No. 789,469. PATENTED MAY 9, 1905.

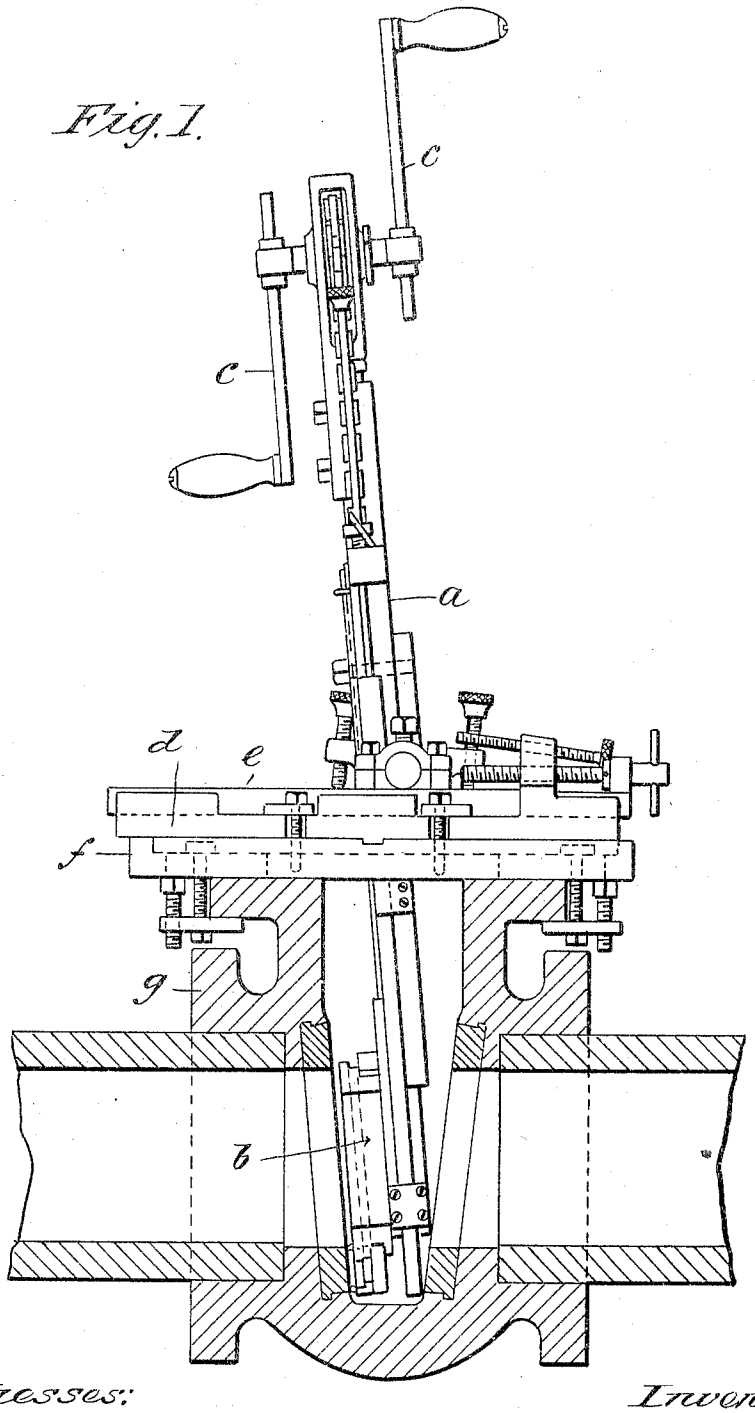
T. B. WILLIAMS.

METHOD OF RESEATING VALVES.

APPLICATION FILED JULY 1, 1904.

2 SHEETS—SHEET 1.

Fig. 1.



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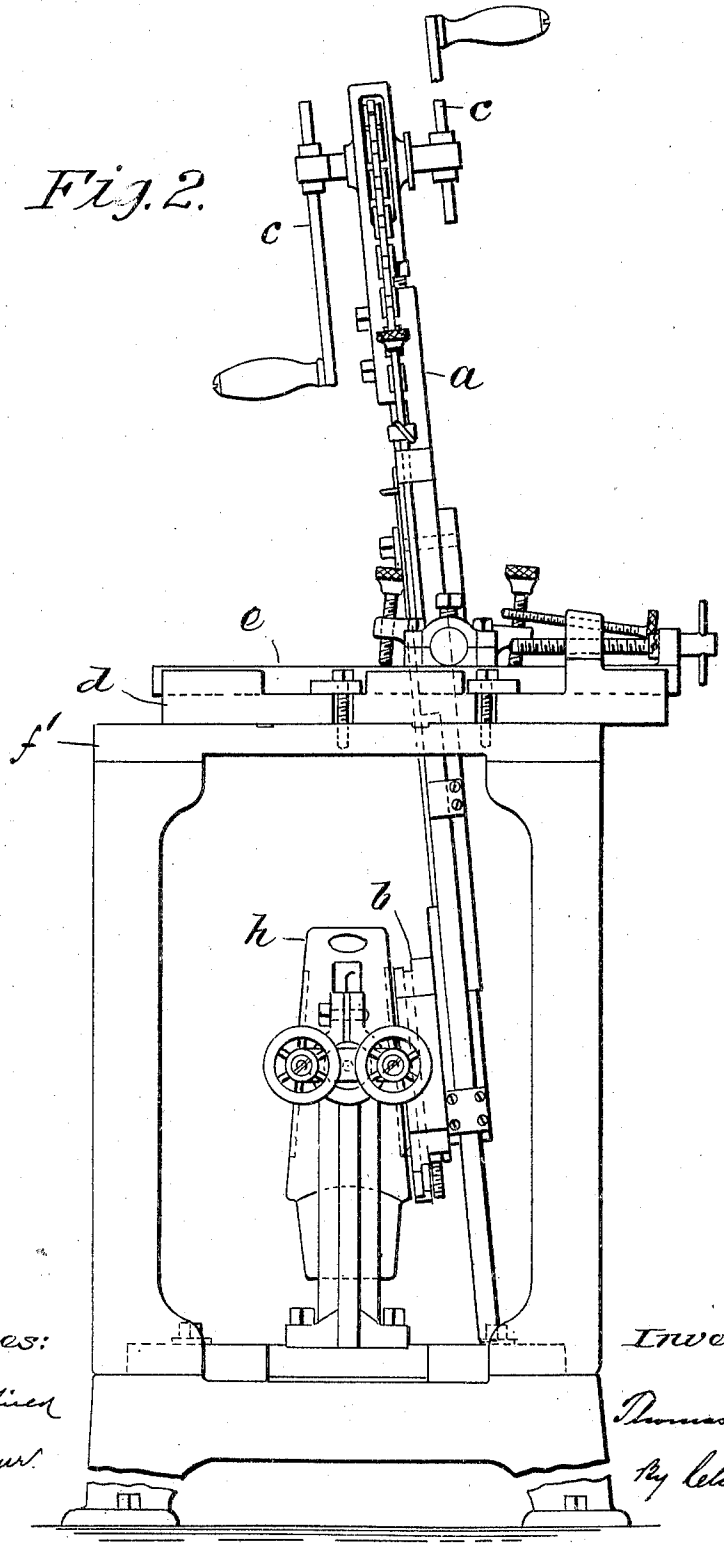
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METHOD OF RESEATING VALVES.

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2 SHEETS—SHEET 2.

Fig. 2.



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No. 789,469. Patented May 9, 1905.

UNITED STATES PATENT OFFICE.

THOMAS B. WILLIAMS, OF ORANGE, MASSACHUSETTS.

METHOD OF RESEATING VALVES.

SPECIFICATION forming part of Letters Patent No. 789,469, dated May 9, 1905.

Application filed July 1, 1904. Serial No. 215,026.

To all whom it may concern:

Be it known that I, THOMAS B. WILLIAMS, a citizen of the United States of America, residing at Orange, in the county of Franklin and State of Massachusetts, have invented new and useful Improvements in Methods of Reseating Valves, of which the following is a specification.

This invention relates broadly to valve-reseating devices, and specifically to a novel method of reseating large valves which cannot conveniently be removed from their location in a pipe-line and in which, therefore, the facing off of the seat of the valve in the body and the side or sides of the plug or gate must be effected in separate operations and in different places.

In order that the hereinafter-described method may be clearly understood in its practical application, means to carry it into effect are illustrated in the accompanying drawings. These drawings, however, are intended only to represent reseating mechanism, which may be of any suitable character and construction which is adapted to be adjusted to face off the seat of a valve and that side or part of the valve proper which bears on said seat. This mechanism is shown in its proper relation to a valve-body and to a plug or gate therefor, the type of the valve illustrated being what is generally known as a "gate-valve."

In the drawings, Figure 1 shows the valve-reseating mechanism in side elevation as applied to a valve-body, the latter and a portion of the pipes to which it is connected being in section. Fig. 2 is a view similar to Fig. 1, showing the mechanism in side elevation and in its relation to the plug or gate of the valve, the latter being clamped in vertical position in a suitable frame.

This invention is characterized by a feature which is believed to be broadly new in this art; and it consists in establishing a base-line common both to the valve-body and to the plug, from which base-line mechanical devices which are used interchangeably to face off the seat of the valve in the body and to face off the side of the plug elsewhere located may be operated and relative to which said mechanical devices may be adjusted, whereby if the seat is located at a certain angle the same mechanism used in facing it off is without change of adjustment used to face off the plug, thereby assuring absolute parallelism of the side of the plug and its seat.

Referring to the drawings, *a* may indicate an arm carrying at its lower end a rotatable cutting device *b*, means to rotate the same, as the cranks *c*, being provided, a suitable flexible connection extending between the cranks and the cutter-head. This arm is pivotally mounted on a base-plate *d*, on a slide *e* thereon, with suitable devices (which may be of any character) to secure the arm *a* in any adjusted position. The base-plate *d* is mounted on another plate *f*, which is clamped to the top of the valve-body *g*.

Referring now to Fig. 2, it is seen that the plug *h* of the valve is supported in a suitable frame in clamps mounted thereon, the upper ends of this frame consisting of a plate *f'*, on which the base-plate *d* of the reseating mechanism may be secured, the surface of the plates *f* and *f'* constituting a common base-line from which may be operated the reseating mechanism, whether that mechanism be applied to the valve-body or to the plug. It is to be remembered, however, that the means shown and described herein are used as types only. In practicing this invention, therefore, the bonnet of the valve is removed and the plug removed from the valve-body and mounted in a suitable frame, the upper surface of which is adapted to receive a facing-off mechanism, and some suitable means, as the plate *f*, is applied to the valve-body, the upper surface of which is likewise adapted to receive facing-off devices which may operate on the seat of the valve. Suitable mechanical devices are then provided for this purpose—that is, for facing off the seat and plug—which devices may be mounted first either on the frame where the plug has been set up or on the valve-body. If the latter, as shown in Fig. 1 of the drawings, then the facing-off devices will be adjusted to properly face off the seat whatever may be the angle thereof, after which operation these devices without change in their adjustment will be shifted bodily to the frame in which the plug or gate of the

valve is supported and so located thereon as to face off that side of the plug which will when the plug is in operative position bear against that portion of the valve-seat described as first operated on. One side of the plug being completed, the facing-off devices will be reversed without change of adjustment, whereby the opposite side of the plug may be faced off, after which operation these devices will then be shifted bodily without change of their adjustment to the valve-body and adjusted thereon to face off the remaining seat of the valve. It is thus apparent that a perfect fit between the sides of the plug and the faces of the seats will be assured. This method is equally applicable to valves of other types. For instance, some valves are made with one seat and with a gate one side of which only is faced off to bear on that seat, the other side of the gate when the latter is operated to close it running on inclined ways, whereby the gate will be forced laterally against its seat; but obviously this method is equally adapted to the facing off of a valve and seat of that type.

All plugs of gate-valves are provided with ways on the side thereof, whereby they are guided in their closing movements to a proper seating position, and when the plug is mounted in its clamps to be faced off the clamps should be made to fit these ways, whereby the opposite faces of the plug may be presented as nearly as possible to the facing-off devices in a practically normal position.

Heretofore in the reseating of large valves which could not be removed, or at least not economically, from their position in the pipe-line with which they were connected it has been necessary to depend upon the skill of the workmen in assuring absolute uniformity between the faces of the seat and the valve-plug when it has become necessary to resort to the reseating operation, and it has been found practically impossible to reseat large valves and have them tight; but by means of the method herein described all chance of error in respect of fit between the valve and its seat is eliminated.

The steps of the method hereinbefore described are those which would be followed when the angle of the face of both the seats in the valve is the same. It sometimes happens, however, that these angles will vary, one being at a greater or less angle relative to the vertical plane than the other, in which case the method of procedure would be as follows: One of the valve-seats would be first faced off and the mechanism then shifted to the frame in which the plug is clamped to face off one side of the plug. The mechanism then instead of being used to face off one side of the plug, as hereinbefore described, would be shifted to the valve-body in a reversed position and the adjustment thereof changed to conform to the angle of the face of the other seat, and after the operation has been performed on the latter the opposite side of the plug would be faced off and in this manner perfect parallelism would be assured between each seat and the side of the plug, although the angles of the seats and side may differ.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

The herein-described method of reseating valves which consists in fixing a valve-facing mechanism at such an angle to a base-piece on a support that the facing mechanism shall be disposed in position for truing the valve-seat, then transferring the facing mechanism to another support without changing the adjusted relation to its base-piece, then so adjusting the valve-gate to the facing mechanism on the said second support that the faces of the gate will occupy the same relation to the transferred base-piece that the latter occupied to the valve-seat before transferral.

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Witnesses:
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