

SCIENTIFIC AMERICAN

A WEEKLY JOURNAL OF PRACTICAL INFORMATION, ART, SCIENCE, MECHANICS, CHEMISTRY, AND MANUFACTURES.

Vol. XL.—No. 10.
[NEW SERIES.]

NEW YORK, MARCH 8, 1879.

[\$3.20 per Annum.
[POSTAGE PREPAID.]

THE SMALLEST STEAMBOAT IN THE WORLD.

WE illustrate herewith the steam canoe Nina, designed and constructed by Mr. J. Davidson, of this city, at Fordham, N. Y. Several unsuccessful attempts have been made in England to construct a steam or electric craft designed to carry one person, but all failed in some essential point, and it was left for an American to solve the problem, and it has been done in an original manner.

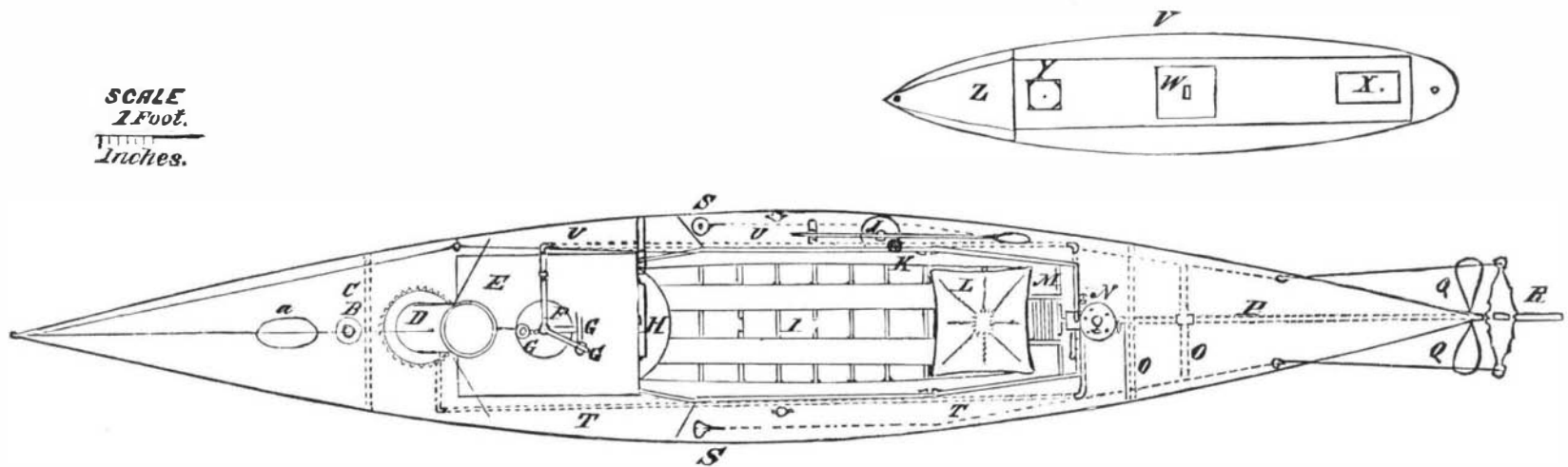
The keel length is 13 ft., over all 14 ft.; width, 28 in.; draught at bow, loaded, 6 in.; aft stern, 8 in. The boiler is circular, of copper, felt-covered, 20 in. long by 17 in. diameter; fire-box, 10 in. diameter, of cylindrical form, with 22 transverse tubes, in two tiers, the lower ones constituting the grate.

the small air-tight tender, which is towed behind, or fastened alongside by a simple contrivance, to serve as an outrigger in rough water; it also carries, in sections, a small truck, on which the boat can be drawn ashore or launched.

The weights are as follows: Hull, 90 lbs.; boiler, 80 lbs.; engine, 25 lbs.; piping, shaft, propeller, pump, steam gauge, etc., 20 lbs.; total, 215 lbs. Forty pounds of fine coal in 5 lb. canvas bags can be stowed each side of the boiler. The steering gear consists of a stirrup on the port side, and spring coil on the starboard; wires run under the deck to the rudder yoke, so that steering is done with the foot, leaving the hands free to manage the furnace and tend the engine, which is regulated by a valve at the right, under the engineer's hand, so that starting, stopping, backing, and

of offering a variable and very sensitive electrical resistance according to the different gradations of light. The apparatus will consist of an ordinary camera obscura containing at the focus an unpolished glass and any system of autographic telegraphic transmission; the tracing point of the transmitter intended to traverse the surface of the unpolished glass will be formed of a small piece of selenium held by two springs acting as pincers, insulated and connected, one with a pile, the other with the line. The point of selenium will form the circuit. In gliding over the surface, more or less lightened up, of the unpolished glass, this point will communicate, in different degrees and with great sensitiveness, the vibrations of the light. The receiver will also be a tracing point of black lead or pencil for drawing very finely, connected with

SCALE
1 Foot.
1 1/2 Inches.



PLAN OF THE STEAM CANOE NINA.

Stroke of engine $2\frac{3}{4}$ in. The feed pump is worked by hand. There are two propellers, three-bladed, of 9 and 14 in. diam., for shoal or deep water; $1\frac{1}{2}$ buckets of fine coal a day is required. With steam at 50 lbs. it runs very smoothly at $4\frac{1}{2}$ miles per hour, but with a steel boiler, now planned to carry 100 lbs., a speed of $5\frac{1}{2}$ miles will easily be obtained.

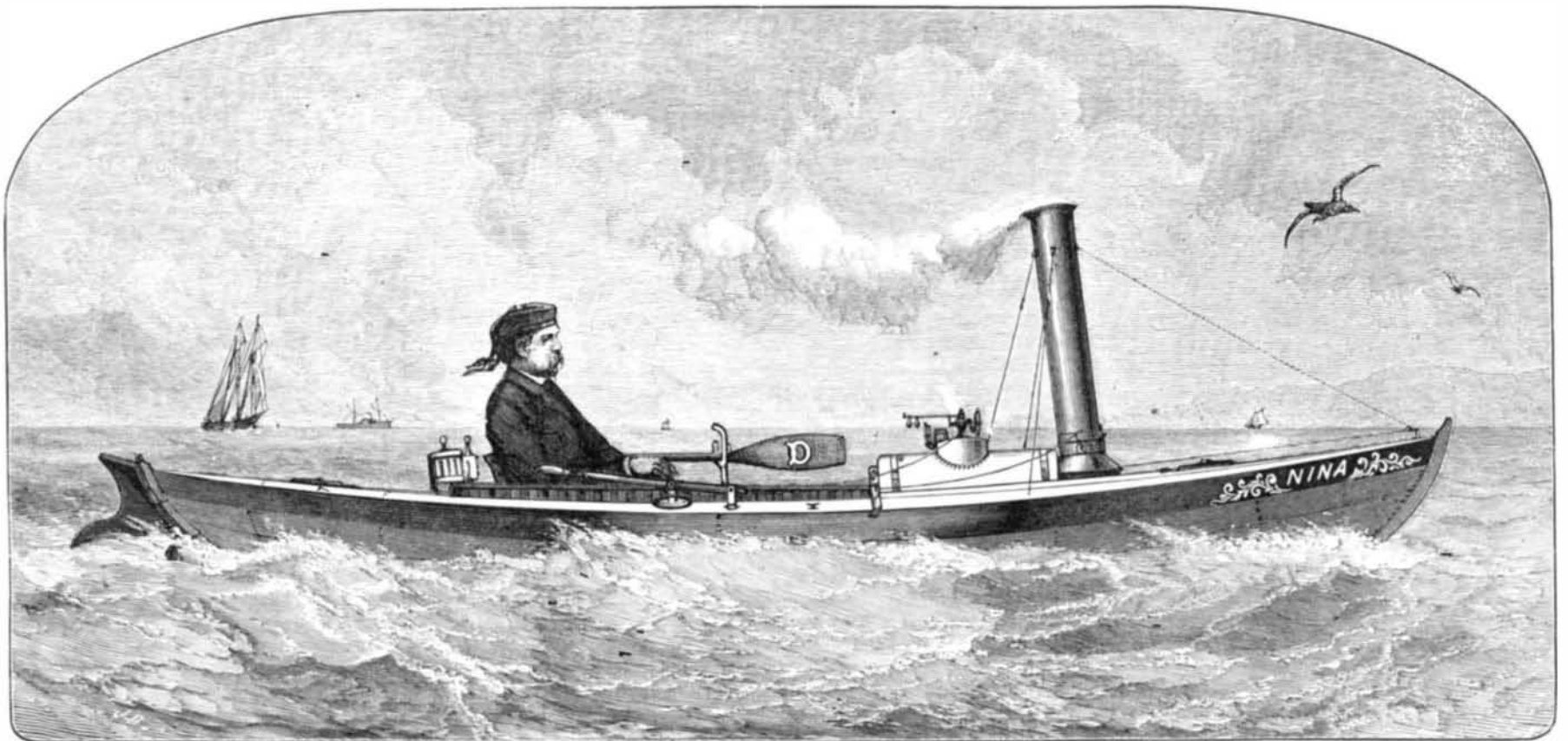
The hull is of the Nautilus pattern, built of hickory, oak, and cedar, copper-fastened throughout, a marvel of strength and lightness. Two water-tight bulkheads float it if swamped or capsized. A rubber pipe with live steam quickly clears any accumulation of water in the hold. The funnel is jointed, to turn down when running under low bridges or while in the boat house. When on an extended cruise all extra fuel, tools, provisions, etc., are carried in

steering are all accomplished without moving from the seat. For quiet river or bay cruising this boat is admirably adapted, and would prove a source of pleasure and study to any one fond of machinery and desirous of being his own captain, crew, and engineer. The cost of this neat little steamer is \$250, but much of this can be saved by the designer doing portions of the work himself.

A Novel and Curious Instrument—The Telectroscope.

M. Senlecq, of Ardres, has recently submitted to the examination of MM. du Moncel and Hallez d'Arros a plan of an apparatus intended to reproduce telegraphically at a distance the images obtained in the camera obscura. This apparatus will be based on the property possessed by selenium

a very thin plate of soft iron, held almost as in the Bell telephone, and vibrating before an electro-magnet, governed by the irregular current emitted in the line. This pencil, supporting a sheet of paper arranged so as to receive the impression of the image produced in the camera obscura, will translate the vibrations of the metallic plate by a more or less pronounced pressure on that sheet of paper. Should the selenium tracing point run over a light surface the current will increase in intensity, the electro-magnet of the receiver will attract to it with greater force the vibrating plate, and the pencil will exert less pressure on the paper. The line thus formed will be scarcely, if at all, visible; the contrary will be the case if the surface be obscure, for, the resistance of the current increasing, the attraction of the magnet will diminish, and the pencil will leave upon it a darker line.



THE STEAM CANOE NINA THE SMALLEST STEAMBOAT IN THE WORLD.