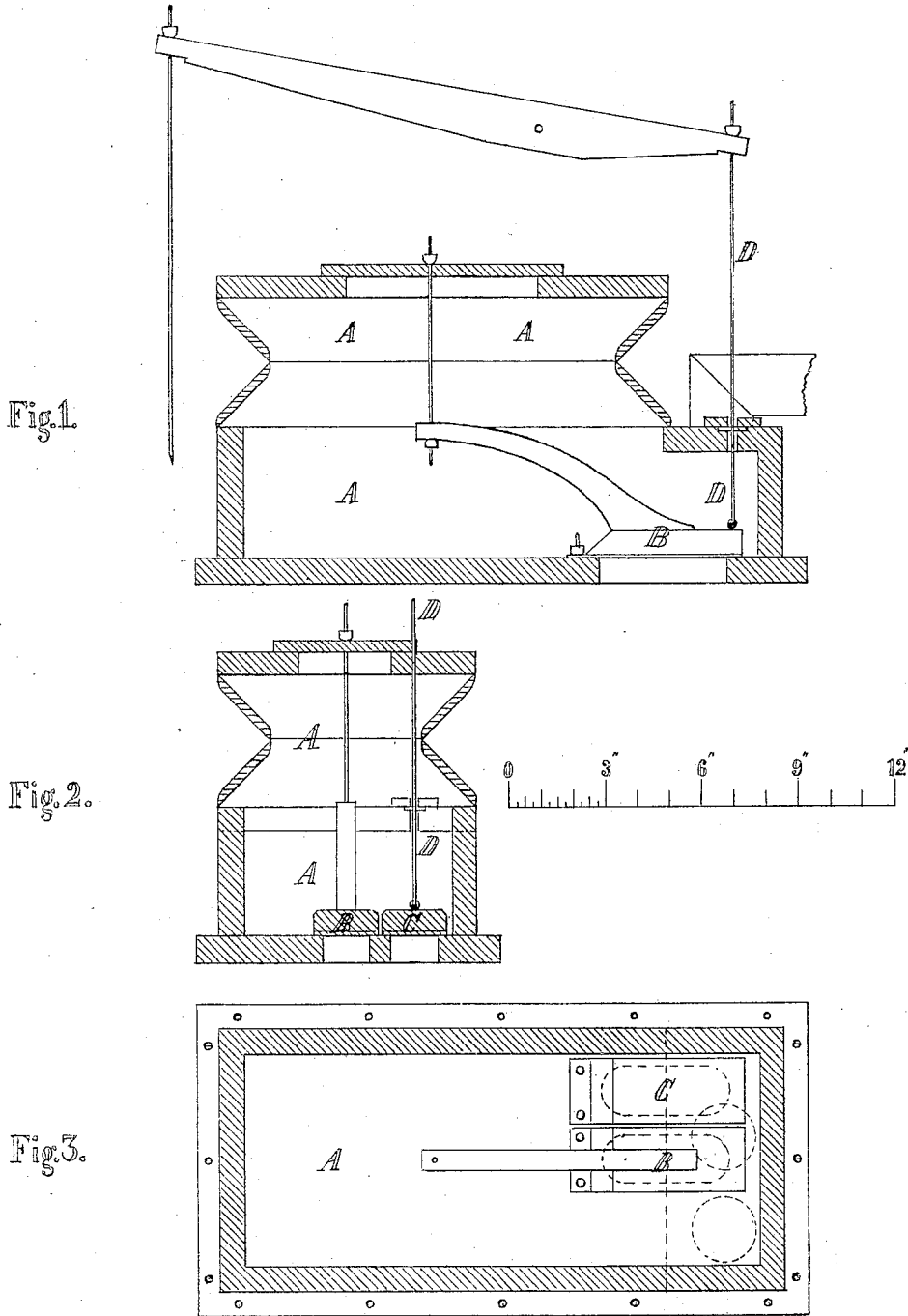


F. H. HASTINGS.  
Swells for Pipe-Organs.

No. 133,531.

Patented Dec. 3, 1872.



WITNESSES:

*C. H. Smith*  
*A. W. Bowen*

INVENTOR:

*Francis H. Hastings*

# UNITED STATES PATENT OFFICE.

FRANCIS H. HASTINGS, OF BOSTON, MASSACHUSETTS.

## IMPROVEMENT IN SWELLS FOR PIPE-ORGANS.

Specification forming part of Letters Patent No. **133,531**, dated December 3, 1872.

*To all whom it may concern:*

Be it known that I, F. H. HASTINGS, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain novel contrivance for producing crescendo and diminuendo effects in the tone of pipe-organs, of which the following is a specification:

My invention relates to pipe-organs or those having a forcing-bellows in contradistinction from the reed-organs, having the air drawn through by suction, and embraces the use of a supplementary air-reservoir, by means of which, aided by a valve controlled by the organist, the wind-pressure is varied at will, substantially as hereinafter described.

The accompanying drawing shows a lateral sectional view, Figure 1; end sectional view, Fig. 2; and plan, Fig. 3.

The supplemental or pressure regulating reservoir A A is supplied with air from the main reservoir or bellows. In the drawing it is represented as filled. The main reservoir is weighted for the maximum pressure, and the supplementary reservoir for the minimum pressure desired. The valve B is controlled by the motion of the supplemental reservoir, closing as this reservoir fills, and opening as it empties. All the air admitted to the pipes passes through this small reservoir. By the automatic operation of the reservoir and valve B the pressure of air is uniformly sustained at its minimum, whether much or little is used in playing. If, when using the organ at the minimum pressure, the valve C is opened wide, the pressure changes to its maximum, and if

opened slowly the change is gradual, and an effective and desirable "swell" in the tone is produced. The valve B may be controlled to produce the same effect, but it is better to have it effected only by the rising and falling of the small reservoir as it adjusts itself to the volume of air needed, when used by the player at the lighter pressure. I design to operate the valve C by a pedal or draw-stop connected by the rod D in any usual manner, so as to be at hand when desired for use by the player.

The supplemental reservoir and automatic valve B for using a lighter pressure than the main reservoir is not new; neither is the idea of increasing the tone by increasing the pressure; but

I claim as new and desire to secure by Letters Patent—

1. The combination of the reservoir A A with the valves B and C, or with a single valve, in any manner by which the pressure is made to vary with perfect gradation at the option of the organist, substantially as described.
2. The supplemental reservoir A A, in combination with the valve C, substantially as described.
3. The supplemental reservoir A A, in combination with valve C and attaching devices to connect with pedal or draw-stop, substantially as described.

FRANCIS H. HASTINGS.

Witnesses:

C. H. SMITH,  
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