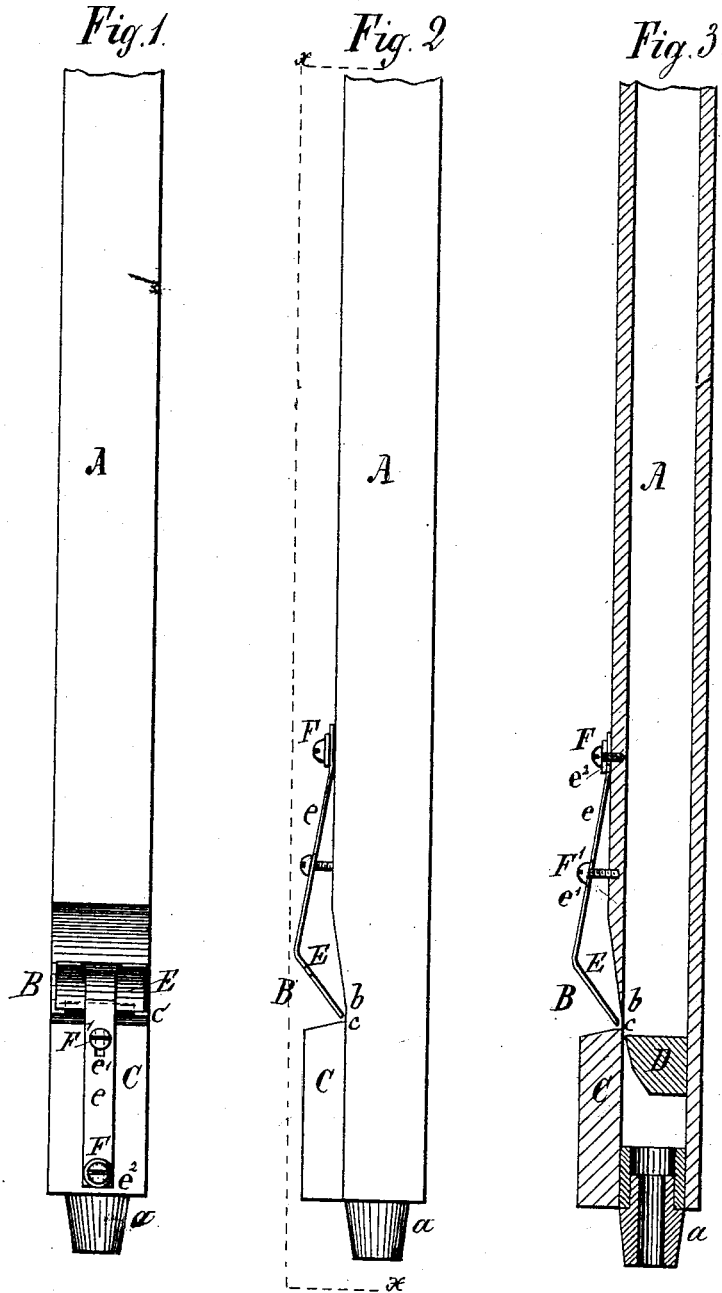


A. A. M. GAVIOLI.  
Organ-Pipe.

No. 203,438.

Patented May 7, 1878.



Witnesses.  
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# UNITED STATES PATENT OFFICE.

ANSELME A. M. GAVIOLI, OF PARIS, FRANCE.

## IMPROVEMENT IN ORGAN-PIPES.

Specification forming part of Letters Patent No. **203,438**, dated May 7, 1878; application filed April 9, 1878.

*To all whom it may concern:*

Be it known that I, ANSELME ANDRÉ MARIE GAVIOLI, of the city of Paris, Department of the Seine, in the Republic of France, have invented certain new and useful Improvements in Organ-Pipes, of which the following is a specification:

My invention relates to improvements in the construction of organ-pipes commonly called "mouth or flute pipes;" and consists, essentially, in applying a diaphragm over the mouth of the organ-pipe, by means of which the timbre or quality of the sound, as well as the pitch of the tone, may be varied.

The invention further consists in arranging the diaphragm in such manner that it may be adjusted vertically upon and along the mouth of the pipe, as well as horizontally to or from said mouth of the pipe, to produce a given pitch of note and timbre or quality of sound.

In the accompanying drawings, Figures 1 and 2 are front and side elevations, and Fig. 3 a vertical section on line *xx* of Fig. 1, of an organ-pipe having the diaphragm applied.

A represents the body, and *a* the foot, of the pipe. B represents the mouth, and *b* the upper lip; C the cap, and *c* the lower lip or under lip, and D the block, all constructed in the usual or any approved or preferred manner.

E is the diaphragm, provided with or connected to a flexible tongue, *e*, slotted at *e*<sup>1</sup>. The extremity of the tongue is also slotted, as shown at *e*<sup>2</sup>, and is there secured either to the cap C or the body A of the pipe, as shown in Figs. 1 and 2. F is a set-screw, passing through slot *e*<sup>2</sup>, by means of which and the slots *e*<sup>2</sup> *e*<sup>1</sup>, the diaphragm E may be adjusted vertically upon and along the mouth of the pipe.

F<sup>1</sup> is a set-screw passing through slot *e*<sup>1</sup>, by means of which the diaphragm is adjusted horizontally to or from the mouth of the pipe, to vary the inclination of the angle of the diaphragm relatively to that of the mouth B.

It is well known by those conversant with the art to which this invention pertains that the slightest variation in the direction of the air is of considerable importance in the result obtained. The object of the interposition of a diaphragm in the path of the air is to change

its direction or divide the current, whereby very sensible modifications in the timbre or quality of the sound, as well as the pitch of the tone, are produced; and although these sounds are emitted by the agency of a current of air, or wind instrument, they approach more nearly those produced by string instruments, such as the violin, or the class to which the violin belongs. This diaphragm, which I have denominated the "harmonic brake," may be arranged as described, or in any other manner to make it adjustable upon the pipe, as above set forth.

The inclination of the diaphragm relatively to that of the mouth is calculated to produce a given pitch of note as well as a given quality of sound or timbre; hence the slightest variation in this angle of inclination will produce a corresponding variation in the pitch and timbre, owing to the change of direction of the air. A given position of the diaphragm in the path of the air-current will also produce a given pitch of tone. Hence, when this position is changed, the pitch of the tone will be correspondingly changed, with an absolute inclination of the diaphragm with reference to the inclination of the mouth. It is therefore of the utmost importance that the diaphragm should be so connected with the pipe as to permit a vertical adjustment (the angle of inclination once determined) to produce perfect results.

Having now described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combination, with an organ-pipe, of a diaphragm interposed in the path of the air-current at the emission-orifice, between the upper and under lips, substantially as described, for the purpose set forth.

2. The combination, with an organ-pipe, of a diaphragm arranged as described, and adjustable vertically upon and along the emission-orifice of said pipe, substantially as described, for the purpose set forth.

3. The combination, with an organ-pipe, of a diaphragm arranged as described, and adjustable horizontally to and from the emission-orifice, substantially as described, for the purpose set forth.

4. The combination, with an organ-pipe, of a diaphragm interposed in the path of the air at the emission-orifice, and made adjustable vertically along said orifice, and horizontally to and from the orifice, substantially as described, for the purpose specified.

5. The combination, with the mouth of an organ-pipe, of the diaphragm E, provided with or connected to a tongue, *e*, having slots *e*<sup>1</sup> *e*<sup>2</sup>,

and the set-screws F F', substantially as described, for the purpose specified.

In witness that I claim the foregoing I have hereunto set my hand this 9th day of March, 1878.

ANSELME ANDRÉ MARIE GAVIOLI.

Witnesses:

LE BLANC,

ROBT. M. HOOPER.