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SERVICE BOX LID.

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923,066.

Patented May 25, 1909.

Fig. 1

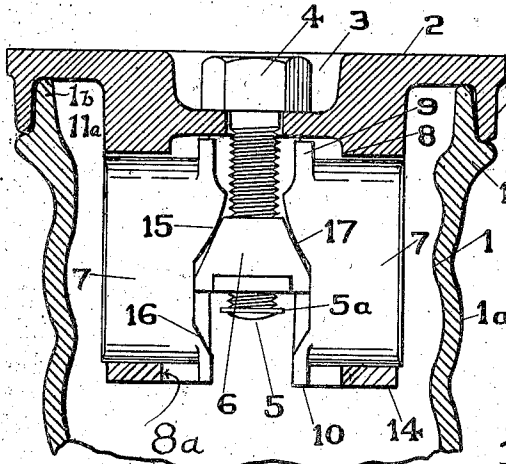


Fig. 2

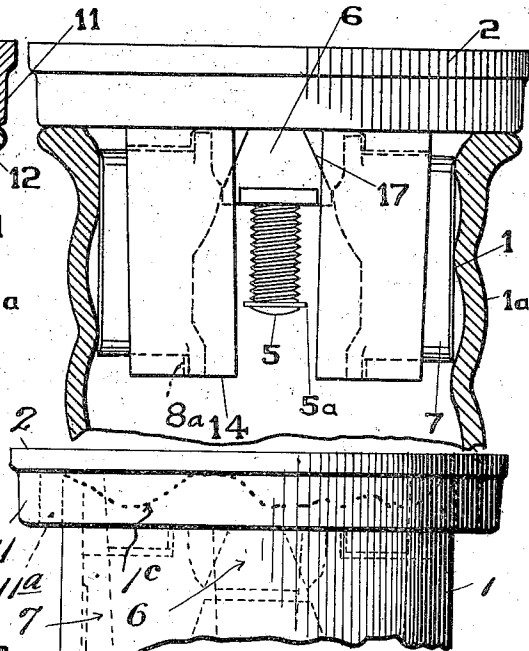


Fig. 3

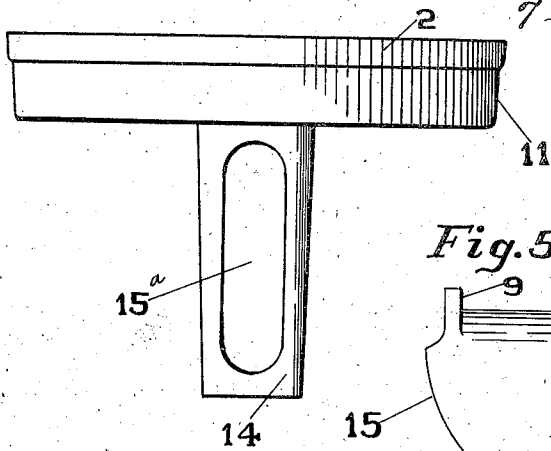


Fig. 6

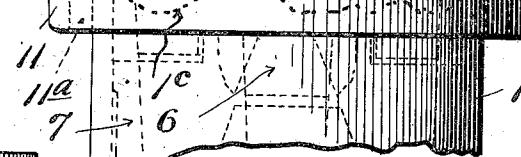


Fig. 4

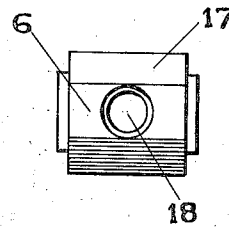
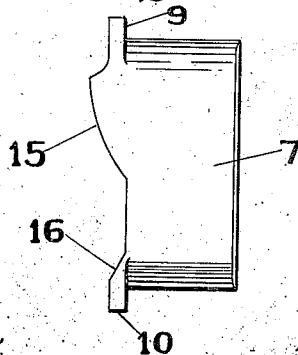


Fig. 5



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UNITED STATES PATENT OFFICE.

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SERVICE-BOX LID.

No. 923,066.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, HENRY MUELLER and ANTON C. SCHUERMANN, citizens of the United States, and residents of Decatur, Macon county, 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 of 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 unobstructed annular groove in its under side 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 numeral 1 designates the service box whose wall is uneven or corrugated as shown at 1^a and 1^b is a shoulder extension at its upper end or mouth. 2 is the lid proper consisting of a plate, preferably having a depending peripheral flange 11, and with its center depressed as best seen in Fig. 1 and spaced considerably from the flange so as to leave a wide unobstructed annular groove 11^a to adapt the lid to a smaller box than that shown in the draw-

ings. In the top of the plate is a cavity 3 to receive the head of a screw 4 which is swiveled through the plate and screws into a hole 18 in a spreader 6, its lower extremity bearing a washer 5^a and being headed or upset as at 5 to prevent the washer from coming off.

Depending from the depressed portion of the plate are guides, here shown as consisting of two similar lugs 14 cast integral with the plate and each having an opening 15^a through it on a line radial to the entire lid. Two blocks 7 are provided which are duplicates of each other, and each block is shaped so as to fit loosely in one of the openings 15^a so that it can slide outward or inward and cant slightly therein. The outer edge of the block is preferably straight, its inner edge is formed with a projection having an inclined face 15 preferably curved slightly as seen in Fig. 5 and located about midway of the height of the block, and its upper and lower ends are provided with ears 9 and 10 of which the upper rises from the projection and the lower is offset as at 16 so that the outer faces of both ears will stand on a line with the straight portion of the inner edge of the block. The openings 15^a through the lugs are enlarged slightly at top and bottom at their inner ends so as to produce shoulders 8 and 8^a against which the ears strike as shown in dotted lines in Fig. 2. Coöperating with these blocks is the spreader 6 whose side faces are inclined as at 17, preferably by means of straight bevels which abut at only one point against the curved faces 15 of the projection of each block, and thereby reduce to a minimum the chance that these parts shall rust together. The screw may be of brass and the spreader of iron, or the reverse, because two different metals work in conjunction with each other better than two like metals. But by reference we make all parts of cast iron excepting the spreader which need not require as much brass as the screw, as we find that if the screw rusts in place where it is swiveled through the plate it can be disconnected by a sudden movement of the wrench.

Experience has shown the best result with a brass spreader having straight inclined sides 17 and iron blocks having curved inner faces 15 abutting against them, as the blocks are permitted to tilt slightly in place and come into close contact with the irregular wall of the service box.

Fig. 6 illustrates how a box or box section 1 with cylindrical walls would engage the groove 11^a, and if it were broken off by a blow of a hammer how its irregular upper end 1^c would enter said groove and be hidden by the flange 11. This view elaborates the adaptability of the invention as a repair lid for the purpose of repairing service boxes that have become broken.

In assembling the parts of this device the blocks are first put in place one at a time by being inserted laterally into the space between the two lugs and then moved outward radially into position within the openings 15^a; the spreader is then inserted between the lugs from beneath and the screw inserted through the hole in the plate and threaded through that 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 lifted out of the plate, and when the spreader is removed the blocks can be taken out of place one at a time.

In operation, this improved lid is applied to the top of the service box or box section and its flange 11 fits over the flange 1^b if one exists or rests on the upper end if there be no flange, the wide groove 11^a permitting the lid to be applied to a smaller pipe than that shown and allowing for any unevenness or inaccuracy which may exist in rough castings. The lid is applied with the parts in the position in Fig. 1, after which the screw is turned to cause the spreader to rise, and in doing so its inclined faces 17 engage the inclined faces 15 of the blocks and bear the latter radially outward until their outer faces contact with the inside of the service box or box section as shown in Fig. 2. During this movement the bodies of the blocks are guided through the openings 15^a, and with a service box of the usual size the blocks will contact with its wall 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 that if one or both of the blocks should strike a corrugation 1^a or other unevenness within the box they could cant slightly as their looseness in the openings 15^a will 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.

In handling and transporting this improved lid the parts cannot become dislodged accidentally. The fact that there are heads at both ends of the screw holds the spreader in position, and while in position the blocks cannot be approximated or taken out of the inner ends of the openings 15^a; and on the other hand when they are moved outward their ears contact with the shoulders within the openings so that they can-

not be dislodged from the outer ends of the latter. By offsetting the ears as described, the greatest working space for the spreader is left between the inner edges of the blocks and the latter permitted the greatest latitude of movement within small compass.

What is claimed as new is:

1. A service box lid consisting of a plate, guides depending therefrom, radially movable blocks mounted slidably in the guides, ears on the blocks engaging the guides for preventing their dislodgment therefrom, a spreader between the blocks, and means for operating it from a point above the plate.
2. A service box lid consisting of a plate, and lugs depending therefrom and having radial openings; combined with blocks movable in said openings, a spreader between them having straight inclined side faces, projections on the inner edges of the blocks having inclined curved faces, and means for operating the spreader from a point above the plate.
3. A service box lid consisting of a plate, and lugs depending therefrom and having radial openings; combined with blocks movable in said openings, means for preventing their dislodgment through the outer ends of the openings, a spreader between them having straight inclined side faces, projections on the inner edges of the blocks having inclined curved faces, and means for operating the spreader from a point above the plate.
4. A service box lid consisting of a plate, and lugs depending therefrom and having radial openings; combined with blocks movable in said openings, ears on the blocks to prevent their dislodgment through the outer ends of the openings, a spreader between them having inclined side faces, projections on the inner edges of the blocks having inclined faces, and means for operating the spreader from a point above the plate.
5. A service box lid consisting of a plate, and lugs depending therefrom and having radial openings; combined with blocks movable in said openings, ears on the blocks to prevent their dislodgment through the outer ends of the openings, a spreader between them having straight inclined side faces, projections on the inner edges of the blocks having inclined curved faces, and means for operating the spreader from a point above the plate.
6. A service box lid consisting of a plate, lugs depending therefrom and having radial openings, and top and bottom shoulders within them; combined with blocks movable in said openings, each having a projection on its inner edge, an ear rising from said projection above the body of the block, another ear offset from said inner edge and depending below the body of the block whereby the latter slides in the opening and the ears are adapted to engage the shoulders

therein, and means for moving the blocks radially outward.

7. A service box lid consisting of a plate, lugs depending therefrom and having radial openings, and top and bottom shoulders within them; combined with blocks movable in said openings, each having an inclined projection on its inner edge, an ear rising from said projection above the body of the block, another ear offset from said inner edge and depending below the body of the block whereby the latter slides in the openings and the ears are adapted to engage the shoulders therein, a spreader whose body is located between the inner edges of said blocks above their offsets and whose sides converge upwardly, and means for moving the spreader from a point above the plate.

8. A service box lid consisting of a plate, lugs depending therefrom and having radial openings, and top and bottom shoulders within them; combined with blocks movable in said openings, each having an inclined projection on its inner edge, an ear rising from said projection above the body of the block, another ear offset from said inner edge and depending below the body of the block whereby the latter slides in the opening and the ears are adapted to engage the shoulders therein, a spreader whose body is located between the inner edges of said blocks above their offsets and whose sides converge upwardly, and a screw swiveled through the plate and threaded through the spreader.

9. A service box lid consisting of a plate, lugs depending therefrom and having radial openings, and shoulders within them; combined with blocks movable in said openings and having ears offset so that the outer faces of the ears stand flush with the inner edges of the blocks, inclined projections on said inner edges, a spreader between the blocks engaging said projections, and means for moving it.

10. A service box lid consisting of a plate, lugs depending therefrom and having radial openings, and top and bottom shoulders within them; combined with blocks movable in said openings and having ears projecting above and below their bodies and offset so that the outer faces of the ears stand flush with the inner edges of the blocks, inclined projections on said inner edges between said ears, a spreader between the blocks engaging said projections, and means for moving it.

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

HENRY MUELLER.

ANTON C. SCHUERMANN.

Witnesses:

VIRGINIA HAMILTON,
JOHN L. WADDELL.