

STEEL MANHOLE

BACKGROUND OF THE INVENTION

5 1. Field of the Invention

The present invention relates to a steel manhole, and in particular to a steel manhole which is capable of implementing an easier communication cable installation under the ground and an easier check and maintenance of a drain pipe.

10 2. Description of the Background Art

Generally, a manhole is fabricated by pouring cement into a certain shape of a frame, and then the poured cement is hardened. Holes are formed at the left and right portions of the same, and a pipe way is formed in the holes, and then the cement is filled into the gaps between the holes and the pipe way.

15 However, the above-described work is complicated, and no work is done until the cemented is fully hardened. In addition, since the formation period of the manhole is long, passenger must detour.

In addition, the construction site of the manhole is dangerous, and the cost for treating wastes obtained after the manhole is fabricated is increased.

20 Since the water prevention is not guaranteed between the holes of the manhole and the connected portions of the pipe way, rain may penetrate into the manhole. In this case, water must be removed when maintaining the electric system or communication system.

25 SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a steel manhole

which is capable of significantly decreasing the construction period and obtaining a recycling of the manhole and decreasing the amount of a source material.

To achieve the above object, there is provided a steel manhole which includes a steel box having an integral hollow casing formed at an upper portion of the steel box; a height control pipe slidably engaged with said casing in a height adjustable manner, said height control pipe including slots extending in the direction of slidable engagement and aligned with holes in said casing wherein fastening elements are provided extending through said slots to secure the height control pipe with the casing, a multi-hole lid covering an upper portion of the height control pipe, male pipes having external male threads projecting from diametrically opposite sides of the steel box, and connection pipes having female threads, threaded on said male threads.

The steel manhole is of steel reinforcements welded at an outer surface of said steel box.

The connection pipes are made of a resin material.

The fastening elements are bolts extending through the slots and into a threaded hole of said casing.

The steel box is rectangular.

To achieve the above object, there is provided a steel manhole which includes a wave form steel pipe, a hollow casing projecting upwardly at an intermediate upper surface portion of the wave form steel pipe and having a plurality of vertically spaced holes at a side surface thereof, a height control pipe slidably engaged with said casing and having a plurality of height control holes at positions corresponding to the holes in the casing wherein fastening elements extend through at least some of said holes of said casing and said height control pipe which are in alignment, to secure the height control pipe with said casing, a multi-hole lid inserted into an upper portion of the casing to cover the upper portion of the casing, and a gathering chamber formed at the lower portion of the wave form steel pipe opposite the casing on the upper surface of the wave form steel pipe.

The fastening elements extending in the holes in the height control pipe and in said casing to secure the pipe in the casing in a height adjusted position therein.

To achieve the above object, there is provided a steel manhole to be incorporated into the ground beneath a commuter supporting surface, said steel manhole which includes a steel box having integrally formed therewith a hollow projection extending from a to be positioned in use, upper portion of the steel box, a lid supporting sleeve to provide upward support to a multi-hole lid covering an upper portion of said lid supporting sleeve, said lid supporting sleeve telescopically engaged with said hollow projection (whether internal or external thereof) in a height adjustable manner such that in use it can be positioned to place the multi-hole lid at a desired height relative to the commuter supporting surface, said lid supporting sleeve including slots extending in the telescopic direction and aligned with holes in said projection wherein fastening elements are provided extending through said slots to secure the lid supporting sleeve with the projection, male pipes having external male threads projecting from diametrically opposite sides of the steel box, and connection pipes having female threads, threaded on said male threads.

Additional advantages, objects and features of the invention will become more apparent from the description which follows.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will become more fully understood from the detailed description given herein below and the accompanying drawings which are given by way of illustration only, and thus are not imitative of the present invention, and

wherein:

Figure 1 is an exploded perspective view illustrating a steel manhole according to a first embodiment of the present invention;

5 Figure 2 is a cross-sectional view illustrating a steel manhole according to a first embodiment of the present invention;

Figure 3 is an exploded perspective view illustrating a steel man according to a second embodiment of the present invention; and

Figure 4 is a cross-sectional view illustrating a steel manhole according to a second embodiment of the present invention.

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DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The first embodiment of the present invention will be explained with reference to the accompanying drawings.

15 Figure 1 is an exploded perspective view illustrating a steel manhole according to a first embodiment of the present invention, and Figure 2 is a cross-sectional view illustrating a steel manhole according to a first embodiment of the present invention.

20 As shown therein, a steel manhole 15 includes a hole 2 formed on an upper surface of a hexagonal steel box 1. A worker goes into a underground construction site through the hole 2. Two bolt holes 3 and 3' are formed on each surface of the hole 2 at upper and lower portions. A height control pipe 4 is installed at an upper inner diameter portion of the hole 2.

25 A plurality of vertical longitudinal holes 5 are formed on each surface of the height control pipe 4, and the bolt 6 is inserted into the bolt holes 3 and 3' and the vertical longitudinal hole 5, so that the height of the height control pipe 4 is properly controlled, and the nut is engaged with the bolt 6, and the height control pipe 4 is

assembled.

Steel male screw pipes 7 and 7' are welded at left and right portions of the steel box 1, and resin female screw connection pipes 8 and 8' are threaded with the male screws 7 and 7'.

5 A resin pipe way is connected using the male screw pipes 7 and 7' and the female screw pipes 8 and 8', and the front and rear surfaces of the steel box 1 are outwardly protruded, and a plurality of reinforcing steels 9 are welded at an outer surface.

10 In addition, a shoulder portion 11 is formed at an upper inner diameter portion of the height control pipe 4, and a multi-hole lid 10 which works as a lid of the manhole covers the shoulder 11.

The second embodiment of the present invention will be explained with reference to the accompanying drawings.

15 Figure 3 is an exploded perspective view illustrating a steel man according to a second embodiment of the present invention, and Figure 4 is a cross-sectional view illustrating a steel manhole according to a second embodiment of the present invention.

20 As shown therein, a steel manhole 30 includes a hole 22 formed at an intermediate upper surface of a metal wave form steel pipe 21, so that a worker goes into a underground construction site through the hole 22.

The shape of the hole 22 may be rectangular or circular, and a height control pipe 23 is inserted into the hole 22 to have the same shape as the hole 22.

25 A plurality of holes 24 are formed at the hole 22, and a height control hole 25 is formed at a wall of the height control pipe 23 at an interval corresponding to the interval of the hole 24.

When constructing a road, the bolt 26 is fixed into the hole 24 and the height

control hole 25 which are arranged by inserting the height control pipe 23 into the hole 22 for coinciding the height of the manhole and the height of the road.

A shoulder portion 23 is formed at an upper inner diameter portion of the height control pipe 23, and a lid 27 which works as a lid of the manhole covers the
5 shoulder portion 23.

In addition, a gathering chamber 28 is formed at the bottom portion to correspond with the hole 22, so that wastes are gathered at the gathering chamber 28 for thereby preventing a blocking phenomenon. In another embodiment of the present invention, the gathering chamber may not be formed.

10 When installing the drain pipe, a wave form pipe is connected at both ends of the wave form steel pipe 1 using a coupling band.

Therefore, the steel manhole according to the present invention is just moved to the construction site for thereby completing the construction. In the present invention, the construction is possible in the winter season. The construction period
15 is significantly decreased, and passenger does not detour during the construction period. In addition, it is possible to prevent any accident.

The connection portions between the electricity and communication cable way are fully sealed. Therefore, rains do not penetrate into the connected portions. Recycling of the manhole is possible, and it does not need waste processing cost.

20 In addition, the present invention is well applicable for the soft ground area and sinking area.

The height of the manhole is controlled by controlling the height control member in the hole based on a bolt engagement for thereby implementing an accurate construction. Since the manhole is fabricated not at the fabrication site but
25 at the factory, so that the quality of the product is good, and a client-demand design is possible in the present invention.

The manhole is light by separating the height control pipe and the lid, and it is easy to move the same, and any damage and cracks may be prevented.

Although the preferred embodiment of the present invention have been disclosed for illustrative purposes, those skilled in the art will appreciate that various
5 modifications, additions and substitutions are possible, without departing from the scope and spirit of the invention as recited in the accompanying claims.

What is claimed is:

1. A steel manhole, comprising:
 - a steel box having an integral hollow casing formed at an upper portion of the steel box;
 - a height control pipe slidably engaged with said casing in a height adjustable manner;
 - said height control pipe including slots extending in the direction of slidable engagement and aligned with holes in said casing wherein fastening elements are provided extending through said slots to secure the height control pipe with the casing,
 - a multi-hole lid covering an upper portion of the height control pipe;
 - male pipes having external male threads projecting from diametrically opposite sides of the steel box; and
 - connection pipes having female threads, threaded on said male threads.
2. The manhole of claim 1, comprising steel reinforcements welded at an outer surface of said steel box.
3. The manhole of claim 1, wherein said connection pipes are made of a resin material.
4. The manhole of claim 1, wherein said fastening elements are bolts extending through the slots and into a threaded hole of said casing.
5. The manhole of claim 1, wherein said steel box is rectangular.
6. A steel manhole comprising:
 - a wave form steel pipe;
 - a hollow casing projecting upwardly at an intermediate upper surface portion of the wave form steel pipe and having a plurality of vertically spaced holes at a side surface thereof;
 - a height control pipe slidably engaged with said casing and having a plurality of height control holes at positions corresponding to the holes in the casing wherein fastening elements extend through at least some of said holes of said casing and said height control pipe which are in alignment, to secure the height control pipe with said casing,
 - a multi-hole lid inserted into an upper portion of the casing to cover the upper portion of the casing, and
 - a gathering chamber formed at the lower portion of the wave form steel pipe opposite the casing on the upper surface of the wave form steel pipe.

7. The manhole of claim 6, comprising fastening elements extending in the holes in the height control pipe and in said casing to secure the pipe in the casing in a height adjusted position therein.

8. A steel manhole to be incorporated into the ground beneath a commuter supporting surface, said steel manhole comprising:

a steel box having integrally formed therewith a hollow projection extending from a to be positioned in use, upper portion of the steel box;

a lid supporting sleeve to provide upward support to a multi-hole lid covering an upper portion of said lid supporting sleeve, said lid supporting sleeve telescopically engaged with said hollow projection (whether internal or external thereof) in a height adjustable manner such that in use it can be positioned to place the multi-hole lid at a desired height relative to the commuter supporting surface

said lid supporting sleeve including slots extending in the telescopic direction and aligned with holes in said projection wherein fastening elements are provided extending through said slots to secure the lid supporting sleeve with the projection;

male pipes having external male threads projecting from diametrically opposite sides of the steel box; and

connection pipes having female threads, threaded on said male threads.