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SERVICE BOX LID.

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916,354.

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Fig. 1

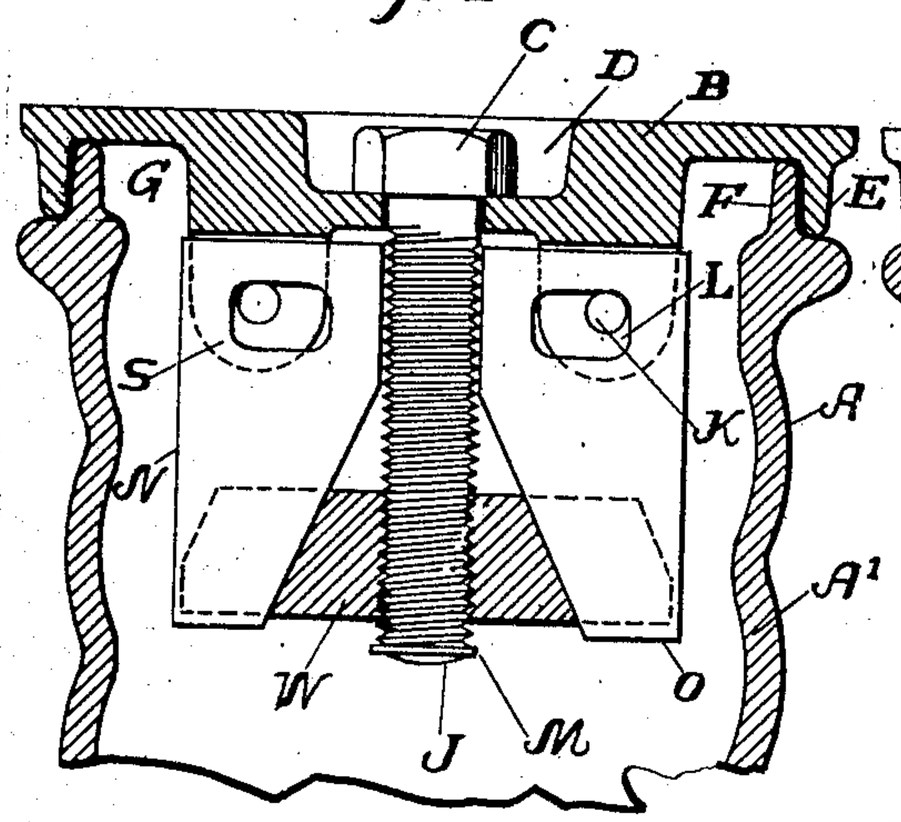


Fig. 2

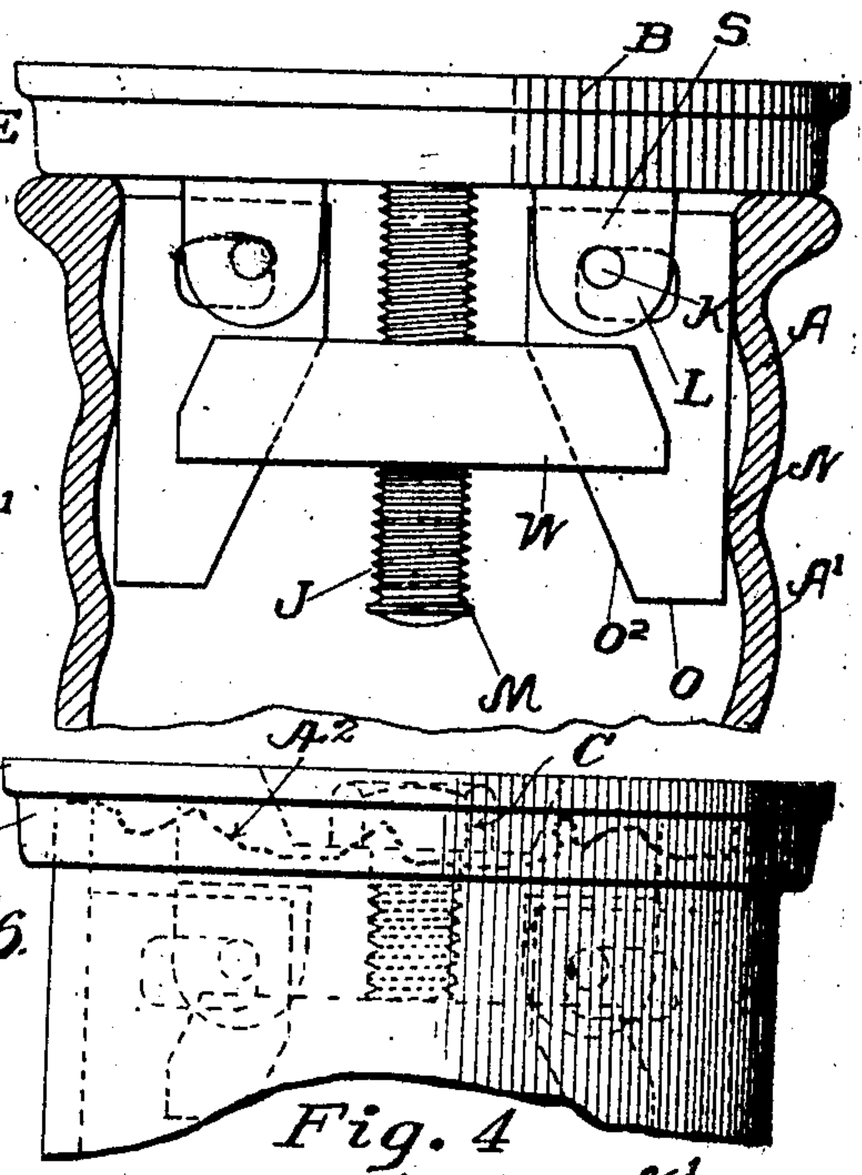


Fig. 6.

Fig. 3

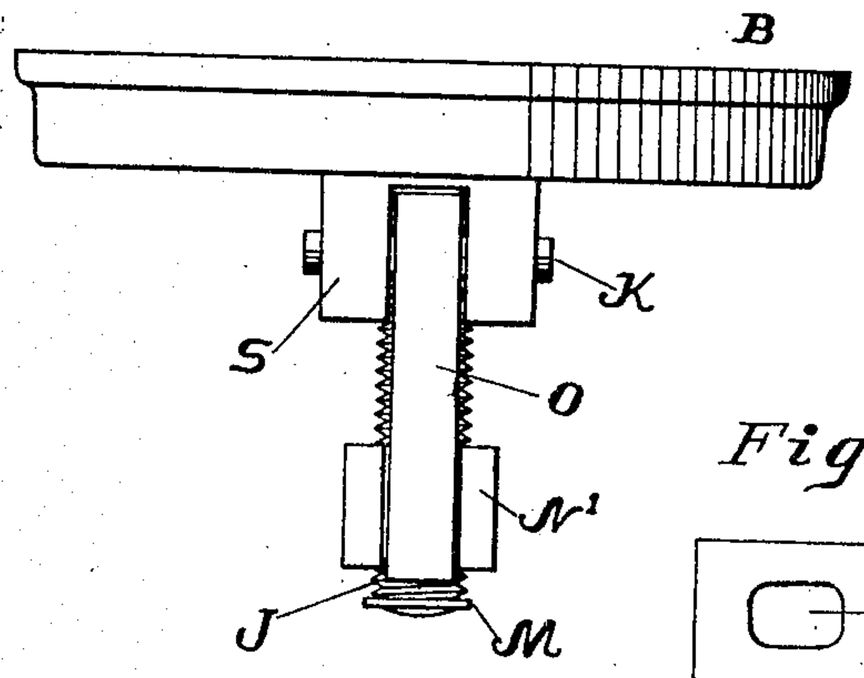


Fig. 4

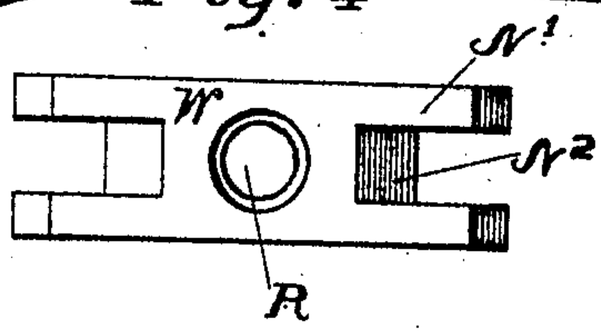
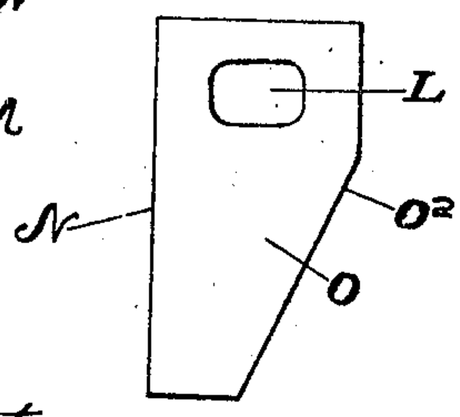


Fig. 5



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UNITED STATES PATENT OFFICE.

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SERVICE-BOX LID.

No. 916,354. Specification of Letters Patent. Patented March 23, 1909.

Application filed November 19, 1907. Serial No. 402,915.

To all whom it may concern:

Be it known that we, HENRY MUELLER, PHILIP MUELLER, and ANTON C. SCHUERMANN, citizens of the United States, and residents of Decatur, county of Macon, State of Illinois, have invented certain new and useful Improvements in Service-Box Lids; and our preferred manner of carrying out the invention is set forth in the following full, clear, and exact description, terminating with claims particularly specifying the novelty.

This invention relates to water distribution, and more especially to mains and pipes; and its object is to produce a lid for service boxes and an improved fastening device therefor.

To this end the invention consists in a structure of which one embodiment is set forth in the following specification and illustrated in the drawings forming part thereof and in which—

Figure 1 is a central vertical section through the top of a service box and this improved lid about to be secured in place. Fig. 2 is a section through the box and a side elevation of the lid clamped in position therein. Fig. 3 is a side elevation of the lid and its lock, viewed at right angles to the position shown in Fig. 2. Fig. 4 is a plan view of the spreader. Fig. 5 is a side elevation of one of the blocks. Fig. 6 is a side elevation of this lid and the upper end of a service box having a cylindrical or uncorrugated wall, illustrating in dotted lines how the lid will fit the uneven upper extremity of such a box when it has been broken off.

As is well known, a "service box" is a pipe running from the surface of the ground down to a gas or water main where the latter is provided with a cock, so that by removing the lid of the service box the cock is accessible by a key from above. These boxes are generally of rough iron casting with their walls corrugated or otherwise roughened, and they are usually closed with a cast iron lid which experience has shown must be held in place by brass screws to prevent rusting. These screws are often stolen for their metal, and in many instances the covers become broken by wagons or freight and the screws are either lost or broken off. If lost new ones must be supplied, and if broken off the pieces remaining must be drilled out. In any event, while the lid is absent the box becomes filled with dirt, rendering it impossible to gain access to the cock until the entire box is cleaned out. In some instances the accident which breaks the lid also breaks a piece from the upper end of the box so that it becomes necessary to supply a new section to the box to bring its top level with the surface of the ground. In cases where the grade is changed, if it is lowered it becomes necessary to shorten the service box already installed, or if it is raised it becomes necessary to add a section to such box to bring it to the new level. Said shortening is usually done by breaking off the top of the box or section already in the ground, as with a blow by a hammer or chisel, and when broken off the upper end of the box or section becomes irregular. When a new section is added it is often fitted telescopically around or within the box already in place, and the two parts soon become one by the adhesive effect of their corrosion. These various conditions have created a demand for a service box lid capable of being quickly put in place on boxes or sections of most any pattern, and it is to meet that demand that the present invention is designed. The latter consists in a lid having a wide annular groove in its underside so as to adapt it to the upper ends of boxes or box sections which may vary somewhat in diameter or which may not be strictly round, and the width and depth of the groove enables the device to be used as a repair lid as on boxes whose upper ends are irregular, as shown in Fig. 6.

The invention also consists in a fastening device depending from the lid proper and adapted to be operated from above so that its blocks or jaws will engage the interior of the box or section to which the device is applied, whatever the shape of said interior or of the upper extremity.

Referring now to the accompanying drawings, the letter A designates the service box whose wall is somewhat uneven as shown at A', and F is a shoulder extension at its upper end or mouth.

B is the lid proper consisting of a plate, preferably having a surrounding depending flange E and with its center depressed as best seen in Fig. 1 and spaced considerably from the flange so as to leave a wide annular

groove G to adapt the lid to a smaller box than that shown in the drawings. In the top of the lid is a cavity D to receive the head of a screw C which passes loosely through the lid and screws into a hole R in a spreader W, its lower extremity bearing a washer M below the spreader and being headed or upset as at J to prevent the washer from coming off. Depending from the depressed portion of the plate are guides, here shown as consisting of two pairs of ears S, and through each pair is a pin K. Two blocks O are provided which are duplicates of each other, and each block stands between the members of one pair of ears and has an oval opening L loosely embracing the pin K. The outer edge N of each block is straight and vertical, while its inner edge is straight for a distance down from its top and then inclined outward as at O^2. Each end of the spreader W is forked as at N' and beveled as at N^2 between the prongs of the fork. The lower end of each block stands between the prongs at that end of the spreader, and the inclined face N^2 bears against the inclined face O^2 as will be understood.

All parts are preferably of cast iron excepting that the screw C may be of brass to prevent rusting in place, yet it cannot be stolen out of the lid because its lower end J is upset.

Fig. 6 illustrates how a box or box section which is broken off and has an irregular upper end A^2 can be closed by this improved lid B so that its flange E completely hides said irregular end, and this view elaborates the adaptability of the invention as a repair lid for the purpose of repairing service boxes that have become broken purposely or otherwise.

In assembling the parts of this improved device the blocks are first put in place and the pins inserted so as to prevent their dislodgment from the guides in the ordinary handling of the lid, the spreader is then put in place and the screw inserted through the hole in the plate and threaded through the hole in the spreader, and finally the washer is applied and the lower end of the screw headed beneath it as by being upset slightly. If it should be desired to separate the parts, the upset portion is filed off and the washer removed, after which the screw can be withdrawn from the spreader, and of course it can be lifted out of the hole in the plate through which it is swiveled; and either block can be removed by withdrawing its pin.

In operation, this improved lid is applied to the top of the service box or box section, and fits over the flange F if one exists or rests upon the upper end if there be no flange. The wide groove G permits the lid to be applied to a smaller pipe than shown, and allows for any unevenness or inaccuracy which may exist in rough castings. The lid is applied with the parts in the position shown in Fig. 1, after which the screw is turned to cause the spreader W to rise, and in doing so its inclined faces N^2 engage the inclined faces O^2 of the blocks and bear the latter radially outward until their straight outer faces N contact with the inside of the service box or box section as shown in Fig. 2. During this movement the upper ends of the blocks are guided along the bottom of the depressed portion of the plate and their bodies are guided by the ears—the looseness of the openings L on the pins K permitting—and with a service box of the usual size the outer faces of the blocks contact with the wall of the box at a time when the spreader has reached a point about midway of the height of the blocks. The lateral impulse of the spreader is therefore so applied to the blocks that if one or both of them should strike a corrugation A' or other unevenness within the box they could cant slightly as the construction of the guides and the size of the apertures permit. The screw is finally given an additional turn to tighten it in place so that it cannot be unscrewed by hand or through vibration. When it is desired to gain access to the interior of the service box it is only necessary to apply a proper wrench to the head of the screw and unscrew it sufficiently to loosen the parts, after which the lid can be lifted off.

What is claimed as new is:

1. A service box lid consisting of a plate, ears in pairs depending therefrom, and a pin through the members of each pair; combine. with blocks fitting loosely and slidably between said members and having oval openings engaging said pins, the inner edges of said blocks being inclined outwardly, a spreader between the blocks, and means for moving the spreader vertically from a point above the plate.

2. A service box lid consisting of a plate, ears in pairs depending therefrom, and a pin through the members of each pair; combined with blocks slidable radially between said members aad having oval openings engaging said pins, the inner edges of said blocks being inclined outwardly and their outer edges straight, a spreader having its ends beveled and engaging the inclined edges of the blocks, and means for moving the spreader vertically from a point above the plate.

3. A service box lid consisting of a plate, ears in pairs depending therefrom, and a pin through the members of each pair; combined with blocks fitting loosely between said members and having oval openings engaging said pins, the inner edges of said blocks being inclined outwardly, a spreader between the blocks, and a screw

swiveled through the plate and threaded through the spreader, for the purpose set forth.

4. A service box lid consisting of a plate, and ears in pairs depending therefrom; combined with blocks fitting slidably beneath said plate and loosely between the members of said pairs and having their inner edges inclined outwardly, means for preventing the dislodgment of the blocks, a spreader having forks at its ends engaging said blocks and beveled faces between the prongs of the forks contacting with the said inclined edges, and means for moving the spreader vertically from a point above the plate.

5. A service box lid consisting of a plate, and ears in pairs depending therefrom; combined with blocks fitting loosely and slidably between the members of said pairs and having their inner edges inclined outwardly, means for preventing the dislodgment of the blocks, a spreader having forks at its ends engaging said blocks and beveled faces between the prongs of the forks contacting with the said inclined edges, and a screw swiveled through the plate and threaded through the spreader, for the purpose set forth.

In testimony whereof we have hereunto subscribed our signatures, this 2nd day of November A. D., 1907.

HENRY MUELLER.
PHILIP MUELLER.
ANTON C. SCHUERMANN.

Witnesses:
VIRGINIA HAMILTON,
JOHN L. WADDELL.