

(No Model.)

2 Sheets—Sheet 1.

T. R. PICKERING.

THROTTLE VALVE.

No. 341,345.

Patented May 4, 1886.

Fig. 1.

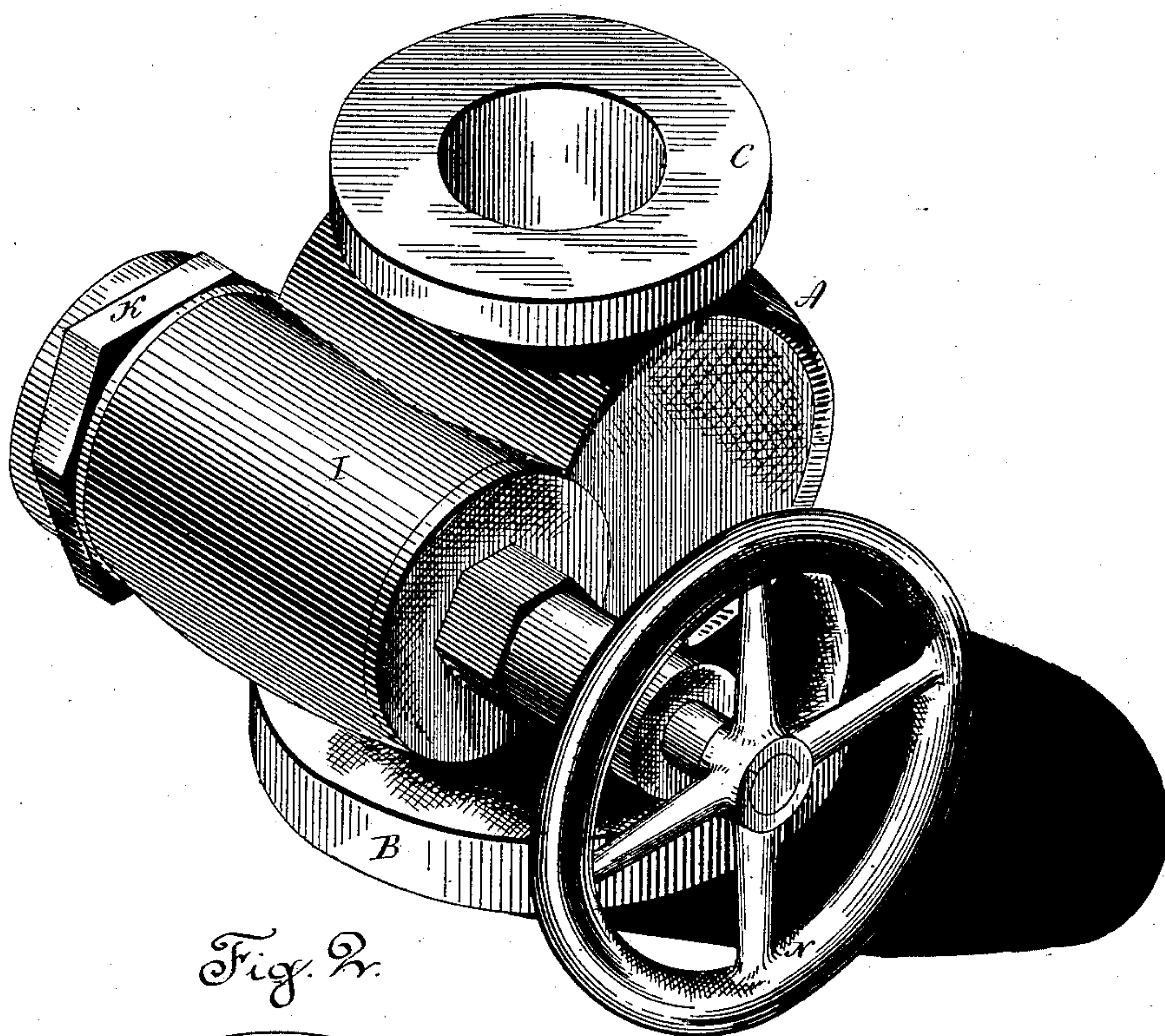
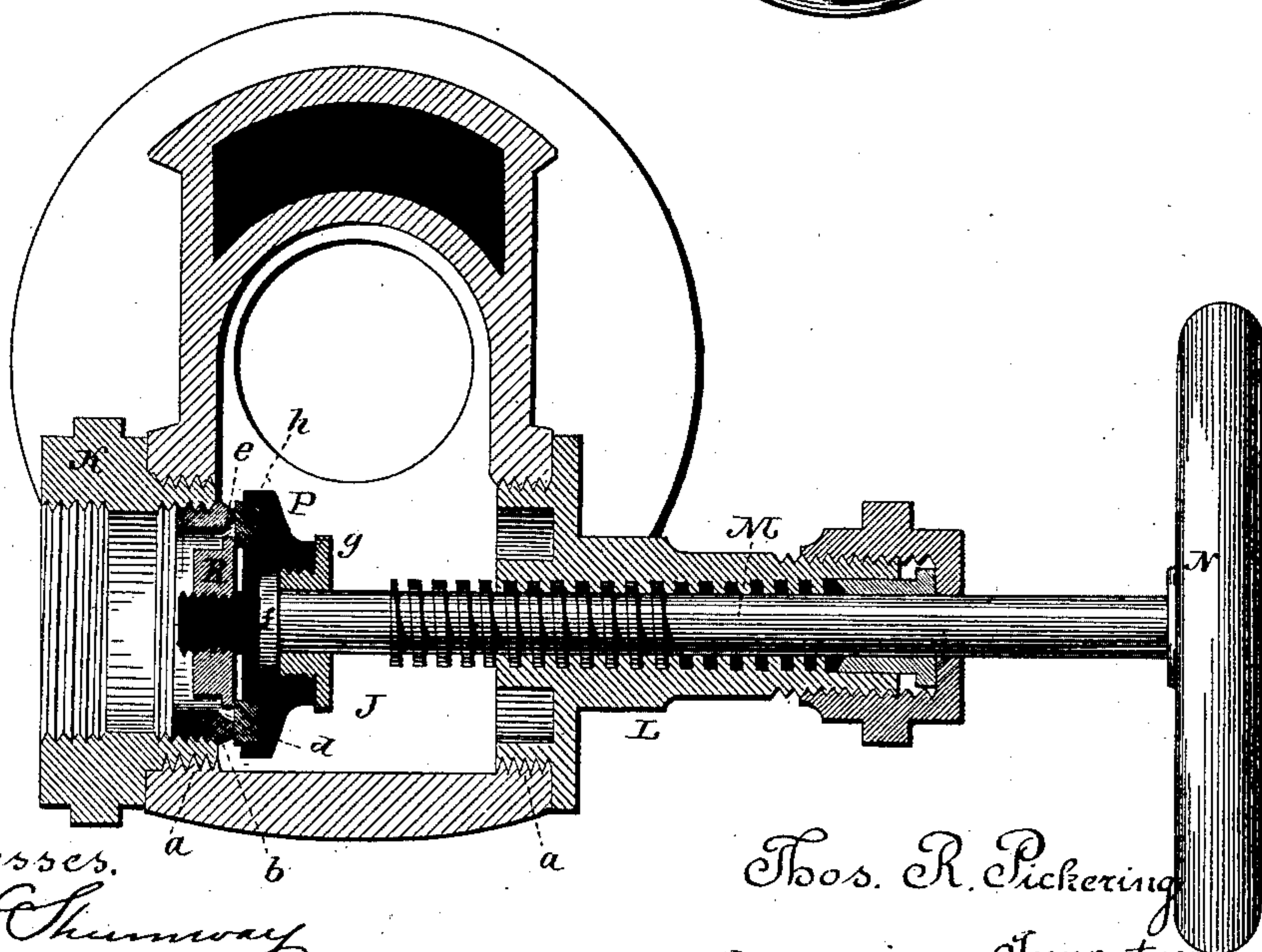


Fig. 2.



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(No Model.)

2 Sheets—Sheet 2.

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Fig. 3

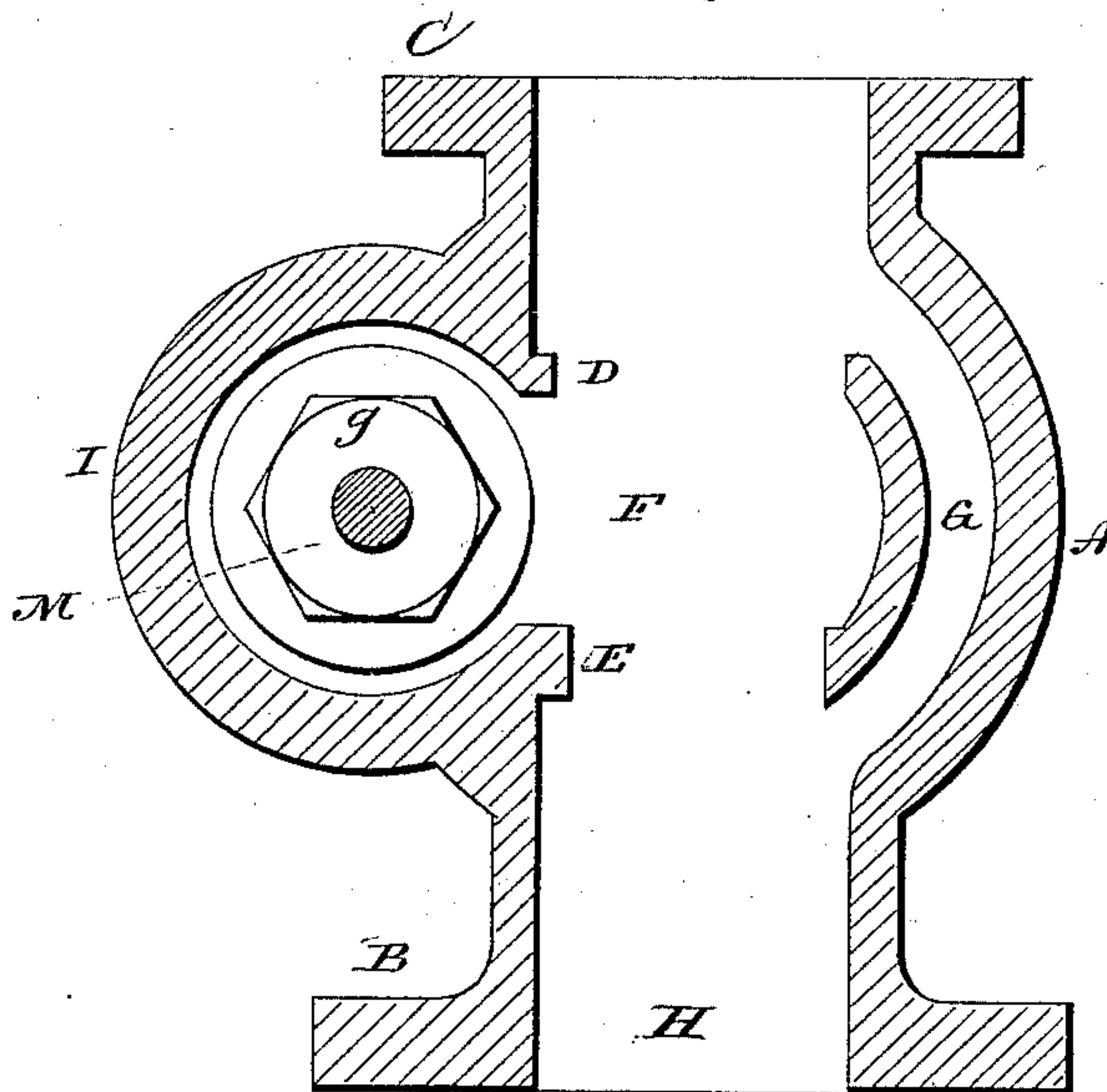


Fig. 4

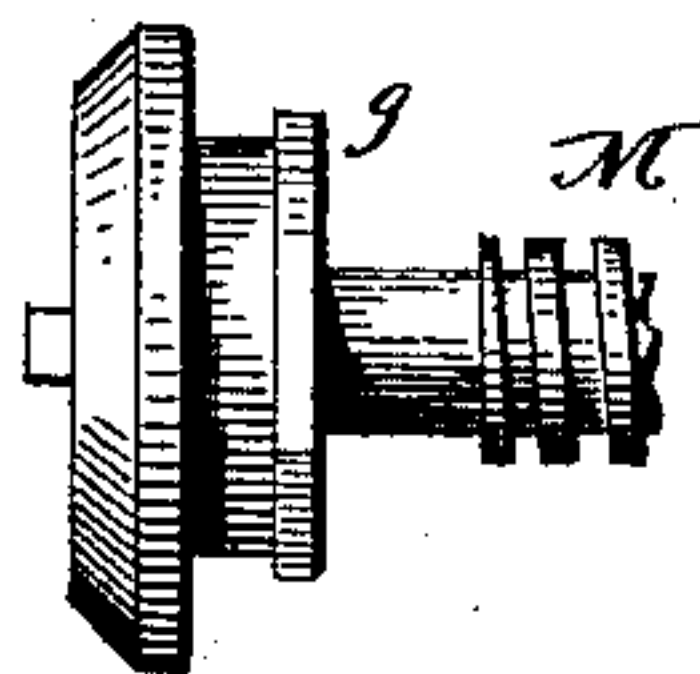
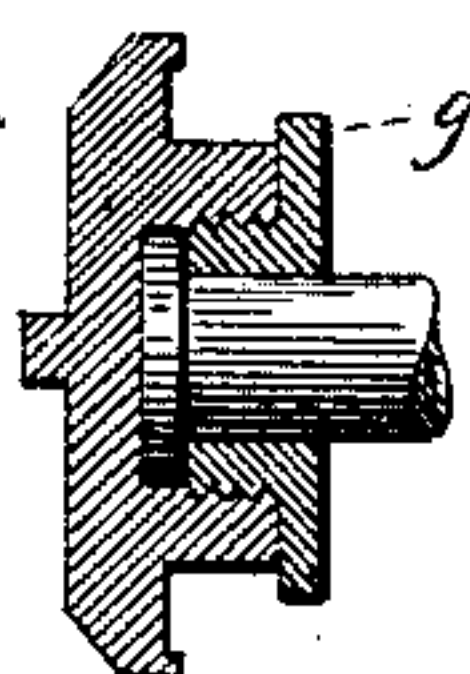


Fig. 5



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UNITED STATES PATENT OFFICE.

THOMAS R. PICKERING, OF PORTLAND, CONNECTICUT.

THROTTLE-VALVE.

SPECIFICATION forming part of Letters Patent No. 341,345, dated May 4, 1886.

Application filed December 28, 1885. Serial No. 186,838. (No model.)

To all whom it may concern:

Be it known that I, THOMAS R. PICKERING, of Portland, in the county of Middlesex and State of Connecticut, have invented a new Improvement in Throttle-Valves for Steam-Engines; and I do hereby declare the following, when taken in connection with accompanying drawings, and the letters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this specification, and represent, in—

Figure 1, a perspective view showing the exterior of the case; Fig. 2, a horizontal section cutting through the center of the throttle-valve case; Fig. 3, a vertical central section; Fig. 4, a side view, and Fig. 5 a central section of the conical valve.

This invention relates to an improvement in throttle-valves for steam-engines, and particularly to that class in which the throttle-valve is in the same case with the governor-valve, the object of the invention being to make the throttle-valve entirely independent of the governor-valve, yet in the same case, and also to construct the throttle-valve so that it may be reversed, and its stem extend from either end of the throttle-valve case, according to the position required for the valve; and the invention consists in constructing the throttle-valve chamber with a removable valve-seat at one end and a removable threaded spindle-socket at the opposite end, the ends of the chamber being screw-threaded, corresponding to the said seat and socket, so that the seat and socket may be introduced into either end of the chamber, and in details of construction, more fully hereinafter described, and particularly recited in the claims.

A represents the governor valve case, on one end of which is a head, B, and on the opposite end a similar head, C, by which the case may be connected with the pipe and governor; or the attachment may be any of the common devices for this purpose, and so that the case may be properly supported.

D represents one of the governor-valve seats, and E the other, in which the governor-valve (not shown) is arranged in the usual manner, and so that both seats are opened to the steam-chamber F, for the passage of the steam through the upper seat, thence around through the pas-

sage G to the escape H, and also through the valve-seat E directly into the escape H. This is a common and well-known construction, and does not require particular description.

At one side of the governor-valve case the throttle-valve case I is formed, the two cases being in one and the same casting, but so as to bring the throttle-valve entirely independent of the governor-valve. This independent relation of one valve to the other permits the removal of either valve without effect upon the other, in contradistinction to the valve in which the throttle is worked through the governor-valve chamber, and whereby the removal of one disturbs to some extent the other, the independence of the valves in this case being the same as if they were in separate cases joined by an independent connection.

Sometimes it is required that the handle of the spindle of the throttle-valve shall be at one end of the chamber and sometimes at the other; hence under the usual construction it is necessary to make such valves right or left hand. To adapt a valve-chamber to either a right or left hand position, I internally screw-thread the two ends of the throttle-valve chamber, of like diameter and like thread, as seen at *a*, Fig. 2, and I construct a socket, K, correspondingly screw-threaded to fit one end of the spindle, and this socket I make for the inlet, and internally screw-thread it or otherwise construct it for the attachment of the inlet steam-pipe, and also make this socket K to constitute the valve-seat. As here represented, the valve-seat is formed by a ring, *b*, introduced into the inner end of the socket, and so that the valve may bear thereon. At the opposite end I provide a spindle-socket, L, screw-threaded for introduction into that end of the chamber, and also internally screw-threaded, corresponding to the screw-thread of the valve-spindle M, this spindle-socket being provided with the usual stuffing-box arrangement. The two sockets are therefore adapted to be introduced into either end of the chamber, as the case may be.

The spindle carries the valve, which is adapted to set upon the valve-seat to close the passage from the steam-pipe into the governor-valve chamber or to open it, according to the direction in which the spindle is rotated. The spindle is provided with the usual hand-wheel,

N, or equivalent device, by which the spindle may be rotated.

The valves are prepared for market, say, as seen in Fig. 2. If in setting the valve it is found more convenient that the spindle should extend from the opposite end of the throttle-valve chamber, then the two sockets are removed and introduced in a reverse position, they being interchangeable, as before described.

In some cases a flat packed faced valve is desirable, and in others a conical valve is desirable. To adapt the single construction to either a flat-faced or conical valve, I employ the removable valve-seat *b*, which is constructed with a flat face, *d*, on its inner end, and also with a conical face, *e*, upon its inside. In Fig. 2 I show the flat face or packed valve. The spindle *M* is constructed with a collar, *f*, upon its inner end, and upon the spindle-back of this is a loose collar, *g*. This loose collar is screw-threaded upon its outside.

P is the body of the valve, which has a recess adapted to receive the collar *f* and the threaded portion of the collar *g*, and so that as the collar *g* is screwed into the body *P* it will draw it against the nut or collar of the spindle, so as to securely attach the two. In the face of the body *P* is a concentric recess, in which the packing-ring *h* is placed, and there clamped by a nut, *R*, adapted to bear upon the face of the packing. This packing may be copper, hard rubber, or other suitable material, which will readily adapt itself to the face of the valve-seat. The connection between the body *P* and the spindle is such that the spindle may revolve freely without revolving the valve, the collar *f* serving to connect the two in the usual manner for this class of valves. This construction of valve permits the ready removal of the packing for renewal or repairs.

The conical valve, as seen in Fig. 4, is constructed with its face conical, corresponding to the conical surface in the valve-seat *b*, and upon its back is a recess to set on over the collar *f*, and so as to receive the screw-collar *g*, as seen in Figs. 4 and 5. The interchangeable valves being furnished if either is preferred to the other, the one preferred may be introduced, the seat being adapted to either.

Thus I not only provide in the single article a right or left hand spindle for the throttle, as may be required, but also a valve-seat with valves adapted either to a flat-faced or a conical valve, as may be desired, so that the dealer has practically four distinct valves—that is to say, a right-hand flat-faced throttle, a left-hand flat-faced throttle, a left-hand conical-faced throttle, and a right-hand conical-faced throttle.

The valve-case with the removable sockets, whereby the spindle may be adapted to extend from either end of the case as required, may be applied in other classes of valves.

I claim—

1. The combination of the valve-casing *I*, containing a valve-chamber, with an exit-opening therefrom, the two ends of said case having an opening therein concentric with each other, of like diameter and like screw-thread, combined with an inlet-socket, *K*, screw-threaded, corresponding to the screw-threaded ends of the case, provided with a valve-seat, the socket *L*, also screw-threaded, corresponding to the screw-threaded end of the case, the said socket *L*, internally screw-threaded, the spindle *M*, screw-threaded, corresponding to the screw-threaded socket *L* and carrying the valve, the said sockets interchangeable from end to end of said case, substantially as and for the purpose described.

2. The combination of the valve-case, the removable inlet socket *K*, the removable valve-seat *b* in said socket, the removable socket *L*, the case constructed to receive said sockets respectively at either end thereof, but concentric to each other, the said socket *L*, internally screw-threaded, the valve spindle *M*, screw-threaded, corresponding to said socket *L*, the spindle constructed with a fixed collar, *f*, at its inner end, a loose screw-threaded collar, *g*, on said spindle, back of said collar, the body *P* of the valve constructed with a concentric recess upon its face, with a packing, *h*, therein, and the nut *r*, adapted to bear upon the face of said packing to secure it in said recess, substantially as described.

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Witnesses:

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