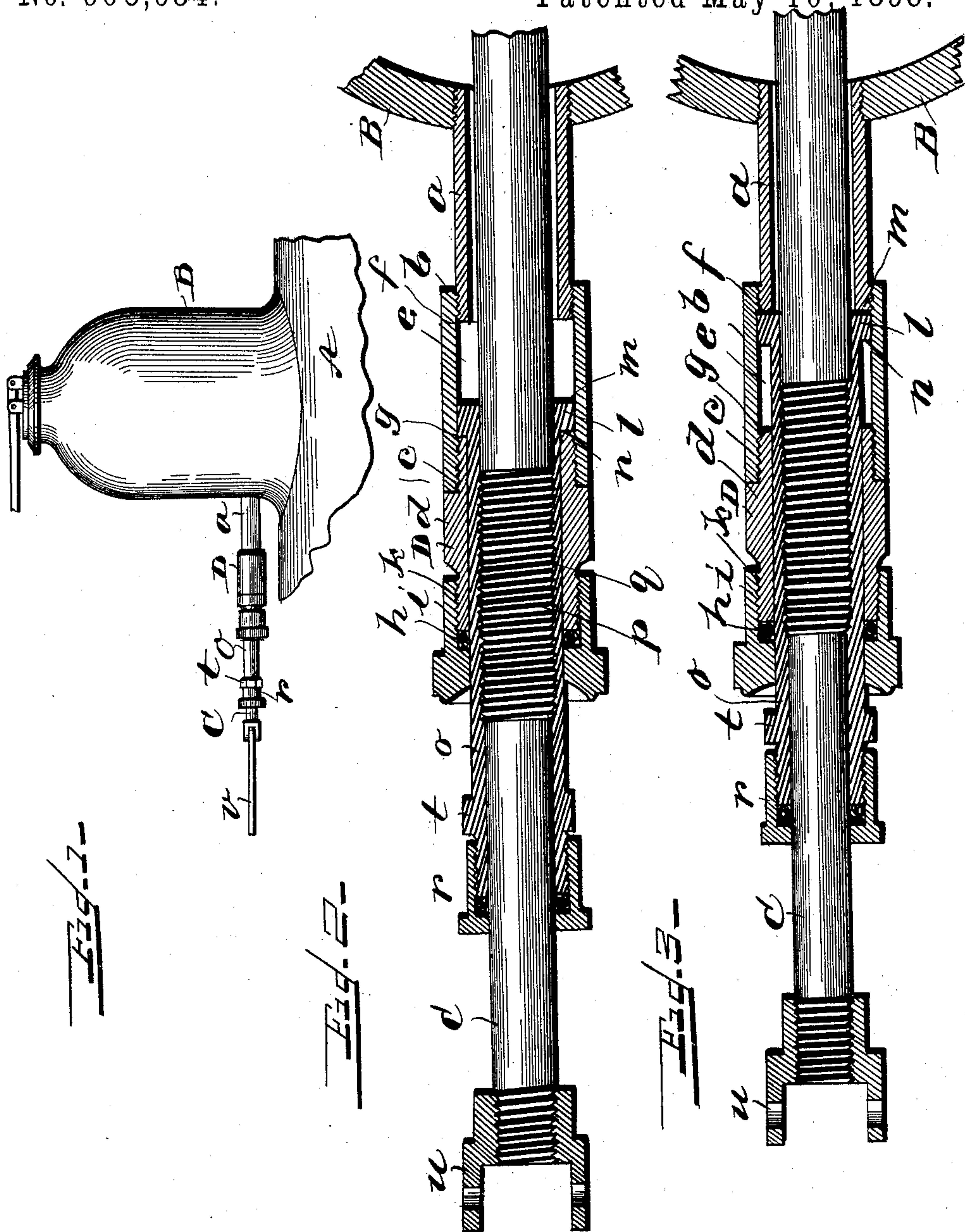


(No Model.)

J. P. GEIGER.
THROTTLE.

No. 603,684.

Patented May 10, 1898.



Witnesses—

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UNITED STATES PATENT OFFICE.

JOHN P. GEIGER, OF ORWIGSBURG, PENNSYLVANIA.

THROTTLE.

SPECIFICATION forming part of Letters Patent No. 603,684, dated May 10, 1898.

Application filed December 24, 1896. Serial No. 616,872. (No model.)

To all whom it may concern:

Be it known that I, JOHN P. GEIGER, a citizen of the United States, residing at Orwigsburg, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Throttles; and I 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 appertains to make and use the same.

My invention relates to throttle-valves for steam-engines, such as locomotives, has especial reference to means for packing the rod of the valve, and consists in certain improvements in construction, which will be fully disclosed in the following specification and claims.

As throttle-valves are generally constructed whenever the packing in the stuffing-box on the valve-rod requires renewal the fire must be drawn or banked and the steam blown off from the boiler, so that all pressure is removed from the throttle. It is my purpose to obviate this by providing a casing for the throttle-valve rod, applied to the exterior of the steam-dome of the boiler, and provided with means for preventing the escape of steam from the dome into the stuffing-box.

In the accompanying drawings, which form part of this specification, Figure 1 represents a side elevation of my invention; Fig. 2, a vertical longitudinal section, on an enlarged scale, showing the valve on its outer seat; and Fig. 3, a like view showing the valve on its inner seat.

Reference being had to the drawings and the letters thereon, A indicates a portion of a locomotive-boiler, B the steam-dome, and C a throttle-valve rod, all of which may be of any preferred form of construction.

D indicates a casing around the throttle-valve rod C, connected or attached to the exterior of the steam-dome B by a nipple *a*. The casing proper consists of a coupling *b* at its inner end which connects with the outer end of the nipple *a* and at its opposite end with the extension *c* of section *d*, and within said coupling *b* is a valve-chamber *e*, having an inner valve-seat *f*, formed by the outer end of nipple *a*, and an outer valve-seat *g*, formed

by the end of extension *c*, and a primary stuffing-box *h*, having a chamber for packing, and a gland *i*, which engages the extension *k* of the section *d* for adjusting the packing.

Within the casing D is an annular valve *l*, which surrounds the valve-rod C and is provided with faces *m n*, which engage the seats *f* and *g*, respectively, and with a tubular stem *o*, which fits the bore of section *d*, is internally screw-threaded at *p*, and engages the screw-thread *q* on the valve-rod and is longitudinally movable thereon, as will hereinafter more fully appear. At the outer end of the stem *o* is a secondary stuffing-box *r* to pack the valve-rod C, while the primary stuffing-box *h* packs the stem *o* of the valve *l*, and adjacent to the gland is a collar *t*, integral with the valve-stem, for a wrench to engage with to screw the valve in or out on the valve-rod C. The end of the valve-rod is provided with a coupling *u* for connecting it with a valve-operating link or lever *v*.

The normal position of valve *l* is shown in Fig. 2, with its face *n* engaging the outer seat *g*, in which position the throttle-valve is open and steam from the dome B fills the chamber *e* and surrounds the valve-rod C.

When it is desired to renew the packing in the stuffing-box *h*, the valve-rod C is pushed inward by the lever in the cab (not shown) and the lever secured in the usual manner, closing the throttle-valve. The valve *l* is then moved inward on the valve-rod by revolving the valve *l* on said rod until the face *m* of the valve rests against or upon the seat *f*, in which position the throttle-valve rod will be locked and steam prevented passing from the dome B into the valve-chamber *e*. The gland *i* is then unscrewed, and the packing removed from the stuffing-box and replaced by new packing, all of which can be accomplished while the boiler is under full head of steam and in a few minutes while a train is stopping at a station. The packing having been renewed, the valve *l* is moved outward on the valve-rod and restored to its normal position, when the throttle-valve rod is free to move in the casing D, carrying the valve *l* with it in its movements.

Having thus fully described my invention, what I claim is—

1. A fluid-pressure chamber, a valve-rod extending into said chamber and a casing for the rod connected to the wall of the chamber and provided with a valve-chamber in combination with a valve within said valve-chamber and surrounding the valve-rod; and a packing-chamber surrounding the stem of said valve.

2. A valve-rod and an inclosing casing connected to the wall of a fluid-pressure chamber, in combination with means for locking the valve-rod and means within the casing for preventing fluid from said chamber entering the casing.

3. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having two seats, in combination with a valve having two faces and surrounding the valve-rod, and a packing-chamber surrounding the stem of said valve.

4. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber, in combination with a valve surrounding the valve-rod and movably secured thereto.

5. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber, in combination with a valve surrounding the valve-rod and longitudinally movable thereon.

6. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having valve-seats at both ends thereof, in combination with a valve surrounding the valve-rod and having a working face at each end.

7. A steam-dome, a valve-rod having a screw-thread thereon and an annular valve having a tubular stem engaging said screw-thread, in combination with an inclosing casing connected to the exterior of said dome.

8. A fluid-pressure chamber, a valve-rod, a casing for the rod outside of said chamber and an annular valve having a tubular stem and revolvably mounted on said rod to move longitudinally thereon, in combination with a valve-chamber; and a packing-chamber surrounding the tubular stem of said valve.

9. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber, in combination with a valve surrounding said valve-rod and having a rod-packing chamber at the end of its tubular stem and a packing-chamber for the stem of the valve.

10. A fluid-pressure chamber, a valve-rod and a casing for the rod outside of said chamber and provided with a valve-chamber having a valve-seat at each end thereof, in combination with a valve having a face at each end, surrounding the valve-rod, longitudinally movable thereon and constructed to lock the valve-rod in one of its positions.

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

JOHN P. GEIGER.

Witnesses:

HARRY M. ZULICK,
CHAS. A. YEAGER.