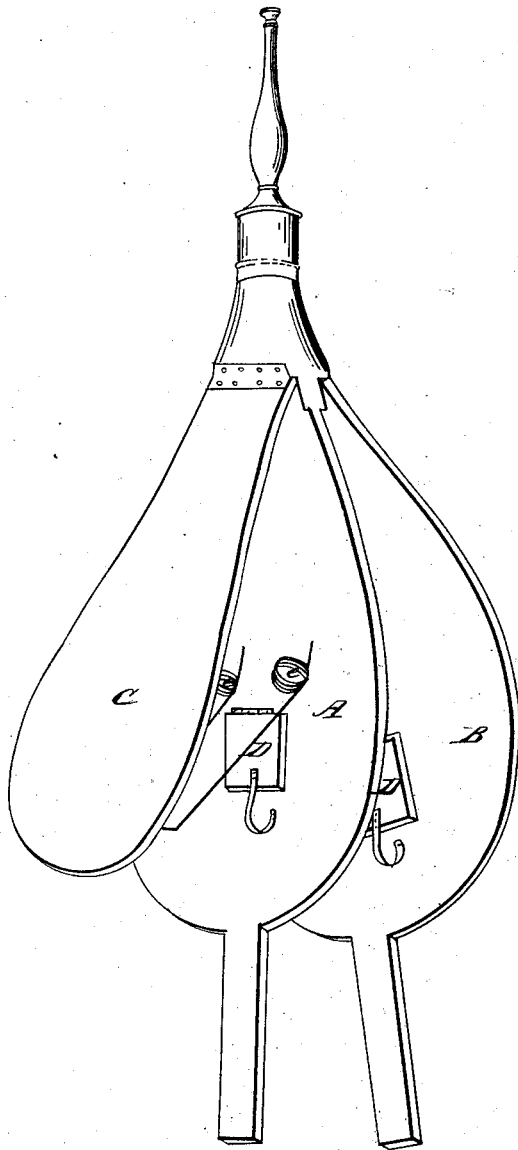


J. Grennell,

Bellows.

N^o 872.

Patented Aug. 3, 1838.



Witnesses.

*Thomas Smith
J. Willard*

Inventor.

John Grennell

UNITED STATES PATENT OFFICE.

JOHN GRENNELL, OF SPRINGFIELD, MASSACHUSETTS.

HAND-BELLOWS.

Specification of Letters Patent No. 872, dated August 3, 1838.

To all whom it may concern:

Be it known that I, JOHN GRENNELL, of Springfield, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in the Construction of the Hand-Bellows; and I do hereby declare that the following is a full and exact description thereof.

The bellows constructed with this improvement, is a double chambered bellows consisting of three boards connected by folding leather sides in the usual way of constructing the hand bellows—the midway board A, with one of the outside boards B, have each a handle while the other outside board, C, has no handle. The two boards with handles have each a circular hole in the center with valves, D, D, through which the air passes, between the handle boards and then into the other chamber, from which it is forced out at the tube or nose of the bellows by means of a spring which compresses the boards of the last mentioned chamber in the same manner that the weight does on the upper board of the common blacksmith's bellows, and resembles it except that the board which has no handle, is made to force the air from the chamber by means of a spring; it is immaterial which side of the bellows is uppermost. The constant blast is kept up by working the handles in the

usual way, in whatever position they are held. The spring which seems best adapted to this use, is a spiral-shaft spring E, E, viz: a wire coiled at each end and bent in such form that the two spiral ends may be made fast to the center board, about four inches apart, on each side of the valve, while the center part of the wire is bent into two right angles and form the shafts which by means of a leather strap are attached to the opposite or outside board. The peculiar advantages of this bellows are the constant blast, in whatever position they may be held and the impossibility of inhaling any fire or air through the pipe or nose into the chamber, by which the common bellows is so liable to be injured and is so unsafe in regard to fire. This specification may be better understood by reference to the annex draft.

What I claim as my invention and desire to secure by Letters Patent is—

The application of the double chamber and the constant blast in the construction of the hand bellows, by means of a spring, operating as herein set forth.

JOHN GRENNELL.

Witnesses:

HERMAN SMITH,
JOSEPH W. GORHAM.