

(No Model.)

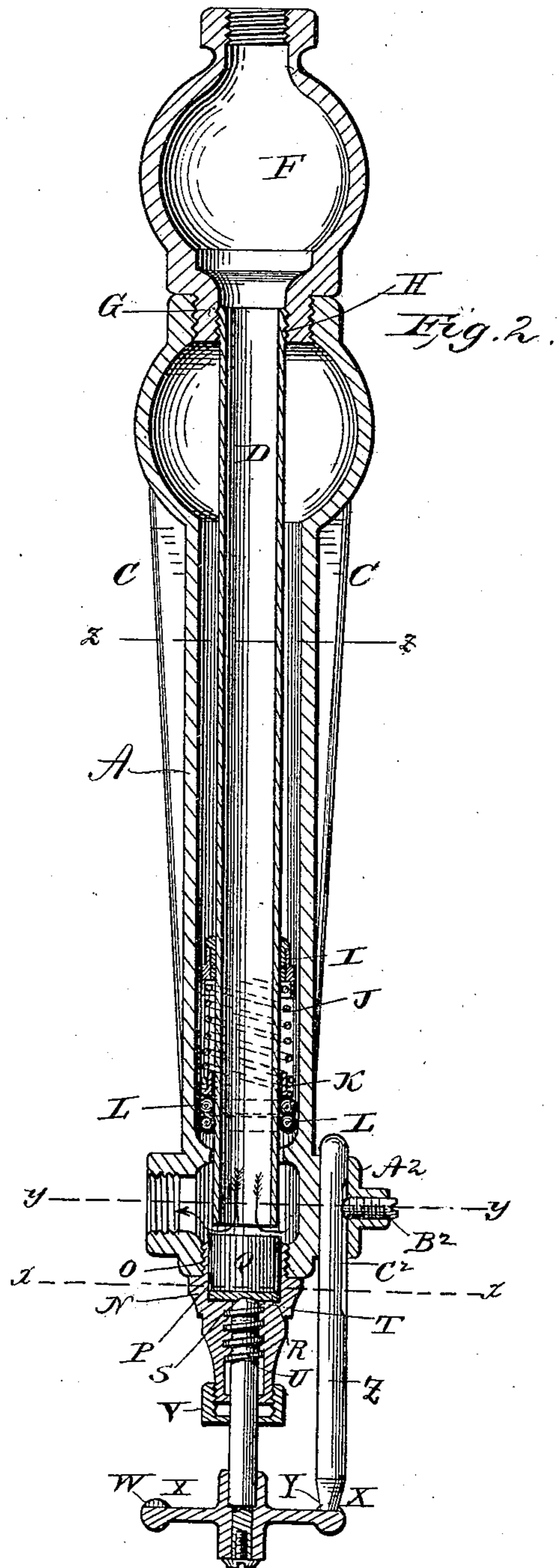
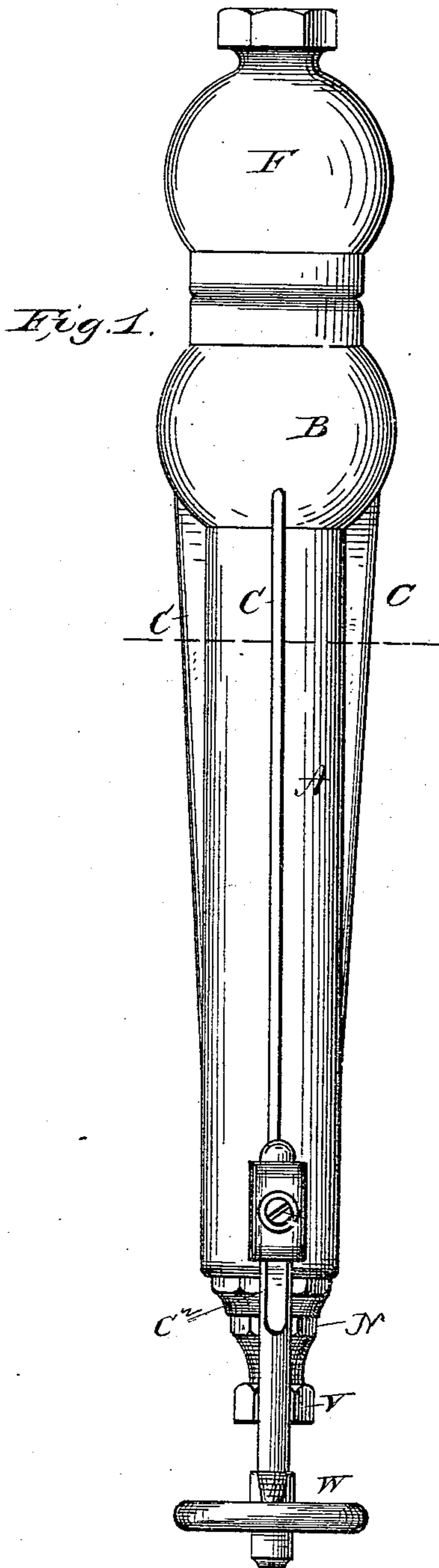
2 Sheets—Sheet 1.

G. B. McCracken.

STEAM TRAP.

No. 277,045.

Patented May 8, 1883.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3.

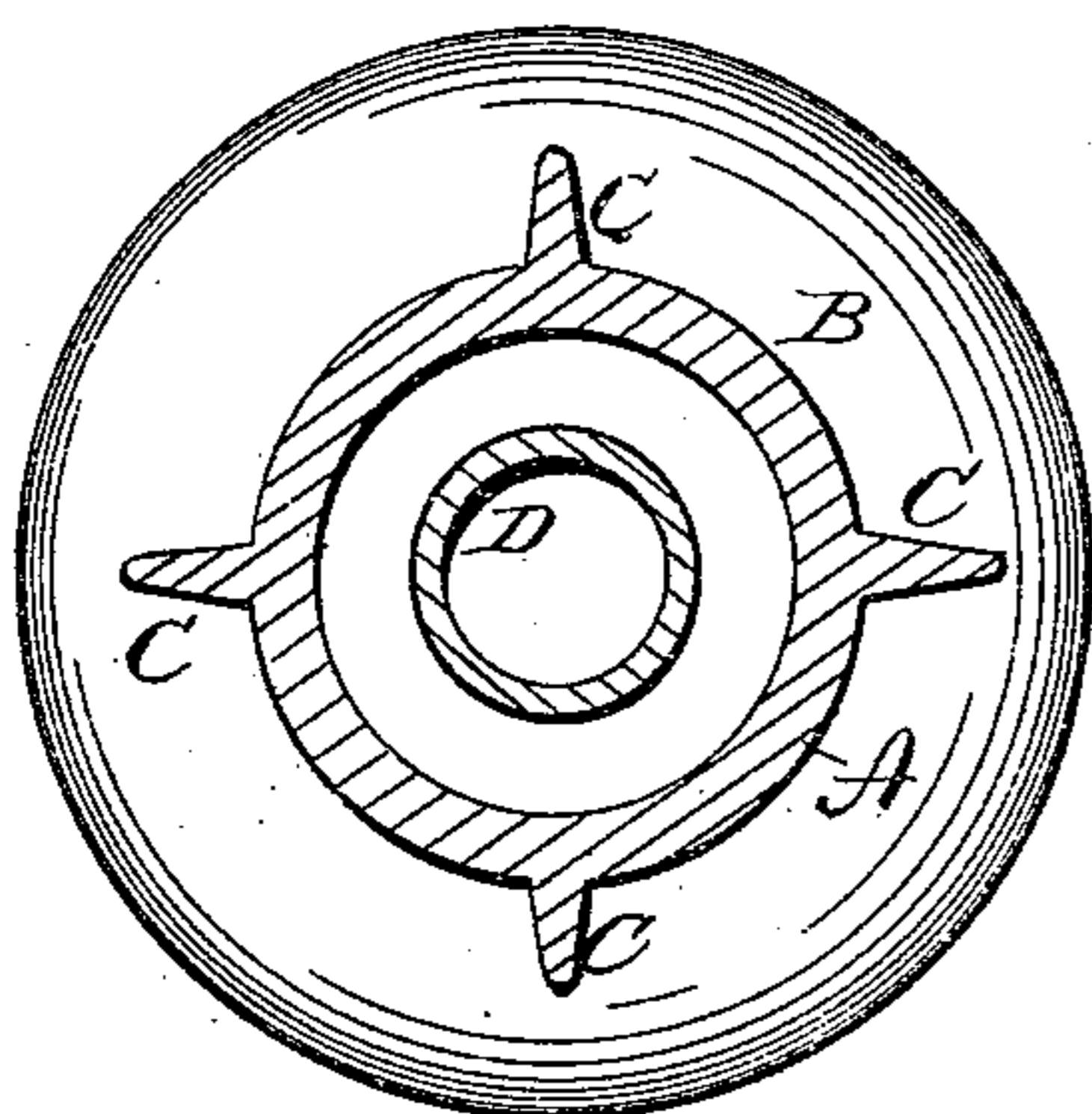


Fig. 4.

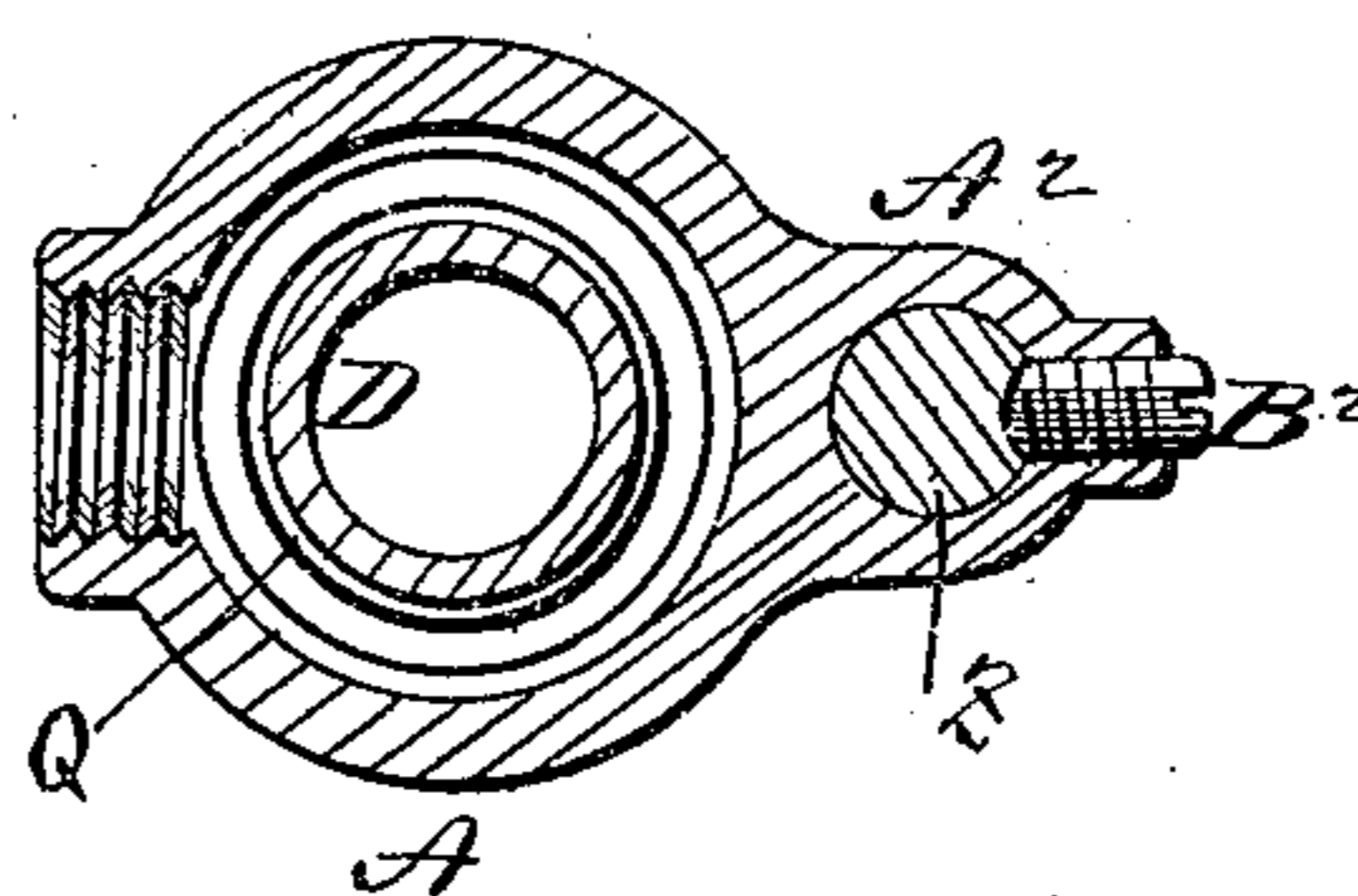


Fig. 5.

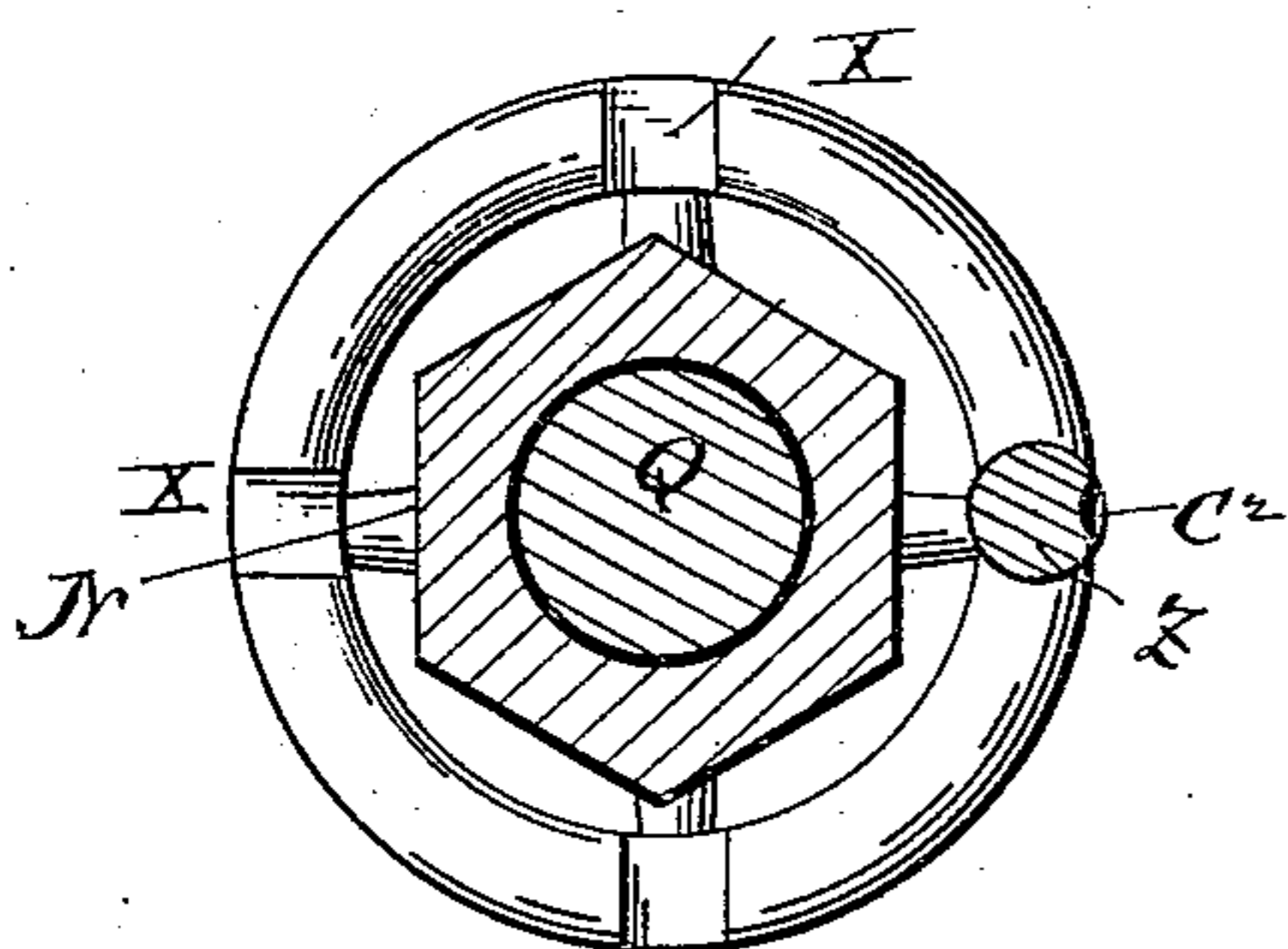


Fig. 6.

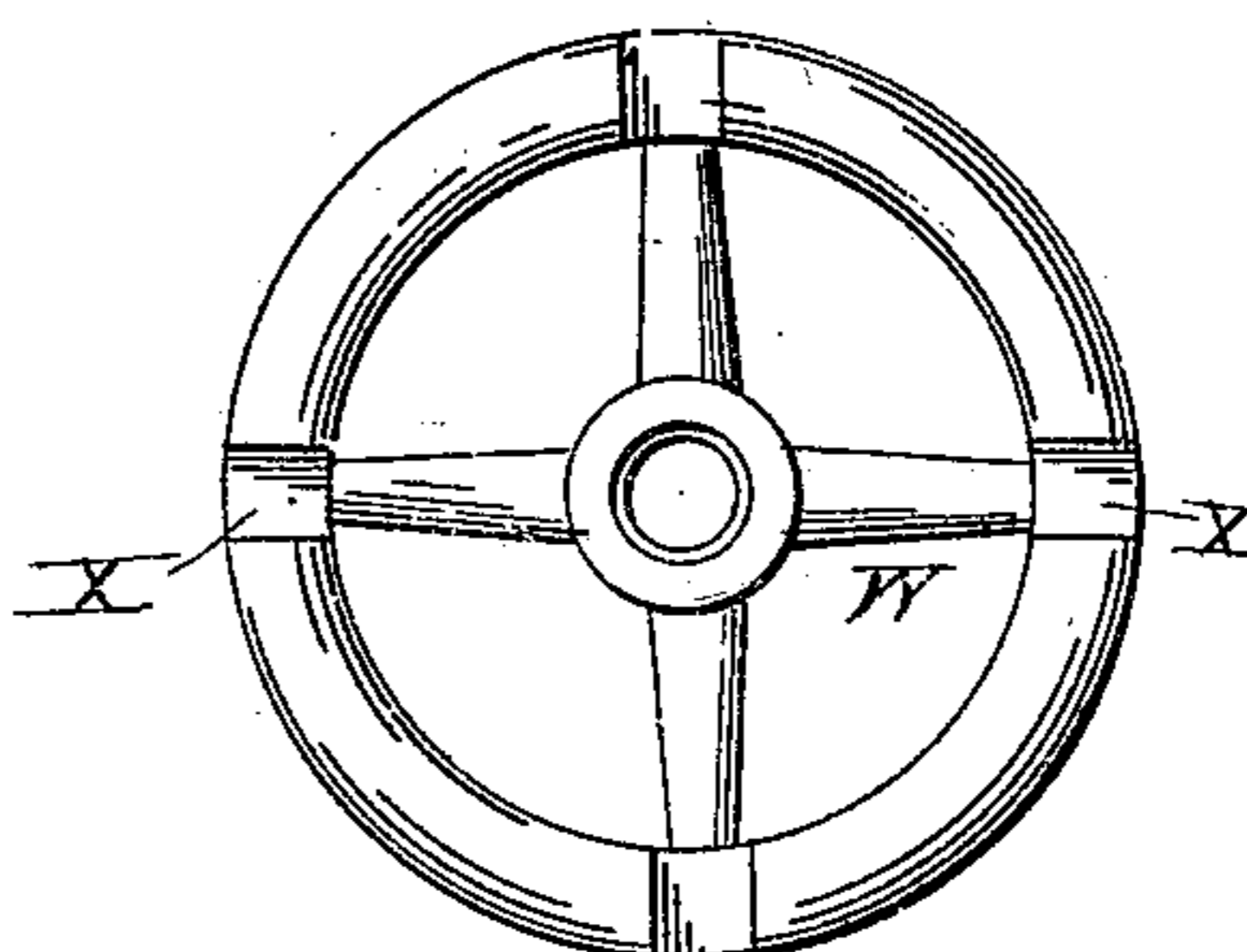
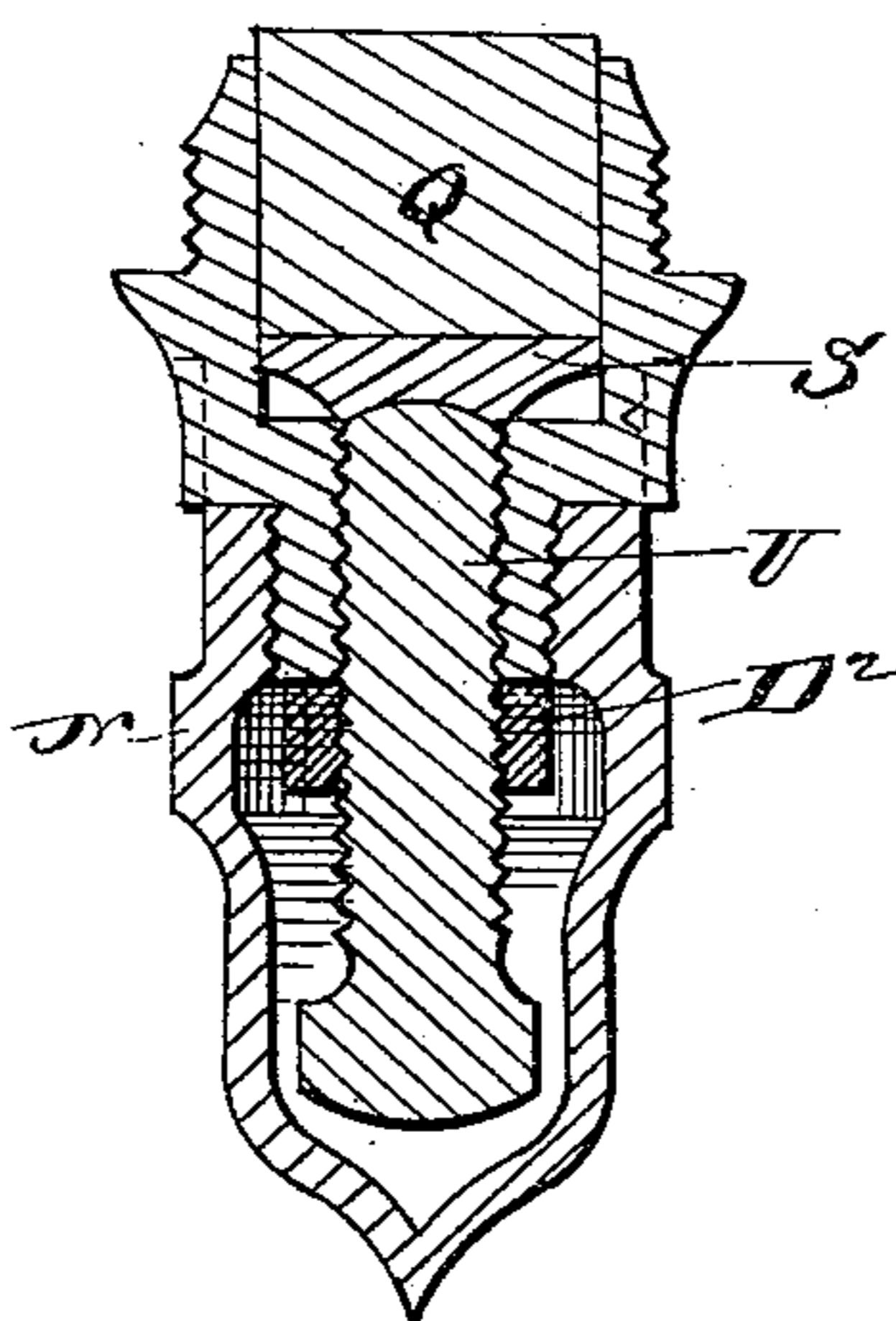


Fig. 7.



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UNITED STATES PATENT OFFICE.

GEORGE B. McCracken, OF WILLIMANTIC, CONNECTICUT.

STEAM-TRAP.

SPECIFICATION forming part of Letters Patent No. 277,045, dated May 8, 1883.

Application filed February 6, 1883. (No model.)

To all whom it may concern:

Be it known that I, GEORGE B. McCracken, a citizen of the United States, residing at Willimantic, in the county of Windham and State of Connecticut, have invented a new and useful Steam-Trap, of which the following is a specification, reference being had to the accompanying drawings.

My invention relates to that class of steam-traps in which the expansion and contraction of an inner tube in excess of an outer tube, caused by the difference in the temperature of the two tubes, so operates as to permit the water only to escape.

In the drawings, Figure 1 is a side view of my improved steam-trap. Fig. 2 is a longitudinal sectional view thereof. Fig. 3 is a transverse sectional view on the line *z z*, Fig. 2. Fig. 4 is a transverse sectional view on the line *y y*, Fig. 2. Fig. 5 is a transverse sectional view on the line *x x*, Fig. 2. Fig. 6 is a top view of the hand-wheel by which the seat-disk-operating screw is adjusted. Fig. 7 is a longitudinal sectional view illustrating a modification in the seat-holder and the seat-disk-adjusting mechanism.

Referring to the drawings, A designates the outside tube or casing, which is preferably cast in one piece, and of iron, and is formed with a globular chamber, B, at its top end, and with exterior longitudinal ribs, C, the purpose of which will be presently explained. This tube A forms the body of the trap.

D is the inner tube, which is preferably formed of brass, and which by its expansion and contraction forms the working part of the trap.

F is a globe that is securely screwed into the globular end of tube A, as shown at G, and forms a separating-chamber, in which the stream is broken, so that the water alone enters the tube D.

Traps of this class are usually hottest at the inlet end; but the globular end of the tube A and its exterior ribs obviate this by increasing the radiating surface and equalizing the temperature of the said tube A its entire length.

The inner tube, D, is screwed into the inner end of the top globe, F, as at H, and is provided with an exterior fixed annular collar, I, below which the said tube is encircled by a

coiled spring, J. Under the spring is arranged a ring or collar, K, that is adapted to slide on the tube D. This collar K rests against packing-rings L L on the tube D, which rings are compressed by the spring against an interior annular shoulder, M, on the tube A, to form a tight joint that will prevent the hot vapor from rising in the space between the tubes and excessively expanding the outer tube, A.

In the lower outlet end of tube A, just under the lower end of the inner tube, D, is securely screwed the seat-holder N, as at O.

In the top of the seat-holder is provided a recess, P, to receive the seat-disk Q, which latter fits neatly in the recess, so that there will be no leakage between the said disk and the wall of the recess. The seat-disk Q rests in the recess P on a washer, R, having a recess, S, in its under face, in which works the end T of an adjusting-screw, U, that works through the seat-holder N, and is adapted to be turned to raise the seat-disk. If it should become necessary to open the trap, the said screw U has only to be lowered, when the pressure in the tube D will force the seat-disk down, and thus open the trap.

The disk Q can be made of any suitable material; but it should in all cases not be as hard as the material of the tube D, so that the wear comes on the disk, and can be taken up by adjusting the latter. If the trap should leak and the disk need facing off, this can be quickly effected by removing the seat-holder from the tube A and filing off the face of the disk. The working of the adjusting-screw in a recess in the under face of the washer on which the disk rests obviates turning of the latter, so that it always presents the same place on its surface to the tube D.

A packing-nut, V, may be arranged on the end of the seat-holder as an extra precaution against leakage.

On the adjusting-screw U is arranged a hand-wheel, W, formed with recesses X in its upper face, at the edge, any of which are adapted to receive the end Y of a locking-pin, Z, that passes up through an extension, A², on the side of tube A, and is retained from vertical displacement by means of a set-screw, B², entering a longitudinal groove, C², in the said pin Z. By means of this pin Z the wheel W

is prevented from turning after the trap has once been adjusted.

Under some circumstances I prefer to use the mechanism illustrated in Fig. 7 of the drawings. In this construction the adjusting-screw U is simply provided with a check or lock nut, D², for securely holding the screw in position after the trap has been adjusted.

E² is a cap that screws over the end of the seat-holder and incloses the screw U and the nut D².

The operation and advantages of my invention are obvious. In traps of this class that have a filling between the inner and outer tubes the former becomes heated and checks the flow until the heat is slowly radiated through the filling to heat and expand the outer tube; but in my invention, when the water or condensed steam enters the tube D inside it soon heats the outer tube, A, as there is nothing but an air-space between, and by reason of the equalization of the heat over the tube A, effected as before described, a regular delivery is obtained. The seat-disk can be made of any length desired, and can be fed up as it wears away, so that it will last as long as the other parts of the trap.

I claim as my invention—

1. As an improvement in steam-traps, the combination of an outside tube having a globular chamber at its top end, a globe secured to the said globular end and forming a separating-chamber, and an inner tube extending from this separating-chamber down through the outer tube to the outlet end thereof, as set forth.

2. As an improvement in steam-traps, the combination of an outer expansion-tube having a globular separating-chamber at its top end, a globe attached to this globular end, an inner expansion-tube extending from the said globe down through the outer tube to the outlet end, packing or other means for preventing escape of vapors to the air-space between the two tubes, and an adjustable seat arranged under the lower end of the inner tube, as set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

GEORGE B. McCracken.

Witnesses:

JAMES WALDEN,
JOHN BROWN.