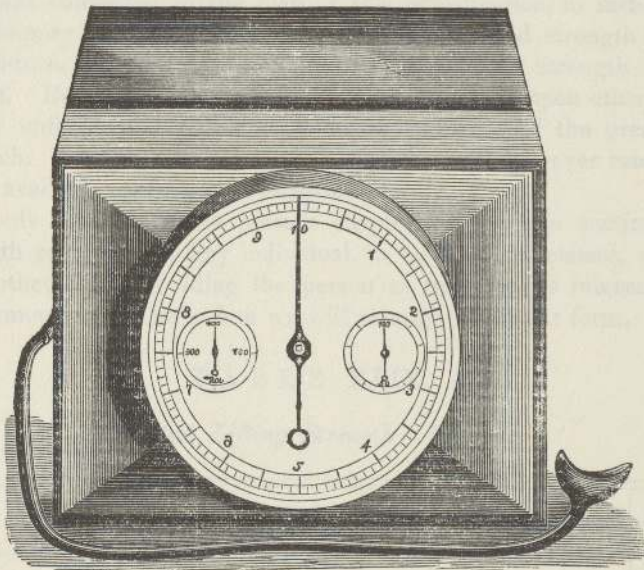


CHAPTER XII.

PULMONARY CAPACITY.

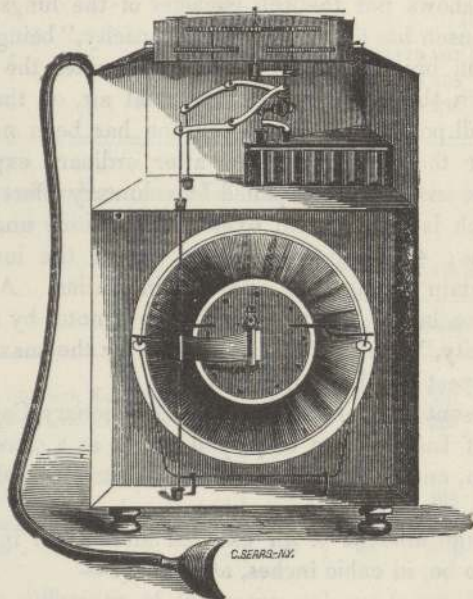
1. *Preliminary.*

THE Spirometers employed are simply dry meters, agreeing in their general construction with the most approved form of those used for illuminating gas, and were made for the Sanitary Commission by the American Meter Company, of Philadelphia. Their structure and general appearance are shown in the accompanying



figures. Those metallic portions which are exposed to the breath are of copper, or some alloy which does not corrode by moisture at ordinary temperatures; and they are provided with special contrivances for removing the vapor as it condenses. They were tested from time to time, and so far as experience warrants a judgement

they appear far superior to the cumbrous and complicated apparatus hitherto employed for the same purpose. It must not be forgotten that our aim was not to introduce such apparatus as would permit the highest degree of precision absolutely, but such as would, under the circumstances of the case, afford the best results. For instruments which are to undergo the rough usage inseparable from transportation by army trains or on military railroads, which are in danger of being handled roughly at some unguarded moment by rude men, and which must be employed at posts remote from facilities for repairing injuries or maladjustments, the conditions to be consulted are widely different from those which



would be imposed under other circumstances. And although there are of course many respects in which the experience now obtained would indicate important modifications of method, inquiries, and precautions, were this work to be repeated or continued, yet the instruments employed have given entire satisfaction and very few points have suggested themselves in which the apparatus could clearly be changed for the better. The spirometers are graduated to indicate cubic inches (although cubic centimeters would be preferable for any future occasions), and are furnished with a mouthpiece of convenient form, connected with the instrument by flexible tubing.