(No Model.)

J. H. BLESSING.

STOP VALVE.

No. 294,357. Patented Mar. 4, 1884.

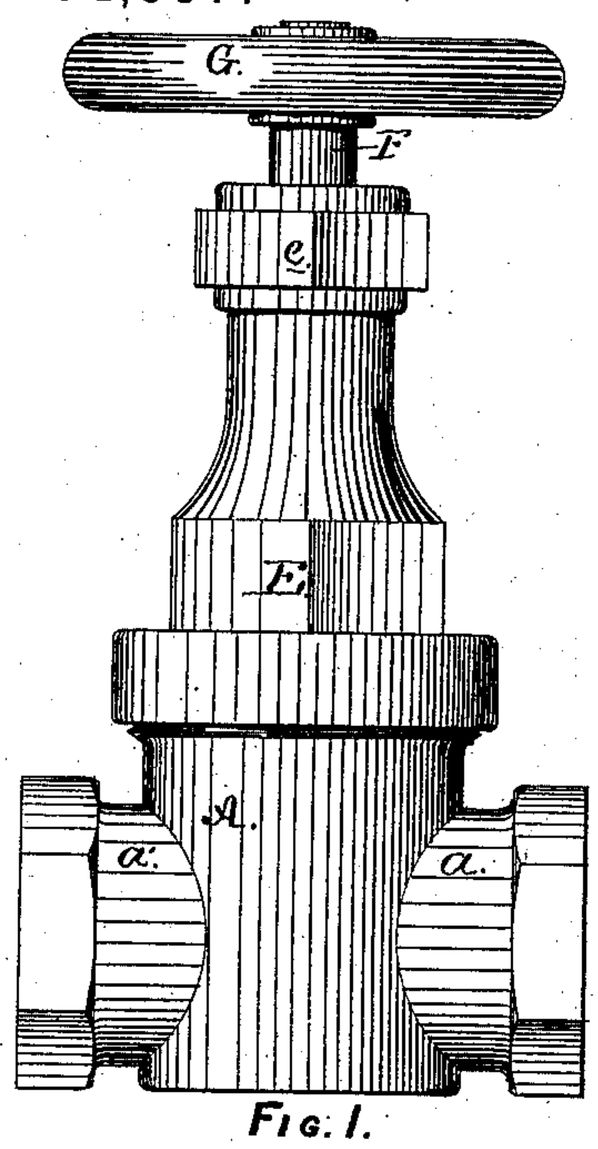

FIG. 1.

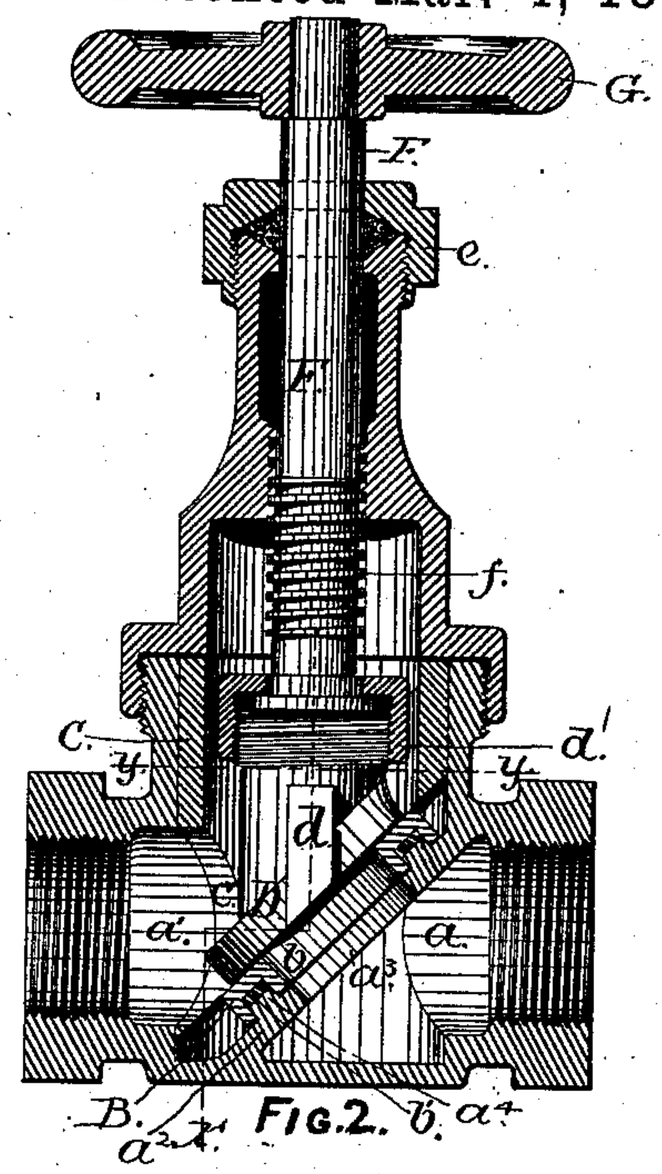

FIG. 2.

FIG. 5.

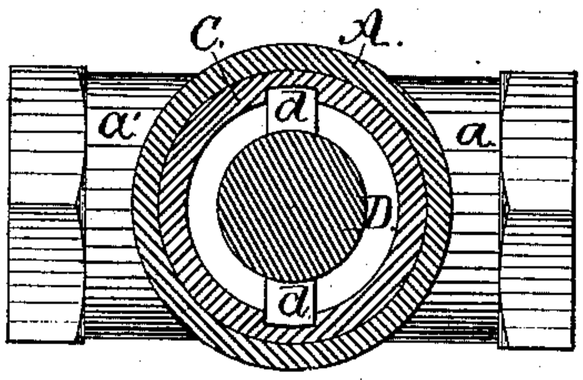

FIG. 4.

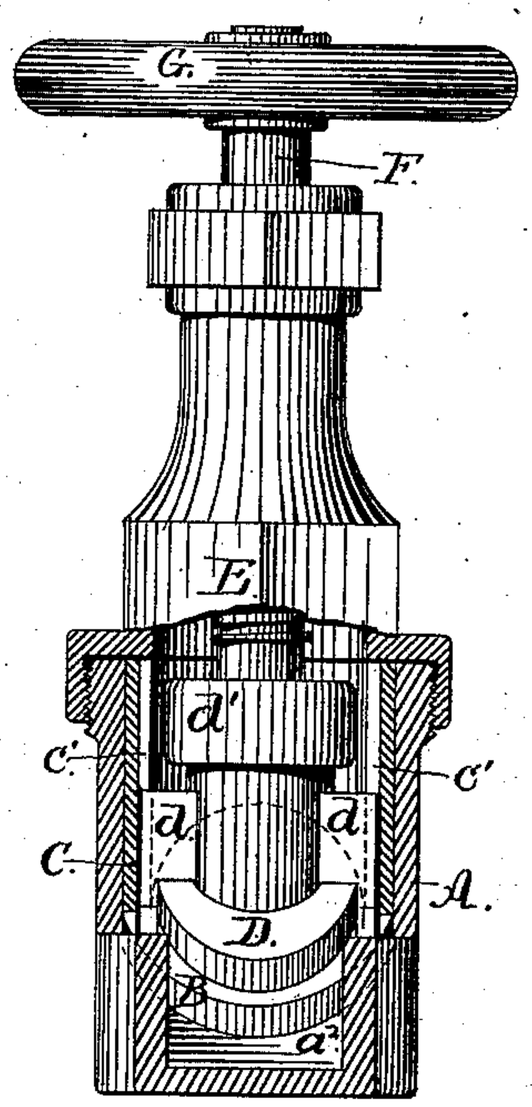

FIG. 3.

Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES H. BLESSING, OF ALBANY, NEW YORK.

STOP-VALVE.

SPECIFICATION forming part of Letters Patent No. 294,357, dated March 4, 1884.

Application filed May 16, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. BLESSING, of the city and county of Albany, in the State of New York, have invented certain new and useful Improvements in Stop-Valves, of which the following is a specification.

My invention relates to improvements in that class of straight-way stop-valves that are provided with valve-seats fixed in an inclined position in respect to the line of the flow of liquids through the device; and the object of my improvements is to provide that class of valves with removable seats which rest upon elastic cushions. This object I attain by means of the construction illustrated in the accompanying drawings, which form part of this specification, and in which—

Figure 1 is a side elevation of my valve; Fig. 2, a longitudinal section of the casing, valve-seat, and sleeve, the valve and screw-stem being shown in elevation; Fig. 3, a transverse section through the casing and sleeve at the irregular line *x* on Fig. 2; Fig. 4, a horizontal section at the line *y y* on Fig. 2, and Fig. 5 a rear elevation of the sleeve for securing the valve-seat in place.

As shown in the drawings, A is the valve-casing, made in the form of a vertical cylinder, with an inlet-branch, *a*, and outlet-branch *a'*, formed at opposite sides of it, and so as to range in line with each other. A transverse partition, a^2, fixed in an inclined position, as shown in Fig. 2, is formed in said casing between the branches *a* and *a'*. Said partition contains a circular opening, a^3, for the passage of fluids therethrough, and it is provided on its upper face with an annular tongue, a^4, which is made concentric to the opening a^3.

The removable valve-seat B is provided with an opening, *b*, which conforms to the opening a^3, and has in its under face an annular groove, which fits upon the annular tongue a^4 of the partition a^2. An elastic packing, *b'*, is fitted into the said annular groove, to form a tight joint between the valve-seat B and annular tongue a^4 in the manner fully described and shown in Letters Patent of the United States No. 272,634, granted to me on the 20th day of February, 1883.

The removable sleeve C is fitted to slide into the cylindrical body of the casing A, and has its lower end cut to an angle which conforms to the angle of the partition a^2, so that the said lower end may obtain a fair bearing upon the upper surface of the valve-seat B for the purpose of securing the latter to its place. Through its longest side the sleeve C has an opening, *c*, made to conform to the opening in the outlet-branch *a'* of the valve-casing, and transversely to the line of the opening *c*, vertical grooves *c'* are formed oppositely, in the inner side of said sleeve, for the purpose of guiding the valve D and preventing said valve from being rotated by the action of the screw-stem by which it is operated. The upper end of the sleeve C is finished to the same plane of the upper end of the cylindrical part of the valve-casing, and is adapted to receive a pressure from the bonnet E of said casing.

The valve D has its face arranged at an angle to its line of motion, which angle corresponds to the angle of the valve-seat B; and the said valve is provided with wings *d*, which engage in the guiding-grooves *c'* of the sleeve for the purpose above set forth. By means of a screw-cap, *d'*, the valve is connected to the screw-stem F in such manner that, while the said stem has perfect freedom to rotate, it will have full control of said valve to properly effect the opening and closing movements of the latter. The screw-stem F is provided with a screw-threaded portion, *f*, which engages in a counterpart thread cut into the bonnet E. The upper end of said stem passes out of the bonnet through a stuffing-box, *e*, in the usual manner. The hand-wheel G, or other suitable appliance, is attached to the outer end of the stem F for the purpose of rotating the latter to effect the opening and closing movements of the valve.

These valves I preferably make so that like parts for the same sizes will be perfectly interchangeable. The parts being all finished to the standard sizes and forms, the mode of assembling them into a complete device is as follows: The seat B, having the elastic packing *b'* in its annular groove, is placed upon the annular tongue a^4 of the valve-casing. Then the sleeve C is fixed in the cylindrical body of the valve-casing in such manner that the beveled end of said sleeve will bear fairly upon the upper face of the valve-seat B. The valve D is fixed upon the stem F, and the latter is inserted to or near its greatest height in

the bonnet E. Then the valve B is inserted into the sleeve C, each of the wings *d* being placed in its appropriate groove *c'*, and the bonnet E is screwed down, so as to press the sleeve C downward and hold the seat B securely in place. The hand-wheel G is next secured in place upon the stem F, and the valve is ready for use.

In case of any slight difference between the angle of the valve and valve-seat, (which difference, when the parts are properly made, would be inexcusable,) the elasticity of the packing *b'* will permit the valve-seat B to yield and accommodate itself to the face of the valve D when the valve-stem F is screwed down hard.

The inner parts of my valve are so perfectly accessible that any of its contained parts can be repaired and renewed without removing the valve-casing from its place in the pipes in which it is used.

I claim as my invention—

1. In a screw-valve, the combination, with a valve-casing and an inclined valve, operated by a vertically-moving stem, of a removable valve-seat arranged in an inclined position and supported by an annular tongue, which prevents a lateral movement of said seat, but permits a slight tilting movement thereof by reason of an elastic packing between said valve-seat and its support, thereby enabling the valve-seat to accommodate itself to the face of the valve, substantially as specified.

2. In a screw-valve, the combination, with a valve-casing provided with a valve-seat arranged in an inclined position, as herein described, and a removable sleeve provided with oppositely-arranged vertical guides, and having its lower end made to conform to the angle of the valve-seat, of a valve adapted to be guided in said removable sleeve, and having its face on an inclined plane that conforms to the angle of the valve-seat, the line of motion of said valve being constantly in a vertical direction, but inclined in respect to the plane of the valve-seat, substantially as herein specified.

3. In a screw-valve, the combination, with a valve-casing, A, containing a transverse partition, a^2, arranged in an inclined position, as herein described, a valve-seat, B, removably attached to the inclined partition a^2, and a removable sleeve, C, provided with guiding-grooves *c'*, and adapted to secure the valve-seat B in place, as herein set forth, of the valve D, having its face set to conform to the angle of the valve-seat B, and having wings *d*, that are adapted to engage in the guiding-grooves *c'*, as and for the purpose herein specified.

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