Oct. 21, 1958 H. HEBERT 2,856,704

APPARATUS FOR CLEANING THE BOTTOM OF A BODY OF WATER

Filed May 28, 1954 4 Sheets-Sheet 1

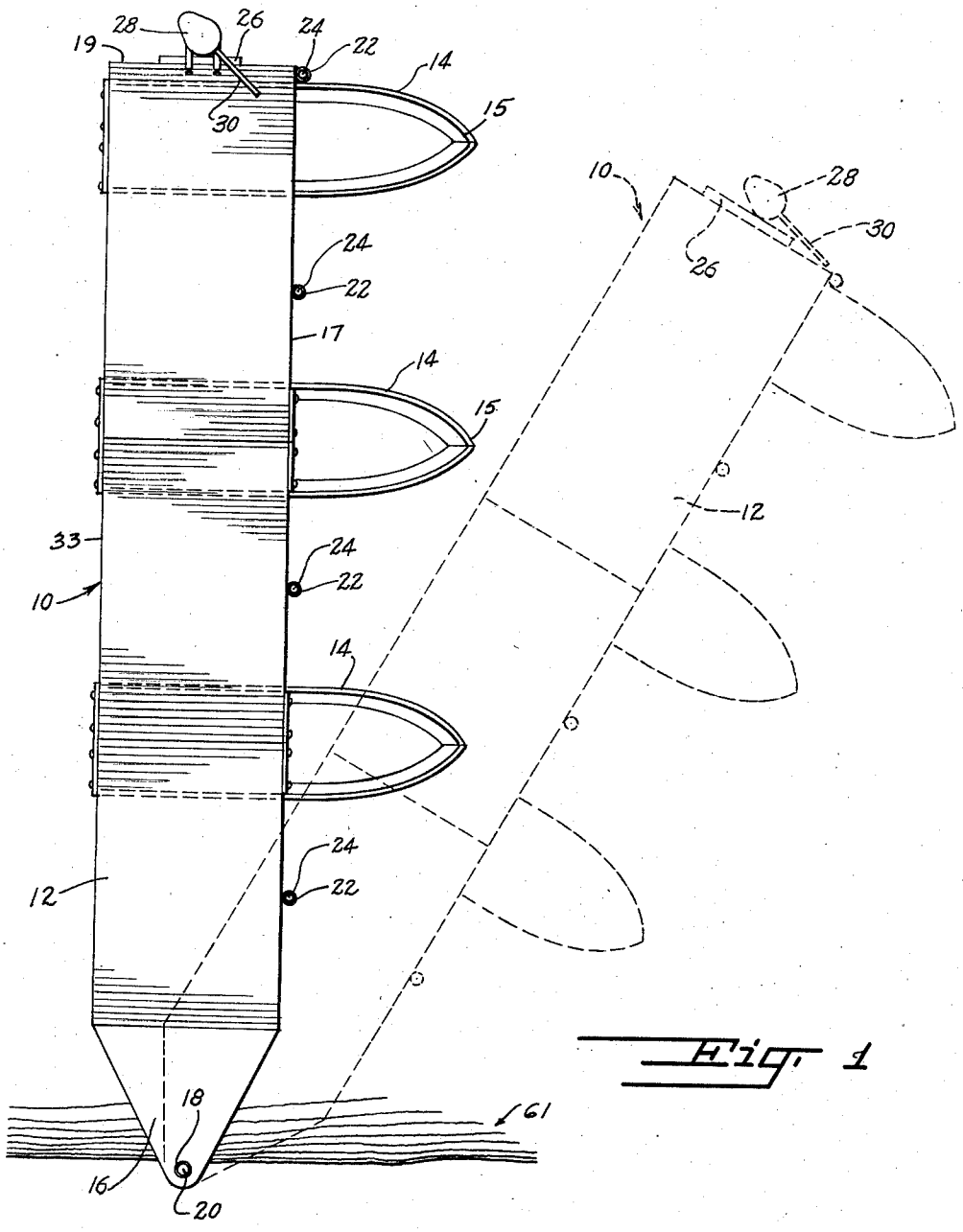


Fig. 1

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4 Sheets-Sheet 2

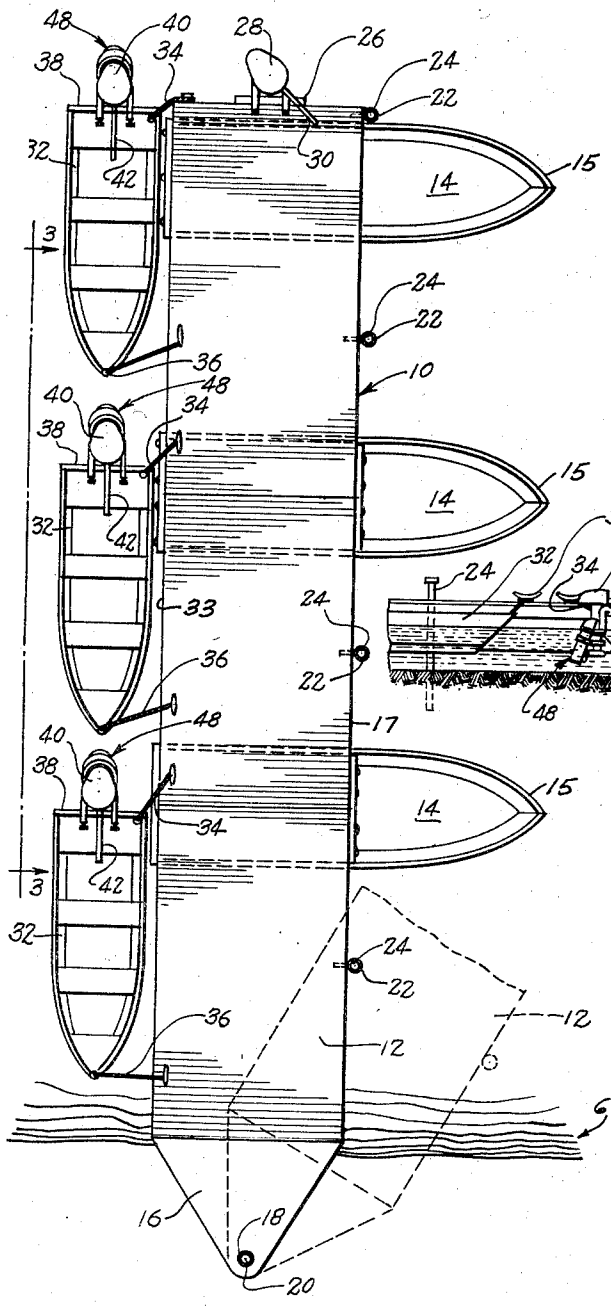


Fig. 2

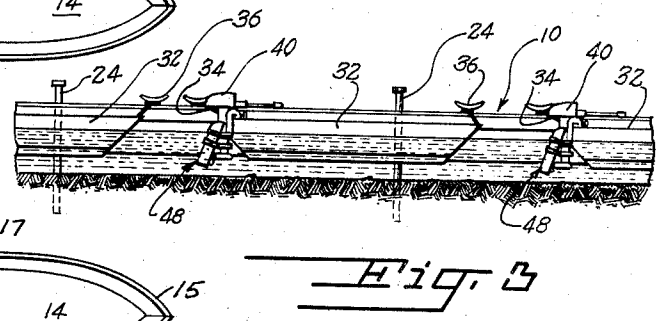


Fig. 3

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Filed May 28, 1954 4 Sheets-Sheet 3

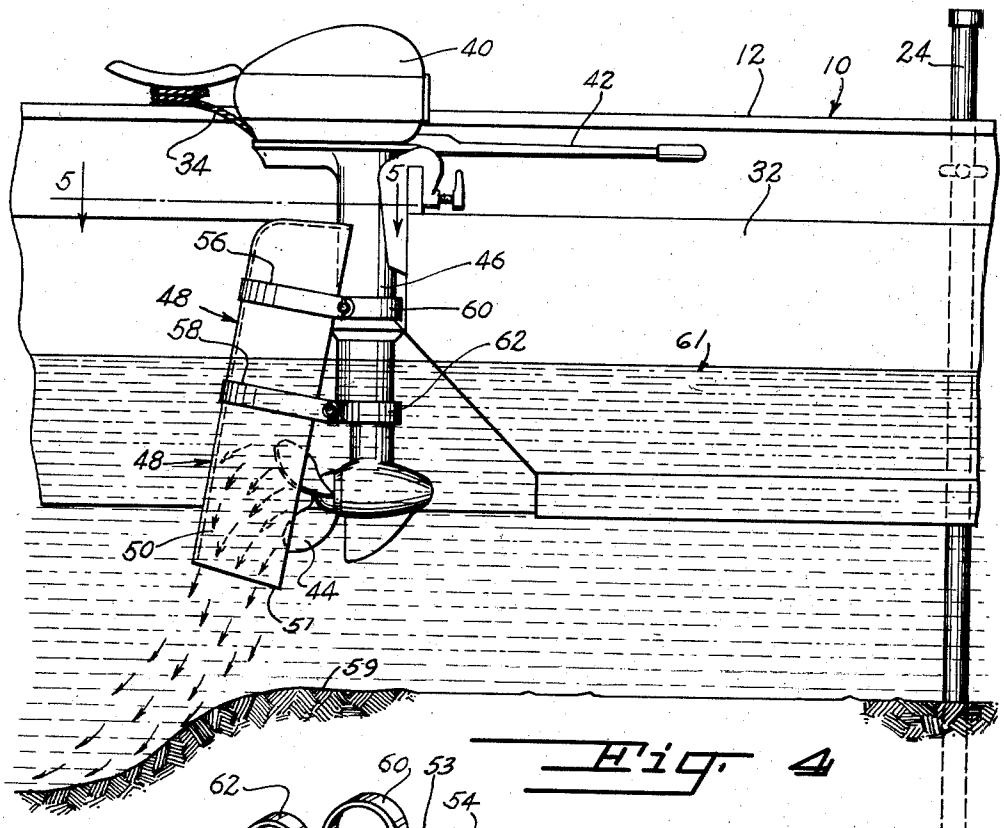


Fig. 4

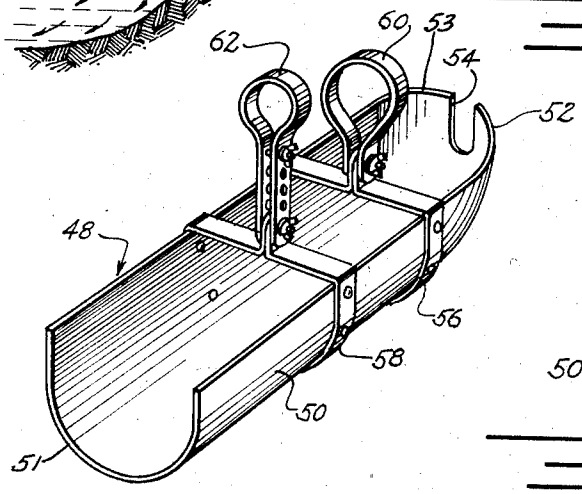


Fig. 6

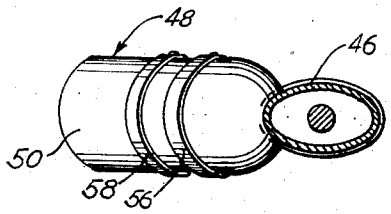


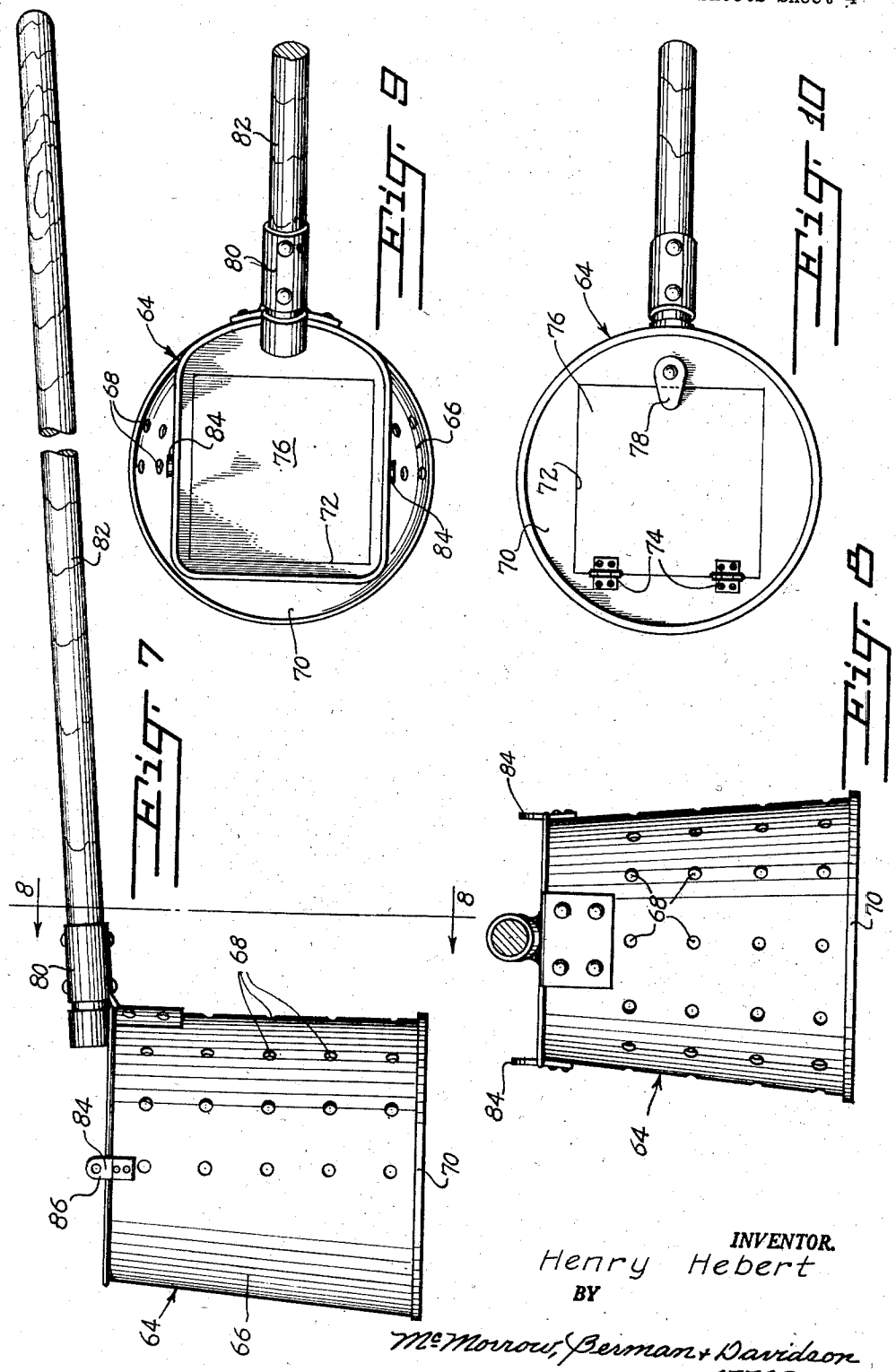
Fig. 5

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APPARATUS FOR CLEANING THE BOTTOM OF A BODY OF WATER

Filed May 28, 1954 4 Sheets-Sheet 4



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United States Patent Office 2,856,704
Patented Oct. 21, 1958

2,856,704

APPARATUS FOR CLEANING THE BOTTOM OF A BODY OF WATER

Henry Hebert, Monterey, Mass.

Application May 28, 1954, Serial No. 433,119

4 Claims. (Cl. 37—75)

This invention relates to improvements in apparatus for cleaning a selected area of the bottom of a body of water and has for its primary object to provide improved and simpler and more efficient means to sweep debris and undesirable substances from the bottom into deeper water or into an area where it may be readily collected and disposed of.

A further object of the invention is to provide improved means to create in the body of water a succession of streams which merge to produce a single stream or current which sweeps along the bottom and sweeps debris therefrom.

Another object of the invention is to provide means of the character indicated above which includes a series of pontoons connected to a dock on the side thereof remote from the bottom engaging means, and novel power driven propeller means carried by the pontoons and submerged in the body of water for creating submerged streams therein adjacent the bottom thereof for sweeping debris away from the dock, and deflector means carried by the pontoons and extending downwardly and outwardly therefrom for defining and directing the streams created by the propeller means and directing said streams downwardly against the bottom of the body of water to create a current adjacent the bottom and substantially parallel to the dock.

Other important objects and advantageous features of the invention will be apparent from the following description and the accompanying drawings, wherein, for purposes of illustration only, a specific form of the invention is set forth in detail.

In the drawings:

Figure 1 is a plan view of a floating dock in accordance with this invention;

Figure 2 is a view similar to Figure 1, showing propeller means associated therewith;

Figure 3 is a fragmentary left-hand side view, on a reduced scale, of Figure 2;

Figure 4 is a fragmentary enlarged side view of the floating dock and of one of the units of the propeller means;

Figure 5 is a horizontal sectional view taken substantially on the line 5—5 of Figure 4;

Figure 6 is a bottom perspective view of one of the deflectors;

Figure 7 is a side view of one type of manual cleaning means;

Figure 8 is a transverse sectional view taken substantially on the line 8—8 of Figure 7;

Figure 9 is a fragmentary top plan view of Figure 7; and

Figure 10 is a bottom plan view of Figure 7.

Referring to the drawings in detail, the illustrated apparatus comprises a floating dock designated generally 10 having a deck or platform 12 which is mounted on transversely arranged pontoons 14. The deck 12 has on its inner or shore end a triangular extension 16 having at its apex an opening 18 for the reception of an anchoring

post 20 which, as illustrated in Figures 1 and 2, is driven into the shore of a body of water to anchor the dock 10 for movement in a substantially horizontal arcuate path, as suggested in the dotted lines in Figure 1. The bows 15 of the pontoons extend beyond the side 17 of the dock platform 12 on which are fixed, at points spaced between adjacent pontoons 14, eyes 22 defining guides for anchoring stakes 24 carried by the dock for a purpose to be more fully hereinafter described. Mounted on the end 19 of the dock remote from the extension 16 and extending substantially vertically above said dock is a bracket 26 upon which is mounted a conventional outboard motor 28, whose propeller is submerged in the body of water. A tiller handle 30 on the motor 28 is provided so that the motor 28 can be rotated about a substantially vertical axis to obtain the desired thrust of the propeller thereof against the water of the body of water for swinging the dock 10 about the anchoring post 20 to a selected position in the body of water. When the dock 10 has been swung to the desired position, the stakes 24 are driven through the eyes 22 into the bottom of the body of water to anchor the dock in the selected position.

With the dock thus located, boats or pontoons 32 are lashed fore and aft, as indicated at 36 and 34 at spaced intervals along the dock 10 to the side 33 thereof remote from the eyes 22 in a longitudinal row, as illustrated in Figure 2. Mounted on the transoms 38 of the boats 32 are conventional outboard motors 40, whose tiller handles 42 are longitudinally aligned, as illustrated in Figure 2, to direct the propellers 44 of the outboard motors toward the outer or off-shore end 19 of the dock 10 carrying the outboard motor 28. It will thus be seen that as the outboard motors 40 are set into operation, the propellers 44 thereof will create submerged streams in the body of water which merge into a continuous stream or current moving outwardly toward the end 19 of the dock 10 and outwardly from the shore to which the dock is anchored by the post 20.

Mounted on the propeller shaft housing 46 of each outboard motor 40 is a deflector designated generally 48 which comprises a vertically elongated trough-shaped body 50 having an open lower end 51 and an upper end closed by an upper end wall 58 having a free rear edge 53 coextensive with the free edges of the side walls of the trough. A notch 54 in the edge 53 receives the housing 46 at the upper part of the housing while the open lower end 51 of the deflector is on a level below the propeller 44. Vertically spaced straps 56 and 58 embrace and are secured to the trough-shaped body 50. Secured to the upper strap 56 is a loop 60 which embraces the housing 46 substantially midway between the propeller 44 and the motor 40. An adjustable loop 62 is secured to the lower strap 58 and encircles the housing 46 adjacent the lower end thereof to mount the deflector 48 in a selected outwardly declining position relative to the propeller 44 so that the stream created by the operation of the propeller will be deflected downwardly, as suggested by the arrows in Figure 4, against the bottom 59 of the body 61 of water to cooperate with the streams erected by the propellers of the other outboard motors, so as to produce a single main current or stream which travels along the bottom 59 of the body of water to sweep any debris thereon outwardly away from the shore in which the post 20 is anchored. From the above, it will be evident that the bottom 59 of the body 61 of water can be swept clear of debris by operating the propellers 44 of the outboard motors 40 and that the area of the bottom 59 being so swept may be determined by swinging the dock 10 to a selected position anchoring it in place by means of the stakes 24.

In certain instances it is not feasible to employ the boats 32 and outboard motors 40, in which event hand

cleaning buckets such as that illustrated in Figures 7 through 10, inclusive, can be employed. Each bucket **64** comprises a downwardly flaring side wall **66** having perforations **68** therein, and a bottom wall **70**. The bottom **70** is provided with a preferably rectangular debris discharge opening **72** and hingedly connected to the bottom wall, as at **74**, is a debris discharge door **76** which is held in closed position by a conventional turnbutton **78**. Fixed on the side wall **66** and extending radially outwardly therefrom adjacent the upper end thereof is a handle socket **80** in which a relatively long handle **82** is secured. Diametrically spaced ears **84** project upwardly from the side wall **66** and are provided with aligned openings **86** through which a lifting hook or cable may be engaged to aid in lifting the bucket **64** after it has been employed as a dredge to dislodge and lift debris from the bottom of the body of water adjacent the dock **10**.

With the dock anchored in a selected position, the bottom **59** of the body of water at the side **33** of the dock can be dredged by using buckets **64** to remove debris from the bottom **59** while water contained in the bucket **64** drains through the perforations **68**. After a bucket **64** has been relieved of its water content through the perforations **68**, it may be transported to a selected location and by operating the turnbutton **78**, the door **76** may be swung open to discharge the contents of the bucket **64** through the opening **72**. By repeating the operation, manual cleaning of the bottom **59** of the body of water adjacent the dock **10** may be effected, and by repeatedly altering the position of the dock, the bottom **59** of the body of water adjacent the shore may be cleaned.

While in the foregoing there has been shown and described the preferred embodiment of this invention, it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

What is claimed is:

1. In apparatus for cleaning selected areas of the bottom of a body of water, a floating dock comprising a platform having an outer end, an inner end, and first and second sides, pontoons extending transversely of and supporting said platform, said pontoons being spaced along the platform, anchor means on an end of said dock, a plurality of horizontal axis propellers positioned along said first side of the platform, means securing the propellers to the dock, downwardly and laterally outwardly declining deflectors on said propellers, the propellers and the deflectors being longitudinally aligned to produce a single bottom cleaning stream moving along the dock toward the outer end thereof.

2. In apparatus for cleaning selected areas of the bottom of a body of water, a floating dock comprising a platform having an outer end, an inner end, and first and second sides, pontoons extending transversely of and supporting said platform, said pontoons being spaced along the platform, anchor means on an end of said dock, a plurality of horizontal axis propellers positioned along said first side of the platform, means securing the propellers to the dock, downwardly and laterally outwardly declining deflectors on said propellers, the propellers and the deflectors being longitudinally aligned to produce a single bottom cleaning stream moving along the dock toward the outer end thereof, said anchor means being on the inner end of the dock for securing the inner end of the dock swingably to a shore of the body of water, and swingable propeller means on the outer end of the dock for swinging the dock relative to the shore and determining the direction of said single stream.

3. In apparatus for cleaning selected areas of the bottom of a body of water, a floating dock comprising a platform having an outer end, an inner end, and first and second sides, pontoons extending transversely of and supporting said platform, said pontoons being spaced along the platform, anchor means on an end of said dock, a plurality of horizontal axis propellers positioned along said first side of the platform, means securing the propellers to the dock, downwardly and laterally outwardly declining deflectors on said propellers, the propellers and the deflectors being longitudinally aligned to produce a single bottom cleaning stream moving along the dock toward the outer end thereof, said anchor means being on the inner end of the dock for securing the inner end of the dock swingably to a shore of the body of water, and swingable propeller means on the outer end of the dock for swinging the dock relative to the shore and determining the direction of said single stream, and stake means connected to the dock at said second side of the platform and between adjacent pontoons for engagement with the bottom to hold the dock in a selected angular position relative to the shore.

4. In apparatus for cleaning selected areas of the bottom of a body of water, a floating dock comprising a platform having an outer end, an inner end, and first and second sides, pontoons extending transversely of and supporting said platform, said pontoons being spaced along the platform, horizontal propelling means comprising propellers positioned along said first side of the platform and secured to the dock, downwardly and outwardly declining deflectors on said means for each of said propellers, the propellers and the deflectors being longitudinally aligned to produce a single bottom cleaning stream moving outwardly along the dock, said propeller means comprising boats positioned along said first side of the platform in end to end relation and secured to the dock, said boats having bows facing the inner end of the platform and transoms facing the outer end of the platform, and said propellers comprising outboard motors mounted on said transoms.

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