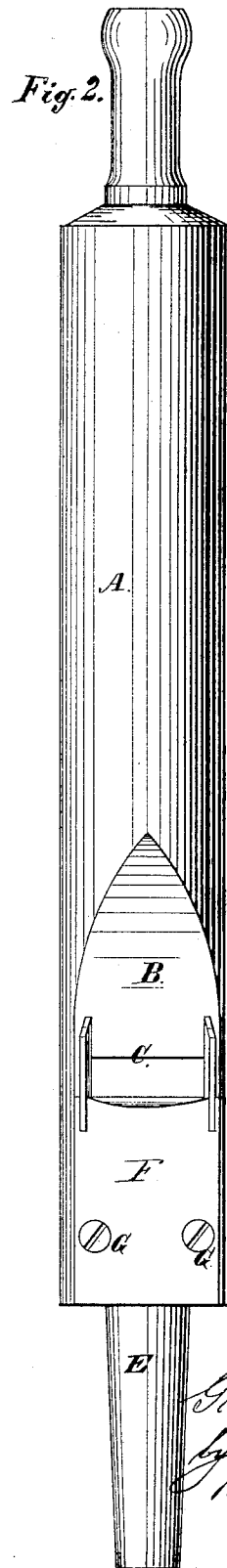
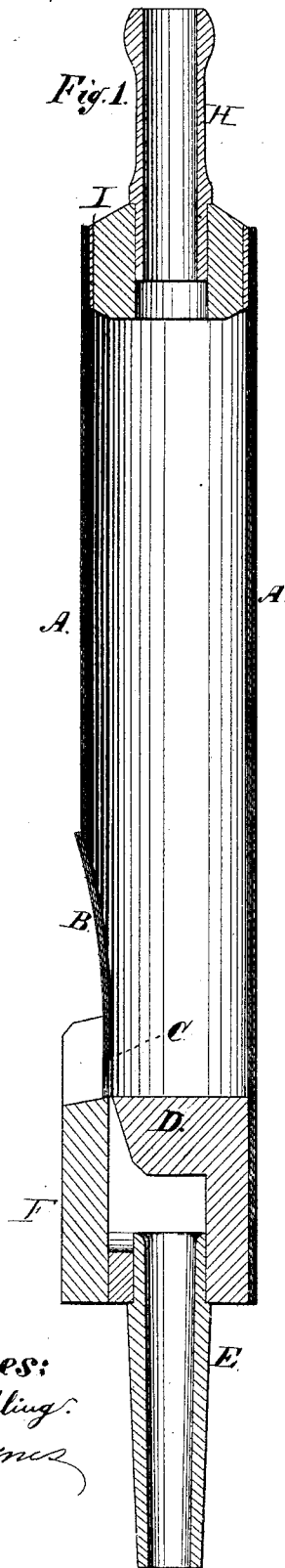


G. BEACH.
Paper Organ-Pipe.

No. 213,612.

Patented Mar. 25, 1879.



Witnesses:
Henry Eichling.
Fred. Haynes

Inventor:
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UNITED STATES PATENT OFFICE

GILES BEACH, OF GLOVERSVILLE, NEW YORK.

IMPROVEMENT IN PAPER ORGAN-PIPES.

Specification forming part of Letters Patent No. **213,612**, dated March 25, 1879; application filed April 5, 1878.

To all whom it may concern:

Be it known that I, GILES BEACH, of Gloversville, in the county of Fulton and State of New York, have invented an Improvement in Pipes and Conductors of Organs; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The invention has principally for its objects the construction of the pipes and wind-conductors of organs free from liability to change from alterations in the hygrometric state of the atmosphere, and also far less liable to change in length and diameter through changes in temperature; but other advantages secured are cheapness, durability, and an improvement in the quality of the tone in the speaking or sonorous pipes.

The invention consists in the manufacture of such pipes and conductors of paper, as hereinafter described.

The invention will be sufficiently illustrated by a description of the same as applied to a chimney-top-stopped diapason pipe, although it is applicable to other organ-pipes and the conductors of wind employed in organs.

Figure 1 in the drawings represents a vertical central section of such an organ-pipe constructed in accordance with my invention. Fig. 2 is a front view of the same, and Fig. 3 a horizontal cross-section.

A is a pipe of paper, made by winding a sheet of paper on a mandrel, said paper being coated or saturated with a suitable cement, which binds the several layers of paper, and which, when dry, cements the said layers together into a rigid tube, impervious to air and moisture, and which has a very small coefficient of expansion by heat or of contraction by cold.

The cement which I have so far found preferable for this purpose is composed of about one part gum-shellac, dissolved to a thick varnish in alcohol, two parts bichromate of potash, in saturated aqueous solution, and seven parts of glue, dissolved in water, by the aid of heat, to about the consistency of ordinary glue for joining wood, the said parts or proportions of the

materials being determined by weight; but other cements which are not affected by moisture and which are little affected by temperature, may be employed.

After the pipe thus made has dried and hardened, a portion is cut away from the side at the bottom, and a plate, B, of similar material, is cemented thereto, the lower edge of which plate forms the vibrating lip or wind-cutter of the pipe.

Within the bottom of the said pipe is cemented the block D, constructed in the usual manner, into which the hollow cylinder E is inserted for conveying air from the sound-board to the pipe. To the front of the lower part of the said block D, and also to the cut edges of the pipe, at the usual distance below the wind-cutter C, is attached the block F, of the usual form. Said block is cemented to the block D, and also to the cut edges of the pipe A, and is preferably further secured to the block D by screws G.

H represents a chimney-top inserted in the tampion I, in the usual manner, said tampion being fitted to the interior of the pipe A, as is ordinarily done.

Organ-pipes constructed of the materials and in the manner described are practically unalterable in diameter and length through thermometric or hygrometric influences, and consequently when tuned they remain in tune in either cold or damp or warm and dry rooms. The pipes may be made at much less cost than that of wood or metal pipes. They are far lighter than ordinary metal or wooden pipes, and are far stronger than pipes of wood or metal having the same weight. Said pipes also give a more refined tone than pipes of wood or metal.

Instead of making the pipes or conductors of paper wound on a mandrel and laid up with cement, I may employ paper material of any kind in the form of pulp or otherwise, and having first formed a pipe or conductor of the same, coat or saturate the same with a cement or varnish impervious to water or watery vapor. In forming these pipes or conductors I employ the known methods of working paper or paper-pulp in various forms.

I claim—

1. An organ-pipe constructed of paper or paper-pulp, as herein described.

2. An organ-pipe composed of a series of convolute layers of paper cemented together and coated with impervious cement, substantially as specified.

3. In combination with an organ-pipe con-

structed of paper, as described, the vibrating lip or wind-cutter B, constructed of paper coated with cement and secured to the pipe, substantially as described.

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Witnesses:

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