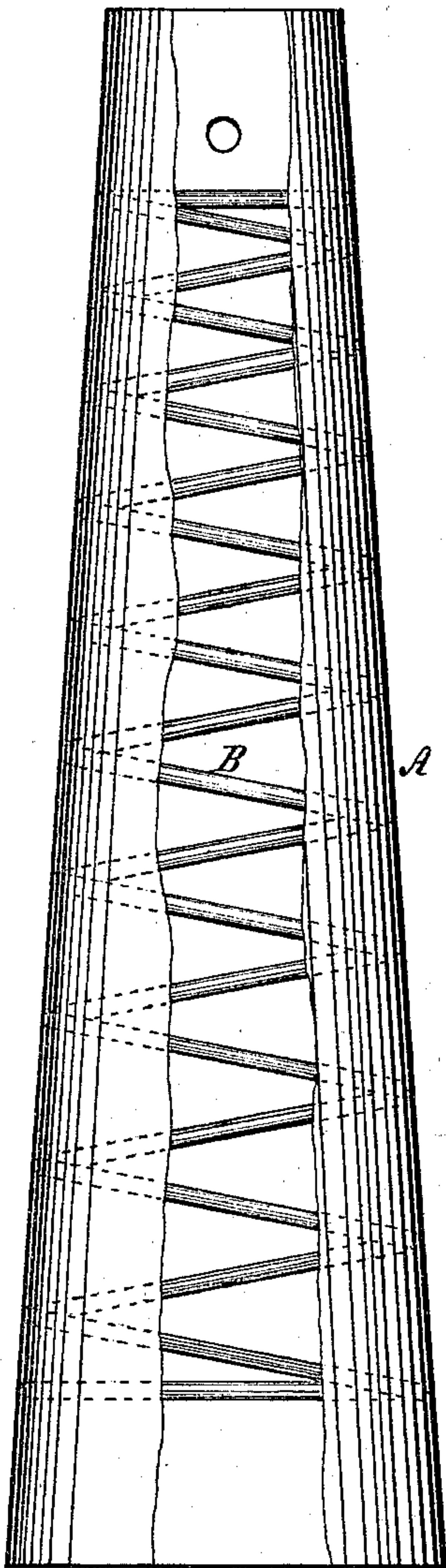


C. B. STILWELL.
Steam-Boiler Flues.

No. 147,446.

Patented Feb. 10, 1874.



Witnesses.

E. Davidson.
Joel Peyton.

Inventor.

Charles B. Stilwell
by his atty
W. D. Baldwin

UNITED STATES PATENT OFFICE.

CHARLES B. STILWELL, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-BOILER FLUES.

Specification forming part of Letters Patent No. **147,446**, dated February 10, 1874; application filed June 28, 1873.

To all whom it may concern:

Be it known that I, CHARLES BOUGHTON STILWELL, of New York city, have invented certain Improvements in Steam-Boiler Flues, of which the following is a specification:

My invention relates more especially to steam-boilers of small capacity, such as are used for driving sewing-machines and other light machinery, which are designed to use liquid or gaseous fuel; its objects are fully to utilize the heat developed and to secure a strong but light boiler.

Letters Patent No. 123,414, granted February 6, 1872, to the assignees of Ezra Nicholson, show such a boiler having tubes of thin sheet metal, braced by rings fitted loosely therein.

The first part of my invention consists in bracing a thin sheet-metal boiler-flue by inserting therein a spiral strengthening-brace, which will prevent the collapsing of the flue, and yet can easily be removed or replaced. My invention further consists in combining a conical flue of thin sheet metal and an internal correspondingly-tapered spiral brace, whereby

great strength is obtained with the smallest practicable quantity of material.

The accompanying drawings show one of my improved flues, A, partially broken to show the spiral brace B within.

This brace may be made either of round wire or of strips of metal, and is simply driven into the flue; it may, however, if preferred, be riveted, soldered, or otherwise fastened therein. A detachable fastening is preferred, as by its use the brace can be removed when desired.

I claim as my invention—

1. The combination of a spiral strengthening-brace and a boiler-flue.

2. The combination, substantially as set forth, of a conical boiler-flue and a continuous spiral strengthening-brace.

In testimony whereof I have hereunto subscribed my name.

CHAS. B. STILWELL.

Witnesses:

E. C. DAVIDSON,
JOS. I. PEYTON.