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Compliments of  
Solomon Solis-Cohen,  
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## A SIMPLIFIED RESISTANCE VALVE FOR THE PNEUMATIC TREATMENT OF PULMONARY AFFECTIONS.

BY SOLOMON SOLIS-COHEN, M.D.

Professor of Clinical Medicine and Therapeutics in the Philadelphia Polyclinic; Physician to the Philadelphia and Rush Hospitals, etc.

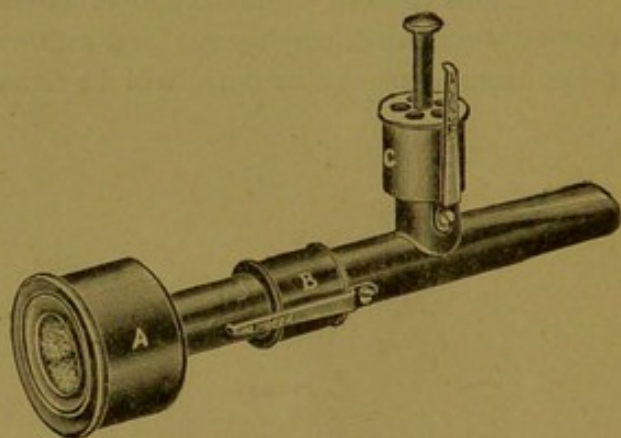
IN the *New York Medical Journal* for December 3, 1887, I described a pocket apparatus which I termed the pneumatic resistance valves, and the object of which was to serve as a means of applying regulated pulmonary gymnastics to the treatment of various affections of the respiratory passages. The apparatus has fulfilled the expectations held of it and has been perfectly satisfactory in every respect except price.

The care and accuracy necessary to the manufacture being great, and the demand for the product being unfortunately confined almost exclusively to my own patients, the manufacturers found themselves compelled to increase rather than reduce the price at which the valves were first put upon the market. I have, therefore, endeavored so to simplify the construction as to allow the price to be placed at a figure which will create a demand from other members of the profession and enable the benefits of this form of treatment to be more widely diffused. This has been accomplished by sacrificing accuracy of pressure measurement, and substituting an approximate and relative scale for one graduated by actual comparison with the manometer. In most instances this will answer the purpose. In some cases the original form of the instrument with exact scale will be needed.

I have combined with the little apparatus, as a new feature, an attachment permitting the inhalation of some volatile medicament. I do not consider this a very important addi-

tion, but it is quite possible that through it patients who would not otherwise do so may be induced to use the apparatus and thus get the benefit of the pneumatic treatment. In some cases, however, it will undoubtedly prove of great utility in itself.

The construction of the apparatus may be seen from the annexed figure, which is about one-half size :



A is a cylindrical receptacle in which between two sheets of wire-gauze a sponge or a tuft of absorbent cotton may be placed for the purpose of receiving any volatile medicament, such as eucalyptol, creosote, ethyl iodid, terebene, menthol, etc. Opening out of this is the tube with flattened mouthpiece with which two valves, B and C, communicate. The inspired air enters through valve B; the expired air issues through valve C. The degree of obstruction which these valves offer to inspiration and expiration respectively may be adjusted by turning the outer cylinders up or down according to the figures inscribed on the scales attached. At the one



extreme limit this resistance is nothing; at the other extreme it is about one-half an atmosphere, being regulated by the tension of a spring, as in the more elaborate apparatus previously devised. Trial of the instrument will be necessary in order to fix the point of adjustment in each case.

When the inspired air is made to encounter resistance at *B*, the patient is forced to make a greater effort to inhale, the air within his chest is correspondingly rarefied and the physiologic and therapeutic effect is that of inspiration of rarefied air. When the exhaled air is made to encounter resistance at *C*, greater expiratory effort, with corresponding compression of the chest is necessary; and the physiologic and therapeutic effect is the same as that of expiration into condensed air.

In certain cases of pulmonary tuberculosis, chronic bronchitis, emphysema and asthma, these expedients, one or both, will be found

of much service. The greatest usefulness of this little instrument will be in developing the chests of those subjects predisposed to tuberculosis in whom such a prophylactic regime is advisable, in the treatment of pulmonary tuberculosis in its early stages and in the after-treatment of patients who have partially or completely recovered under other methods of pneumotherapy. It might be called a "lung expander" had not that term been brought into disrepute through certain quackish advertisements.

The instrument is submitted to the profession in the hope that its simplicity and cheapness may render it generally availed of. It has been made and will be marketed by Messrs. Codmann & Shurtleff, of Boston, for whose repeated acts of courtesy and patient endeavors to satisfy every requirement, I desire again to make acknowledgment.





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