AN UNSINKABLE, SELF-RIGHTING LIFEBOAT.

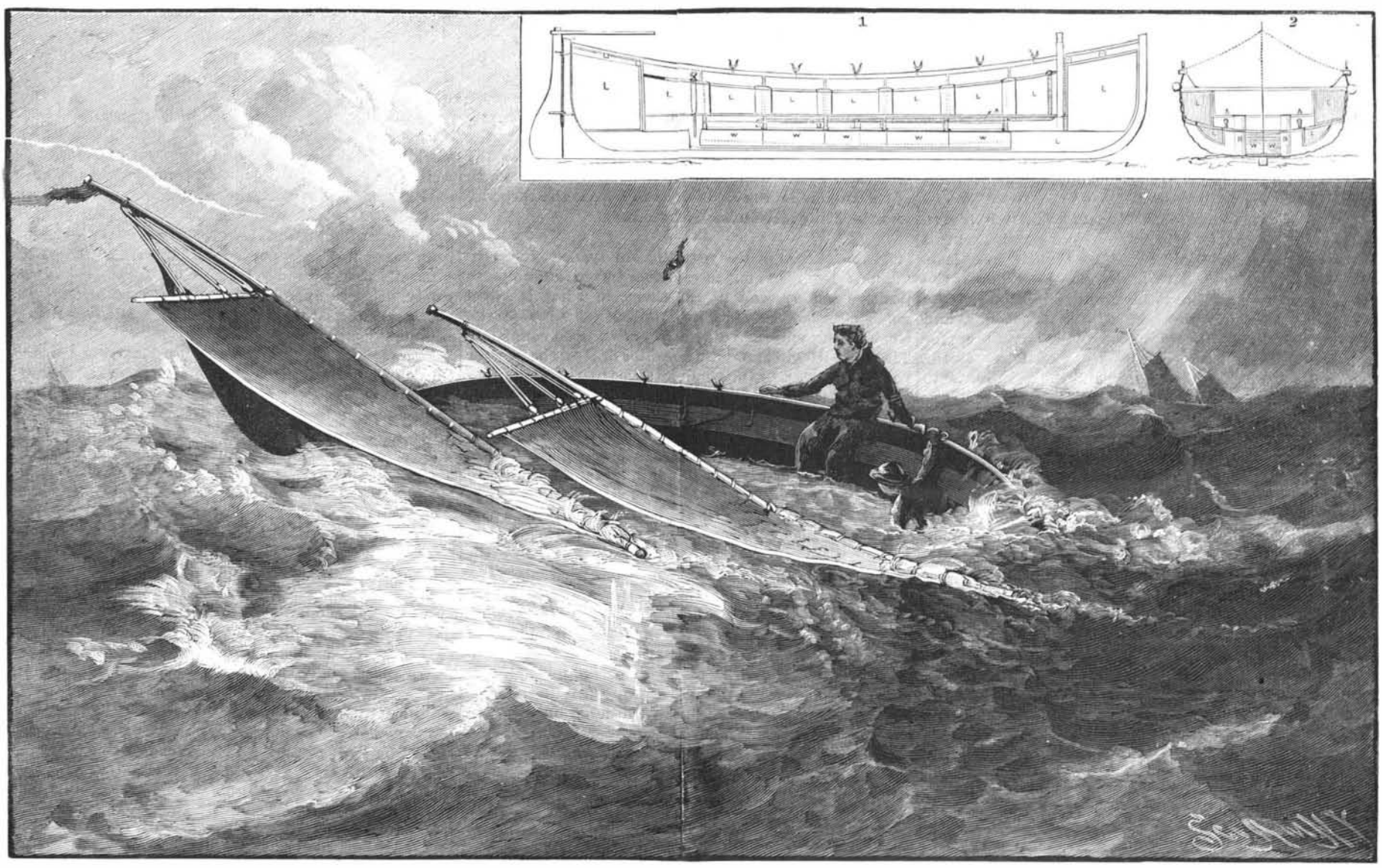
In January last the Committee on Life-Saving Appliances of the U. S. Board of Supervising Inspectors of Steam Vessels made a unanimous report, which was approved by the Treasury department, recommending the Norton lifeboat, a representation of which as it appeared in a rather severe trial off the Delaware coast is shown in the accompanying illustration. The picture is not in the least overdrawn to show the extent to which the lee side of the boat was submerged, for it was more than half full of water and the gunwale completely immersed, not in a spray or under a mere wave, but below the water line.

The boat is made with two distinct frames and plankings or skins, and between them, along the bottom and each side of the keel, are automatically working water ballast chambers, with comparatively narrow arms extending a greater or less distance around the bends, with longitudinal openings near to and in a line with the keel, the openings and chambers being so formed and connected as to be water tight. To the chambers is connected a small air pipe which passes up vertically between the chambers and frames, connected with a longitudinal pipe running on each side below the covering board of the two frames and fitted with a small air valve, which permits the air to escape from the ballast chambers as the water enters, while retaining the air in the ascending arms of the chambers. The remainder of the space not filled by the ballast chambers is occupied by hermetically closed air chambers. Figs. 1 and 2 show longitudinal and transverse sections of the boat, in which L represents the air chambers, W water ballast chambers, R discharge pipes for any water the boat may take in, H openings in ballast chambers by which the latter are automatically filled when the boat is placed in the water, and A the longitudinal air pipe with which the small air pipes connect from the main portion of each water ballast chamber. The air chambers are sufficiently large to keep the boat from sinking when filled with men and water. The air pipe, which allows the air to escape from the ballast chambers, does not allow it to re-enter from the outside, except upon the opening of a valve. The air contained in the side arms or wings of the ballast chambers, which extend up between the sealed air chambers, L, as seen in the longitudinal section, cannot escape, but is detained there, and acts as an air cushion to ease the motion of the boat. Also, when the latter is canted over from an upright position, the air is compressed in the arms on the submerged side, and aids the weight of water lifted by the chambers on the opposite side to right the boat.

Boats may be built on this principle of any of the usual boat-building materials, but are preferably constructed of corrugated yellow metal, of which the boat tried by the naval board was made. Its length was 26 feet, beam 7 feet 3 inches, depth 3 feet 6 inches. At the time of trial the wind was blowing 46 miles an hour, with a rough sea, and Captain Norton, in order to show the great stability, buoyancy, and self-righting power of his boat, spread much more canvas than would ordinarily have been justifiable, the wind throwing her down nearly on her beam ends, with her lee gunwale between two and three feet under water. She answered her helm well, even in this position, and immediately righted when the main sheet was eased off to relieve her from the full pressure of the wind, finally being run on the beach, through the surf, full of water, but so that her occupants were in jumping distance of dry ground. On the day following this trial a 22 foot boat of the same construction was, by order of the committee, several times capsized, with tackle, to test her self-righting qualities, but always righted immediately the same way she went over, as soon as released.

Lifeboats constructed according to Captain Norton's patent have gained high commendation during the past two years in Europe, where they have been tried at several Danish and German life-saving stations. Captain Norton himself, formerly an officer in the United States Navy, says: "I have tried one of these boats, 28 feet long, during a stormy night on the North Sea, 20 miles from land, and found her all that I could desire."

This system of construction is also designed for all classes of vessels, and such work will be undertaken by the Norton Naval Construction and Shipbuilding Company, of New York and New Jersey, Captain F. L. Norton General Superintendent, No. 633 F Street, Washington, D. C.



TRIAL OF THE NORTON PATENT LIFEBOAT IN A GALE OFF THE LIFE-SAVING STATION AT LEWES, DEL.

RIGHTS OF THE INVENTOR.—The Wisconsin supreme court, in the case of the Fuller & Johnson Mfg. Co. vs. Bartlett, has rendered a decision of much interest to inventors, being an action to enforce the specific performance of an alleged implied contract to assign to the plaintiff an invention made by the defendant while in the employ of the plaintiff and before procuring a patent. The court decides that the mere fact that in making an invention an employe uses the materials of his employer and is aided by the services and suggestions of his co-employes and employer in perfecting and bringing the same into successful use, is insufficient to preclude him from all rights in it as an invention. An implied contract to assign such rights cannot be enforced from mere passivity of the inventor. It is the conception in the perfected machine, not the materials, workmanship, and skill employed in its construction, which constitutes the invention, and the defendant, as the inventor, was the lawful owner of the invention in his own right. The above is a question constantly arising between inventors and employes, and patent attorneys are frequently called upon to decide between the parties. This decision will likely settle a good many disputes.

A New Destructive Cricket in Louisiana.

A rather remarkable insect pest has come to light the present season in Catahoula Parish, La. It is a true cricket of the genus *Gryllus*, but the specimens so far received have been too badly damaged for specific determination. Mr. Michael Dempsey, of Jena, writing under date of May 7, says: "They infest portions of the hills and swamp lands alike, doing irreparable damage to cotton, sweet and common potatoes, peas, and tobacco. Our farmers are seriously alarmed at their fearful increase and their destructive habits. Their holes in the ground are promiscuously scattered from a few inches to several feet apart, and are seldom over a foot deep in the uplands, although they go much deeper in the swamp lands, as the soil is deeper and the subsoil softer. They are seldom visible in the heat of the day, and do their cutting at night, taking all they want down into the ground, where they eat as they please. . . .

"In 1852 I first noticed them eating young cotton only, and a few years back they began to eat sweet potatoes; now they eat peas and tobacco, and have attacked our gardens. Our parish is composed of small farmers, who lack means. . . . We find that rapid cultivation, large gangs of poultry, and numerous birds keep them in check, but they are becoming too numerous in spite of all we can do."

Beyond doubt, in a case like this the best remedy will be found in the use of a poisoned bait, and I have no doubt but that the bran, sugar and arsenic mash which proved so effective against the devastating locust in California in 1885, and which is described in my annual report for that year (Rep. Dept. Agr. for 1885, p. 300), would prove attractive to the crickets, and would accomplish the destruction of large numbers.

This preparation is usually prepared in wash tubs or half barrels. One of these is filled about three-fourths full of dry bran, and to this is added about five pounds of arsenic, which is thoroughly stirred through the bran with a spade or shovel. Five pounds of sugar is next thrown into a pail, which is then filled with water and the sugar stirred until it is dissolved, when this sugar water is added to the bran and arsenic and the three well stirred; more water is added, and the stirring continued until every portion of the mash becomes thoroughly saturated. This should be placed about the infested fields in tablespoonfuls.

Freshly cut grass or other green vegetation, sprinkled with Paris green or London purple, and scattered at intervals throughout the fields, will also produce good results, and be less expensive. PROF. C. V. RILEY.