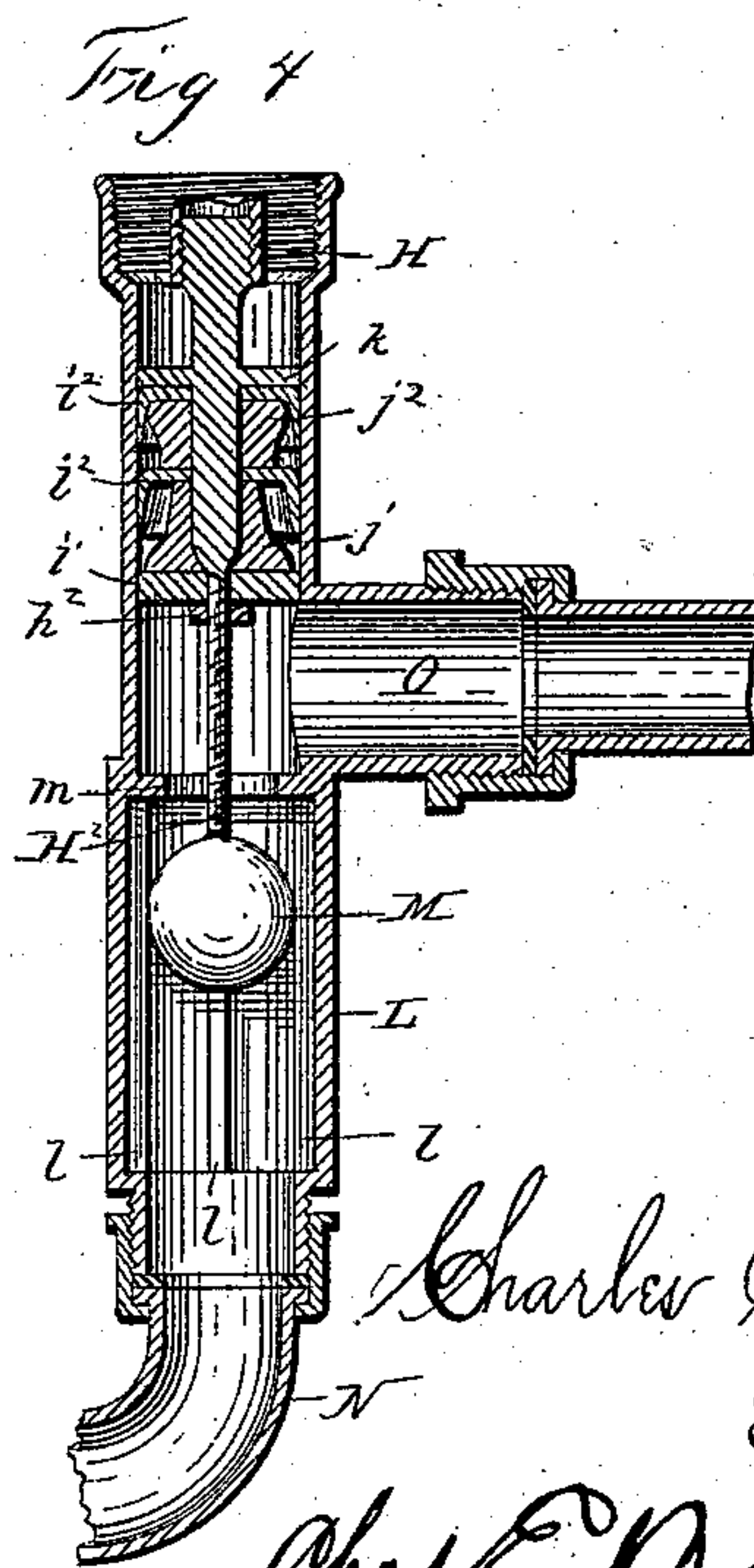
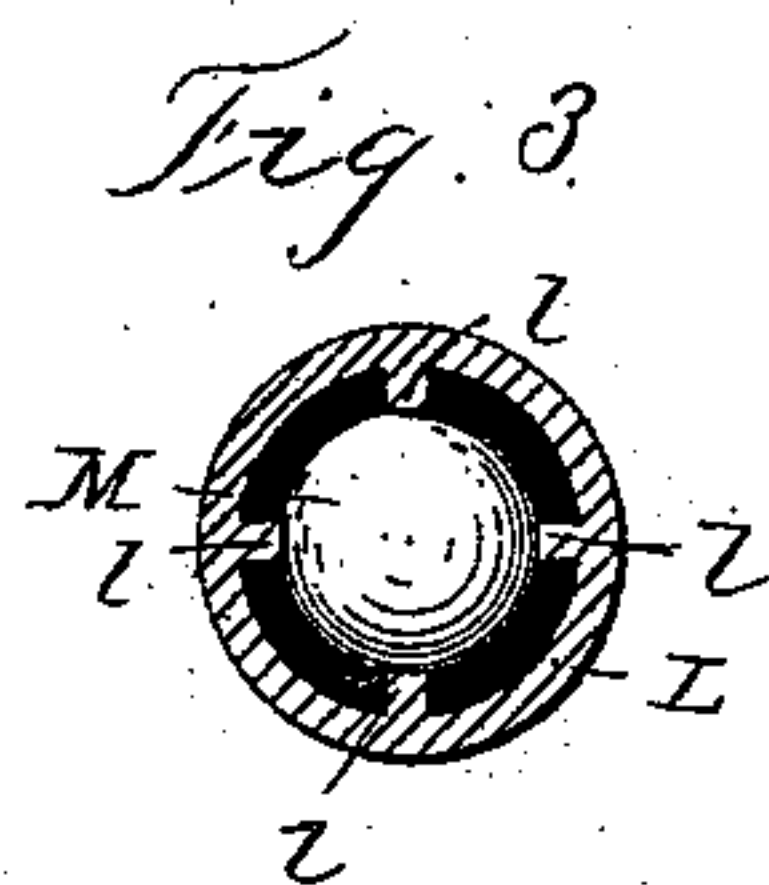
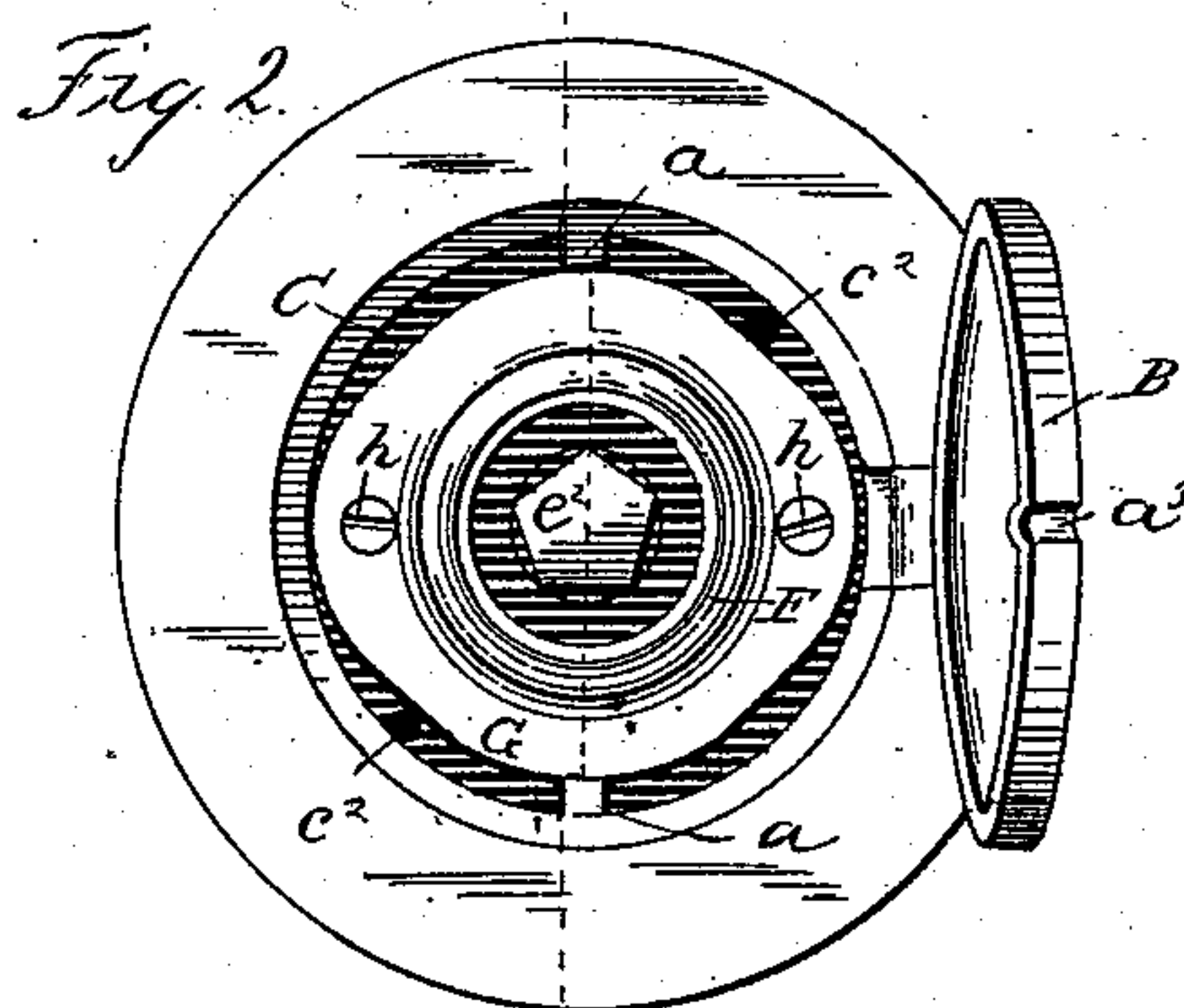
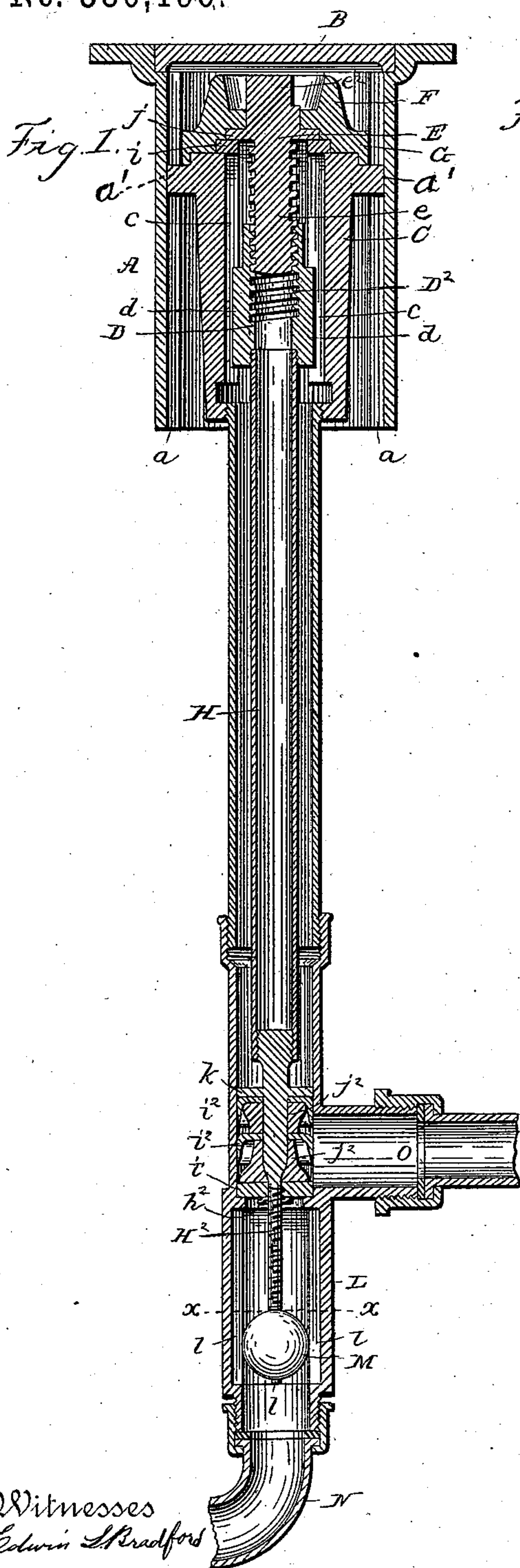


(No Model.)

C. G. ETTE.
STOP BOX AND COCK.

No. 380,196.

Patented Mar. 27, 1888.



Witnesses
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W. L. Boyden,

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UNITED STATES PATENT OFFICE.

CHARLES G. ETTE, OF ST. LOUIS, MISSOURI.

STOP BOX AND COCK.

SPECIFICATION forming part of Letters Patent No. 380,196, dated March 27, 1888.

Application filed August 9, 1887. Serial No. 246,509. (No model.)

To all whom it may concern:

Be it known that I, CHARLES G. ETTE, a citizen of the United States, residing at St. Louis, in the State of Missouri, have invented a new and useful Improvement in a Combined Stop Box and Cock, of which the following is so full, clear, and exact a description as will enable others skilled in the art to which my invention appertains to make and use the same, reference being had to the accompanying drawings, in which—

Figure 1 is a longitudinal vertical section of my device. Fig. 2 is a top plan view of the same with the cover raised. Fig. 3 is a cross-section of Fig. 1, taken on the line *x x*. Fig. 4 is a detail view of the lower portion of my device.

The object of my invention is to construct a stop box and cock which may be set in the sidewalk or any place where it is desired to locate the stop-box, and to provide the same with an adjustable casing and cap which may be raised or lowered to accommodate it to the varying surfaces of the ground or sidewalk, as occasion may require.

Another object of my invention is to construct a stop-box the working parts of which may be removed when it is desired to repair it without the necessity of digging the dirt up around the box, and without the necessity of removing the box and its connection from the water-main.

Another object of my invention is to provide an automatically self-closing valve which will serve to stop the flow of water through the box when the working parts are removed.

Another object of my invention is to provide a stop-box which can be quickly and easily operated from the top, and one which will not become clogged and obstructed by an accumulation of dirt, sand, snow, or ice.

Another object of my invention is to provide a box which is so constructed that it cannot be tampered with by meddlesome people, and one which can only be operated by a key specially designed for that purpose.

With these objects in view I proceed to accomplish them by the construction shown in the accompanying drawings and particularly described in this specification hereinafter.

The upper casing and adjustable shell is designated by the letter A. This shell, together

with the cover B, forms the cap for the stop-box. The shell A is provided with grooves *a*, which register with corresponding projections, *a'*, on the outer upper edge of the inside stationary shell, C, which shell is also provided with internal grooves, *c*, which receive and accommodate projections *d d* on the vertically-sliding thimble D. This thimble D is provided with an internal female quick screw, *D*², in which works the stem E, which is provided with a corresponding male quick screw, *e*. The upper end of this stem E is provided with a pentagon nut, *e*², which is protected by a flange or guard, F, on the upper end of the internal cap, G. This internal cap, G, is secured to the internal stationary shell, C, through the medium of the bolts, rivets, or screws *h*. This internal cap confines the stem E, to which is secured the thimble D, and as the stem E is held rigidly in place against vertical displacement the entire working parts of the stop-box are thus held securely in place by the cap G and the inner casing, C. It will of course be understood that this cap G might be internally screw-threaded and the inner shell, C, might be correspondingly screw-threaded on its outer upper periphery, and the cap G might be screwed onto the inner shell, C, without departing from the spirit of my invention and without in any way interfering with its usefulness. I make mention of this fact here because I do not wish to be understood as limiting myself to the exact means shown of connecting these two parts.

Between the cap G and the inner casing, C, is a washer, *i*, which confines a flange, *j*, and holds it against downward movement, while it is held against any upward movement by the inner upper portion of the cap G. The cap B is hinged to the upper portion of the vertically-adjustable casing A, and is provided with a recess, *a*³, in which may be inserted a scratch-awl or other suitable device when it is desired to raise the cover.

The inner casing, C, is provided with the usual perforations, *c*² *c*², to permit any water which may enter the box from the top to escape, and thus prevent any accumulation of water and mud at this point.

The main stem H is made in the usual manner and is preferably hollow. The pipe proper is hollow and is screw-threaded at top and bot-

tom and joined in the usual manner. On the lower end of the main stem is a projecting bolt or rod, H^2 , the lower end of which is screw-threaded to receive a nut, h^2 , which holds a washer, i' , which in turn supports a pair of cup-washers, $i^2 i^2$, both turned downward and separated by the usual packing-washers, $j^2 j^2$, and held down by a shoulder, k , on the lower portion of the valve stem H . The lower portion of the shell L is provided with internal ribs, $l l$, which are designed to act as friction-bearings for the ball-valve M and to keep the ball-valve away from the edges of the inside of the shell to allow the water to pass out through the shell around the ball when the box is in running order.

The main inlet for the water is designated by the reference-letter N and is made in the usual manner.

It will be observed by reference to Fig. 1 that when the valve is closed the ball-valve M is forced down into the lower portion of the casing L , and by reference to Fig. 4 it will be observed that when the valve is open the pressure of the water will force the ball up and cause it to follow the lower end of the projecting rod H^2 . It will also be observed that this rod is longer than the distance between the upper edge of the inner portion of the outlet-pipe O and the lower edge of the outlet-valve seat, so that as the valve-stem is raised to open the water-way the lower end of the stem or bolt H^2 projects considerably below the seat of the valve, leaving a clear water-way up through the lower portion of the casing L and around the ball-valve M .

When it is found necessary or desirable to remove the valve-stem and the working parts of the stop-box to repair the same or to replace any of the parts, it is only necessary to remove the inner upper cap, G , and lift it off from the upper portion of the stem E , and the stem E , together with the lower portion, H , and the valves and cup-washers at the bottom may all be lifted out together.

From the construction it will be seen at a glance that as the valve-stem is removed and as its downward pressure on the top of the ball-valve M is released the ball M will be forced by the pressure of the water up against the lower side of the valve-seat m , which valve-seat may or may not be beveled to fit the ball, as may be found most desirable. It is obvious that the ball will close the opening sufficiently tight for all practical purposes if it is not beveled; but I wish to be understood as reserving the right to bevel it if it is desirable.

It will be readily understood from the above description and the accompanying drawings that it will be impossible to operate this stop-box—that is, to operate the valve—with any device except a wrench or key specially designed for this purpose, first, because the shape of the nut on the top of the stem E is such that it could not be operated by a monkey-wrench or any ordinary wrench, and, second, because the flange or guard F would prevent

the jaws of any ordinary wrench from coming down low enough to grasp the nut, if the wrench were made in the proper shape, so that all trouble from meddlesome people and boys in the street will thus be avoided. At the same time the nut is near the surface and is easily accessible and may be easily and quickly operated by the proper person having a key designed for this purpose. It will also be understood that the adjustability of the outer upper casing, A , is a matter of prime importance in this connection, as these stop-boxes are often set in place in the sidewalk and the sidewalk is afterward graded more or less, changing the height of the ground around the place where the stop-box is located and making it desirable to adjust it up or down to bring it on a level with the sidewalk.

Another feature of prime importance in this connection lies in the fact that there is no danger of the stop-box being disturbed by the action of the frost in cold weather or at any time. If the frost catches the outer casing, A , and raises it, the casing can easily be pushed back when the frost leaves the ground. If it catches the inner casing or the main pipe and raises it without raising the outer shell, A , it will not affect the level of the stop-box, and will not do any damage on this account. Should the frost raise both the main pipe or valve stem and the upper casing, they can easily be readjusted by sliding the upper outer casing up or down until it is in proper position again.

I wish to be understood as reserving the right to make the upper outer casing with internal ribs and to groove the outer periphery of the inner casing, C , or to groove the inner surface of the outer upper casing, A , and provide ribs on the inner casing or shell, C , as it will be seen at a glance that either way of doing this would effect the desired result. I prefer, however, to construct the outer shell, A , with internal ribs and to make the shorter device or the flange a' of the inner shell, C , with corresponding grooves to accommodate these ribs, for this reason: If the ribs are made on the inner shell and the main casing were to be grooved, the frost, grit, clay, and water would combine and fill up the grooves in the outer casing and make it very difficult, if not impossible, to adjust the shell up and down on the inner casing.

The ball-valve M is inserted into the chamber below the lower casing by uncoupling the lower arm, N , and putting the ball into place in the lower portion of the casing and then screwing the inlet-arm N into place, the ball being held against downward movement out of the casing by the shoulder on the inner upper portion of the arm N .

Having now described the objects, uses, and advantages of my device and having set forth in detail its construction, what I desire to secure by Letters Patent, and what I therefore claim, is—

The combination, with the upper casing and adjustable shell, A , provided with grooves $a a$

and the cover B, of the inner stationary shell, C, provided on its outer upper edge with projections a' , having internal grooves, c , the vertically-sliding thimble D, provided with an internal female quick-screw, D^2 , the stem E, provided with a quick-screw, e , and a pentagon nut, e^2 , protected by the flange or guard F, the valves and washers on the lower portion, H, of the stem E, the shell L, provided with the internal ribs, l , the shouldered inlet-pipe N, outlet-pipe O, and the ball-valve M, located in the shell L below the projecting rod H^2 , whereby a clear and uninterrupted water-way is always

provided through the hydrant when the valve is open, and whereby the flow of water is automatically cut off as soon as the valve-stem is removed or raised up below the lower line of the valve-seat in the lower casing, substantially as described.

In testimony whereof I affix my signature in the presence of two witnesses.

CHARLES G. ETTE.

Witnesses:

WILL L. BOYDEN,
CHAS. E. BARBER.