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FLEXIBLE BARGES

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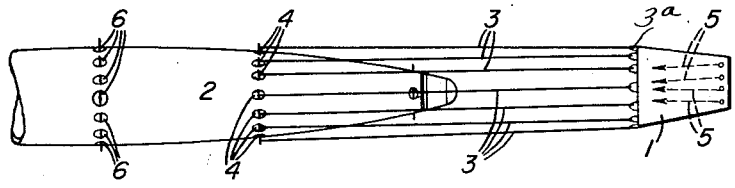

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FLEXIBLE BARGES

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This invention relates to flexible barges intended primarily for the transport and/or storage of liquids or fluidizable solids such as wheat or other grains. The invention is not, however, limited to the particular cargo intended to be transported.

It has been found that such flexible barges are subject to instability in the form of yawing and snaking, when being towed.

The present invention aims at improving the stability of the barge and to this end provides means for exerting a retarding force on the rear end of the barge during its action through the water. Such means may comprise a drogue or drogues attached to its rear end.

In explanation, stabilization by means of the drogue depends on the lateral forces it exerts when the tail of the barge slews to one side. The drogue remains in the true line of course taken by the towing vessel and its drag has a substantial lateral component acting on the tail to bring the latter back into line.

One embodiment of the invention will now be described by way of example with reference to the accompanying drawing in which the figure is a diagrammatic side elevation of the stern of a barge according to the invention with a drogue attached thereto.

Referring to the drawing, a drogue 1 (or drogues) is attached to the stern 2 by means of ropes 3 so that a tension is exerted on the fabric envelope of the flexible barge. The ropes are attached to eyelets 3*a* on the drogue. The ropes 3 are twelve in number and are attached to twelve eyelets 4 secured at equal intervals around the stern of the barge at one station such that the radius of the barge at this station is less than the maximum radius of the cross-section of the barge. The eyelets are made of a fabric similar to the fabric of the barge and are at a station approximately 5 feet from the end of the barge. Other eyelets 6, which are disposed 11 feet from the end, are provided and the drogue may be anchored to these as well for additional strength. The barge may be 67 feet in length and of circular cross-section with front and rear portions each in the form of a prolate ellipsoid of minor axis 3 feet and semi-major axis 11 feet 10 inches. A rubberized fabric or a fabric consisting of layers of material occasionally bonded or glued may be conveniently used for the barge envelope and eyelets.

The dimensions may be altered by scaling them equally in all senses.

The drag of the drogue is altered by any convenient

standard technique and which actuation of the lines is effective by means of electric, pneumatic or hydraulic motors. The alteration may be effected either by opening or closing the rearward aperture by lines 5 or by altering the position of the forward opening relative to the fabric of the barge by acting on the lines 3 or by alternating the forward opening relative to the rear end of the drogue, the lines 5 and 3, respectively, being connected to motors (not shown). In this way, the amount of water passing through the drogue, and hence the drag, may be controlled.

The barges may be used as storage tanks for liquids and solids and the general shape and description thereof may be as described in the specification of copending application for patent, No. 707,347, filed on January 6, 1958.

We claim:

1. A flexible barge for the transport of liquids and pourable solids comprising a water-tight hull of non-rigid material having a stern end, at least the stern end being tapered to provide a substantially streamlined shape, and means for counteracting yawing and sinuous motions of the barge when towed, said means comprising a drogue, a plurality of lines fixing the drogue to the barge, means securing the said lines to points circumferentially spaced around the forward end of the drogue, and means attaching the said lines to points circumferentially spaced around the skin of the barge at an intermediate position along the said tapered stern end, the length of said lines being such that the forward end of the drogue is spaced from the extreme after end of the barge when the lines are taut.

2. A barge as claimed in claim 1, in which the said intermediate position is approximately half way along the length of the said tapered stern end of the barge.

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