

(No Model.)

T. BEVERLY.

TUBE EXPANDER.

No. 363,980.

Patented May 31, 1887.

Fig. 1.

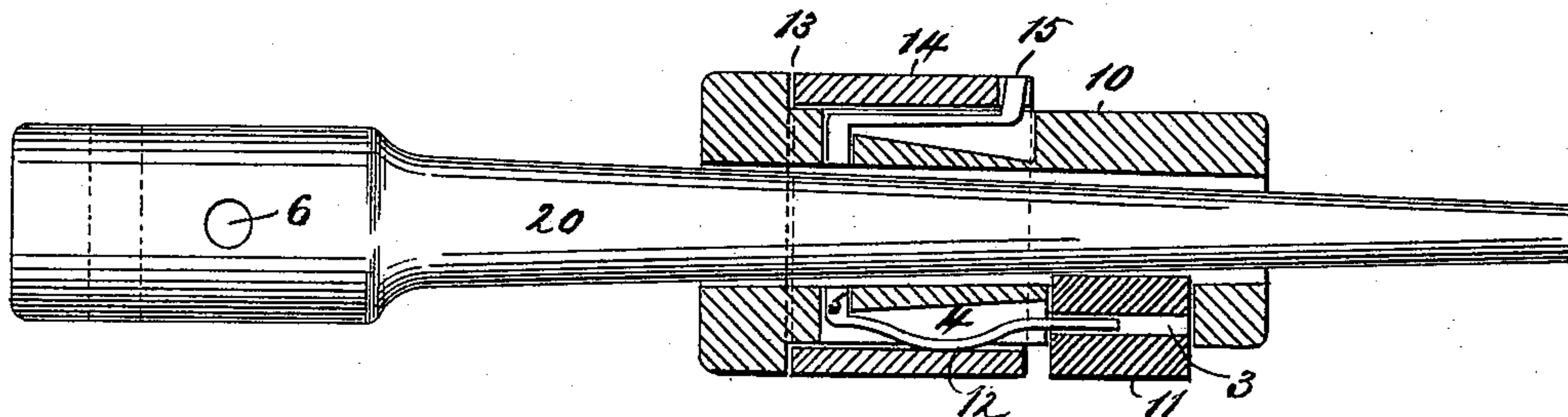


Fig. 2.

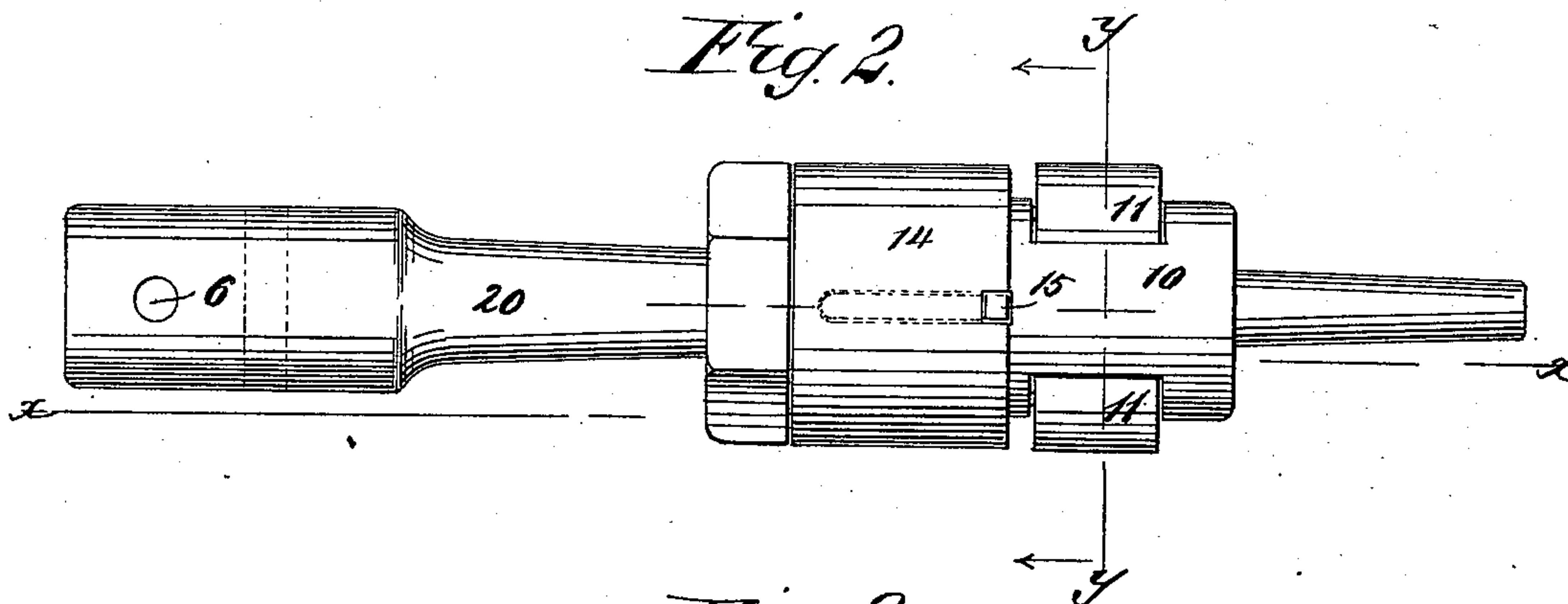


Fig. 3.

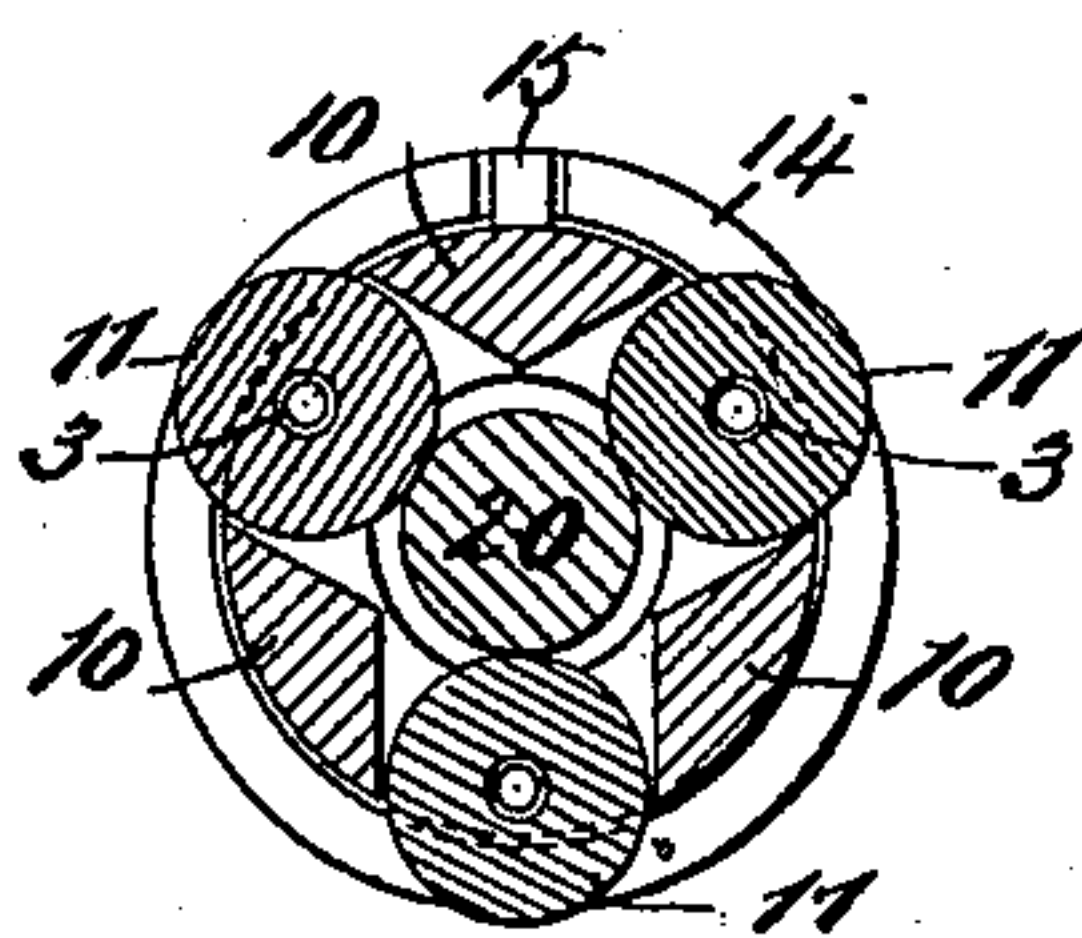
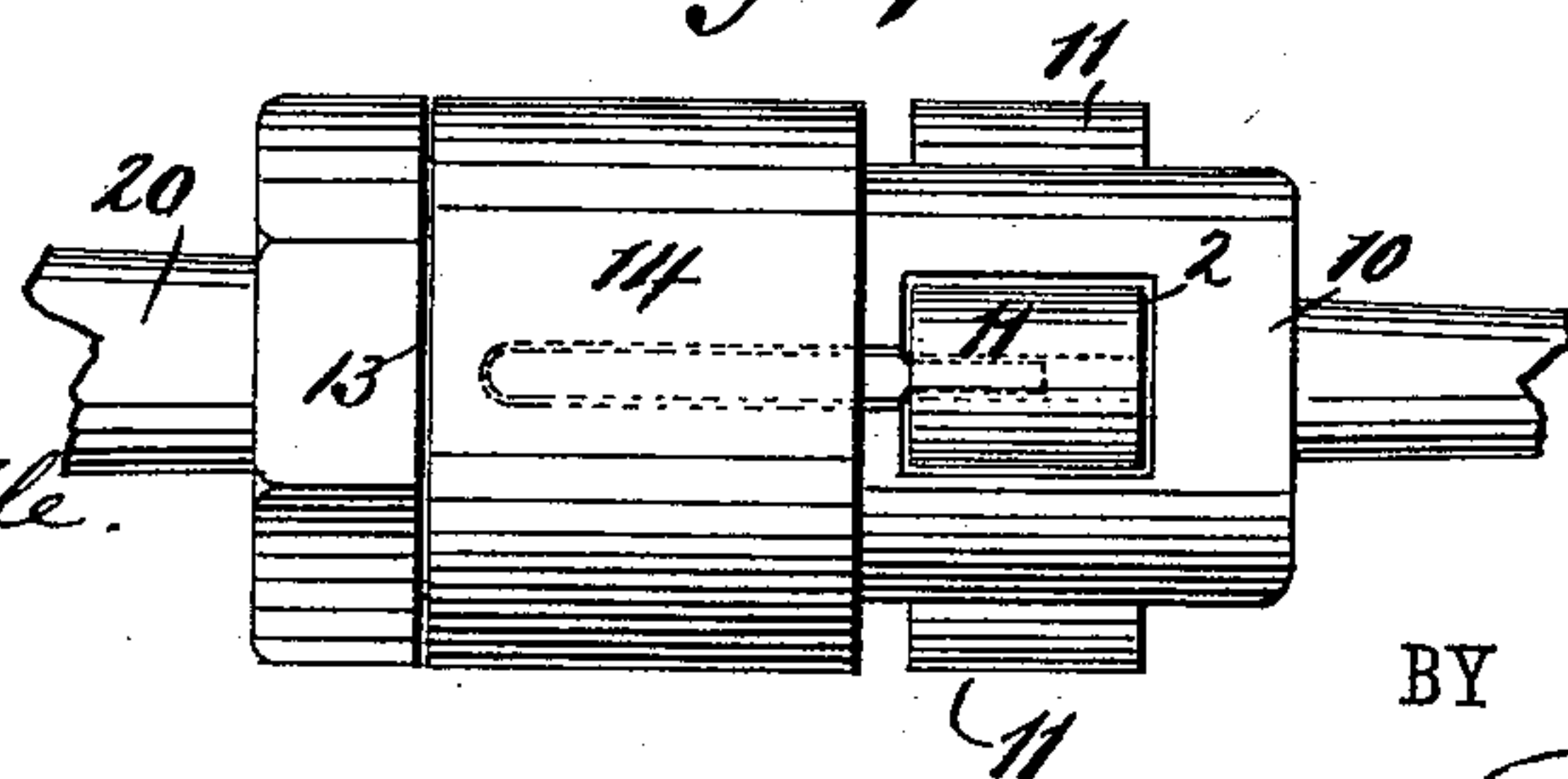


Fig. 4.



WITNESSES:

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THOMAS BEVERLY, OF ELLIS, KANSAS.

TUBE-EXPANDER.

SPECIFICATION forming part of Letters Patent No. 363,980, dated May 31, 1887.

Application filed March 14, 1887. Serial No. 230,840. (No model.)

To all whom it may concern:

Be it known that I, THOMAS BEVERLY, of Ellis, in the county of Ellis and State of Kansas, have invented a new and Improved Tube-Expander, of which the following is a full, clear, and exact description.

My invention relates to an improved form of tube-expander that is especially applicable for use in expanding the ends of boiler-tubes when it is necessary to expand said tubes close up to the flange of the flue-sheet, one of the main objects of the invention being to so expand the tubes close to the flue sheet, and at the same time to provide a single tool which may be employed in expanding the ends of tubes of different diameters within a considerable limit, which object I accomplish by means of a stock that is adapted to receive rollers or swages of different sizes, and in connection with which there is employed a tapering plug, which plug may be varied in size and form to suit the requirements of the case.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar figures of reference indicate corresponding parts in all the views.

Figure 1 is a sectional view of my improved tube-expander, the view being taken on a line corresponding with the line *xx* of Fig. 2. Fig. 2 is a plan view of my tube-expander. Fig. 3 is a cross-sectional view taken on line *yy* of Fig. 2, and Fig. 4 is a view of the stock and its connections from a point about opposite that from which Fig. 2 is taken.

In the drawings, 10 represents a hollow stock that is provided with a number of longitudinal slots or recesses, 2, three of these slots or recesses being preferably formed in the stock. In each of the recesses so formed I arrange a roller or swage, 11, said rollers being formed with a central bore, 3, in which there is fitted the end of a spring, 12, that rests in a longitudinal recess, 4, that is formed in the stock 10, the inner end of each spring being formed with a knob or projection, 5, which fits in a recess properly located for its reception.

At the rear or outer end of the stock-body there is formed a shoulder, 13, which serves as a stop to define the position of a retaining-sleeve, 14, which fits closely against the pe-

ripheral face of the stock 10, the sleeve 14 being held in position by a spring, 15, that is located and arranged as best shown in Figs. 1 and 2. This sleeve 14 holds the springs 12 in position and prevents any accidental displacement of said springs, and consequently of the rollers 11.

In connection with the parts described I employ a tapering plug, 20, which is so proportioned as to enter the bore of the hollow stock 10, the end of this plug being provided with holes 6, that are adapted to receive turning pins or handles by means of which the plug may be operated.

From the construction described it will be seen that the extreme ends of boiler or other tubes may be expanded and the tubes varying considerably in size may be advantageously operated upon without any change of the parts described; but in certain instances it might be advisable to employ swages or rollers that should be proportionately slightly larger or smaller than those illustrated in the drawings,

In order to insert new rollers, or rollers of different size, the point of the spring 15 is depressed, and the sleeve 14 is removed, after which the springs and the rollers carried thereby will drop from their connection with the stock.

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

1. In a tube-expander, the combination, with a longitudinally-slotted and a recessed stock, of rollers mounted in the slots, springs mounted in the recesses and upon which the rollers turn, and a retaining sleeve, all substantially as described.

2. The combination, with a stock formed with longitudinal slots 2 and recesses 4, of springs 12, mounted within the recesses 4, rollers 11, carried by the springs and arranged within the slots of the stock, a sleeve, 14, a spring, 15, arranged in connection with the sleeve, and a plug, 20, all substantially as described.

THOMAS BEVERLY.

Witnesses:

LUTHER C. SINCLAIR,
CHARLES A. COX.