

E. W. FLAGG.
TUBE-EXPANDER.

No. 173,610.

Patented Feb. 15, 1876.

Fig 1

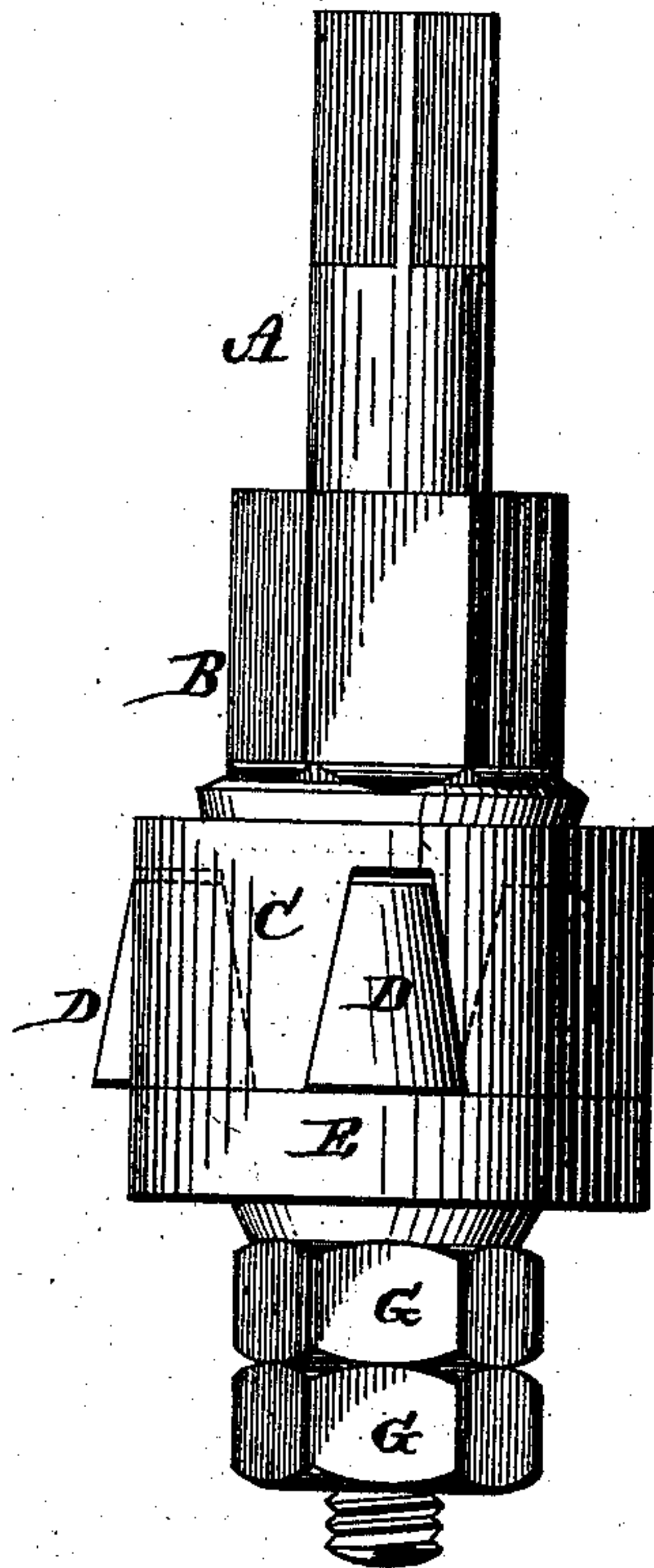
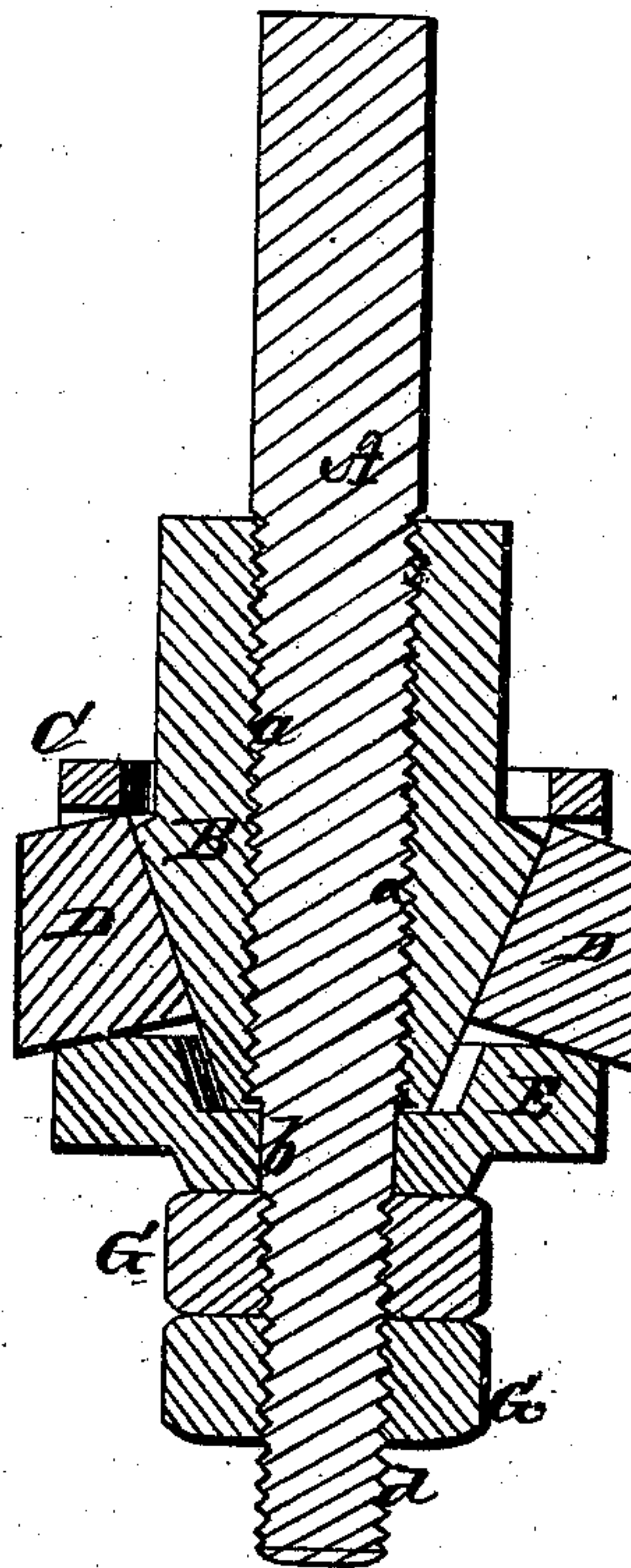


Fig 2



WITNESSES
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UNITED STATES PATENT OFFICE.

ELI W. FLAGG, OF BATTLE CREEK, MICHIGAN, ASSIGNOR OF ONE-HALF HIS RIGHT TO GEORGE D. EDMONDS AND WILLIAM H. FLAGG, OF SAME PLACE.

IMPROVEMENT IN TUBE-EXPANDERS.

Specification forming part of Letters Patent No. **173,610**, dated February 15, 1876; application filed July 26, 1875.

To all whom it may concern:

Be it known that I, ELI W. FLAGG, of Battle Creek, in the county of Calhoun and in the State of Michigan, have invented certain new and useful Improvements in Tube-Expanders; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing, and to the letters of reference marked thereon, making a part of this specification:

My invention relates to devices for expanding flues; and it consists of a conical plug surrounded by a sleeve, and having a screw-mandrel passing through the same, and the sleeve provided with conical rollers, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, in which—

Figure 1 is a side-elevation of my tube-expander, with conical rollers. Fig. 2 is a longitudinal section of the same.

A represents a mandrel, provided with screw-threads *a* for a certain portion of its length, and the end of the mandrel is turned down, leaving a smooth, round portion, *b*, below the threads *a*, and below said round portion *b* are made other threads, *d*. B represents a plug, the upper end of which is polygonal-shaped, to receive a wrench for turning the same, while the lower end is made conical, as shown.

This plug is bored longitudinally in the center, and formed with female screw threads, for the portion *a*, of the mandrel to screw therein. C represents a sleeve to be placed over the conical plug B, the interior of said sleeve being made to correspond with the shape of the plug and its exterior cylindrical. In the sleeve C are made wedge-shaped slots, having its sides made concave, for the reception of conical rollers D D, which lie against the sides of the conical plug and are held in the sleeve by a plate or cap, E, fastened to the lower end of the sleeve by screws, said cap fitting around the smooth part *b* of the mandrel. On the threads *d* of the mandrel are placed nuts G G, as shown.

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

The combination of the conical plug, with the female screw-threads in its center bore, the mandrel, with screw-threads, the sleeve C, conical rollers D, and the plate or cap E, all constructed substantially as and for the purposes herein set forth.

In testimony that I claim the foregoing I have hereunto set my hand this 26th day of May, 1875.

ELI W. FLAGG.

Witnesses:

M. METCALF,
DAVID H. METCALF.