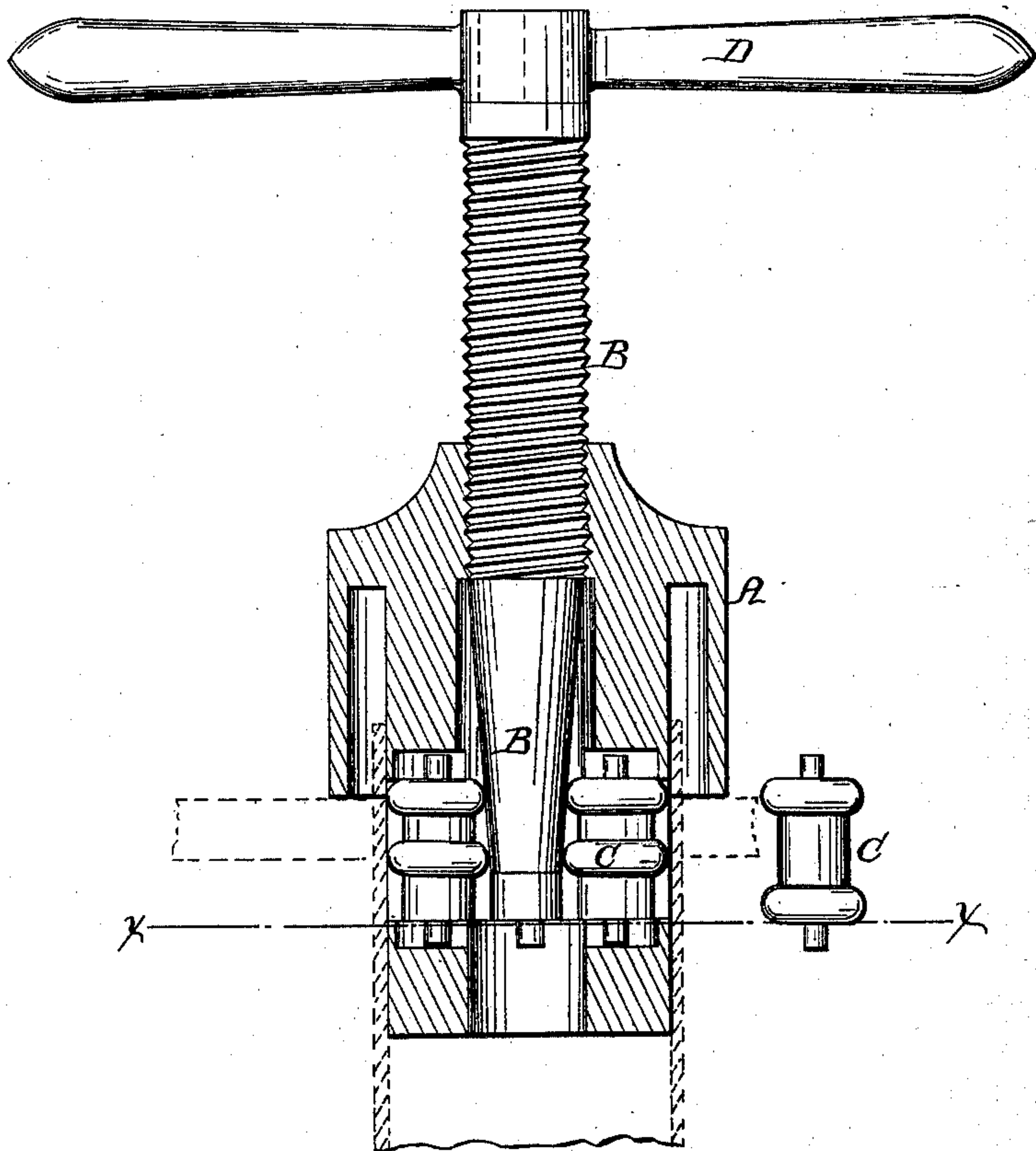


*E. J. Moore,*

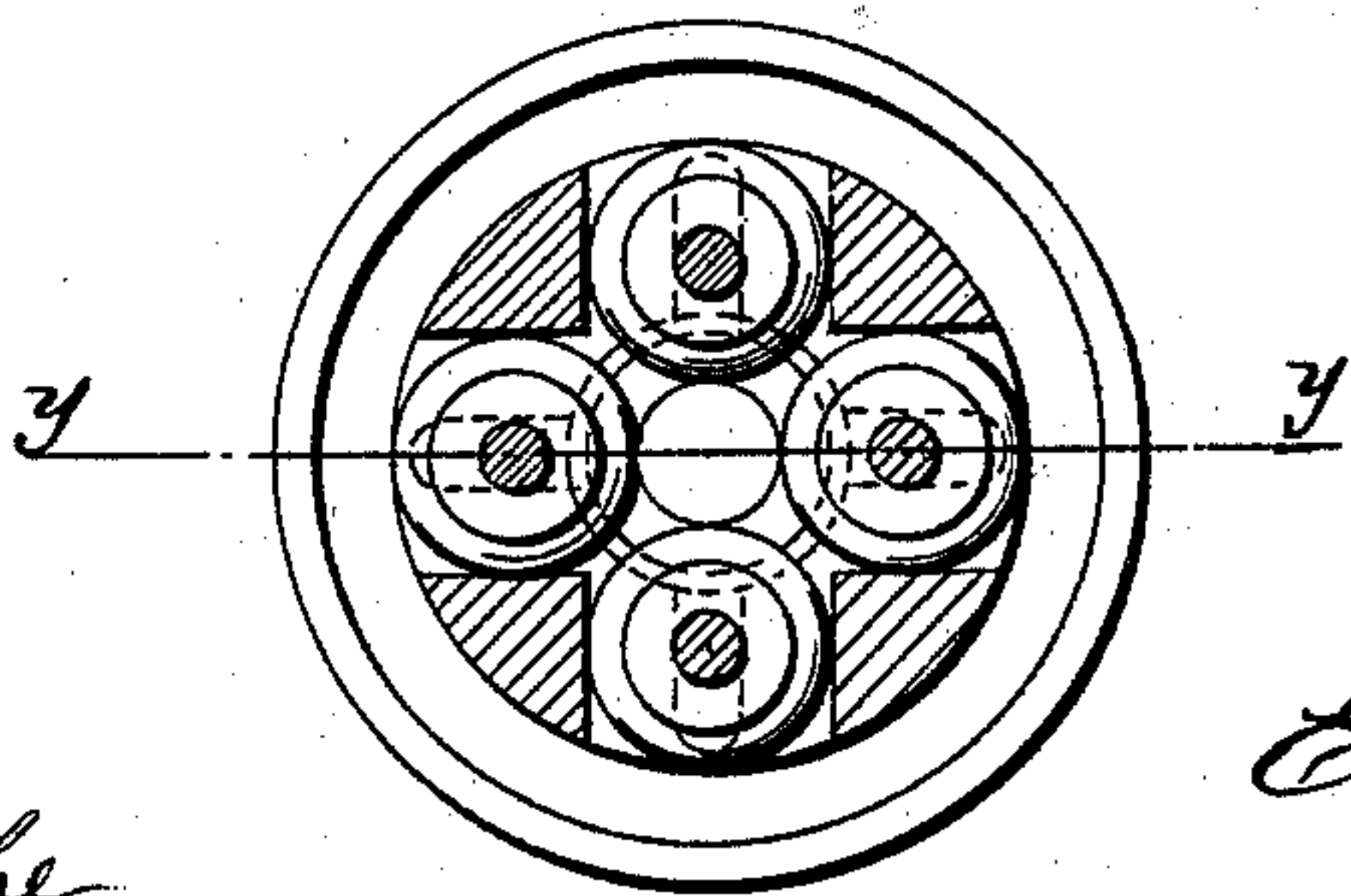
*Pipe Expander.*

*Nº 69, 014.*

*Fig; 1. Patented Sep. 17, 1867*



*Fig; 2.*



*Inventor;*

*Witnesses;  
Thos Fische  
Jm. Frown*

*E. J. Moore  
Per [Signature]  
Attorney*



# United States Patent Office.

E. J. MOORE, OF EAST BOSTON, MASSACHUSETTS.

*Letters Patent No. 69,014, dated September 17, 1867.*

## IMPROVED TUBE-EXPANDER.

*The Schedule referred to in these Letters Patent and making part of the same.*

### TO ALL WHOM IT MAY CONCERN:

Be it known that I, E. J. MOORE, of East Boston, in the county of Suffolk, and State of Massachusetts, have invented a new and useful Improvement in Tube-Expanders; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming part of this specification.

This invention consists in arranging a stock with a number of rollers placed therein, with beads formed on them, which rollers are so adjusted in the stock that they can be pressed outward by a tapering pin, which passes through the stock, and operates upon the rollers in such a manner that the process of setting tubes in a steam-boiler is greatly simplified, and rendered easy in situations where it could not be performed in the ordinary way, as I will proceed to describe. In the drawing—

Figure 1 represents a longitudinal section of the tool, through the line *y y* of fig. 2, showing the arrangement of the rollers and the tapering pin, with one of the rollers detached; also a section of the boiler-tube and tube-sheet in red.

Figure 2 is a cross-section of fig. 1, through the line *x x*.

Similar letters of reference indicate like parts.

A represents the stock; B the tapering pin and screw. C represents the rollers; D the handle or lever on the pin B. The shape or formation of the stock is clearly seen in the drawing. The rollers are placed in recesses from within the stock, and are guided by pivots on their ends, which work in slots in the stock. When the pin B is removed the rollers are readily taken out. The upper portion or head of the stock has a screw-thread cut in it, and the upper portion of the pin B has a screw-thread upon it which fits the stock. The sides of the screw part of the pin are parallel to each other.

The operation is at once understood from the drawing. As the pin is turned or secured into the stock, the tapering portion forces the rollers outward, the beads on the rollers indent the tube upon each side of the head or tube-sheet, thereby forming a groove around the tube, which holds it securely to its place in the sheet. It will be noticed that the bead on the upper end of the roller is smaller in diameter than the other. This is for the purpose of accommodating the surface or peripheries of the beads to the shape of the tapering pin. The hole through the tube-sheet is usually countersunk, and when tubes are set by my plan, or with this expander, no caulking is required, and the tubes are much less liable to be injured by fractures or otherwise than when they are set in the ordinary way. Tubes can be set with this expander, in case of repairs or otherwise, where a hammer or sledge could not be used for driving in the pin, according to the common method.

I am aware of the patent granted to R. Dudylon, dated February 5, 1867, for a tube-expander, but this I do not claim, as it forms no part of my invention, but what I claim as new, and desire to secure by Letters Patent, is—

The construction of the expanding-rollers C, provided with beads surrounding their peripheries, the lower one of less diameter than the upper, substantially as described for the purpose specified.

E. J. MOORE.

Witnesses:

TIMOTHY DOWD,

PATRICK J. MOORE.