

No. 631,569.

Patented Aug. 22, 1899.

A. J. GUNTER.

BELLOWS.

(Application filed Jan 28, 1899.)

(No Model.)

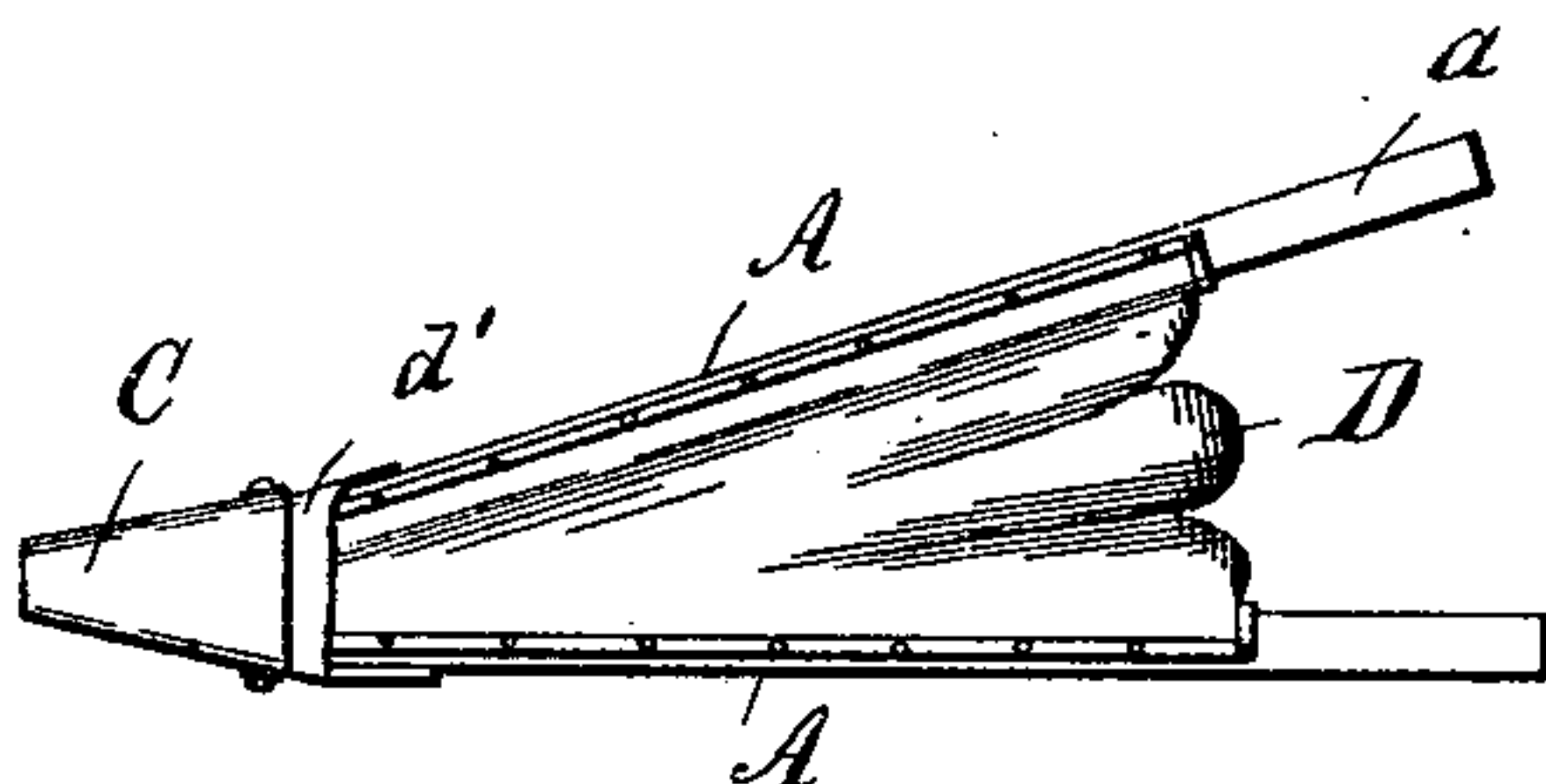


Fig. 1.

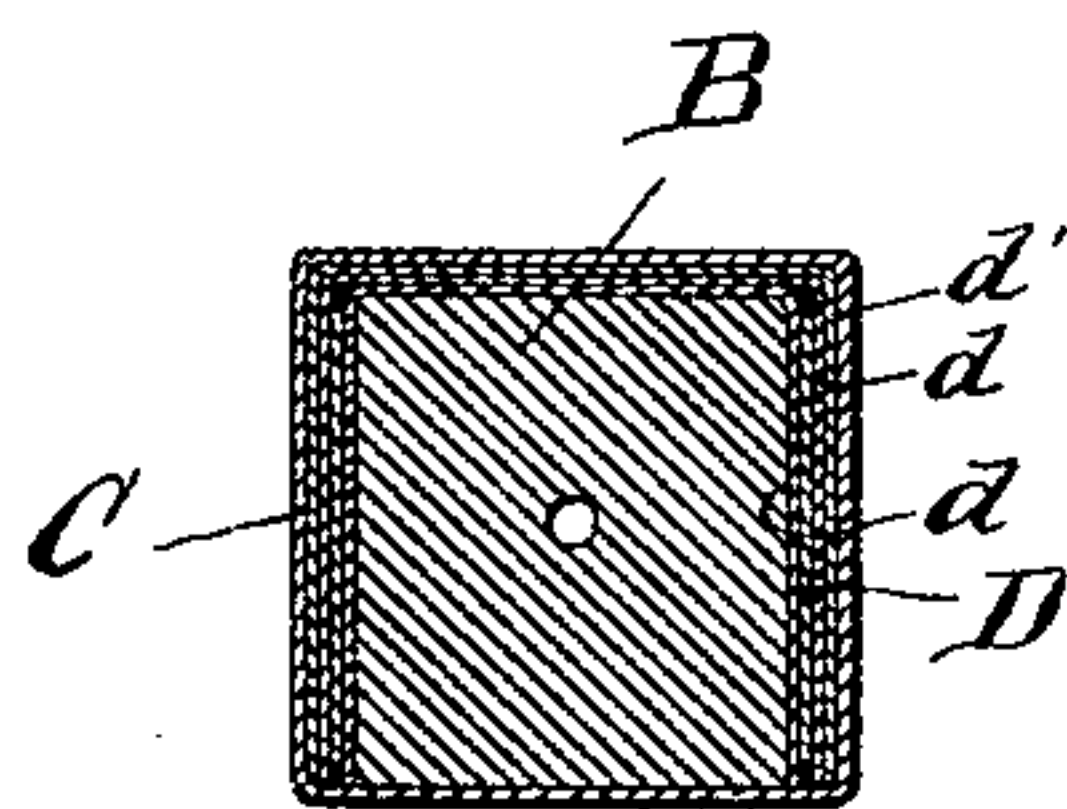
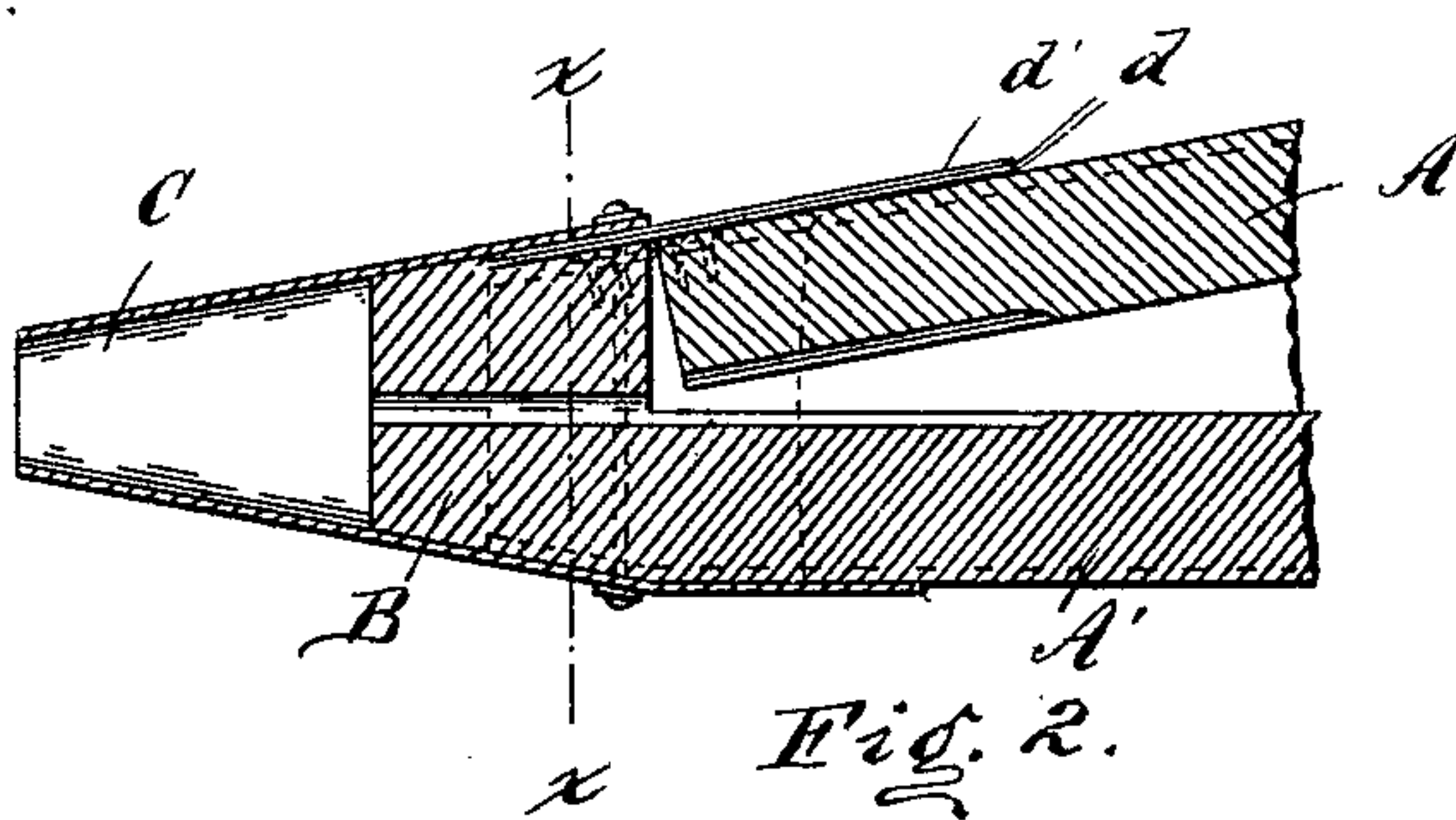


Fig. 3.



Witnesses.

Ernest E. Muhlhop  
Edward J. Hunt

Inventor.

Andrew J. Gunter,  
By George Heidman  
Attorney.

# UNITED STATES PATENT OFFICE.

ANDREW J. GUNTER, OF NORWOOD, OHIO.

## BELLOWS.

SPECIFICATION forming part of Letters Patent No. 631,569, dated August 22, 1899.

Application filed January 28, 1899. Serial No. 703,714. (No model.)

*To all whom it may concern:*

Be it known that I, ANDREW J. GUNTER, a citizen of the United States, and a resident of Norwood, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Bellows, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

My invention consists in the novel construction of bellows known as "hand" or "blacksmiths'" bellows, whereby they are made perfectly air-tight and at the same time simple in construction, and relates more especially to the method of attaching the leaves or bellows-plates to what is called the "spout" and in the manner of securing the leather walls or bellows-leather at the spout end thereof, as will be more fully hereinafter set forth and described.

In the drawings, Figure 1 is a side view of a hand-bellows with the spout and bellows-leather attached in my improved manner. Fig. 2 is a vertical longitudinal section of the forward or spout end of a hand-bellows, showing my improved construction. Fig. 3 is a sectional view taken on line *xx* of Fig. 2.

Like letters of reference indicate identical parts in the different figures.

A A' are the bellows plates or leaves, usually constructed of wood, with the forward or spout end made tapering in the usual manner and provided with the rearwardly-extending handle portions *a* when of the hand-bellows type, by means of which the same is operated; but these handle portions of course are not necessary when the bellows is a large or blacksmith's bellows.

In Figs. 1 and 2 I have shown one form of construction wherein the bellows-plate A' has integrally formed therewith a block or head B, which is cored to permit the passage of the air from the bellows-chamber. The plates or leaves A and A' are grooved to extend the air-passage and give the air a passage to the opening in the block while the leaves or plates are brought together. Countersunk in the block or head B is one leaf or portion of the hinge *b*, while the other end is secured to the leaf or plate A. I then place one or more strips of leather *d* on the portion of the block to be inserted in the spout C, of sufficient width to

overlap the entire hinge and extend over onto the bellows plates or leaves. The spout C is then drawn or wedged on the block B, which block is tapered to conform to the shape of the spout and bolted or riveted in place, as shown, by bolts *c*, or, if desirable, of course they may be secured by screws or the like. In practice I prefer to provide the block or head B with holes or openings of the desired number corresponding with holes in the casting or spout C and then placing the spout on the block B and drawing it to the proper point, so that the openings to receive the bolts or rivets register, which can readily be done by an awl or the bolts themselves. As shown, the bolts pass through the strips of leather *d*, which are therefore not only held in place by reason of the spout C having been drawn or wedged on the block, but also by the rivets or bolts thus securely holding them in place. The flexible leather walls or bellows-leather D is then secured to the plates A A' and placed between the extending ends of the leather strips *d* and the bellows-leather, with the strip or strips *d*, securely attached to plates A A' in the usual manner, thus producing a perfectly air-tight joint at the point of connection of the plates or leaves and spout, making it impossible for any air to pass out of the bellows except through its proper outlet or spout.

Either one layer or strip of leather or a multiple may be used, as is desired, and in order to prevent the leather from being scorched by reason of the heating of the spout, which comes in close contact with fire, a strip of asbestos paper or any non-heat-conducting material *d'* may be placed on top of the uppermost strip of leather *d* before the spout is drawn or wedged in place, and the leather is thus protected from the spout when it becomes heated and is thereby prevented from scorching and cracking, as would otherwise be the case.

In Fig. 3 I have shown the arrangement of the various strips and the bellows-leather when employing the non-heat-conducting material *d'*. From this figure it will be seen that adjacent the spout C is placed the non-heat-conducting material *d'*, then the strip of leather *d*, and on the sides (the bellows-



leather only being on the sides of the bellows-plates) the bellows-leather D, and then another strip of leather *d* on the inside. In practice it may be found sufficient at times  
 5 to omit the one strip *d*, as the strip *d'* may make it sufficiently air-tight.

It will of course be understood that the bellows is provided with a valve or air-inlet of any of the well-known constructions.

10 I have described the bellows-leather as being placed between the free ends of the embracing strips. It will of course be understood that the bellows-leather may either be embraced by the free ends only, or it may be  
 15 embraced by the entire strips—that is, the bellows-leather may be wedged or clamped between the spout or spout-flange and the head-block. In fact, in practice I much prefer to employ the last method, and thereby  
 20 avoid the possibility of any leakage.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

25 1. In a bellows, the combination with the bellows-plates, and metallic spout, of a head-block conforming to and inserted in said spout, and one or more strips of leather or other suitable material, wedged between said spout and head-block and having the bellows-

leather between them, substantially as shown 30 and in the manner specified.

2. In a bellows, the combination with the bellows-plates and metallic spout, of a head-block conforming to and inserted in said metallic spout, one or more strips of leather or  
 35 other suitable material having their one end wedged between said spout and head-block and embracing the bellows-leather between them, and asbestos paper or other heat-insulating material arranged between the metallic  
 40 spout and embracing strips, substantially as shown and for the purpose described.

3. In a bellows, the combination with the bellows-plates and metallic spout, of a cored head-block wedged in said spout and integral  
 45 with one of said bellows-plates, one or more embracing strips of leather or other suitable material partially wedged between said spout and head-block, and hinge whose one leaf is  
 50 attached to said head-block and the other leaf to one of said bellows-plates, the whole arranged beneath the embracing strips, substantially as shown and in the manner described.

ANDREW J. GUNTER.

Witnesses:

GEORGE HEIDMAN,  
 EDWARD HAAT.