# Tyler & Kendall,

## Globe Valve,

No. 49,666, Patented Aug. 29, 1865

Fig. 2.

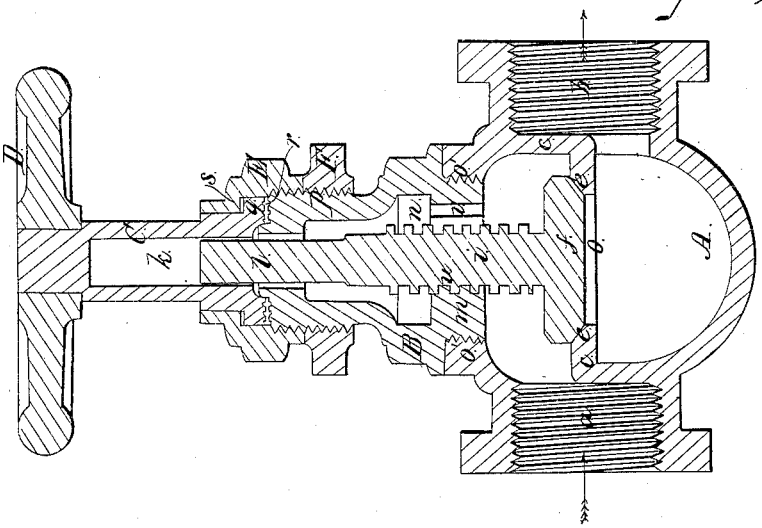
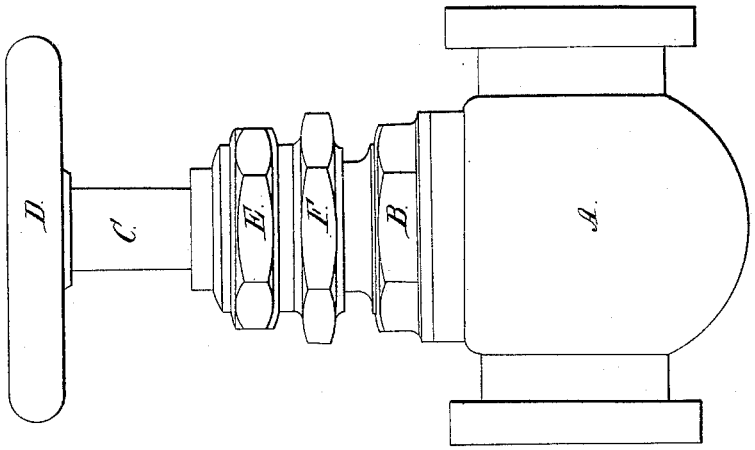



Fig. 1.




Witnesses.
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# UNITED STATES PATENT OFFICE.

ALBERT TYLER AND GEORGE F. KENDALL, OF FITCHBURG, MASS.

## IMPROVEMENT IN STEAM-COCKS.

Specification forming part of Letters Patent No. **49,666**, dated August 29, 1865.

*To all whom it may concern:*

Be it known that we, ALBERT TYLER and GEORGE F. KENDALL, of Fitchburg, in the county of Worcester and State of Massachusetts, have invented an Improved Steam-Cock; and we do hereby declare the same to be fully described in the following specification and represented in the accompanying drawings, of which—

Figure 1 is an elevation, and Fig. 2 a vertical and longitudinal section, of it.

Much difficulty has been experienced in preventing the leakage around the valve-stem of a common steam-cock, especially when the stem, in order to move the valve, has a longitudinal as well as a rotary motion imparted to it.

In the construction of our steam-cock we employ, to revolve the valve-stem *i* thereof, a key, C, which is provided with a hand-wheel, D, and when in action has a rotary motion only. In this key we form a prismatic chamber, *k*, to fit transversely to the prismatic head *l* of the said stem. Within the screw-cap B of the valve-case A we make a chamber, *n*, which surrounds the head *l* and the stem *i*, and is situated above the female screw *m*, which receives the male screw *u*, formed on the stem *i*. The chamber *n* we open into the valve-case above the valve-seat *e* by means of a passage, *v*, bored upward in the cap B, and arranged therein in manner as shown in Fig. 2. The chamber *n* also has free steam-connection with the chamber *k* within the key, the same being in consequence of the head *l* of the valve-stem being loosely fitted in the chamber *k*. A nut, E, is screwed on the screw *p* of the cap B, and against a soft-metal annulus or washer, *s*, placed on the top of a projection, *q q*, extending from and around the lower part of the key C. The lower end of the key C rests on an annular gasket or collar *r* of vulcanized india-rubber or gutta-percha, such collar or annulus *r* being placed on the upper part of the case-cap B, and being encompassed by the auxiliary screw-cap E. A check-nut, F, is also screwed on the male screw *p* and up against the cap E.

The case A, like that of various other steam-cocks, is furnished with a valve-seat partition, *c*, extending across it in manner as shown in Fig. 2. This partition has a peculiar passage, *o*, made through it, and having a conical valve-seat, *e*, to receive the valve *f*.

We employ the vulcanized-rubber or gutta-percha annulus *r* to aid in making a tight joint between the foot of the key and the top of the cap B, because it is far preferable to either metal, leather, or wood, on account of the peculiar action of the steam upon it. Although when cool, or at ordinary atmospheric temperature, the annulus is hard, yet when it is subjected to the action of hot steam it softens and swells, and thus operates to tighten the joint; and it will always retain its normal condition in other respects—that is, it will not be rotted or injured by the steam, as is the case with wood or leather; nor is it, like metal, liable to be affected by oxidizing agents usually in the steam. Thus by the use of the vulcanized material a mechanical action takes place when it becomes heated by the steam, such mechanical action operating to increase or insure the tightness of the joint.

By means of the passage *v*, leading out of the chamber *n* and into the valve-chamber, we are enabled to readily discharge from the chamber *n* any air or water which, by accumulating in the chamber and also in the space *k*, would tend to impede the proper operation of the valve and its key.

It is well known that after the valve has been closed the steam is apt to condense in the upper part of the valve-chamber and in the conduit leading thereto, and frequently to such extent as to pass between the screws of the stem and enter and fill the chambers *n* and *k*. Under these circumstances it will be seen that were it not for the expulsion-passage *v* the key would be turned at first with considerable difficulty in an attempt to open or raise the valve, as the accumulated water acts as an impediment to the rotation of the key and the lifting of the valve, and were it not for the passage *v* the water accumulated in the chambers *k* and *n* would have to be expelled through the narrow space between the male screw of the valve-stem and the female screw of the cap B.

The check-nut F is not only for the purpose of preventing the auxiliary cap E from being revolved by the key, but is to aid in effecting a tight joint or preventing the escape of steam from between the screws of the said auxiliary cap E and the main cap B.

We are aware that it is not new in faucets to have the valve move vertically without any rotary motion, and to be lifted by a screw having a rotary but no longitudinal motion. There

fore we do not claim such; nor do we claim a steam-cock made not only with lifting-screws arranged with or applied to the stem of the valve and the cap of the valve-case, but with the valve-stem provided with a key-socket to receive the key-head.

What we claim as new, and desire to secure by Letters Patent, is—

1. The arrangement of the prismatic chamber *k* within the key C, above the chamber *n*, with the head *t* projecting from the valve-stem, substantially upon the principle and in the manner hereinbefore set forth.

2. The combination of the passage *v* with the chamber *n* and the chamber *k*, arranged as described.

ALBERT TYLER.
GEORGE F. KENDALL.

Witnesses:
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