Jan. 19, 1932. C. SIEGEL 1,841,985

GATE BOX AND EXTENSION THEREFOR

Filed April 21, 1930

Fig. 1.

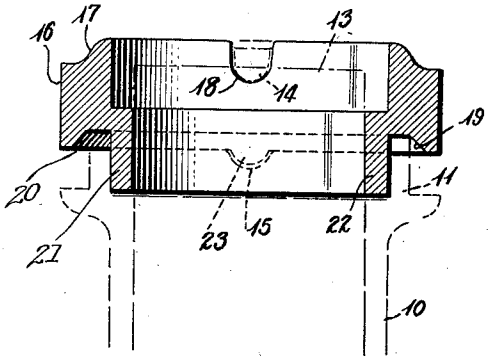


Fig. 6.

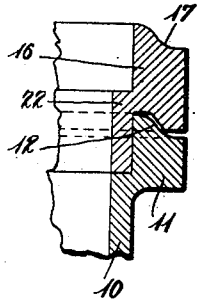


Fig. 2.

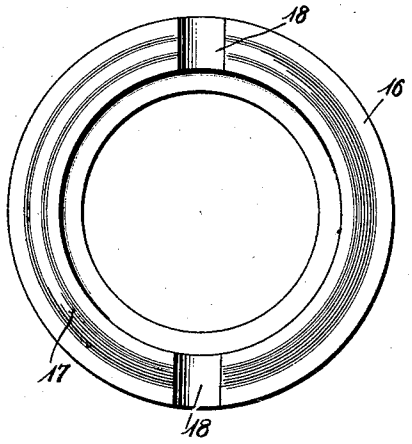


Fig. 3.

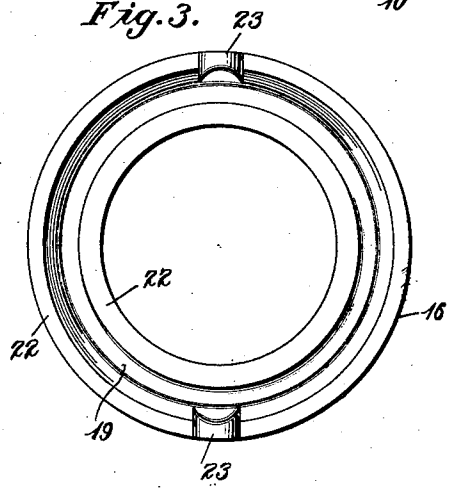


Fig. 4.

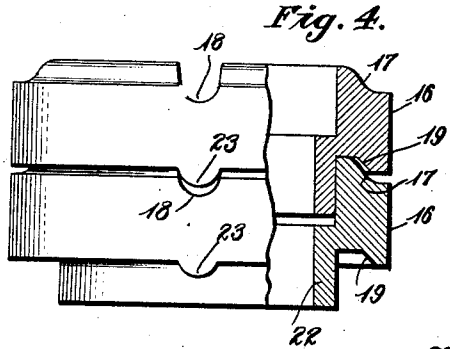
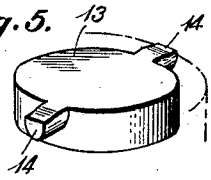


Fig. 5.



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UNITED STATES PATENT OFFICE

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GATE BOX AND EXTENSION THEREFOR

Application filed April 21, 1930. Serial No. 446,012.

The present invention relates to extensible housings for valves and other controlling means which are usually disposed below the surface of the ground.

Particularly the construction forming the subject matter of this invention is useful in connection with gate valves employed in the underground conduits of large municipal districts. In such cases it is necessary that the housing be always ascertainable without delay, and moreover that it not become an obstruction in the roadway.

Primarily, however, it is necessary to construct the housing in such a manner that once laid, it can be subsequently extended to take care of regrading operations which frequently raise the level of the street surface.

Heretofore when such a contingency has occurred the municipal authorities have been put to considerable expense because of the necessity of digging about the box in order to apply either a new housing or to raise the old housing in order to bring the closure end of the box to the surface of the new level.

In this new construction, no change will be necessary with installations now in use, and where the present invention is initially applied, if the grade be raised, provision is made for very efficiently overcoming the present handicaps by the extensible features inherent in the improved structure.

In the drawings;

Figure 1 is a sectional view showing the construction applied to a conventional gate housing.

Figure 2 is a top view.

Figure 3 is a bottom view.

Figure 4 is a view showing several of the devices arranged extensively.

Figure 5 is a view of the closure in perspective.

Figure 6 is a sectional view similar to Figure 1 showing the device applied to a gate housing having a structure conforming to the invention.

Referring to the drawings, Figure 1 shows the usual gate box disposed in the ground below the surface of the roadway or pavement. This box is indicated at 10 and at its upper end is provided with a suitable flange or shoulder 11. The invention will be applicable, however, where the box is provided with a collar, as shown in Figure 6, and it is usual to have such means either secured by threading or swaging upon the upper end of the housing, or made integral therewith.

It will be observed that the collar is provided with an inclined lip 12 extending from its inner periphery to the outer periphery. This lip may, however, be suitably curved or rounded, and in many installations is constructed in this manner, as shown in Figure 6.

The numeral 13 indicates a closure or cap adapted to extend within and seal the housing and provided on its periphery with laterally extending lugs 14, Figure 5.

The flange 11 or lip 12 is provided with recesses indicated at 15 whereby when the cover is positioned, the lugs 14 will be received in said recesses and suitably locked in position. Any suitable means may be provided on the closure for permitting its withdrawal in order to obtain access to the valve and valve operating means.

With the construction so far described, if it is necessary by reason of regrading operations to bring the housing to a position adjacent the surfaces, it is customary to either install a new housing or raise the one already in position. To accomplish this requires considerable digging, the expense of which is a heavy burden on the tax payers because of both the time and labor required.

With the present invention such a procedure is eliminated by employing an extensible structure which will now be described. Referring to Figure 2 the numeral 16 indicates a cast ring of a size adapted to fit the upper end of the housing 10. Instead of being circular this extensible member 16 may be made square or of other contour, depending, of course, upon the contour of the housing.

The ring member 16, it will be observed, has its upper edge inclined or rounded to form a lip 17 similar to the lip 12 previously described in connection with the collar 11. This lip 17 is likewise provided with recesses 18 similar to the recesses 15 formed in the lip 12.

In Figure 3 it will be seen that the lower edge of the ring is provided with a circular channel 19, one wall 20 of which is preferably straight and the other wall 21 of which is inclined or rounded, conforming to the contour of the lip 12 of the collar or the lip 17 of the ring member.

The ring member is provided with a downward extending concentric sleeve 22 which extends below the body portion of the ring. The purpose of this construction will presently be described.

On its lower edge and adjacent its periphery the ring member is provided with downwardly extending lugs 23 similar to the lugs 14 formed upon the closure 13.

The application of the present invention will now be described. Referring to Figure 1, when the level of the street or grade is raised it will only be necessary to apply the ring member 16 to the housing. This will be accomplished by causing the sleeve 22 to telescope within the open end of the box with the peripheral edge of the box engaging in the channel 19. Where the box is provided with a peripheral collar, the channel will have an inclined or rounded wall to conform to the contour of the collar. In other words, the ring member will rest upon the housing by reason of the engagement of the collar in the channel and will be held against rotation by the engagement of the lugs 23 in the recesses 18. The sleeve 22, of course, acts as a guide as well as assists in sealing the box against foreign matter and débris.

At this point it should be stated that the longitudinal extent of the ring member will vary. For instance, a length of two or three inches will usually suffice for most purposes, but where the grade is raised to a greater degree, the size of the ring member will be increased to take care of the new level. In this connection, however, it will be understood that one or more ring members may be employed. For instance, one ring member may already be positioned in an installation and the surface of the roadway is to be raised. In such a case it is only necessary to position another of the ring members upon the ring member already in place to bring the box to the desired height. This will be understood from the construction since the lip 17 in such a case will be received in the channel 19 of the superposed ring member.

By reason of this construction no digging or tearing up of the roadway or pavement is required, the several ring members being applied as necessary to reach the proper level.

It will also be seen upon reference to the drawings that the closure 13 with its lugs 14 will be applicable to the adjacent ring member since the lugs 14 of the closure will engage in the recesses 18 of the ring member.

It is proposed to apply in the channel 19 any suitable cement or binder, for example, a bituminous material, to act as a seal and joining means. This may or may not be employed, as preferred.

By reason of the present construction, therefore, the expense now necessary to raise a gate box or install a new one is completely eliminated since it is only required that one or more of the several ring members be employed to extend the housing a proper distance.

The ring members will preferably be cast in various sizes and kept in stock to meet occasions incidental to roadway construction. By having a cast article obviously the expense is further reduced where compared with present costs of time, labor and material it is practically negligible.

By having the lip 12 or the lip 17 suitably inclined toward the ground surface, or rounded, as described and shown, since the closure will fit flush with the top of the box, the present invention will not form any undesirable obstructions in the roadway.

The lip 17 is substantially three-eighths of an inch in height and projects above the roadway just sufficient to permit it to be found, the said lip being substantially covered by the material of the street whereby the section is held downwardly by the pressure of such material. This, likewise, applies to the lip 12. It will be seen by this construction that the closure will fit substantially flush with the street surface, so as not to form an undesirable obstruction in the roadway.

I claim:

1. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip formed thereon, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

2. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip formed thereon, a recess in the section opening into the lipped edge thereof, said lip being so shaped as to have a substantial portion of the surface thereof covered by the ma-

terial of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

3. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip formed thereon, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby an integral extension on the section, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

4. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip formed thereon, a recess in the section opening into the lipped edge thereof, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, an integral extension on the section, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

5. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip formed thereon, a recess in the section opening into the lipped edge thereof, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and an integral extension of less diameter than the last mentioned recess, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

6. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a reduced portion providing a curved lip thereon, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

7. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, said recess having a bottom and an outwardly directed wall, the other edge of the section having a reduced portion providing a curved lip terminating in a peripheral shoulder thereon, said lip and shoulder being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

8. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, said recess having a bottom and an outwardly directed wall, the other edge of the section having a reduced portion providing a curved lip thereon, said lip being so shaped as to have a substantial portion of the surface thereof covered by the material

of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

9. In combination a street box, a plurality of inter-fitting street box sections mounted on the box and forming an extension thereof to the street surface, each section having a reduced portion forming a lip on one edge and a recess of substantially similar contour to said lip on the opposite edge, a recess opening into the lipped edge of each section and an extension projecting from the other edge thereof, the said extension of each section in its inter-fitting relationship with another section, engaging in the last-mentioned recess of such other section, and the lip of each section in its inter-fitting relationship with another section freely engaging in the first-mentioned recess of such other section, and locking means formed at both edges of the section, the locking means on one section freely engaging the locking means on the other section to prevent turning of the sections with respect to each other and to the box, the said lip portion of the uppermost section being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and a cover engaged with the uppermost section and having means engaged with the locking means of the upper edge of the uppermost section.

10. In combination a street box, a plurality of inter-fitting street box sections mounted on the box and forming an extension thereof to the street surface, each section having a reduced portion forming a lip on one edge and a recess of substantially similar contour to said lip on the opposite edge, a recess opening into the lipped edge of each section and an extension projecting from the other edge thereof, the said extension of each section in its inter-fitting relationship with another section, engaging in the last-mentioned recess of such other section, and the lip of each section in its inter-fitting relationship with another section freely engaging in the first-mentioned recess of such other section, and aligned projections and recesses formed at the respective edges of the sections, the projections on one edge freely engaging in the recesses of an adjacent edge to hold the parts against turning, the said lip portion of the uppermost section being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and a cover engaged with the uppermost section and having means engaged with the locking means of the upper edge of the uppermost section.

11. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the edge of the street box or another section and forming a shoulder on said edge adjacent the periphery of the section, the other edge of the section being reduced to provide a lip and a shoulder portion adjacent the periphery of the section, said lip portion and shoulder being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and the other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent turning movement between the respective adjacent parts.

12. The combination with a street box, of a street box section supported thereon, and a cover supported on said section, said section having a channel in one edge receiving the edge of the street box, the opposite edge being tapered and having a substantial portion thereof designed to be covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box and the other of said means adapted to engage the cover, said means being designed to prevent turning movement between the respective adjacent parts.

13. The combination with a street box, a street box section mounted thereon, a second street box section mounted on said first section, and a cover carried by said second section, each of said sections having a recess in one edge and a curved lip terminating in a peripheral shoulder formed on the other edge adapted to be covered by the material of the street whereby the section is held downwardly, said lip and shoulder having a substantial portion thereof designed to be covered by the material of the street, the recess of one section adapted to freely receive the lip of the adjacent section or the edge of the street box, and means formed at each edge of each section, one of said means adapted to engage the street box or the other supporting section and the other of said means adapted to engage the other section or the cover supported by the section, said means being designed to prevent rotation between the respective adjacent parts.

14. As a new article of manufacture, a

street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a recess in one edge for detachably receiving the said edge of the street box or another section, the other edge having a lip portion terminating in a peripheral shoulder, the lipped edge of the section being so shaped as to have a substantial portion of the surface thereof covered by the material of the street, whereby the section is held downwardly thereby, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent rotary movement between the respective adjacent parts.

15. As a new article of manufacture, a street box section for application to the edge of a street box or another section, and adapted to be interposed in the street, said section having a channel in one edge for detachably receiving the said edge of the street box or another section, the other edge of the section having a lip portion terminating in a peripheral shoulder adapted to be covered by the material of the street whereby the section is held downwardly, an extension from said channeled edge of the section and forming one wall of the channel, and means formed at each edge of the section, one of said means adapted to engage the street box or another similar supporting section, and other of said means adapted to engage another similar section or a cover supported by the section, said means being designed to prevent rotary movement between the respective adjacent parts.

In testimony whereof I have hereunto set my hand.

CHARLES SIEGEL.