

(No Model.)

J. WILSON.

PACKING CONDENSER TUBES.

No. 295,136.

Patented Mar. 11, 1884.

FIG. 1

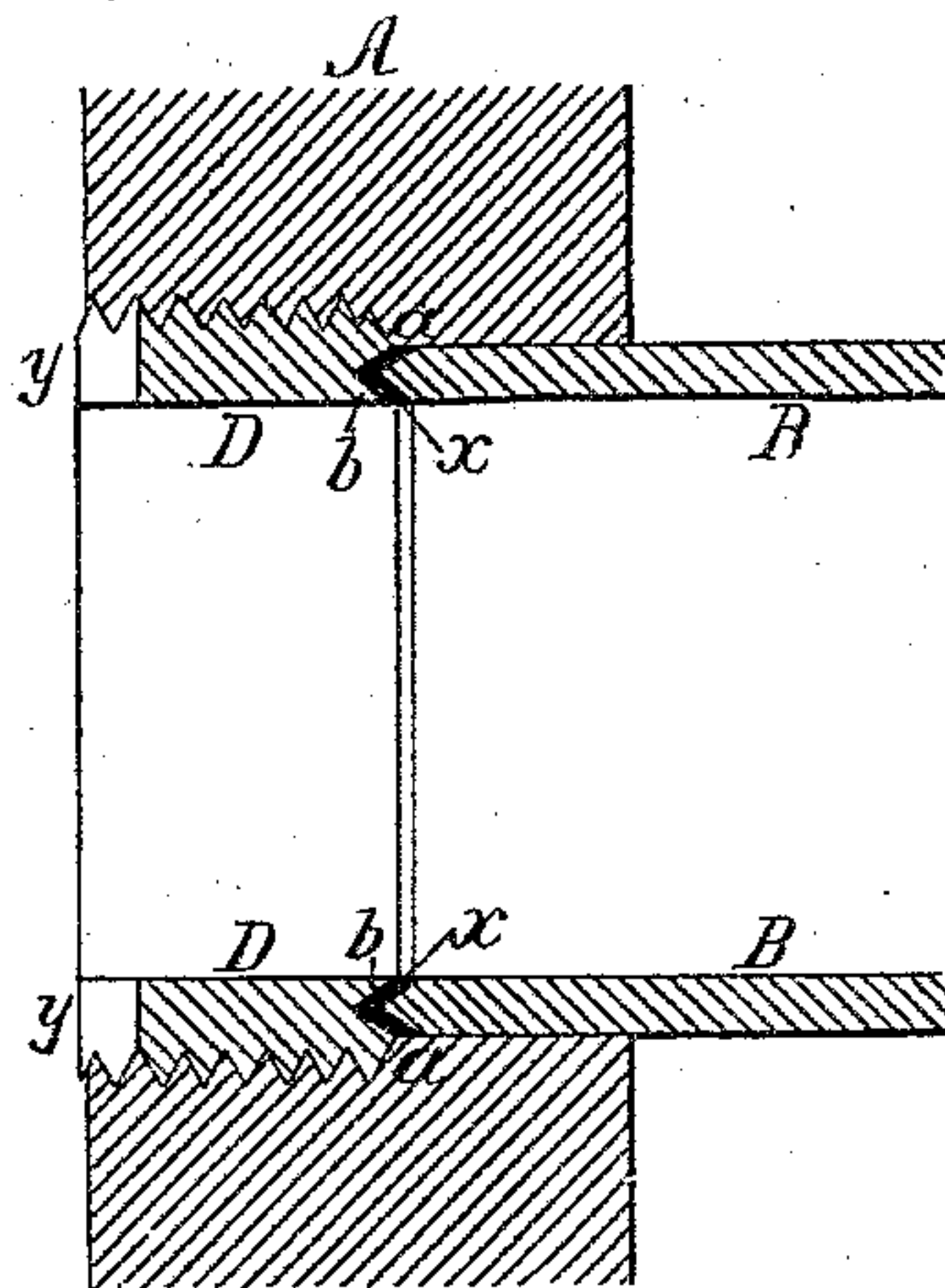


FIG. 4.

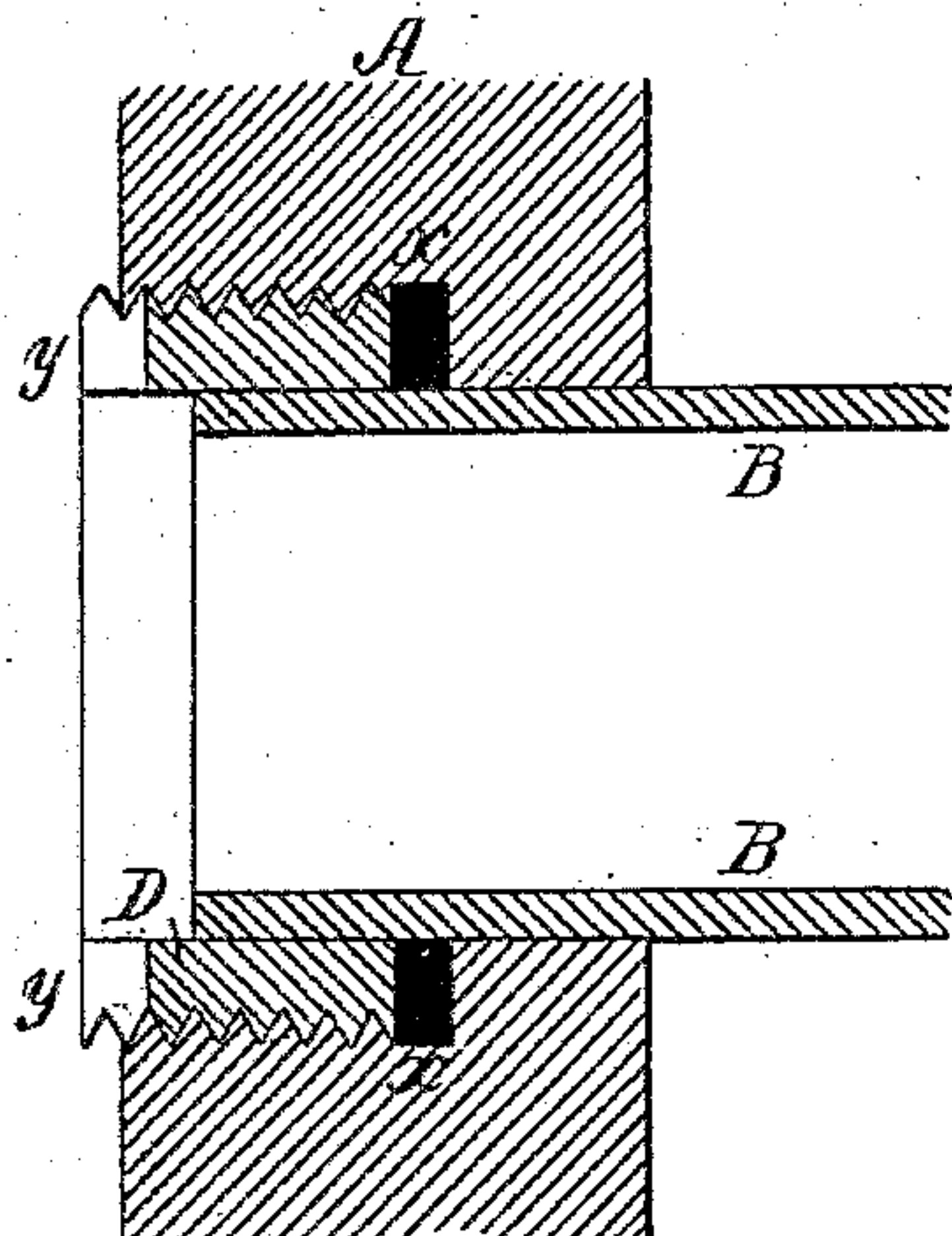


FIG. 2

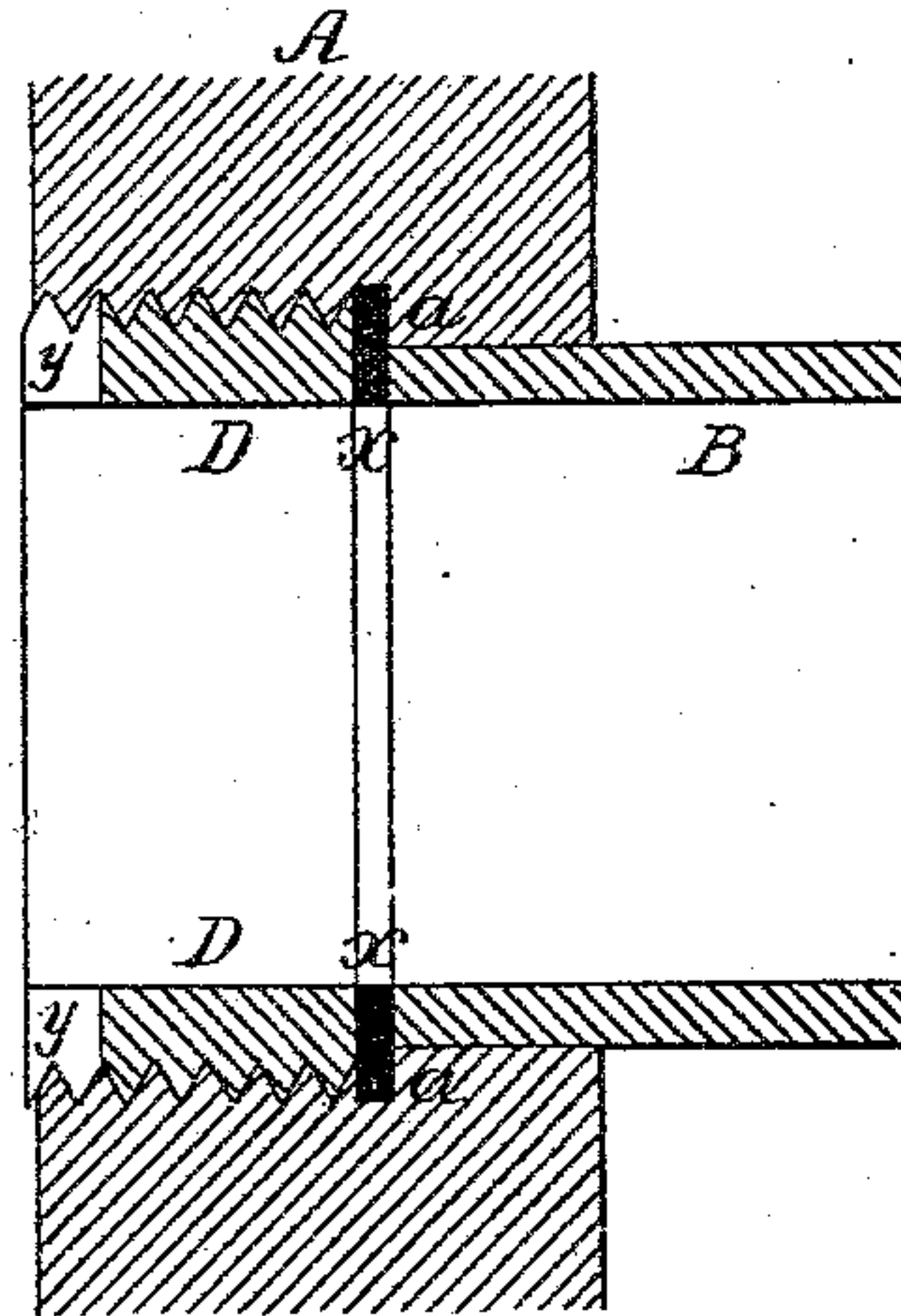
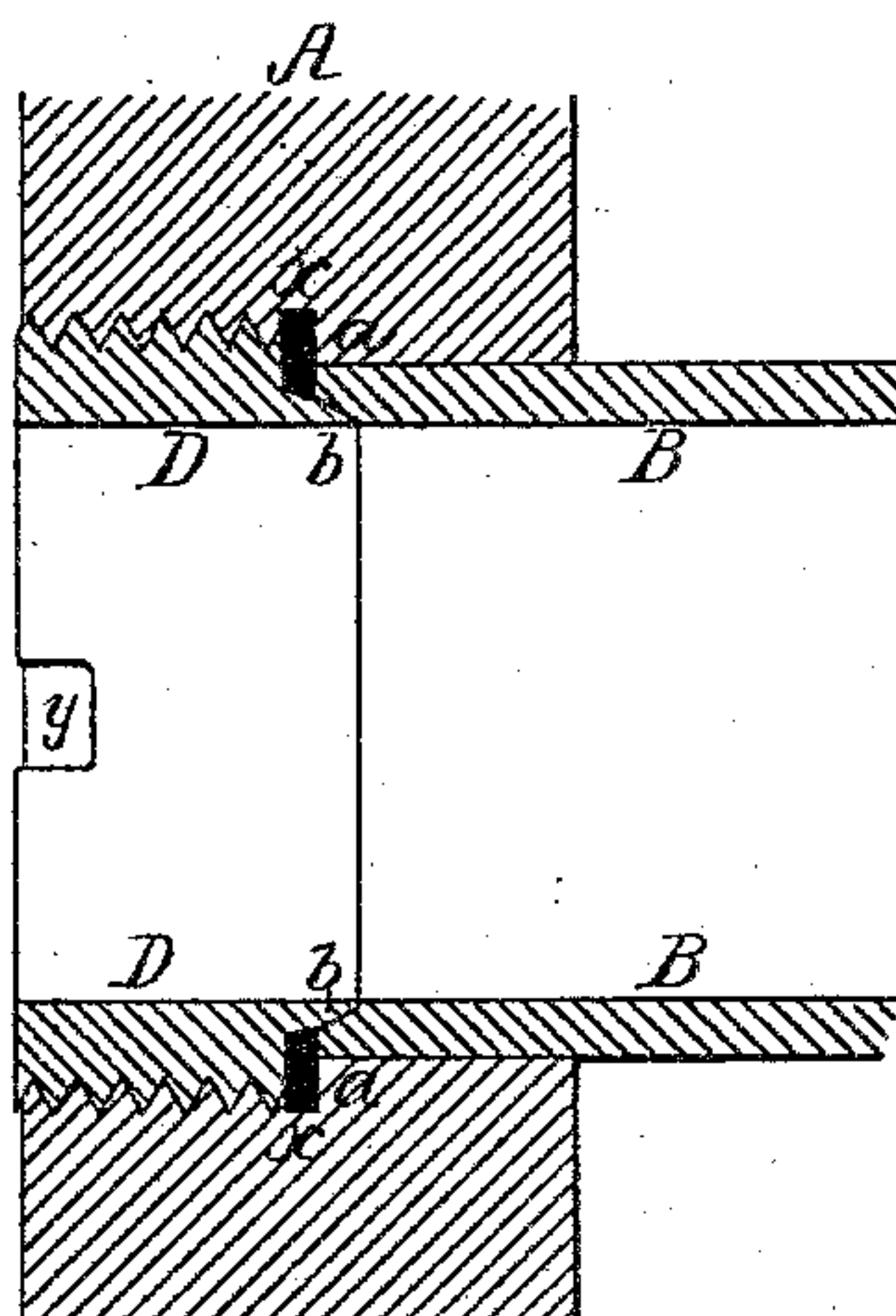


FIG. 3.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES WILSON, OF PHILADELPHIA, PENNSYLVANIA.

PACKING CONDENSER-TUBES.

SPECIFICATION forming part of Letters Patent No. 295,136, dated March 11, 1884.

Application filed October 15, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES WILSON, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain Improvements in Packing Condenser-Tubes, of which the following is a specification.

The object of my invention is to form a tight joint between the casing and the ends of the tubes of a surface-condenser, and this object I attain in the manner hereinafter set forth, reference being had to the accompanying drawings, in which—

Figure 1 is a view of part of the casing of a surface-condenser with part of one of the tubes and a follower constructed in accordance with my invention; Figs. 2 and 3, modified forms of the invention, and Fig. 4 a view illustrating the ordinary method of packing the tubes.

A represents part of one of the inner end casings of a surface-condenser, and B the end portion of one of many tubes appertaining to the condenser, the tube fitting snugly to an opening in the casing, and the outer portion of this opening being threaded for the reception of a follower, D, which has opposite notches *y*, for receiving a screw-driver or other tool by which it may be readily tightened. Usually the follower surrounds the end of the tube and compresses a packing-ring, *x*, against a shoulder in the casing A, as shown in Fig. 4, the lateral expansion of this ring against the tube being relied upon to form a tight joint. This method of packing the tube is objectionable, as excessive pressure must be imparted to the packing-ring in order to cause sufficient lateral expansion of the same to insure a tight joint.

In carrying out my invention I force the packing-ring *x* directly against the end of the tube, the preferable form of my invention being that shown in Fig. 1, in which the end of the tube has a V-shaped bevel and the inner end of the follower a V-shaped recess, the ring *x* being confined between the two, as the follower is screwed into the casing, and a tight joint thus formed with much less pressure than when the usual method of packing is adopted. In fact, the ring *x* may be permitted to retain sufficient elasticity to compensate for the slight

longitudinal expansion and contraction of the tube independently of the casing. As shown in Fig. 1, the casing has a shoulder, *a*, and the end of the follower outside the recess seats against said shoulder, and thus aids in insuring a tight joint.

The packing-ring *x* may be interposed between the end of the follower and the shoulder *a*, as shown in Figs. 2 and 3, if desired, and the tube may have a square instead of a beveled end, as shown in Fig. 2, or may be beveled only on the inside, as shown in Fig. 3, for the reception of a tongue, *b*, on the follower, it being advisable, however, in all cases, to provide the tube with this internal bevel and to adapt the follower thereto for the purpose of protecting and laterally retaining the packing-ring.

I am aware that the tubes of heating apparatus and steam-generators have been clamped between opposite casings or heads, packing being interposed between the ends of the tubes and seats on said casings; but in such cases all of the tubes must be of the same length to insure tight joints, whereas when the packing is confined between the end of the tube and an adjustable follower, as in my condenser, variation in the length of the tubes is immaterial.

I claim as my invention—

1. The combination of the casing A, tube B, and adjustable follower D of a surface-condenser with a packing-ring, *x*, confined directly between the outer end of the tube and the inner end of the follower, as set forth.
2. The combination of the casing A, having a shoulder, *a*, the tube B, the adjustable follower D, and the packing-ring *x*, interposed between the end of the tube and the follower, as set forth.
3. The combination of the casing A, the tube B, having a beveled end, the adjustable follower D, having a tongue, *b*, and the packing-ring *x*, interposed between the follower and the end of the tube, as set forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES WILSON.

Witnesses:

JOHN E. PARKER,
HARRY SMITH.