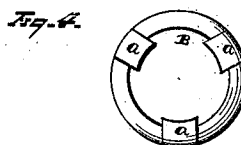
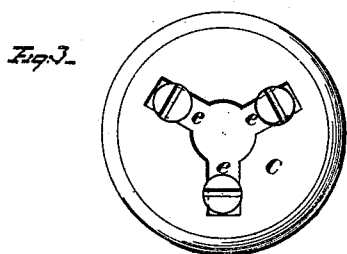
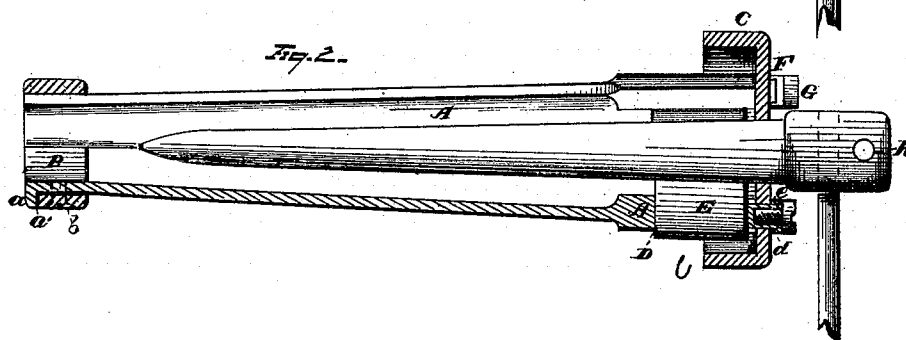
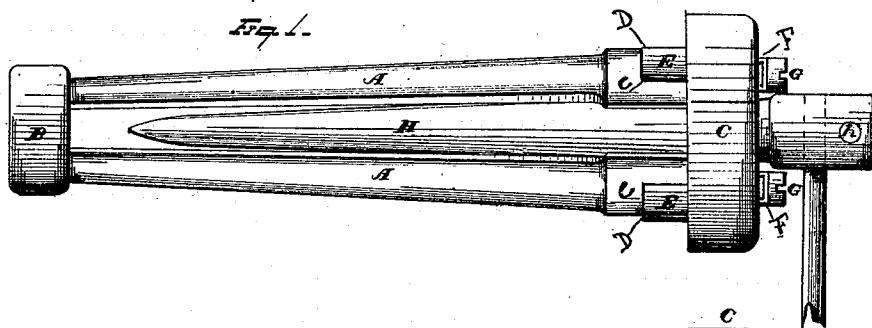


H. L. ROONEY & R. NEWDASHER.

TUBE EXPANDER.

No. 179,868.

Patented July 18, 1876.



WITNESSES

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UNITED STATES PATENT OFFICE.

HUGH L. ROONEY AND ROBERT NEWDASHER, OF GALVESTON, TEXAS.

IMPROVEMENT IN TUBE-EXPANDERS.

Specification forming part of Letters Patent No. **179,868**, dated July 18, 1876; application filed May 27, 1876.

To all whom it may concern:

Be it known that we, H. L. ROONEY and R. NEWDASHER, of Galveston, in the county of Galveston and State of Texas, have invented certain new and useful Improvements in Tube-Expanders; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it pertains to make and use it, reference being had to the accompanying drawings, which form part of this specification.

Our invention relates to certain improvements in a tube-expander.

Figure 1 represents a side elevation of our invention. Fig. 2 represents a vertical section of the same. Fig. 3 is an end view of the slotted head. Fig. 4 represents the end of the ferrule or collar to which the springs are secured, and Fig. 5 shows the mandrel detached from the expander.

Our invention consists, first, in the combination, with springs rigidly secured at one end, of a slotted cap or head and a mandrel, whereby the springs may be separated to fit tubes of different sizes; second, in the combination, with the springs of a tube-expander, of detachable rollers; third, in certain details of construction, as hereinafter specified and claimed.

A A represent the springs, having their forward ends formed with projections *a*, which fit in corresponding recesses *a'* in the collar or ferrule B, the springs being rigidly secured to the ferrule B by means of screws *b*. The springs A gradually increase in width and thickness toward the cap or slotted head C, and at *c* the springs are constructed with rectangular or similar-shaped openings D, within which the rollers E are placed, said rollers being made of greater diameter than the width of the slots or openings D, whereby the rollers slightly project beyond the outer surface of the springs A. The ends *d* of the springs A snugly fit within radial slots *e*, formed in the cap or head C, and the said springs are secured to the cap C by means of the washers F and screws G.

H is a tapering mandrel, provided with

holes *h* for the reception of a bar, I, by means of which it may be rotated within the expander.

The tip of the mandrel is formed as a screw-driver of sufficient size to fit the several screws used to secure the several parts of the expander in place, and serves as a very convenient tool to take the same apart when occasion requires.

A mandrel constructed as above described operates to expand the tube in a ready manner, and without injury to the tube, it being of great service in resetting the tubes of locomotive-boilers, wherein the tubes often get loosened in the tube-sheet.

The construction of the tube-expander is such that several different-sized tubes may be set with the aid of the single tool.

The tapering mandrel being inserted between the rollers and driven inwardly, the rollers are forced outwardly against the inner surface of the tubes when the expander is rotated, and the rollers serve to expand the tubes snugly against the openings or sockets in the tube-sheets.

Should the rollers become worn by long usage, they may be readily replaced by new ones, and the expander rendered as efficient as when new.

Having fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the springs A, rigidly secured to the ferrule or collar B, of the slotted cap C, substantially as and for the purpose specified.

2. The combination, with the springs A, of the detachable rollers E, substantially as and for the purpose specified.

3. The combination, with the ferrule B, formed with recesses *a'*, of the springs A, provided with projections *a*, and secured to said ferrule by screws *b*, substantially as and for the purpose specified.

4. The combination, with the cap C, formed with radial slots *e*, of the springs A, washers F, and screws G, substantially as and for the purpose set forth.

5. The combination, with the springs A,

cap C, and rollers E, of the tapering mandrel H, substantially as and for the purpose specified.

6. The tapering mandrel H, having its tip formed as a screw-driver, substantially as and for the purpose specified.

In testimony that we claim the foregoing

we have hereunto set our hands this 13th day of May, 1876.

HUGH L. ROONEY.

ROBERT NEWDASHER.

Witnesses:

ED GARRETT,

TIMOTHY FINN.