and I have always regarded it as a remarkable evidence of my friend's care and skill that he landed those two precious instruments at the end of the year safe back at Woolwich.

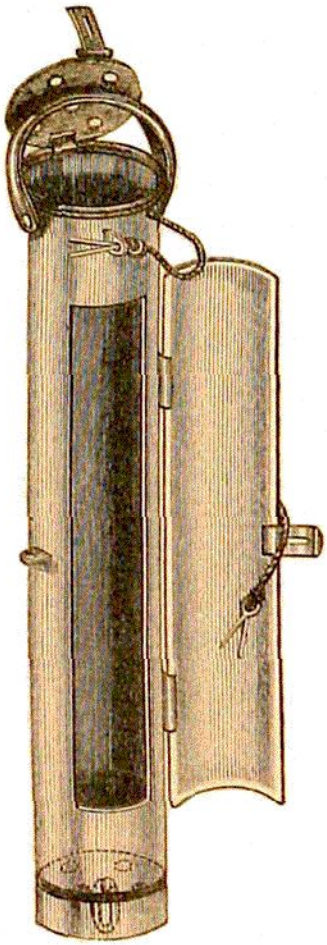

FIG. 54.—Copper case for protecting the Miller-Casella thermometer. The ends of the case above and below are perforated to allow a current of water to pass freely through.

Fig. 53 represents the latest improvements on the Miller-Casella modification of Six's self-registering thermometer. The instrument is of small size, to reduce as far as possible the friction in passing through the water. The tube is mounted in ebonite, to avoid the expansion of a wooden mounting in the water, by which the instrument is liable to get jammed in the case. The scale is of white porcelain, graduated to Fahrenheit degrees; the large bulb is enclosed in an outer shell three-fourths filled with alcohol and hermetically sealed. It is right to mention that I am informed by Sir Edward Sabine that the thermometers used by Sir John Ross in his Arctic voyage in 1818 were protected somewhat on the same principle, and that a thermometer for resisting pressure was constructed under the directions of the late Admiral Fitzroy, at the suggestion of Mr. Glaisher, which differed from the Miller-Casella pattern in little else than the outer shell being partially filled with mercury instead of alcohol, and in being somewhat less compact and more fragile than the latter instru-