LETTERS TO THE EDITOR.

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Cyclone Sail.

I HAVE sent to you, for publication if you think desirable, a photograph of a type of an ideal sail—ideal, in that the wind acting on it has no tendency whatever to incline the boat.

The wind pressure acts practically at right angles to the mean surface of the sail. When the wind is making a large angle

with the sail, the centre of pressure is almost at the centre of the surface, but when the wind strikes the sail at an acute angle, as in all sails or kites, the centre of pressure moves towards the weather edge; but by suitably adjusting the sail, the desirable result of obliterating all heeling movement has been achieved.

The training in a horizontal direction is accomplished by means of a turntable, and the elevating and lowering by two tackles.

There is a balance weight which helps in elevating the mast, and which is just sufficient to balance the dead weight of the sail in a calm, not inclining the boat.

The sail can be set and furled in a minute; it does not close like an umbrella, but each side shuts up like a fan.

The object of the sail is to be able to sail without inclining the boat, so that the limit of driving force is not governed by the stability of the boat in any way, and also that the boat sailing on an even keel has less resistance than when sailing with a list.

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A Hertz-Wave Model.

IN the spring of the present year I showed, at a meeting of the Physical Society of London, a wave-motion model which I designed to illustrate mechanically the propagation of a transverse wave. As the exhibition of this model on that occasion, and subsequently at the Royal Society and Royal Institution, has elicited a number of inquiries about the apparatus, it is thought that the following brief account of it may be of some interest to lecturers on physics, particularly at a time when the propagation of electric waves through space is occupying much attention. The apparatus, which is depicted in the accompanying cut, is mounted on a strong wooden frame about 2 metres long. At one end (the further in the cut) is the "oscillator," a heavy mass of brass hung by two strong V cords from arms which project parallel to the longer dimension of the frame. This mass, which, for the sake of analogy, is quite unnecessarily shaped to imitate an orthodox electric oscillator, can therefore be set swinging in a transverse direction by a suitable impulse given by hand. At the other end of the frame (the nearer in the cut) is the "resonator," a circle of brass wire hung by a tri-filar suspension. Oscillator and resonator must be adjusted by shortening or lengthening the cords so as to have identical periods of oscillation. The real problem in the construction of the apparatus was to find a mechanical means of transmitting the energy of the oscillator in visible waves to the resonator. The

Mechanical model illustrating propagation of a Hertz wave.

In practice this result has been obtained by putting more sail to leeward than to windward of the mast, and also by placing the sail not quite at right angles to the mast, but more raised on the lee side.

The sail is made oval, with the major axis horizontal, so as to be able to carry more sail with a definite height of mast.

means finally adopted was a series of inter-connected pendulums on a plan somewhat similar to one suggested¹ in 1877 by Prof. Osborne Reynolds. Instead of using springs, however, the requisite inter-connection is obtained by simply suspending the leaden bullets which act as pendulum-bobs by V suspensions

¹ See NATURE, vol. xvi. p. 343.