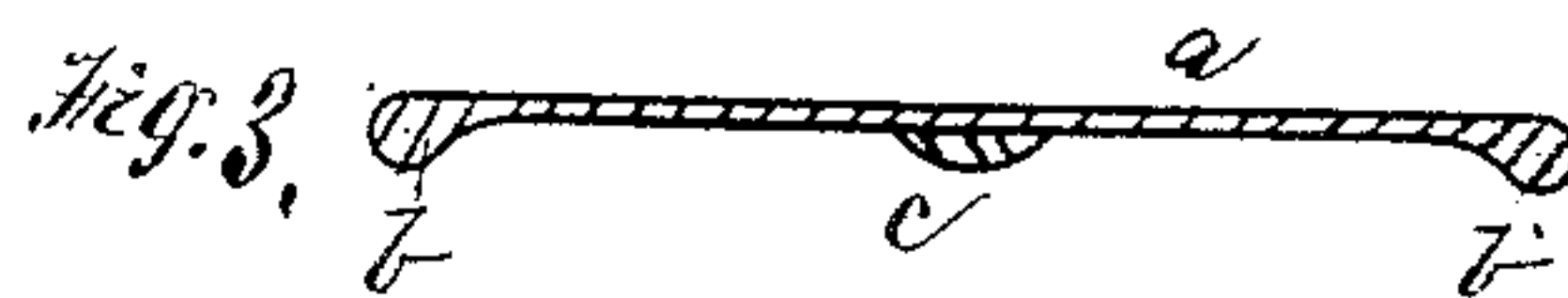
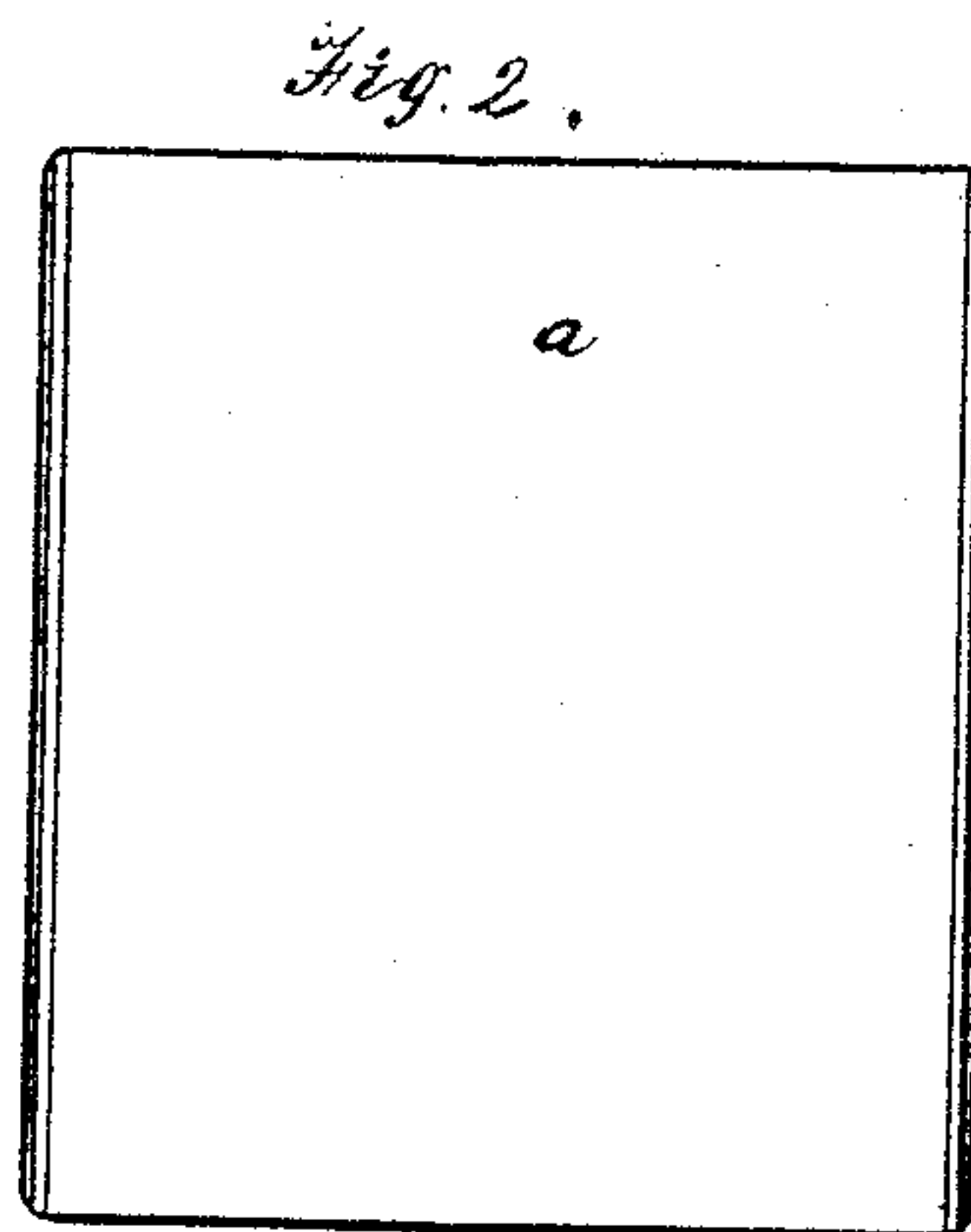
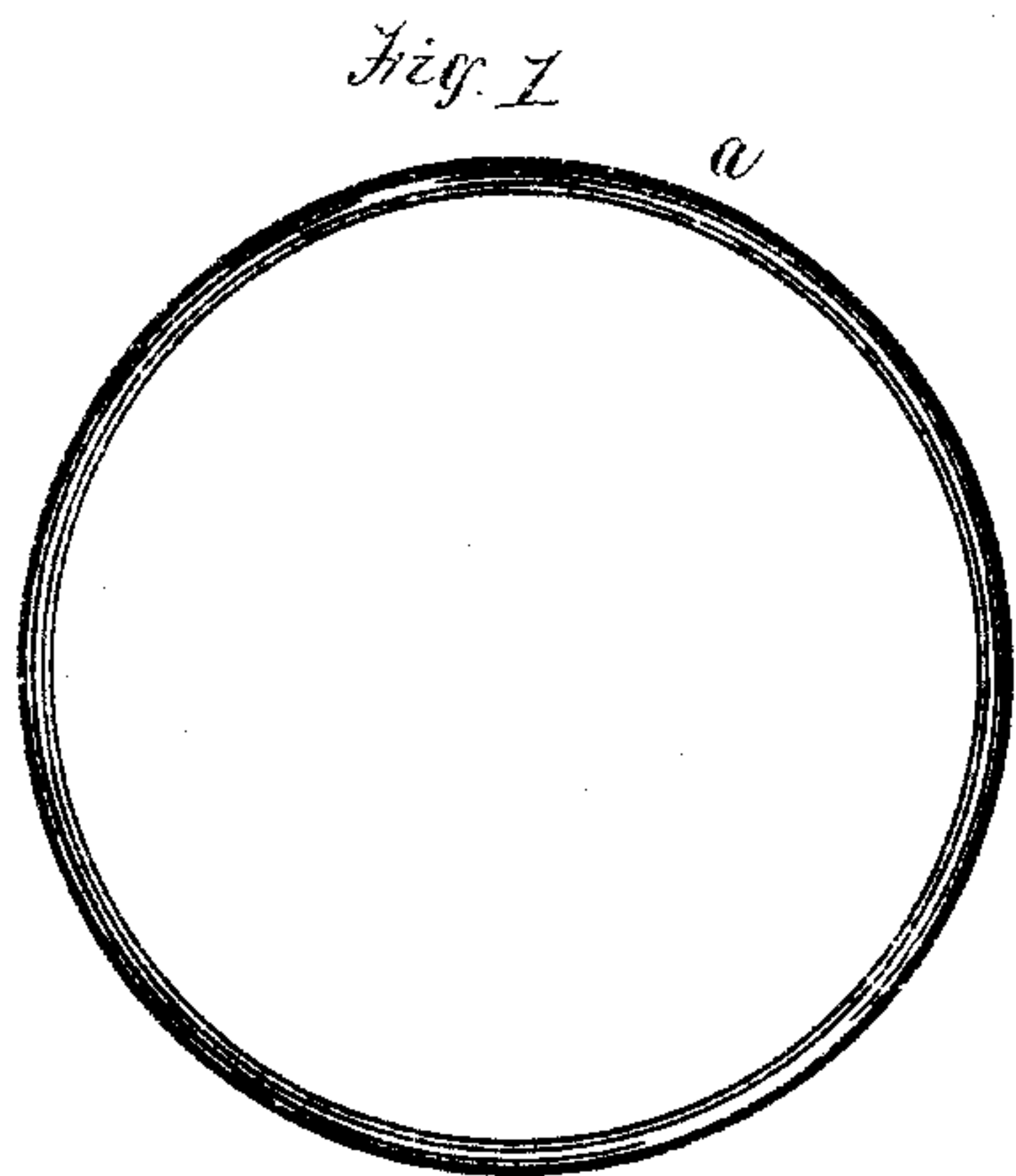


(No Model.)

J. HEALD.  
SHELL FOR MUSICAL INSTRUMENTS.

No. 448,797.

Patented Mar. 24, 1891.



Witnesses

*Frank W. Lee*  
*Geo. O. Kingsbury*

Inventor

*John Heald,*  
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# UNITED STATES PATENT OFFICE.

JOHN HEALD, OF SPRINGFIELD, MASSACHUSETTS.

## SHELL FOR MUSICAL INSTRUMENTS.

SPECIFICATION forming part of Letters Patent No. 448,797, dated March 24, 1891.

Application filed April 23, 1888. Serial No. 271,524. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN HEALD, a citizen of the United States of America, residing at Springfield, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Shells for Drums, Banjos, and Tambourines, of which the following is a specification.

My invention has relation to improvements in shells for musical instruments of the class named; and the object is to provide a cheap and durable shell, and one which possesses in a marked and improved degree a resonant sound function.

My invention therefore consists in a cylindrical shell of papier-maché or pulp, having strengthening-ribs formed thereon, as hereinafter described.

I have fully and clearly illustrated my invention in the accompanying drawings, wherein—

Figure 1 is an edge view of a cylindrical shell formed according to my invention. Fig. 2 is a side view of the same, and Fig. 3 is a transverse section of Fig. 2.

*a* designates a sheet of material made of paper-pulp, having a strengthening-rib *c*

formed thereon and strengthened at the opposite edges by molds or beads *b*.

In the construction of these cylindrical shells wood pulp is preferred, the sheet or shell being compressed directly into the required conformation, this being accomplished by any of the usual methods for forming articles from paper-pulp. To improve the resonance of the shell the pulp may be saturated with resin in solution. After the shell is made the surface can be treated with a water-proof material to protect it, or it may be glazed and polished in the usual manner.

What I claim is—

1. A shell for cylindrical musical instruments, composed of papier-maché having beaded or molded edges *b*, and an intermediate strengthening-rib *c*, substantially as specified.

2. A shell for cylindrical musical instruments, composed of papier-maché, formed with beaded or molded edges *b*, substantially as specified.

JOHN HEALD.

Witnesses:

ALLEN WEBSTER,  
R. R. NICKERSON.