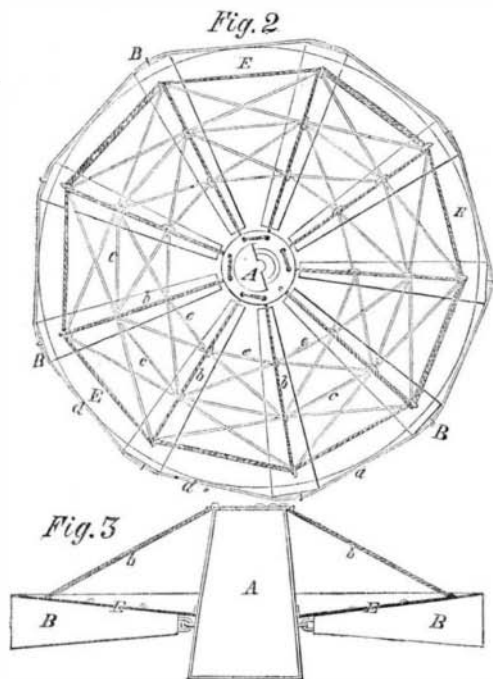


IMPROVED LIFE-SAVING RAFT.

In this age, when so many people are traveling, anything which diminishes the dangers of the sea is of great value; and even where no accident occurs, a knowledge, on the part of the passengers, that every provision has been made for their safety, is a relief to their minds, and thus contributes, in no small measure, to their comfort. The accompanying engravings represent a raft for saving shipwrecked persons at sea, for which Letters Patent were granted to A. G. Mack, of Rochester, N. Y., July 12, 1859.

Fig. 1 is a perspective view, showing the position of the raft when in use; Fig. 2 is a top view of the raft as seen when floating on the water; and Fig. 3 is a vertical section. The large central cylinder, A, is made water-tight, with a man-hole in the top, which is covered by a tight trap-door; to this central cylinder the hollow, water-tight, truncated cones, B B, are attached by means of hinged joints, forming, with the cylinder, the floating power. A rope, a, passes around the extreme ends of the floats, B, being looped to eyes fixed to the ends of the floats. A rope, b, is then passed through eyes fixed upon the surface of each float, and through holes in a flange on the top of the cask, A, forming an endless running rope, so arranged as to allow the floats to fold down against the cylinder, when this is suspended by the ring in its top. A rope, c, is then passed through eyes fixed mid-way between the ends of the floats, B, which is carried entirely around the raft, and concentric with ropes, d and e, which are arranged in the same manner. These ropes hold the canvas, E, down upon the floats, and keep it in place, both when the raft is in the water and when it is folded up; the floats are further secured together by ropes under the canvas, running diagonally from one float to another.

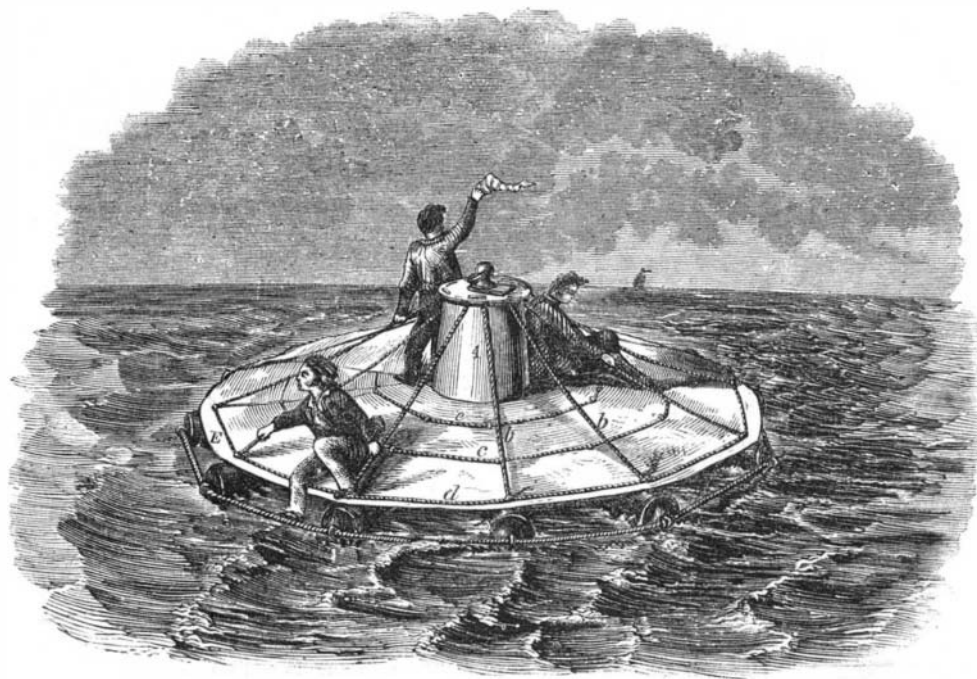


In case of need, the raft is lowered over the side of the vessel, when it spreads out on the water and is ready for use, and the central cylinder may be stored with water and provisions. For further particulars, address Harrington & Mack, Rochester, N. Y.

LARGE SPECIMENS OF TITANIUM.

At the Manchester (England) Literary and Philosophical Society, Mr. Wm. Brockbank, lately exhibited some large specimens of titanium, which have recently been found in considerable quantities, filling the crevices and under the hearths of the fire-brick linings of the

furnaces of the Hematite Iron Company, of Whitehaven. In one instance it occurred in a large mass weighing nearly four cwts., under the furnace hearth, having found its way through the crevices between the fire-bricks. Smaller masses, weighing from 50 lbs. or 60 lbs. to a few ounces, were found filling the hollows and crevices in the lining of the furnace, around that part which holds the molten metal. The occurrence of titanium in such large quantities is a new and interesting circum-



MACK'S LIFE-SAVING RAFT.

stance, previous instances being confined to a few furnaces in South Wales (where hematite ore is used as a mixture), and to some in the Hartz mountains, in both of which cases the specimens found were comparatively small. Small crystals of it have long been found in the slags of many iron works. Should any commercial use be discovered for titanium, it may be supplied in considerable quantities.

NEW FALLING RACK FOR MANGERS.

"The wonder is that it has not been thought of before" is the usual expression, as some simple but novel idea is brought out by some one of our host of inventors.



Here is a plan for preventing horses from wasting their hay, invented by a practical livery stable-keeper, which is certainly worthy of the attention of our city railroad companies and omnibus proprietors.

The rod, a, connects the rack, B, with the feed-box, A, forming a hinged joint. The slats, b and c, of the rack are just far enough apart to allow the horse to pull out but a mouthful of hay at a time, thus preventing him from wasting it. As the hay descends in the box, the rack follows it down, turning on the rod, a, and protecting the hay till all is consumed. The bottom of the box is made tight to save the grain, and the edge of the box, as well as the bars of the rack, may be covered with metal to prevent them from being gnawed.

At the end of the manger or hay-box is the grain-box, C, fitted with a tight lid or cover, D. Both box and lid should be lined with metal to make them rat-proof. The grain-box is filled whenever the hostler has leisure, and is covered with the lid. If the horses come in too much heated to eat grain, the lid is allowed to remain closed until the horses are cooled, when, by simply throwing up the lid, the horses are fed, and a large number can thus be served by one attendant.

Further information may be had by addressing the inventor, John Packer, at his office, No. 222 South Fourth-street, Philadelphia. The patent on this invention was granted March 29, 1859.

WALKING THE WATER.—

A gentleman residing on one of the inland lakes of Wisconsin has been making a series of experiments with water-shoes for the purpose of walking upon the water as upon land. He has written a letter to one of the Chicago papers describing his experiments, which have all been made at night, when the lake was calm. It is stated that, with the aid of a miniature pair of sails attached to his arms, and which can be reefed or spread in a moment, the inventor of this novel contrivance has crossed a lake three miles wide in half an hour, without so

much as wetting his knees in the passage. He proposes to cross Lake Michigan on foot and give a public exhibition of his ability to do so.

ENCOURAGING SUCCESS.—A. Hammond, writing to us from Jacksonville, Ill., under date of August 27th, says: "My patent for mole-plow and ditcher came to hand on the 22d inst. You will please receive my thanks for the promptness with which you attended to my business. I have already received orders for \$2,500 worth of machines, and considerable territory; and you may rest assured that I shall confide all my future patent business to your hands, and shall advise all my acquaintances to do the same."

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