

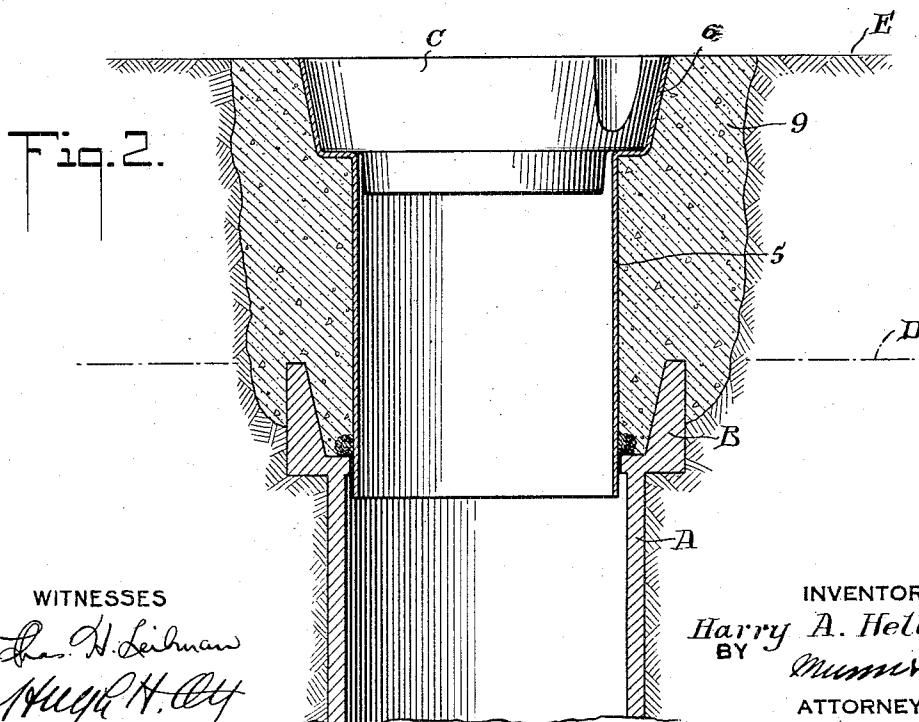
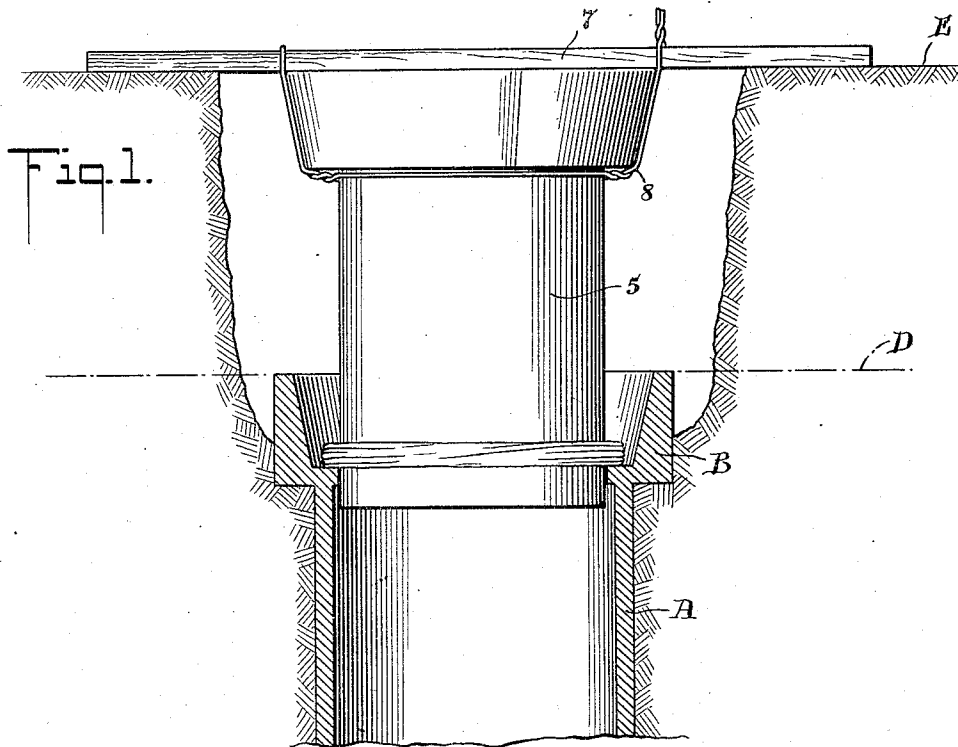
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METHOD OF AND APPARATUS FOR FORMING NEW TOPS ON UNDERGROUND VALVE BOXES

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WITNESSES

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## UNITED STATES PATENT OFFICE

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## METHOD OF AND APPARATUS FOR FORMING NEW TOPS ON UNDERGROUND VALVE BOXES

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This invention relates to a method of and apparatus for forming new tops on underground valve boxes to meet with changes in the grade or level of the road or pavement, particularly where said grade or level is raised.

Up to the present time, adjustment in the height of previously installed valve boxes has been accomplished by excavating to the lower end of the upper adjustable section of the valve box. This entails an expenditure of considerable time and labor due to the fact that the lower end of the upper section of the valve box is a considerable distance below the surface and it is necessary to dig down to this point. Furthermore, the securing of a permit is necessary to the opening of a hole in the road which is large enough to accomplish the purpose.

It is, therefore, the principal object of the present invention to provide a new and improved method of and apparatus for forming new tops on underground valve boxes which will effect a substantial economy in raising the upper end to grade by materially reducing the time and labor incident to the excavation of the highway and by avoiding the requirement of securing a permit therefor.

More specifically, the invention comprehends a method and apparatus which embraces the use of a cast, pressed, spun or otherwise constructed supplemental top section, the lower end of which is telescopically engaged within the upper end of the upper section of the valve box, and which supplemental top section is supported by and encased in cement, grout, concrete or other equivalent plastic filling substance, which in addition to supporting the supplemental section serves at the same time to repair the hole formed in the road or pavement.

The invention furthermore contemplates a supplemental section which constitutes respectively a liner and form for the new cement, concrete or grout top and which supplemental section is constructed with an upper end of the proper configuration to accommodate the old box cover, thereby avoiding the expense of procuring new covers.

With the above recited and other objects

in view, the invention resides in the improved method and apparatus set forth in the following description and accompanying drawings, in which there is exhibited one example or embodiment of the invention, while the claims define the actual scope thereof.

In the drawings:

Figure 1 is a vertical sectional view illustrating the supplemental top section positioned and supported prior to the pouring of the filling material.

Figure 2 is a similar view illustrating the new top completely formed.

Referring to the drawings by characters of reference, A designates the upper section of an underground valve box having the usual enlarged flange B at its upper end to receive the cover C. The present method of and apparatus for forming a new top where the grade is raised from the old grade indicated at D to the new level indicated at E embodies the use of a supplemental top section 5 which is of cylindrical formation and of an appropriate diameter to telescopically fit within the upper end of the valve box section A. In practice, the supplemental top section 5 may either be cast, pressed, spun or otherwise constructed, and is preferably of a thin material so as not to unduly restrict its inner diameter. The upper end 6 of the supplemental section 5 is offset outwardly or otherwise shaped to conform with the old cover C, to avoid the expense of procuring new covers while at the same time defining an external shoulder or step which seats upon the plastic filling material which subsequently surrounds the section 5, thereby acting as a permanent support for the supplemental section. Instead of digging a large hole in the road deep enough to allow the upper section of the old box to be raised, it is only necessary to dig a hole about two inches larger in diameter than the top of the old box section and remove the cover of the old box. A strip of packing material is tied around the new supplemental section 5 near its lower end, and then the lower end of said new section is inserted in the top of the old box section A, as clearly illustrated in the drawings. The new supplemental top sec-

tion is then pushed down until its upper end is flush with the road surface. In practice, the supplemental top section 5 may be supported and the proper level of its upper end assured by attaching thereto in any desired manner a stick 7, such as by means of the wire 8. After the supplemental top section 5 is positioned and supported as shown in Figure 1, cement, grout or concrete 9 is poured into the space around the same and between it and the surrounding pavement. The stick 7 which has been employed as a support and gauge is then removed, and after the material is set the old cover is placed in the new top. In this manner, the height of the old valve box is raised and the pavement is patched in one operation at the expenditure of considerably less time and labor than would be required to raise the upper section of the old box under the present methods now in vogue.

It will be observed that the new supplemental top section 5 acts in the capacity of a form, as well as a liner, for the new top, and it is also apparent that it is possible to increase the height of the old valve boxes any amount necessary. It is also apparent that the same box may be increased in height again at some future time by merely inserting a new top section or liner. Whenever it is necessary to lower an old valve box to meet with a lowering of the grade, an advantage may be gained by lowering the top of the old valve box level with the sub grade to give the road roller and opportunity to properly roll the sub grade before the pavement is placed, and then, just before the pavement is constructed, to form a new top on the old valve box with one of the new supplemental top sections.

From the foregoing, it will thus be seen that a new and improved method of and apparatus for forming new tops on underground valve boxes has been devised which renders the operation considerably more expeditious and less expensive and which obtains other advantages over the previous methods employed.

What is claimed is:

1. A method of forming a top on an installed underground valve box or the like to meet with a change in the grade of the pavement, including the steps of inserting a supplemental top section in a pre-excavated portion of the pavement adjacent the valve box, fitting the lower end of said supplemental top section within the upper end of the old valve box, sliding said supplemental section vertically until the top edge thereof is disposed flush with the new grade and filling in with a plastic substance between said section and excavated portion of the surrounding pavement.

2. A method of forming new tops on previously installed underground valve boxes or the like to meet with a change in the grade of the pavement, including the steps of in-

serting a supplemental top section in a pre-excavated portion of the pavement adjacent the valve box, fitting said supplemental top section within the upper end of the old valve box, sliding said section vertically until its top edge is in a plane flush with the new grade surface, temporarily supporting said supplemental section in said flush position and filling in said pre-excavated portion between said section and the surrounding pavement with a plastic substance serving to permanently support the supplemental section and to repair the pavement adjacent said section.

3. A method of forming a new top on installed underground valve boxes or the like to meet with a raise in the grade of the pavement, comprising the steps of excavating down to the upper end of the installed valve box, inserting a supplemental top section therein, sliding said supplemental section vertically until its upper edge is flush with the new grade, temporarily supporting said section in said flush position, filling in between the exterior surface of the supplemental top section and the walls of the excavation and removing said temporary support.

4. A method of forming a new top on an installed underground valve box to meet with a change in the grade of the pavement, including the steps of telescopically inserting a tubular supplemental top section in the upper end of the installed valve box, vertically sliding said supplemental top section relative to the valve box and temporarily supporting said section within a pre-excavated portion of the pavement which exposes the upper end of the valve box so that the upper edge of said section is disposed flush with the new grade and introducing between the exterior surface of the supplemental section and the walls of the excavation, a plastic filling substance to constitute means for permanently supporting the supplemental section and for repairing the excavated portion of the pavement adjacent thereto.

5. The herein described method of forming a new top on an installed underground valve box to meet with a change in the grade of the pavement, including the steps of inserting a tubular extension in a pre-excavated portion of the pavement, introducing a portion of said extension into the upper end of the installed valve box, sliding the extension vertically to dispose the upper end thereof flush with the new grade and filling in with a plastic material, said pre-excavated portion of the pavement between the walls of the excavation, the extension and the exposed portion of the installed valve box.

6. The herein described method of forming a new top on an installed underground valve box or the like to meet with a change in the grade of the pavement, including the steps of excavating the pavement down to the

upper end of the installed valve box, inserting a tubular supplemental section into the upper end of the installed valve box, sliding said section relatively to said valve box until the same is flush with the new grade surface of the pavement, temporarily supporting said supplemental section in said flush position, filling in with a plastic material around the supplemental section between the same, the exposed top of the installed valve box and the surrounding pavement and removing the temporary support.

7. A method of forming new tops on previously installed underground valve boxes or the like to meet with a change in the grade of the pavement, including the steps of positioning a supplemental top section telescopically within the upper end of a previously installed valve box section, sliding said supplemental section vertically with respect thereto until the top edge of the same is disposed flush with the new grade of the pavement and then filling in with a plastic substance between said section and the surrounding pavement to permanently support the supplemental section and complete the pavement.

8. A construction for extending the tops of previously installed underground valve boxes to meet with a change in the pavement grade, including a tubular body of a diameter to snugly and slidably fit within the upper end of the installed valve box, of a height to permit of sliding thereof to a position to extend upwardly therefrom to a level flush with the new grade of the pavement and arranged within an excavation extending downwardly from the new grade to the top of an installed valve box and a plastic substance filling said excavation around said supplemental section and constituting a common means for holding the parts in fixed relation and for completing the pavement up to the margin of said body.

9. In combination with an installed underground valve box having a cover seat at its upper end, a supplemental top member having a tubular body, the lower end of which is slidably fitted within the upper end of the valve box, said body being of a height to extend therefrom to a plane flush with a new street grade, the supplemental top member having at its upper end a seat for accommodating the valve box cover of the installed valve box.

10. A construction for extending the tops of previously installed underground valve boxes to meet with a change in the pavement grade, including a tubular body of a diameter to snugly and slidably fit within the upper end of the installed valve box, of a height to extend upwardly therefrom to a level flush with the new grade of pavement and arranged within an excavation extending downwardly from the new grade to the top

of the installed valve box, a plastic substance filling said excavation around said supplemental section and means surrounding the tubular body for establishing a seal between the same and the old valve box where they interfit, to prevent the leakage of the plastic substance therebetween.

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