequently increasing the scouring or dredging capacity of the water-flow at such point, and, further, that this be accomplished by means and devices as shall not offer any material obstruction or impediment to navigation while in use, and that the devices used shall be designed and constructed in such manner as to permit of their being readily removed when the desired results are effected. I attain these objects by the means and devices hereinafter described.

Like letters of reference denote like parts in all the figures.

Figure 1 is a top view of the floating jetty. Fig. 2 is a side view of the same. Fig. 3 is a detail front, and Fig. 4 a detail side view of a gate-valve used as hereinafter specified. Fig. 5 is a detail side view of a siphon-pump, with supply steam-pipe and regulating-valve attached used as hereinafter specified. Figs. 6 and 7 are two views of the same portion of a navigable stream. Fig. 6 shows the stream in its normal condition, the depth of the water being more plainly shown in the cross-section, Fig. 8, of the bed of the stream, taken on the line r s of Fig. 6. Fig. 7 shows an example of the placing of the jetties at such a place, the results being shown more in detail in Fig. 9, it being a cross-section taken at the same place as in Fig. 6 on the line r' s', Fig. 7, but after the jetties have done their work.

The floating jetties or barges A are to be constructed, preferably, of sheet or boiler iron, the whole to be a closed vessel fastened and sealed together in its several parts so as to be water-tight throughout, except at the openings b, arranged to receive and be governed by the gate-valves g, for the purposes hereinafter specified, and the openings made in the top to receive the suction-pipes h of the pumps H, to be used as hereinafter specified. The form of the jetties is to be as follows: The height from bottom to top is to be, preferably, the same throughout its entire length, dividing the jetty or barge in its length into three parts or sections, preferably, and for the purposes hereinafter specified, into three parts or sections of equal length, the middle part d d d d to be of equal width or beam throughout, and the two end parts d d e to be alike of the same length, tapering equally on both sides from the width or beam of the middle part to a point e, so as to form an edge e e' the full height of the jetty, for the purposes hereinafter specified.

The interior of the jetty or barge is to be divided into several water-tight compartments a, first by a mid-rib or keelson-piece o, extending from end to end and from bottom to top and fastened to same. These two halves, to be subdivided by the partitions or walls p, run from the mid-wall to sides and fastened to same, all joints and seams to be water-tight throughout, for the purposes hereinafter specified. Through the top and bottom, preferably at both ends, a hole j of convenient size is cut through, in which a tube is fitted, the ends of the tube being hermetically sealed to the top and bottom plates, so as to form a well or water-hole through body of the jetty from top to bottom.

On the top of the jetty a steam-boiler k is placed, capable of furnishing steam through the supply-pipe i, regulated by the check-valves l, to the several pumps h.

On the jetty, preferably at each end, is placed a capstan or other like device, to which to attach a cable or rope for the purpose of lashing the jetty to a steam-propeller in moving it about, or the jetties to one another, as may be desired, and as hereinafter described.

In practice the floating jetties will be lashed to a steam-propeller or tug-boat, and trans-

ported as floating vessels or barges to the point in the stream which is or is likely to become too shallow for safe navigation, caused by low water or by the currents and counter-currents piling up sand or forming a bar or reef at this point, and when placed in a V-shaped position, or other position best suited to do the required work, as at *a a* in Fig. 7, with their stem and stern ends overlapping each other consecutively, as shown, so as to embrace and confine the body of the water of the stream, otherwise spread over a large area, and direct it to a comparatively narrow place at the channel part of the bed of the stream. They are then held in position by stake-pieces or spuds being put through the water-holes or wells *j*. I make use of this means of anchoring the jetties, so as not to have any drag or anchoring cables or chains to impede navigation. The forms of the ends, as described, permit of the jetties being placed in different positions relative to each other without presenting any corners or abrupt angles to the flow of the water, thereby abrogating any eddy currents and consequent "filling in" of sand in the channel. After the jetties have been placed and anchored the gate-valves are opened and the jetties allowed to fill with water until they rest on the bottom of the stream and the gate-valves closed.

The object of dividing the interior of the jetties into separate compartments controlled independently by their several gate-valves is to permit of more water being let into one part than into another to sink that part deeper, so as to accommodate different depths of water in the stream. The partition or dividing walls are also useful in strengthening and bracing the jetty as a whole. When the work intended is done, the channel deepened, and the water-flow established at this point, steam is furnished to the pumps from the steam-boiler, as described, and the water pumped out, and the jetties floated and "towed" away, leaving a clear and unobstructed channel. In this manner by these devices we deepen the bed of the stream and establish in the channel a water-flow at this point, insuring conditions reasonably permanent for navigable depth of water in streams with sandy bottoms until some decided change in the "stage" of the water.

Rather than offering any obstruction to navigation they offer material help in guiding the vessel to deep water in the channel, being always in sight when in use. If the stage of water changes so as not to need the extra depth at this point, they are removed, leaving no submerged obstruction, as in the case of permanent dykes and wing-dams, to navigation in high water.

I claim—

1. The combination, with a floating jetty having a series of water-tight compartments, each provided with an induction-port and an eduction-port, a valve for the induction-ports of each of said compartments, and means, substantially as described, for withdrawing the water from each of said compartments separately, whereby the jetty may be sunk deeper at one end than at the other, or raised or lowered at one or both ends, substantially as and for the purposes described.

2. The combination, with a floating jetty, of a series of transverse water-tight partitions which divide the jetty longitudinally into a series of compartments, and valved induction-ports for each compartment, whereby the jetty may be caused to sink more at one end than at the other, a series of steam ejector-pumps, one for each compartment, a line of piping, and steam-boiler common to all the pumps for admitting jets of steam thereto, substantially as and for the purposes described.

3. A floating jetty having a series of longitudinally-arranged water-tight compartments and long tapering or wedge-shaped ends whereby a series of said jetties may be arranged to lap and sink equally or unequally to produce a continuous wall or breakwater along the bottom, substantially as and for the purposes described.

4. A floating jetty having a series of longitudinally-arranged water-tight compartments and long tapering or wedge-shaped ends, whereby a series of said jetties may be arranged to lap and sink equally or unequally to produce a continuous wall or breakwater along the bottom, said jetties being provided with wells or open tubes for the passage of anchor-posts, substantially as and for the purposes described.

5. The floating jetty A, in combination with the capstans *m*, and the wells *j*, substantially as described, and for the purposes specified.

In testimony whereof I have hereunto affixed my signature, in presence of two subscribing witnesses, this 11th day of February, 1890.

GRANT MARSH.

Witnesses:
J. W. CROOKES,
A. RAMEL.