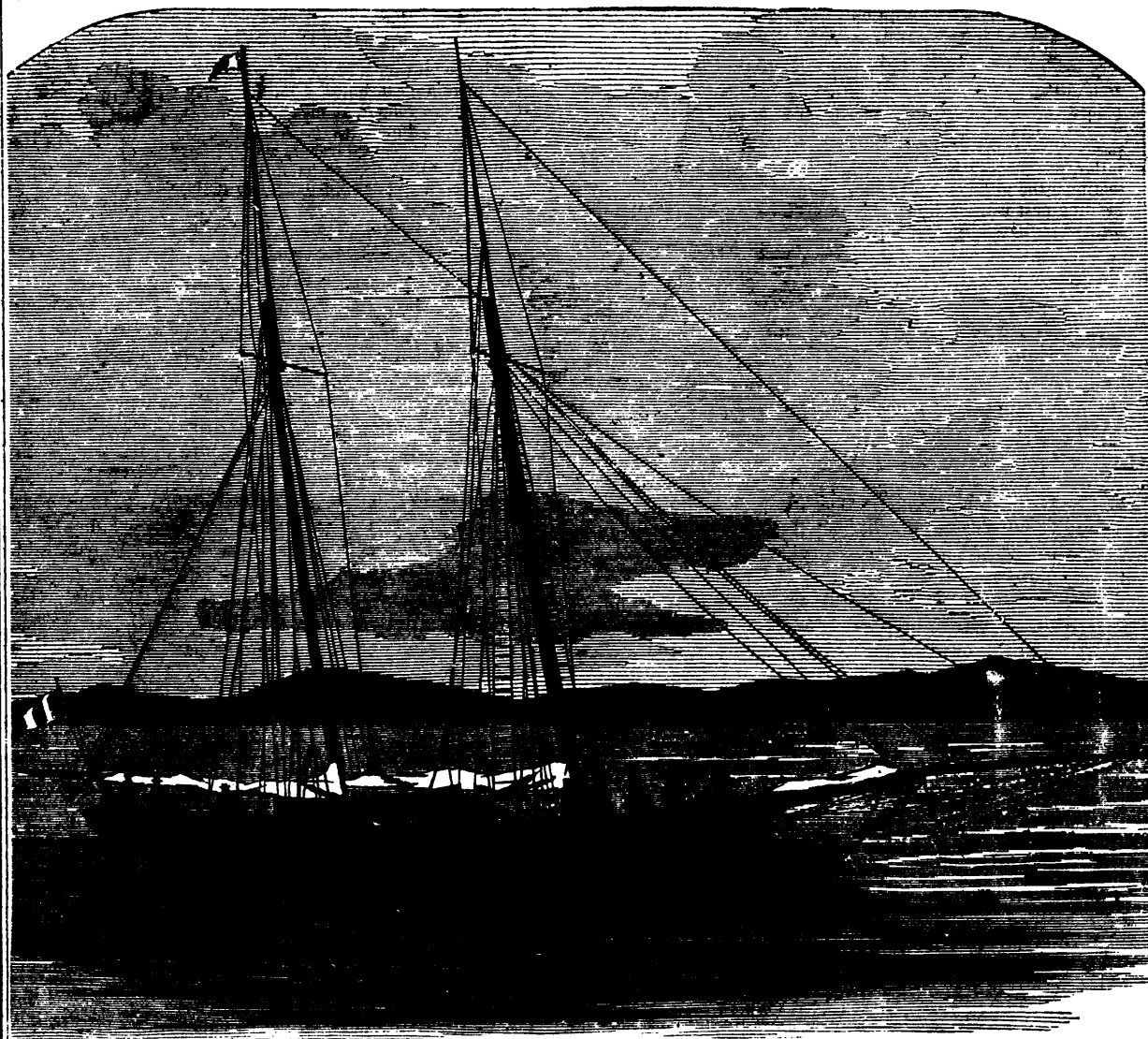




THE "KALA-FISH," FITTED WITH DR. COLLIS BROWN'S PATENT BOW.
THE YACHT THAT MADE THE FASTEST TIME ON RECORD.

Electricity.

A NEW SYSTEM OF ELECTRIC LIGHTING AND A NEW ELECTRIC LAMP.

BY PROFS. ELIHU THOMPSON AND EDWIN J. HOUSTON.

Having been engaged in an extended series of experimental researches on dynamo-electric machines, and their application to electric lighting, our attention has been directed to the production of a system that will permit the use of a feeble current for producing an electric light than that ordinarily required, or in other words the use, when required, of a current of insufficient intensity to produce a continuous arc. At the same time, our system permits the use of a powerful current, in such a manner as to operate a considerable number of electric lamps placed in the same circuit.

As is well known, when an electrical current, which flows through a conductor of considerable length, is suddenly broken, a bright flash, called the extra spark, appears at the point of separation. The extra spark will appear, although the current is not sufficient to sustain an arc of any appreciable length at the point of separation.

In our system, one or both of the electrodes, which may be the ordinary carbon electrodes, are caused to vibrate to and from each other. The electrodes are placed at such a distance apart, that in their motion towards each other they touch, and afterwards recede a distance apart which can be regulated. These motions or vibrations are made to follow one another at such a rate, that the effect of the light produced is continuous; for, as is well known, when flashes of light follow one another at a rate greater than twenty-five or thirty per second, the effect produced is that of a continuous light. The vibratory motions may be communicated to the electrodes by any suitable device, such, for example, as mechanism operated by a coiled spring, a weight, compressed air, &c., but it is evident that the current itself furnishes the most direct method of obtaining such motion, as by the use of an automatic vibrator, or an electric engine.

In practice, instead of vibrating both electrodes, we have found it necessary to give motion to but one, and since the negative electrode may be made of such size as to waste very slowly, motion is imparted to it, in preference to the positive. The carbon electrodes may be replaced by those of various substances of sufficient conducting power.

In this system, when desired, an independent battery circuit is employed to control the extinction and lighting of each lamp.