

T. FLETCHER.  
Blow-Pipe.

No. 198,593.

Patented Dec. 25, 1877.

Figure 1.

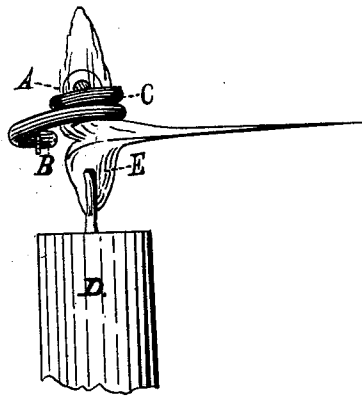


Figure 2.



Witnesses,  
Charles O. Rother  
William Gram Jr.

Inventor,  
Thomas Fletcher  
by Geo. B. Snow Atty.

# UNITED STATES PATENT OFFICE.

THOMAS FLETCHER, OF WARRINGTON, ENGLAND, ASSIGNOR TO GEORGE B. SNOW, THEODORE G. LEWIS, AND JOHN E. ROBIE, OF BUFFALO, N. Y.

## IMPROVEMENT IN BLOW-PIPES.

Specification forming part of Letters Patent No. **198,593**, dated December 25, 1877; application filed October 15, 1877.

### *To all whom it may concern:*

Be it known that I, THOMAS FLETCHER, of Warrington, in the county of Lancaster, England, have invented a new and useful Improvement in Blow-Pipes, which improvement is fully set forth in the following specification, reference being had to the accompanying drawings.

This invention relates to the construction of a blow-pipe capable of utilizing the waste heat of the flame itself, for the purpose of heating the air previous to its escaping at the nozzle, and whereby the power of the blow-pipe is considerably increased. This is effected by arranging the blow-pipe, at or near the nozzle, in the form of a coil or air-chamber, which, being held over that part of the flame not utilized for the jet, so heats the air passing through the blow-pipe, and materially increases the effective heating power of the issuing jet or blast, and which is still free to act upon the most powerful part of the flame, as heretofore.

On the accompanying drawings, Figure 1 represents an end view of a blow-pipe constructed in accordance with my invention, showing the same in the act of being used

with the flame of a candle. Fig. 2 represents a side elevation of the same.

A is the mouth-piece of the blow-pipe; B, the nozzle; and C, the coil, constituting the novel feature in my invention. D is the candle, and E the flame of the same.

It will be apparent, from the drawing, that that part of the flame of the candle which is not necessary for the purpose of the jet is thus utilized for heating the air passing through the coil C and issuing at the nozzle B, and that such heated air materially increases the intensity of the heating power of the jet.

Instead of employing the coil C, I sometimes substitute an air-chamber, with approximately similar results.

I claim as my invention—

The coil C or equivalent air-chamber, situated directly over the nozzle B, and receiving the waste heat from the flame E, substantially as and for the purpose described.

THOMAS FLETCHER.

Witnesses:

WM. BODLE,  
LUCY FLETCHER.