C. GODFREY.

AEROMETER.

No. 180,760. Patented Aug. 8, 1876.

Fig. 1.

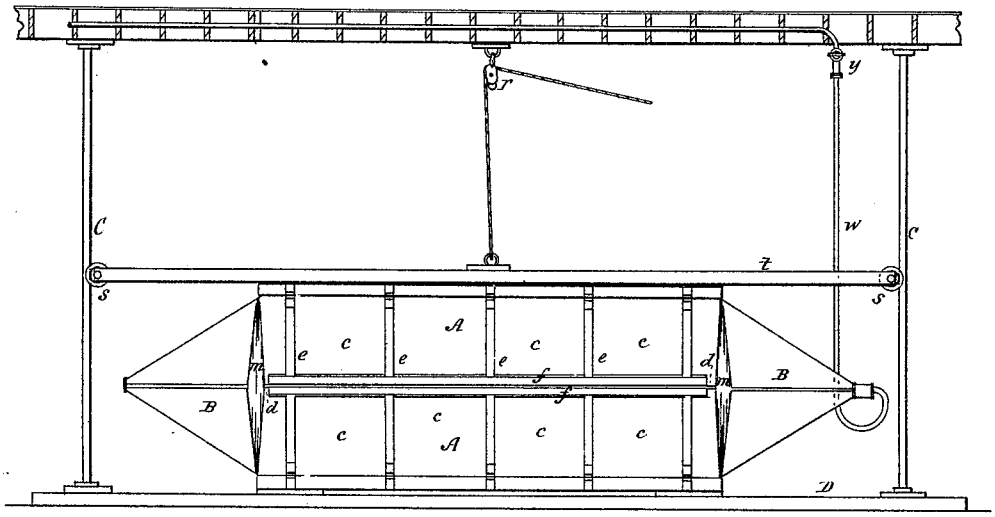


Fig. 2.

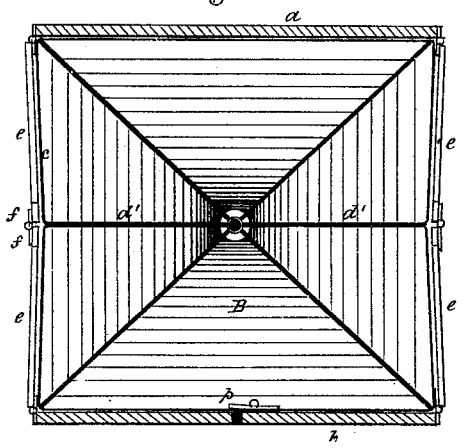
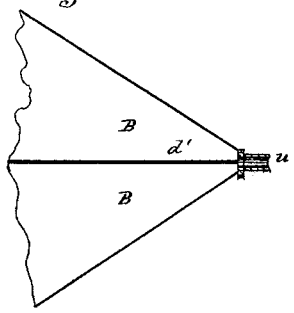


Fig. 3.



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UNITED STATES PATENT OFFICE.

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IMPROVEMENT IN AEROMETERS.

Specification forming part of Letters Patent No. **180,760**, dated August 8, 1876; application filed April 25, 1876.

To all whom it may concern:

Be it known that I, CORNELIUS GODFREY, of Huntington, in the county of Suffolk and State of New York, have invented an Improved Aerometer, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, making a part of this specification.

My said invention relates to an improved aerometer or air-reservoir, to be used in connection with a system of air-conducting pipes, through which air is forced, under pressure, to supply kerosene or other oil lamps, so that the latter may be used without a lamp-chimney; and its object is to construct an aerometer of such material and in such a manner that it shall be comparatively inexpensive, and will occupy but a small amount of space in proportion to its capacity, and be capable of being easily managed, and require but little care and attention.

This invention consists in an aerometer or air-reservoir, the main portion of which is made of paper or pasteboard, and in the construction and arrangement of the several parts, as hereinafter particularly described, by means of which the apparatus is rendered very efficient in operation, while possessing the advantages of being very easily managed, as well as being compact, and comparatively very inexpensive.

In the accompanying drawing, Figure 1 represents a side elevation of my improved aerometer or air-reservoir; Fig. 2, a transverse section; and Fig. 3, a longitudinal vertical section of one end of the same.

Similar letters of reference indicate corresponding parts in all the several figures.

A represents the main body of my improved apparatus, which I make rectangular in form, and generally about as wide as it is long, so as to obtain a large cubical capacity in proportion to the space it occupies. The material of which it is made is tough paper, in an apparatus of ordinary size, and in larger ones of pasteboard; and the top and bottom are, respectively, attached and secured to a frame or covers, *a* and *b*, of wood or other unyielding material.

The paper being very cheap, and at the same time sufficiently strong to withstand the amount of pressure employed, I am enabled to provide an efficient apparatus at a small cost, thus adapting my invention for general use.

The sides *c c* are provided with a horizontal and longitudinal joint or hinge, *d*, which closes inward as the apparatus is compressed, which said joint may be made by forming a crease in the paper, and strengthening the same by covering it with any suitable textile fabric, or with sheet-rubber. These sides *c c* are slightly narrower than the top and bottom, so that when the air is expelled, and the said hinges *d* are brought into close proximity, they will not quite come into contact with each other, but will allow the folds to lie closely, the one over the other, between the top and bottom *a* and *b*, so that all the air in the apparatus may be expelled.

In an apparatus of large size, I employ one or more pairs of ribs, *e e*, of wood or other suitable material, for the purpose of staying the sides *c c* when under pressure, which said ribs are hinged at their upper and lower ends to the top *a* and bottom *b*, respectively, and are attached at the inner ends to two horizontal bars, *f f*, which are parallel with and contiguous to the hinge *d*, which said bars are hinged to each other, so that the said bars and ribs will move in unison with the pieces forming the sides *c c*, when the apparatus is expanded or compressed, and prevent the same from bulging or being thrust out of position by the pressure of the air within the reservoir.

The ends B B I make in the form of rectangular pyramids, their bases being of the same dimensions as the ends of the main body A, to which latter I attach them by means of flexible gussets or gore pieces *m m*, by means of which, in connection with hinges or joints *d' d'* in the upright sides, similar to the joints or hinges *d d*, the said pieces which form the said ends are permitted to have an unobstructed movement when the reservoir is expanded or compressed, and to lie snugly in folds when it is fully compressed, so that all the air is expelled.

One or more valves, *p*, placed in the bottom piece *b*, or in any other suitable position, admit air into the reservoir when the top *a* is raised, which latter is effected by means of a

pulley-block, *r*, and cord, or other similar contrivance.

C C are upright guide-rods, secured at their lower ends to the frame D, on which the apparatus is placed, and at their upper ends to the ceiling of the apartment in which it is placed, or to any other suitable support, to guide the top *a* in its upward and downward movements, by means of pulley-wheels *s s*, located at each end of a beam, *t*, which is secured on the top *a* of the apparatus.

In a small apparatus, or one of capacity for supplying air to two or three lamps only, the ribs *e* and also the guide-rods C C may be dispensed with.

The operation is as follows: When the top *a* is raised, by means of the pulley-block or otherwise, air rushes through the valve *p* and fills the interior of the apparatus, and the air is discharged, through a pipe, *u*, into a conducting-pipe, *w*, provided with a stop-cock, *y*, which said pipe *w* conducts it to the lamps, the top *a* being weighted to impart the desired amount of pressure.

What I claim as my invention is—

1. An aerometer the main portion of which is made from paper or pasteboard, and the top and bottom of which are secured, respectively, to covers *a* and *b*, of wood or other unyielding material, as herein set forth, and for the purposes specified.

2. In combination with the hinged sides *c c* and hinged tapering end pieces B B, the flexible gussets *m*, inserted substantially in the manner and for the purpose herein described and set forth.

3. The aerometer herein described, consisting of the top *a*, bottom *b*, hinged sides *c c*, and tapering end pieces B B, the said end pieces being connected with the main body A by flexible gussets *m m*, substantially as herein shown and described.

4. In an aerometer, the combination, with the top *a*, bottom *b*, and hinged sides *c c*, of the ribs *e e* and bars *f*, as and for the purposes herein set forth.

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