

(No Model.)

J. T. LYNCH & E. J. FITZGERALD.

LIQUID DISCHARGING APPARATUS.

No. 370,707.

Patented Sept. 27, 1887.

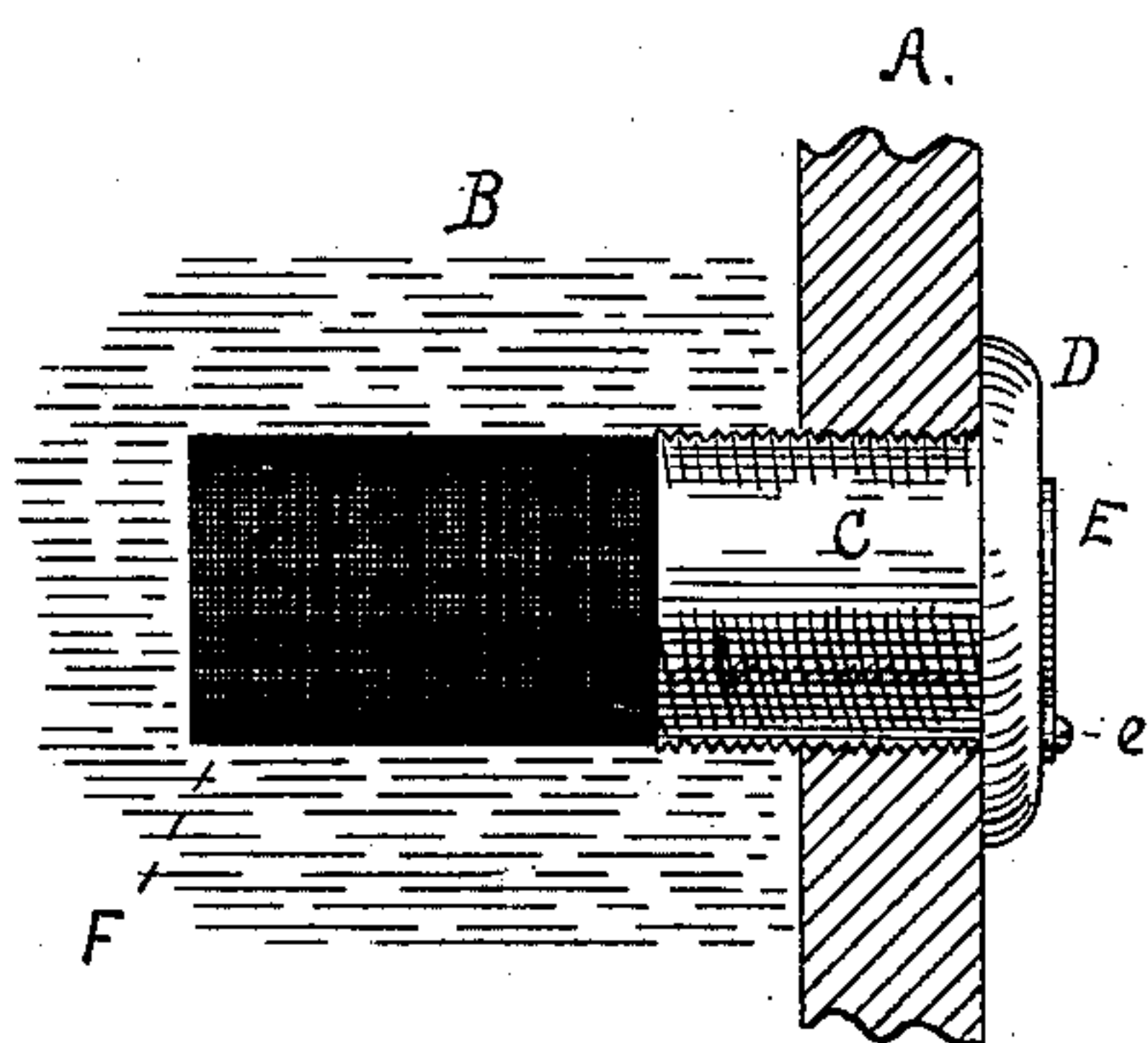


Fig. 1.

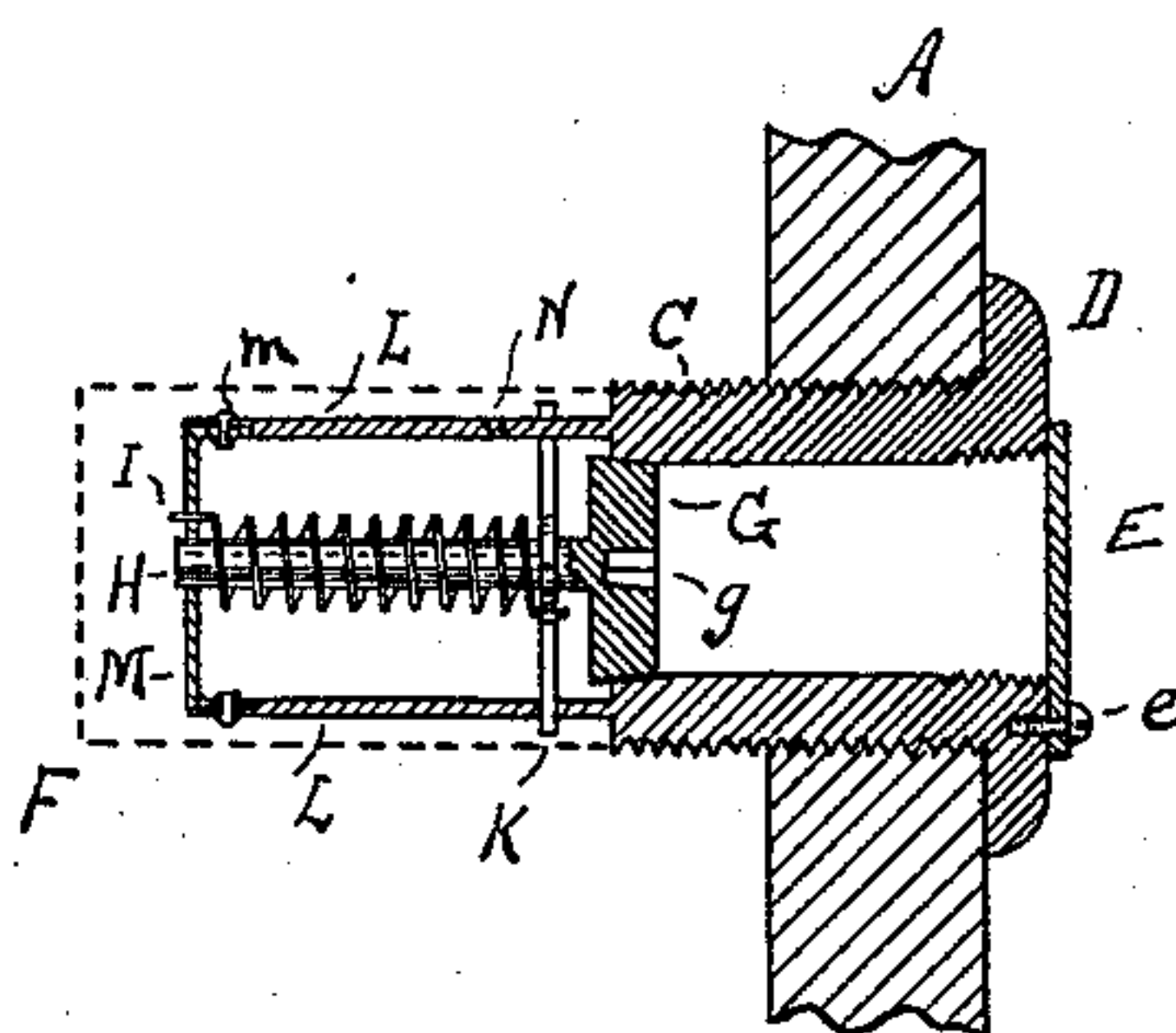


Fig. 2.

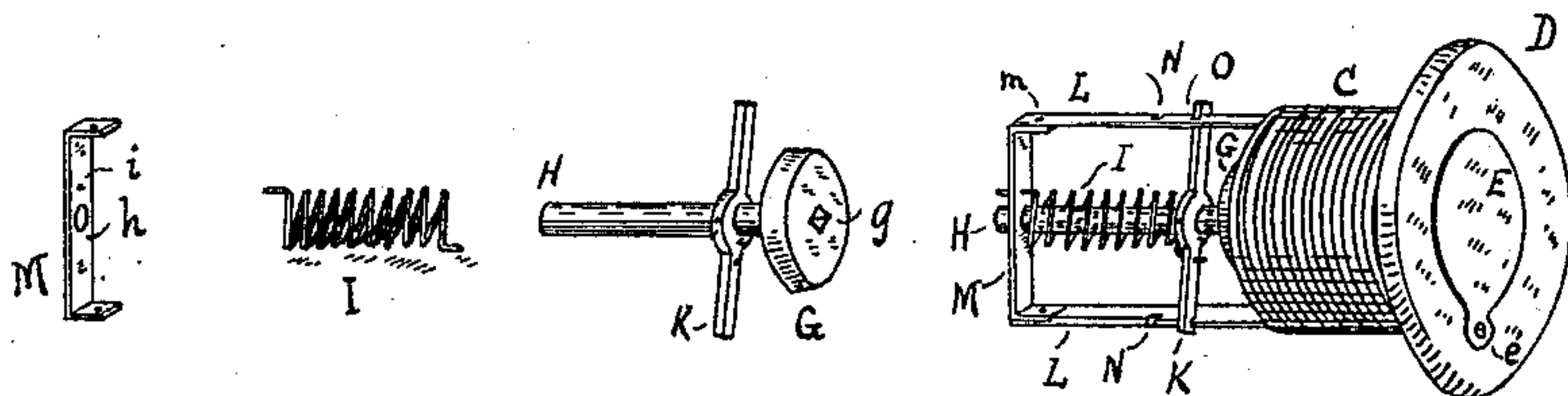


Fig. 3.

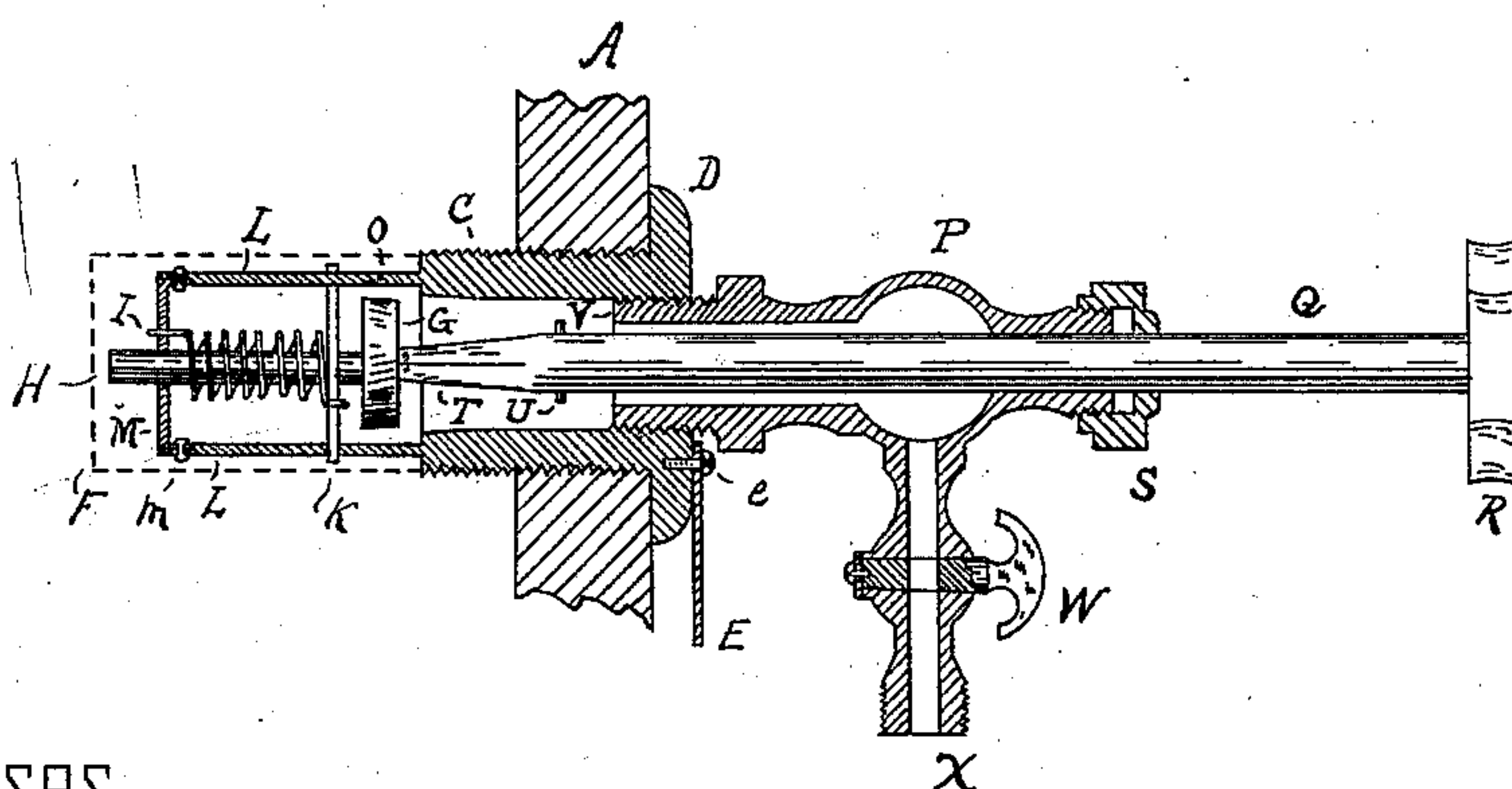


Fig. 4.

Witnesses _____

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JOHN T. LYNCH AND EDWARD J. FITZGERALD, OF HOLYOKE, MASSACHUSETTS.

LIQUID-DISCHARGING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 370,707, dated September 27, 1887.

Application filed January 13, 1887. Serial No. 224,239. (No model.)

To all whom it may concern:

Be it known that we, JOHN T. LYNCH and EDWARD J. FITZGERALD, of Holyoke, in the county of Hampden and Commonwealth of Massachusetts, have invented a new and useful Improvement in Liquid-Discharging Apparatus, of which the following is a specification, reference being had to the accompanying drawings, forming part thereof.

Our invention relates to that class of devices for discharging liquids from a receptacle in which one member is permanently secured to the receptacle, normally closing the outlet thereto, and a second member is adapted to be affixed to said first member and to co-operate with it in such manner as to open the outlet and discharge the liquid.

The object of our invention is to provide an apparatus of this nature in which the first member can be readily secured to the receptacle by being inserted from the outside through the faucet-hole or other outlet thereto, and in which locking devices are employed to supplement the action of the usual spring to normally close the outlet.

To this end our invention consists in the construction and combination of parts hereinafter fully described, and particularly pointed out in the claims.

Referring to the drawings, in which like letters designate like parts in the several figures, Figure 1 is a side elevation of one member of the apparatus invented by us as permanently affixed to a liquid-receptacle. Fig. 2 is a vertical longitudinal section thereof. Fig. 3 is a perspective view showing the parts constituting said member separately and also assembled preparatory to being affixed to the receptacle. Fig. 4 is a vertical longitudinal section of the complete apparatus as applied to a receptacle when discharging liquid therefrom.

Proceeding first to describe the member of our apparatus which is designed to be permanently affixed to a receptacle, the letter C designates a bushing, made of brass or other suitable material, having the flange D at one end, and preferably screw-threaded upon its periphery, as shown, whereby it is adapted to be screwed into the faucet-hole or other outlet to a liquid-receptacle, a section of the wall

of which is designated by the letter A in Figs. 1, 2, and 4. The bore of said bushing is also screw-threaded for a short distance from its outer end, to adapt it to receive the second member of the apparatus, as hereinafter described.

Projecting from the inner end of the bushing, and preferably made integral therewith, as shown, are two parallel rods, L, and secured to the ends of said rods by rivets *m*, or in other suitable manner, is a bar, M, said rods and bar thus forming a bracket for supporting and guiding the stem H of a valve-plug, G, which stem passes freely through an orifice, *h*, in said bar. The plug G is of proper diameter to closely fit the inner end of the bore of the bushing, said plug and the mouth of the bore being preferably made slightly tapering, as shown, to insure a perfectly-tight joint.

A spring, I, surrounding stem H, will normally retain plug G within the mouth of the bore to prevent the escape of liquid from the receptacle, and also to prevent the latter from becoming fouled, when empty, by the entrance of dust and other impurities through the outlet. In order to supplement this action of the spring, and positively retain the plug in both its open and closed positions, we have added to this member of the apparatus a locking device, which, as shown in the drawings, consists of a cross-bar, K, rigidly secured at the middle point thereof to stem H. The ends of said bar extend slightly beyond the rods L of the bracket and upon opposite sides thereof, and said rods are provided with notches N O upon the side adjacent to the contiguous end of the bar, said notches N being opposite the ends of the bar when the valve is open, as shown in Fig. 4, and notches O being opposite said ends when the valve is closed, as shown in Figs. 2 and 3. The spring I has one of its ends inserted in a hole, *i*, in the bar M of the bracket, and its other end connected to the cross-bar K upon one side of stem H in such manner that it exerts an axial strain upon the stem to press the ends of the cross-bar against rods L in addition to its function of pressing said stem and the plug toward the bushing. From this construction it follows that the plug will be securely locked in both its open and closed positions by the bar K as

its ends are forced by the stress of the spring into notches N and O, respectively, and that a slight axial movement of said plug in opposition to the stress of the spring will release said bar from the notches, so that the valve can be opened by pushing back the plug against the lengthwise pressure of the spring, or, when open, can be closed by said spring automatically.

10 The plug G will be provided on its outer face with means for engaging a key therewith, for imparting thereto the slight axial movement above referred to, and in this instance such means are shown as consisting of a central rectangular depression, *g*.

15 The bushing will preferably be provided with a cover or seal, E, at its outer end, pivoted thereto by screw *e*, which, when closed, as shown in Figs. 1, 2, and 3, will prevent entrance to the bore thereof of dirt and impurities of any sort, which would otherwise be likely to clog the interior screw-threads and to foul said bore. We prefer, also, to secure a screen, F, of fine wire-gauze to the inner end of the bushing inclosing the bracket, as shown, to prevent sediment in the liquid from choking the valve or passing out therethrough.

As previously stated, the parts thus far described, constituting the first member of our apparatus, are designed to be permanently secured to the receptacle, and as the bracket and screen, secured to the inner end of the bushing, do not extend beyond the line of the periphery of the bushing, the parts can be assembled, as shown in Fig. 3, and can then be inserted in the faucet-hole or other outlet to the receptacle, being securely held in place by the bushing itself. This feature of our invention is of especial importance in applying the apparatus to receptacles already in use, since it renders opening the receptacle wholly unnecessary; and it is also of great importance when it is desired to remove the portion of the apparatus lying within the receptacle for the purpose of renewing the spring or making other repairs, which can be done by simply unscrewing the bushing.

20 The second member of our apparatus, as shown in Fig. 4, consists of the shell P, having a central chamber, and an outlet-stem, X, leading therefrom, having the valve W. The shell is provided at one end with the screw-threaded nipple V, whereby it is adapted to be connected to the outer end of bushing C, as shown, and at its opposite end said shell supports and guides a key, Q, which passes longitudinally therethrough. The key is provided at its outer end with a hand-wheel, R, and terminates at its inner end in a rectangular point of a size to fit easily in the depression *g* in the face of plug G. Lugs U upon the key near its inner end prevent it from being accidentally withdrawn from the shell. The bore of the shell from its inner end to the central chamber therein is of such diameter that free passage for the liquid around the key is afforded, while from the chamber to the

outer end of the shell said bore is reduced in diameter to closely embrace the key, and thus forms a bearing in which the latter is capable of being moved longitudinally and axially. A packing-box, S, prevents the escape of liquid from the outer end of the shell.

The operation of the apparatus is as follows: The first member being affixed to the receptacle with its valve closed, as shown in Figs. 1 and 2, will effectually prevent the entrance thereto of all impurities, its action in this respect being assisted by the closed seal E. The valve will also prevent the escape of the liquid B from the receptacle when the latter is filled; and being securely locked by the cross-bar resting in notches O, no amount of jar incident to handling and transporting the receptacle can loosen plug G in its seat in the mouth of the bore of the bushing. For the same reason, the intentional opening of the valve by unauthorized persons is rendered difficult as compared with such apparatus as heretofore constructed, in which it is necessary merely to force back the plug to gain access to the contents of the receptacle. When it is desired to discharge the liquid, seal E is swung back, as shown in Fig. 4, and the nipple V of the second member is screwed into the outer end of the bore of the bushing, the valve W being closed. The key is then advanced and slightly rotated, if necessary, by means of its hand-wheel R until its squared end T enters depression *g* in the plug; and, after turning the plug and its stem sufficiently to release the cross-bar from notches O, the key is again advanced, pushing back the plug until the ends of the cross-bar are forced into notches N by the stress of spring I, thus locking the valve in its open position. The liquid is then free to flow through the shell P and its stem X, and can be discharged in the desired quantities by opening and closing valve W, as with an ordinary faucet. When all the liquid has been discharged, or when, for any reason, it is desired to remove the second member before the receptacle is emptied, a slight rotation of plug G, by means of the key, will release the cross-bar from notches N and permit the spring to close and lock the valve, as before.

It is obvious that an operative device could be constructed to lock the valve in which the bar K would project from but one side of the stem H and contact with but one of the rods L; but we prefer to make it as shown, as being the stronger construction.

It is also obvious that the engagement between the end of the key and face of the plug to impart axial movement to the latter could be effected in ways other than that shown within the spirit of our invention. We therefore do not wish to limit ourselves to the exact construction shown in all of its details, as various modifications thereof could be made without departing from the essence of our invention.

We claim—

1. In a liquid-discharging apparatus, bushing C, valve-plug G, stem H, a bracket projecting from the end of said bushing for supporting and guiding said stem, and a locking device, such as the cross-bar K, secured to said stem and engaging with a notch in said bracket for positively locking the plug in position to close the mouth of the bushing, combined and operating substantially as set forth.

2. In a liquid-discharging apparatus, bushing C, valve-plug G, stem H, a bracket consisting of rods L and bar M, supporting and guiding said stem, a locking-bar rigidly secured to said stem and extending at a right angle thereto beyond the plane of rods L, spring I, connected at one end to the bracket and at the other end to the locking-bar at one side of stem H, whereby said locking-bar is retained in contact with one of said rods L, and means whereby the locking-bar may be retained at different points upon said rod, combined and operating substantially in the manner set forth.

3. In a liquid-discharging apparatus, bushing C, plug G, stem H, the bracket composed of rods L and bar M, said rods having notches N O upon opposite sides thereof, cross-bar K, rigidly secured to said stem and having its ends extending beyond said rods, and spring I, connected at one end to bar M and at the other end to cross-bar K at one side of the stem in such manner as to press the stem and plug toward the end of the bushing, and also to retain the ends of the cross-bar in contact with rods L, in combination with means for axially turning the plug and stem to release said bar from said rods, substantially as and for the purpose set forth.

4. In a liquid-discharging apparatus, bush-

ing C, valve-plug G, stem H, the supporting and guiding bracket having notches O, spring I, and locking-bar K, in combination with shell P, stem X, leading therefrom and containing valve W, and key Q, mounted in said shell and having its inner end constructed to operatively engage plug G in such manner that axial movement of the former will be imparted to the latter, substantially as set forth.

5. In a liquid-discharging apparatus consisting of two members, the first member consisting of bushing C, adapted to be inserted within the faucet-hole or similar outlet to a liquid-receptacle, valve-plug G, fitted to one end of the bore of said bushing and having a rectangular depression, *g*, in its face, stem H, a bracket projecting from the end of the bushing composed of the rods L, provided with notches N O, and bar M, uniting the ends of said rods, said bar having a central orifice for supporting and guiding said stem, cross-bar K, rigidly secured to said stem and extending beyond said rods L, and spring I, connected at one end to bar M and at the other end to cross-bar K at one side of the stem, in combination with the second member, consisting of shell P, having means for securing it to bushing C, stem X, containing valve W, and key Q, mounted in said shell, so as to have both axial and endwise movements therein, said key having hand-wheel R at one end and having its opposite end shaped to fit the depression *g* in the face of plug G, substantially as shown and described.

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Witnesses:

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