Science and Art.

Compressed Air Bath.

MESSRS. EDITORS—The compressed air bath has been successfully employed in France for seventeen or eighteen years, and it is from records thence obtained, that our first impressions regarding its employment were received. It has also been introduced into England. Were it not that an expensive apparatus is necessary, involving much time and expense in its successful management, no doubt it would have long ago taken its place and superceded most of the other means employed for the diseases for which it is peculiarly applicable. We have successfully overcome all the difficulties of delay and extra expense incident to a new enterprise, and the whole operation and its effects may be witnessed daily at our institution by all who choose to inquire.

A little reflection will render the rationale easily comprehended by every one, and will lead to a simpler view of the pathology of diseases of the respiratory organs than is held by the schools of medicine or the multitude of consumption curers of the present day.

Suppose that in consequence of congestion or inflammation of respiratory passages, or disease of substance of the lungs, the air is excluded, so that a portion, say one-third, of the efficiency of the organ is suspended. A hurried respiration and rapid pulse always attends this condition, and is an effort at *compensation*—the best the system can do under the circumstances. Can the inhalation of any drug vapor, mixed with air, compensate for the deficiency of *air?* Is it medicine that is now demanded?

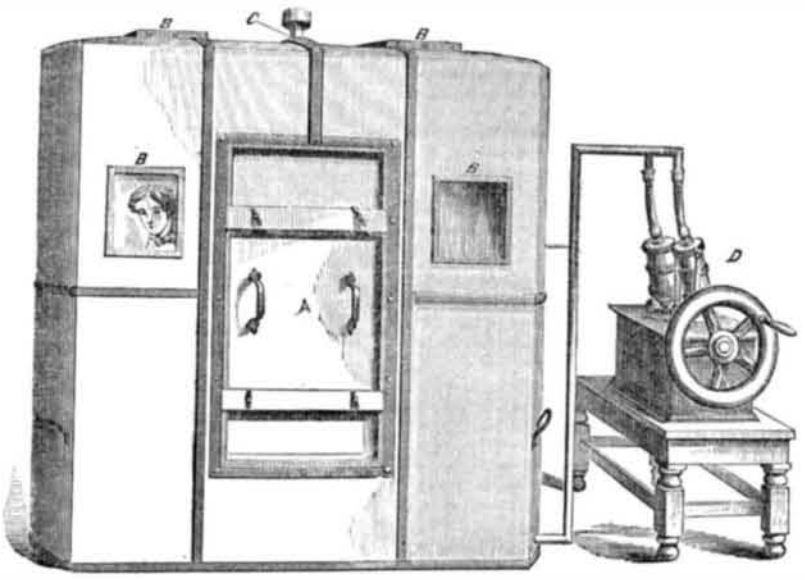
In pulmonic disease, the system languishes and death follows, not so much from a non-arterialization of the blood, as from *the forced state under which the system is compelled to labor in order to attain air.* If now, we increase the access of air, not by any forced or voluntary efforts that the system can illy afford, but by increasing its density by compression, in the supposed case, by one-third of an atmosphere, there will be an equilibrio between the vital wants and the supply, the duty of health will be performed, and the most perfect condition secured for the restoration of diseased parts. The objects of health are attained by the Compressed Air Bath, without stimulating and wasting the powers of life, but by husbanding them; the excited heart's action decreases, and the system is refreshed.

The following cut represents the apparatus we employ for the application of the Compressed Air Bath. The little room, A B, is made of tinned iron, manufactured for this special purpose, well riveted and strongly bound in each direction with strong iron bands, the whole rendered completely air tight by soldering. Several movable rods or stays, with hooks at the end, extend across the inside, and prevent the sides from being torn asunder by the inside pressure. A is a door well packed with soft rubber at the edges, so as to be completely air tight; B B are windows, and C is a valve that gives egress to the confined air, and by means of weights placed upon it the pressure per square inch is measured in the same manner as by the safety valves of steam boilers. D represents two force pumps of brass, acting reciprocally by means of gearing within the iron box upon which they are placed, operated by a band upon a pulley, or by hand. The air pumps, however, with the power operating them, are placed in another room, and a communication is had by means of a strong rubber hose, whereby all noise of machinery is effectually prevented.

One, two, or more patients having entered the bath, and the door being secured, the pumps are set in action and the air forced into the room accumulates until it escapes by the valve, C, but the pressure is gradually raised by adjusting weights upon the valve until in the course of twenty or thirty minutes it attains three or four pounds to the square inch. The pumps being kept in continued action, the pressure is suffered to remain at about this point for an hour and a half, when the pressure is gradually removed.

Effects of the Bath.—Those immediately noticeable are pressure upon the ear drum, immediately relieved by attempting to swallow an elevation of temperature of a few degrees, sometimes a slight sensation of chilliness, and if the respiratory organs be diseased, a remarkable ease and freedom of respiration, and when the voice is tried its powers are so restored as to surprise the patient, an effect which continues after the bath is ended, and what, more than anything else, is the key to its good effects, a *fall of the pulse*, sometimes to the extent of twenty-five or thirty beats per minute. The healthy who try the experiment, on the contrary, sometimes experience an elevation of the pulse, but no diminution. This effect upon the pulse seems also to be permanent.

DR. TAYLOR'S COMPRESSED AIR BATH.



The Compressed Air Bath will doubtless prove an available and efficient means of arterializing the blood of that class of invalids whose condition precludes exercise. Experience proves that congestion and arrested capillary action, though formidable, are overcome, when the quality of the blood is corrected by this auxiliary respiration, and there can be no doubt but that this recourse will be found serviceable in many diseases depending upon similar causes, besides those of the respiratory organs.

G. H. TAYLOR, M. D.
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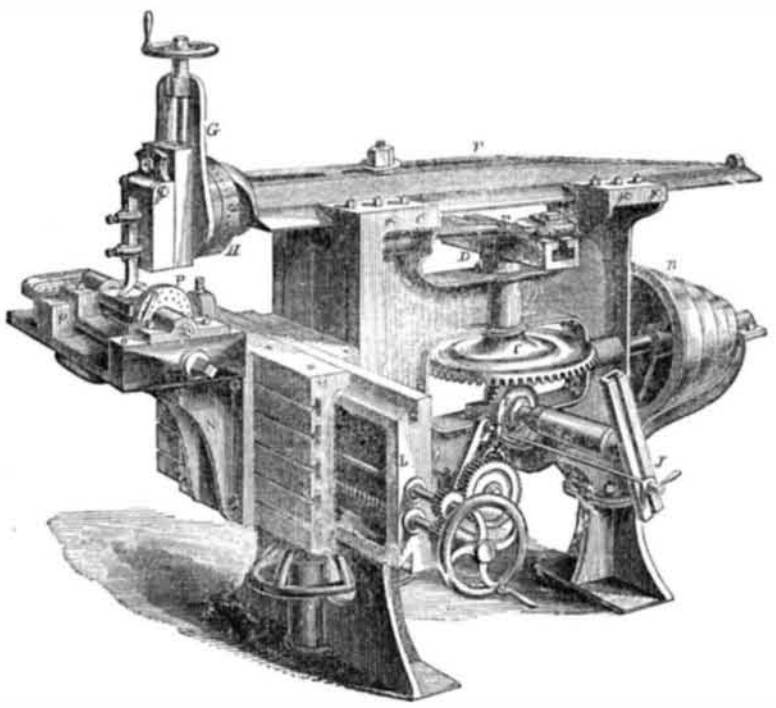
PLASS' COMPOUND PLANER.



The accompanying engraving represents a tool principally designed for planing the smaller class of work, and irregular shapes which are inconvenient or impossible to hold on the ordinary iron planer, but can be griped in a vice, such as stub-ends, straps, gibs, keys, cams, &c. All such pieces as require to be planed in different directions, and still preserve a perfectly level surface, can be finished in this machine with great accuracy, and without letting go of the work until all parts of the plane surface are perfected. The work is firmly held in a vice made to swivel around in any position without loosening its hold. The tool as generally proportioned is capable of holding and planing a piece twelve inches wide and thirty inches long, turning the same in any position required.

A is the frame or body of the machine which is cast in one piece, thus obviating all bolting or yielding under the strains applied in cutting. B is the driving pulley; C is a bevel wheel driven by a pinion on the shaft of B, and gives motion by the aid of D and E as represented, to the tool stock and slide, F; I is one of a pair of mitre wheels operating the feed motion attached to the adjustable transverse ways, L. By means of the feed screw, L, it operates the slide, M; N is a right angle bracket secured to slide, M, and supporting the swivel vice, O and Q, in which the work to be planed is held, and which constitutes the principal novel feature of the machine. The vice is set in a recess, N, and is firmly secured in any desired position by one large bolt and nut not represented (being on the under part of angle bracket, N.) The unscrewing of this nut allows the vice with work secured in it to be turned in any direction required, without changing its plane. P is a pair of centers with index thereon, to aid in planing nuts or other articles of irregular shape. Thus by rotating the vice, the two jaws of which are represented by O and Q upon the angle plate or angle bracket, N, the work may be rotated to any desired extent horizontally, and by mounting the work in the centers, P, it may also be revolved to any extent desired vertically. The tool stock, G, can also be set by the aid of index H, so as to feed the tool down at any angle required, and by properly managing all these adjustable parts almost any plane surfaces may be finished with perfect accuracy without once letting go the hold.

For planing cylindrical surfaces, or what is ordinarily termed circular planing, the bracket, N, with all its attachments, is removed, and the work is mounted on a revolving stud supplied in its place and passing through slide, M, so that it can be slowly rotated by the feed, L, which acts on a worm wheel not represented.

The tool slide, F, can be set to any stroke from one to twelve inches, and the cross slide, M, with its attachments, can be raised or lowered by raising or lowering the transverse ways, L. This is accomplished by slackening the nuts at the back, and simply turning the hand wheel seen underneath.

A number of these machines have been at work for several months past in the best machine shops in Brooklyn and in this city, and are very much admired for the perfection with which they execute jobs which had been previously considered almost or quite impossible.

For further particulars address Messrs. Carpenter & Plass, 479 First avenue, New York. See advertisement in another column.

A Particular Notice about Models.

The express charges on models sent to our office should, in all cases where it is possible to do so, be prepaid. If prepayment cannot be made, an amount sufficient to cover the expenses should be remitted by mail. It has latterly become a serious tax upon us to pay freight expenses on models, and we hope the importance of this notice will be duly regarded.