

A. DEMUTH.
Cartesian-Toy.

No. 163,851.

Patented June 1, 1875.

Fig: 1

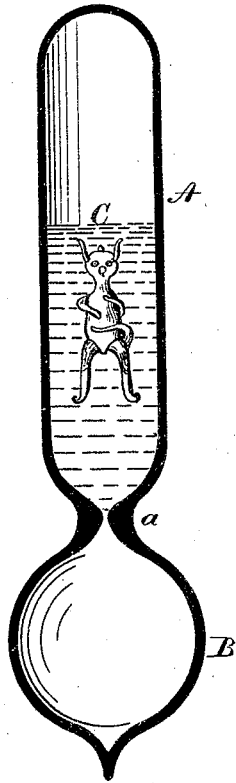
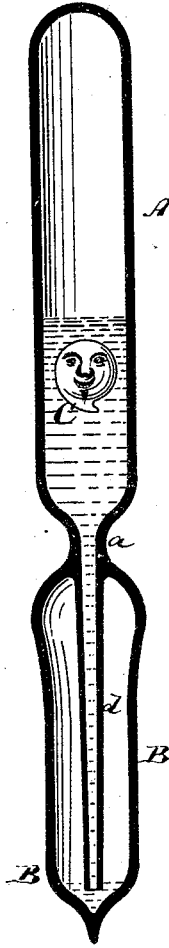


Fig: 2.



Witnesses:

A. Moraga.

O. A. Heidner,

Inventor:

Adolph Demuth
by his attorney

Av. Briesen

UNITED STATES PATENT OFFICE.

ADOLPH DEMUTH, OF NEW YORK, N. Y.

IMPROVEMENT IN CARTESIAN TOYS.

Specification forming part of Letters Patent No. **163,851**, dated June 1, 1875; application filed April 30, 1875.

To all whom it may concern:

Be it known that I, ADOLPH DEMUTH, of the city of New York, county of New York and State of New York, have invented an Improved Cartesian Toy, of which the following is a specification:

Figure 1 of the drawing represents a vertical central section of my improved cartesian toy. Fig. 2 is a central section of a modification thereof.

Similar letters of reference indicate corresponding parts in both figures.

This invention has for its object to produce a cheap and amusing cartesian toy; and consists in inclosing the dancing figure in a transparent vessel, which is formed of two bulbs that are connected by a narrow neck. The light figure is placed in the upper of these compartments, which is partly filled with water or other liquid. When the temperature of the air contained in the lower bulb is raised by holding such lower bulb in the hand, such air will expand, and, in expanding, will escape through the neck into the upper bulb. It will therefore have to pass through the liquid contained in the upper bulb in the form of air-bubbles, and in so disturbing the water will impart a dancing or hopping motion to the figure contained in the liquid of the upper bulb.

In the drawing, the letters A and B represent two glass bulbs, connected into one vessel by a narrow neck, *a*. These bulbs or compartments may be made of any desired shape, but are, by preference, made of the form shown in Fig. 1—that is to say, the upper compartment, A, is made of cylindrical form, and the lower compartment, B, of globular form; but they may both be cylindrical, as in Fig. 2. The neck *a* is made very narrow, as shown. C is a light figure, made of glass or other material, and placed in the bulb A. The upper chamber A is partly filled with water or other liquid, and both vessels are closed air-tight, so that their contents cannot escape.

If the toy is to be used the lower bulb, B, is taken in hand, and the temperature of the air

contained in this bulb thereby raised, so that such air, in expanding, will be forced to escape through the neck *a*, and through the liquid contained in the lower part of the bulb A into the upper portion of A. The liquid will, therefore, as long as the air in B is expanding, be disturbed by bubbles of air passing through it, such bubbles keeping the figure C, which is immersed in the water, in a very amusing dancing or hopping motion. The neck *a* is so narrow that it will prevent the water from flowing into B during this operation. If the air in the compartment B will no longer expand by the warmth of the hand placed around it, the operation of the toy will cease, and in order to renew it it becomes necessary to partly incline the toy, so that the condensed air in the upper part of the compartment A will come in contact and unite with the rarefied air in the compartment B. The air will thereby regain its original density, and the toy is again ready for operation.

If, instead of placing the hand around the bulb B, it is placed around the upper bulb, A, so as to raise the temperature of and expand the air contained therein, the water will be forced to flow through the neck *a* into B. The water may, on the same principle, be made to flow back from B into A by reversing the toy and warming the bulb B.

A tube, *d*, may be applied to extend from the neck to the lower part of the bulb B, leaving the operation substantially the same as described, excepting that the liquid can be forced from B into A without reversing the toy.

This invention can also be used as a pulse-glass.

I claim as my invention—

The cartesian toy composed of the bulbs A, B, which are connected by the neck *a*, and contain the figure C, for operation as described.

ADOLPH DEMUTH.

Witnesses:

E. C. WEBB,
F. V. BRIESEN.