

J. W. Smith,
Molasses Gate.

N^o 16,810.

Patented Mar. 10, 1857.

Fig: 1.

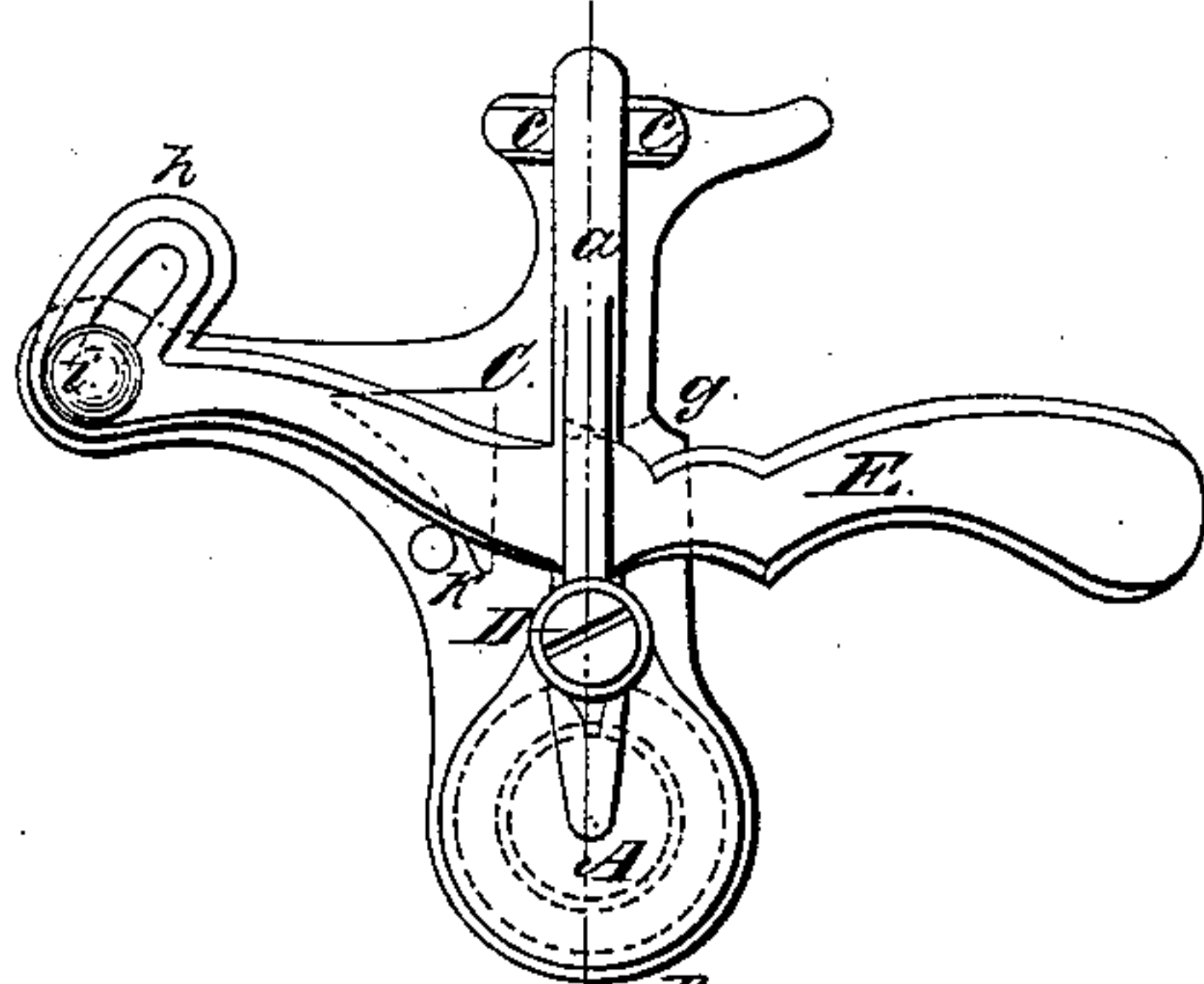


Fig. 2.

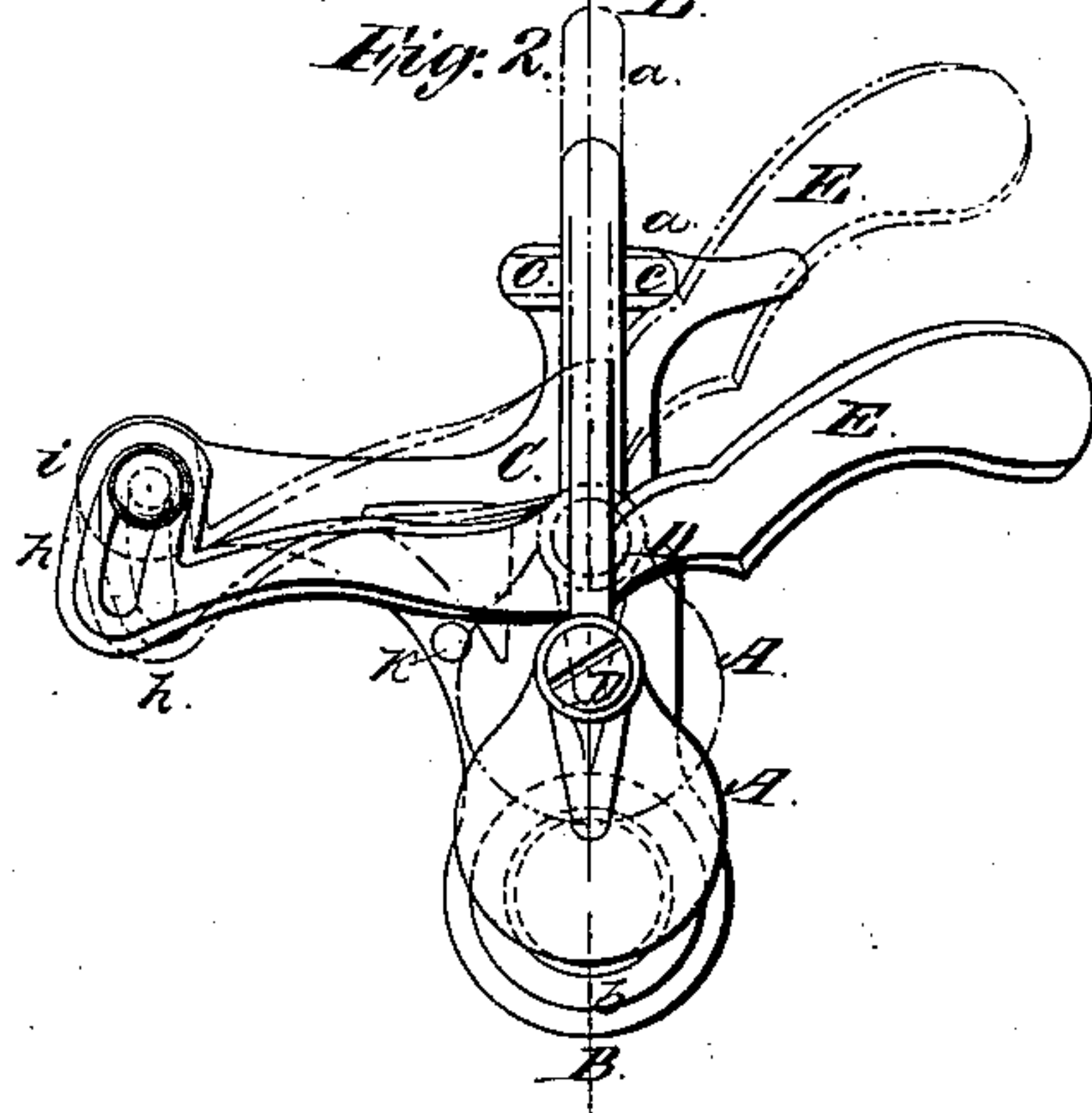
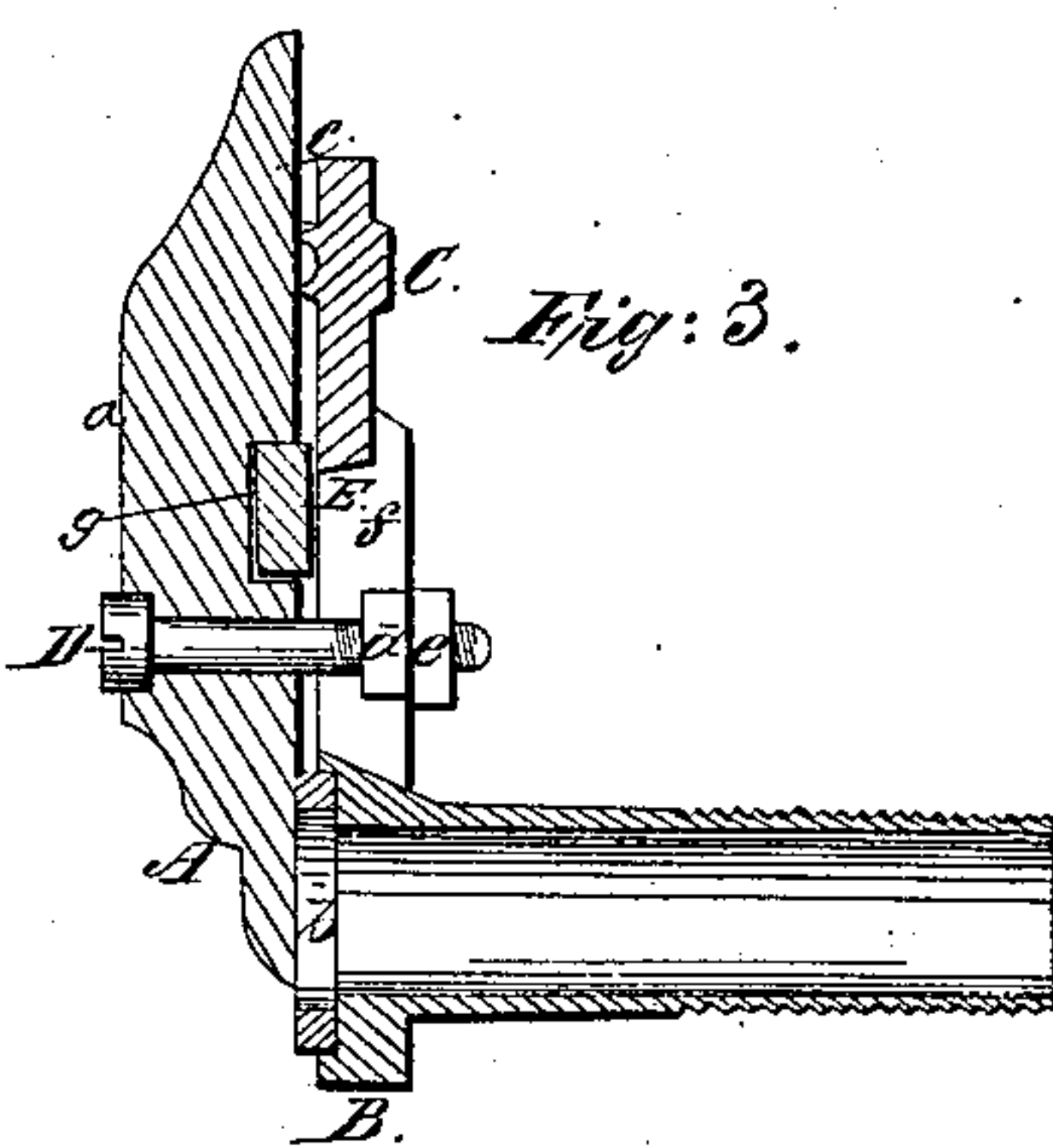


Fig: 3.



UNITED STATES PATENT OFFICE.

JARED W. SMITH, OF HARTFORD, CONNECTICUT.

FLUID-GATE OR FAUCET.

Specification of Letters Patent No. 16,810, dated March 10, 1857.

To all whom it may concern:

Be it known that I, JARED W. SMITH, of the city and county of Hartford and State of Connecticut, have invented a certain new and useful Improvement in Fluid-Gates or Faucets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, which forms part of this specification, and in which—

Figure 1 represents a face or front view of a faucet, closed; Fig. 2 a similar view of the same device as it appears in opening, and when open; and Fig. 3 a vertical section taken at right angles to the face of the faucet.

My improvement has reference to that description of fluid gate or faucet in which a sliding gate operated by hand lever is used for opening and closing the discharge pipe or orifice of the faucet. These faucets have been so variously constructed that only slight reference here can be made to a few of them. The gate, usually arranged in front of the discharge pipe or plug, has been operated by lever both with a straight and curvilinear stroke or movement. The straight movement however, at right angles to or across the orifice, is preferable to the curvilinear one as it avoids all tendency of the discharge to one side more than the other. Most of these faucets have been provided with some tightening or adjusting screw arrangement, also with guiding slots to direct the gate and lever in their proper line of action, and with stops to arrest the movement of the operating lever at the ends of its stroke; but the majority of these arrangements have comprised an objectionable number of screws, rivets and other parts, or, in case of the lever breaking, which sometimes occurs in frosty weather and on undue violence or pressure being applied to open and close the gate, overcome sticking and so forth, the gate not unfrequently detaches or hangs and allows the fluid to run to waste, and a rigid or otherwise equivalent attachment of the gate or valve to the operating lever is highly objectionable on this account. Furthermore, it is well known that great difficulty is frequently experienced in starting the gate or valve by the ordinary leverage which the handle gives, though said leverage is sufficient to move the gate after it has been fairly started: rusting of the parts from

want of usage, and sometimes, the nature of the fluid leaking at the mouth of the faucet, induces this sticking of the gate.

The faucet shown in the accompanying drawing presents less objections in these respects than most or all others of the kind to which it relates. In it, the sliding gate or valve (A) has a vertical or straight lift across the mouth of the discharge plug (B) as in others I have referred to, the plug having the usual packing (b) in front of it. The slide is guided in its vertical movement by an extension (a) of it working between projections (c) on the standard (C), and by a flange (d) of a nut (e) fitting on the end of an adjusting and tightening screw (D) that passes through the extension (a) of the slide, said flange (d) working between guide strips (f) on the back of the standard. The turning of the screw (D) from the front serves to tighten or adjust the slide, the nut (e) of the screw nut turning but by its flange (d) serving to guide the slide, and, in case of disconnection of the lever (E) from the slide, serving to prevent the slide (A) from dropping too low and letting the fluid run to waste. The lever (E), I make totally distinct from the slide, and, in case of breakage or from any other reason for its disconnection, it is independent as it were from the slide, or the slide may be taken off for repairs without removing the lever, a recess (g) being cut or formed in the back of the extension (a) of the slide in which recess the lifting or bearing part of the lever on the slide lies, as represented in Fig. 3 of the drawing.

The better to overcome "sticking" at starting of the slide, and avoid the necessity of blows which are apt to break the lever, I construct the lever (E) with a slotted arm (h) at its back end, somewhat similar to a former construction in a previous application for patent, but which slotted extremity performed a very different function. In the present case, either inner end of the slotted arm (h) becomes the bearing surface of the lever upon a fulcrum pin (i), alternately, but only for the concluding portion of the movement in the lift of the slide, an auxiliary or closer fulcrum pin (k) on the standard forming the fulcrum or bearing surface of the lever in starting the slide to open it, as will be evident from inspection of the parts as exhibited in Fig. 1 of the drawing. Thus, when the slide is fully down,

as in Fig. 1, and the hand applied to raise the handle or lever, it will be seen that the pin (*h*) first forms the fulcrum to the lever, whereby a more advantageous leverage is obtained to overcome "sticking" and fairly start the slide; but upon its being fairly started, as represented by black lines in Fig. 2, the fulcrum then is changed to the back pin (*i*) for the remainder of the up stroke, as is shown by red lines in Fig. 2, which change presents a less advantageous leverage as regards lifting force on the slide but the "sticking" having been overcome it gives sufficient power to work the slide the remainder of its up stroke without the disadvantage of loss of speed as occurs in the use of the closer fulcrum (*h*). This advantageous change of fulcrum in the lift involves no stoppage or change of motion as regards direction. If requisite both hands may be conveniently applied to start the slide open, namely, one hand upon the handle end of the lever to raise it and the other hand used to press down on the upper end or head of the slotted arm (*h*).

When running off fluid from a cask with the gate set only partially open, as is frequently preferable, the lever is free to rock in the recess (*g*) of the extension piece (*a*) without disturbing the set of the slide, so that any slight accidental agitation of the lever will have no effect on the slide.

An equivalent to the slotted arm (*h*) of the lever and pin (*i*) might be used, by mak-

ing a similar slot in the standard and having the pin (*i*) attached to the lever in place of the slot; or other variations made, constituting in effect a like fulcrum changing stop arrangement.

What I claim here as new and useful in faucets or fluid gates of the description referred to, is:—

1. The slide (*A*) guided, secured and made adjustable as described by the screw pin (*D*) and nut (*e*) having a guiding flange (*d*) for travel within guide strips (*f*), when the same are used in connection with an operating lever (*E*) loosely connected, by recess (*g*), with said slide, for the more convenient removal of the parts and retention of the slide in case of breakage of the lever, and for the more free and independent operation of the parts and so that the one bolt (*D*) holds the slide without the aid of the lever.

2. I also claim, in the combination of the lever (*E*) and slide (*A*), or therewith, the fulcrums (*i* and *h*) at different distances from the center of the slide, and slotted arm (*h*), for operation in the manner and for the purposes substantially as set forth.

In testimony whereof, I have hereunto subscribed my name.

JARED W. SMITH.

Witnesses:

A. GREGORY,
JOHN S. HOLLINGSHEAD.