

M. L. SEVERY.
SONOROUS BODY AND PROCESS OF MAKING THE SAME.
APPLICATION FILED AUG. 26, 1913.

1,144,435.

Patented June 29, 1915.

FIG. 1

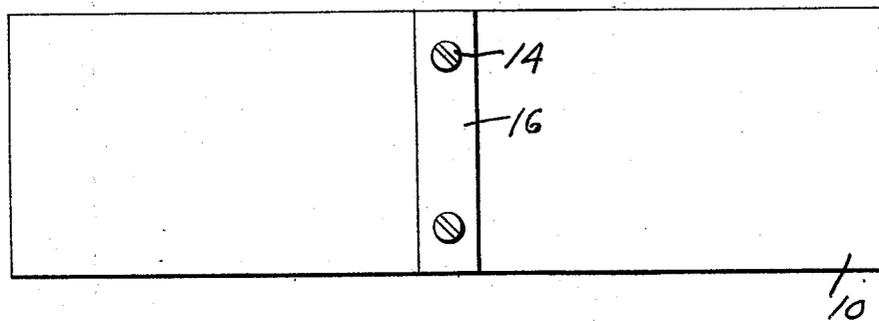
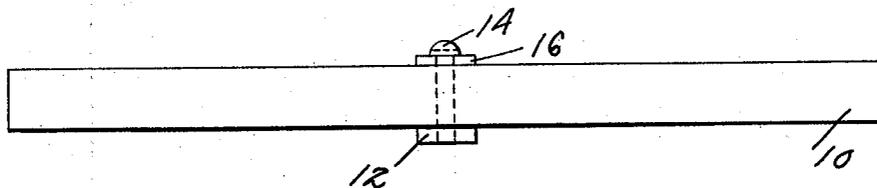


FIG. 2.



WITNESSES:
Geo. W. Walker
Flouice E. Walker

INVENTOR.
Melvin L. Severy
BY
William J. Perl
ATTORNEY.

UNITED STATES PATENT OFFICE.

MELVIN L. SEVERY, OF ARLINGTON HEIGHTS, MASSACHUSETTS, ASSIGNOR TO
CHORALCELO COMPANY, OF BOSTON, MASSACHUSETTS, A CORPORATION OF
MAINE.

SONOROUS BODY AND PROCESS OF MAKING THE SAME.

1,144,435.

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To all whom it may concern:

Be it known that I, MELVIN L. SEVERY, of
Arlington Heights, in the county of Middle-
sex and State of Massachusetts, have in-
vented certain new and useful Improve-
ments in Sonorous Bodies and the Process
of Making the Same, of which the following
is a specification.

This invention relates to an improvement
in sonorous bodies and the process of mak-
ing the same.

The object of the invention is to provide
a sonorous body, more particularly a tuned
sonorous body, of fibrous material, which
shall have the advantages of metallic so-
norous bodies without their attendant dis-
advantages, which shall be constant in pitch
and quality under varying conditions, and
to provide a convenient and economical
process of producing the same.

The invention contemplates the provision
of a fibrous sonorous body, preferably of
wood, which is particularly adapted for use
as reeds, and for other tuned vibratory
bodies, said body being impregnated with a
compound which renders the wood impervi-
ous to water, climatic or temperature
changes, so that the body does not alter its
pitch by virtue of them, or through the
lapse of time, or through any fortuitous
pressure to which it need be subjected.

In the accompanying drawing, Figure 1
is a plan view of a reed made according to
this invention, and Fig. 2 is a side elevation
of the same.

As illustrated in said drawing, the reed
comprises a fibrous body 10, preferably a
board of the proper dimensions according to
the tone which is intended to be produced
thereby.

The process is conveniently carried out
by thoroughly drying the fibrous body, then
confining it in a suitable air-tight receiver,
then exhausting the air from said receiver
to produce a comparatively high vacuum,
thus removing substantially all air and
other gases from the cells or interstices of
the sonorous body. Then the impregnating
liquid is introduced into the receiver, pref-
erably under pressure. A suitable liquid
for this purpose is a solution of shellac in
alcohol or other suitable solvent, although
other liquids having the desired properties
may be employed. The liquid is thus

caused to enter the interstices of the fibrous
material throughout the entire body there-
of. As ordinarily applied to the exterior of
fibrous bodies, the shellac entraps air and
moisture. With the present process all air
and moisture are eliminated from the body.

When treating the material I prefer to
allow it to remain in the liquid several
hours, and then to remove it and place it in
an oven to bake, at a temperature of about
240° F. for from 12 to 24 hours. After the
impregnated material has been thoroughly
baked, it is, for some purposes, pressed to
compress the entire mass uniformly. The
effect of this pressing operation is to render
the tone of the body, when vibrated, more
brilliant, that is, more nearly like metal and
having greater density of tone. But the
material has been found to give very good
results even when the pressing operation has
been omitted.

In some sonorous bodies composed of
metal, such as reeds for example, the har-
monics relative to the fundamentals are
dissonant and persistent, whereas in wooden
reeds the harmonics, although dissonant, are
evanescent, that is, they soon die out or
disappear. In wooden reeds, as heretofore
constructed, the tone changes with the lapse
of time, and it is also affected by tempera-
ture and climatic changes. The tone of the
reeds made according to this invention is
unaffected by temperature, moisture, or
other climatic changes, or by the lapse of
time, or the energy of vibration, and their
harmonics are not persistent like those of
metal reeds, though the tone is very bril-
liant. In fact these reeds have all of the
desirable characteristics of a metal reed, as
brilliancy, permanency, etc., without its un-
desirable qualities. Furthermore, by this
process soft and comparatively cheap woods
may be employed in place of the hard and
expensive woods heretofore used, thus
greatly reducing the cost of manufacture,
and also enhancing the beauty of the re-
sulting article.

When the reed is intended for use in a
musical instrument wherein sonorous bodies
are electromagnetically vibrated, it is pro-
vided with a strip of magnetic material 12,
which constitutes an armature for the elec-
tromagnet by which the body is vibrated.
This armature, however, forms no part of

this invention. A sonorous body made according to this invention is adapted for various other uses without the armature.

When the vibrations are energetic, as for example those produced by magnetism, the tone of an ordinary reed is altered, whereas in the reed made according to this invention no change in tone is produced by the energetic vibrations.

In the claims I shall use the term "tuned sonorous body" to define a body tuned to produce a definite musical tone when vibrating freely. This term is used specifically to distinguish from sounding-boards and the like, which respond only by vibrating with an impressed vibration imposed upon them by the vibration of an associated sonorous body. The fundamental desirable characteristics in the two cases are consequently very different. I shall also use the term "tone-stabilizing medium" in the claims to define a medium or agency which when associated with a fibrous sonorous body or blank in the manner described, so affects that body as to stabilize the tone produced thereby as to quality and pitch under varying conditions of temperature and humidity, and prevents deterioration or change of such body even after a considerable lapse of time.

Having thus described my invention, what I claim is:—

1. A tuned sonorous body comprising, in combination, a fibrous blank, and a tone-stabilizing medium filling the pores of said blank.

2. A tuned sonorous body comprising, in combination, a wooden blank, and a tone-

stabilizing medium filling the pores of said blank.

3. A tuned sonorous body comprising, in combination, a wooden blank of suitable form, and a filling of shellac in the pores of said blank.

4. A tuned sonorous body comprising a compressed wooden blank, and a tone-stabilizing medium occluded in the spaces between adjacent fibers of said blank.

5. A tuned sonorous body comprising a compressed wooden blank, and shellac occluded in the spaces between adjacent fibers of said blank.

6. The method of producing a tuned sonorous body, which consists in forming a wooden blank, then impregnating the same with a tone-stabilizing medium, and finally compressing said blank.

7. The method of producing a tuned sonorous body, which consists in forming a wooden blank, impregnating the same with a tone-stabilizing medium, subjecting the impregnated blank to heat, and finally compressing said blank.

8. The method of producing a tuned sonorous body, which consists in forming a wooden blank, impregnating the same with shellac, subjecting the impregnated blank to heat, and finally compressing said blank.

In testimony whereof I have affixed my signature in the presence of two witnesses.

MELVIN L. SEVERY.

Witnesses:

EDWARD S. CROCKETT,
WILLIAM J. SPERL.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."