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CULVERT AND SYPHON CLEANER

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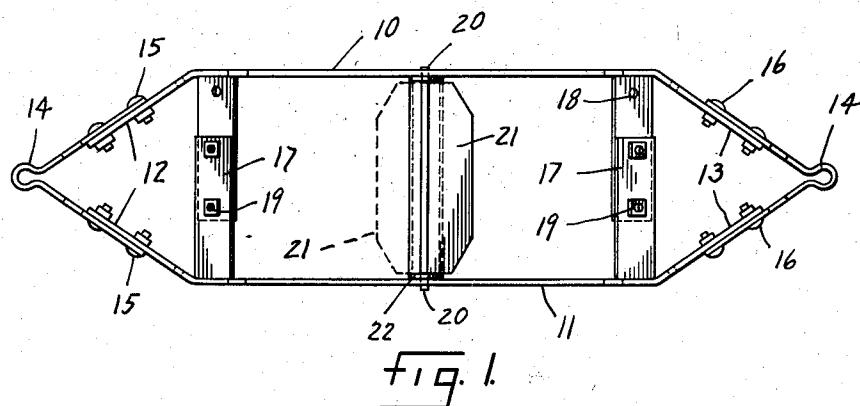


FIG. 1.

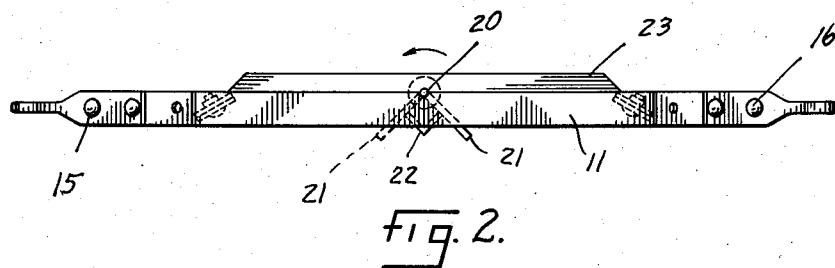


FIG. 2.

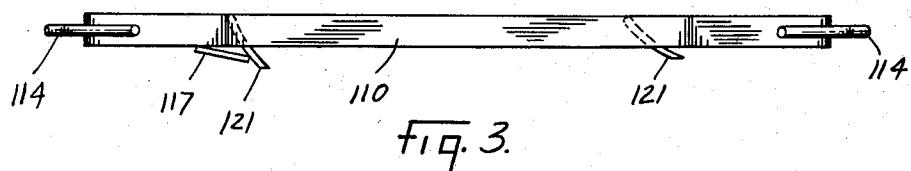


FIG. 3.

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CULVERT AND SYPHON CLEANER

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3 Claims. (Cl. 15—104.3)

This invention relates to a culvert and syphon cleaning implement.

Heretofore, the conventional cleaners for cleaning culverts and the like have been hand operated. As a result the work has been slow and tedious. It is the primary object of this invention to provide an implement which eliminates the hand operated cleaners and thereby reduces the time and expense connected with them, while at the same time does an even better job. Through the use of a winch and pulley or other powering means, dust, debris, weeds, hard gumming mud, silt or other matter may effectively be removed.

It is a still further object of the present invention to provide a cleaner which will be durable and more than adequate for the hard service to which it of necessity is subjected. For example, it is not infrequent in certain parts of the country for a culvert to become entirely filled with a hard gumming mud which has run off into the culvert from a summer fallow field on a steep hillside. Tons of mud, silt, weeds and the like are involved, and it obviously is a very time consuming and arduous undertaking to remove it by hand. With the present invention, however, this can be done effectively and in a relatively short time.

It is a still further object of this invention to provide an implement of such character and construction that it will not only clean culverts but syphons as well. Heretofore, ordinary grappling hooks have had to be employed to clean syphons. When it is considered that the syphon may have a 2 to 5 foot drop from ditch level in underpassing roads, it is understood why the use even of grappling hooks has been unsatisfactory and difficult. With the present invention, however, the disadvantages are overcome.

It is also an object of this invention to provide a two-way cleaner, i. e., one which may be pulled in either direction in performing its work and does not have to be turned around.

With the emphasis that is being placed upon highway upkeep in a motorized day and age it is, of course, imperative that devices and implements be provided that can simplify the job and reduce the exorbitant expense. It is thus important that culverts and the like be preserved and that good drainage be provided from them so that the highways and their shoulders will be protected. The present invention provides an effective medium for accomplishing this objective. In addition it prevents the growth of stagnant pools, seepage and the undermined surfaces that inevitably result from the accumulation of debris in the culverts and syphons.

The full nature of the invention will be understood from the accompanying drawings and the following description and claims:

In the drawings, Fig. 1 is a top plan view of the preferred embodiment of my invention.

Fig. 2 is a side elevation thereof.

Fig. 3 is a side elevation of a modified form of cleaner.

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In the drawings the sides or runners 10 and 11 are formed of cold rolled steel or other suitable material. These sides converge at each end 12 and 13 and are adjustably connected to the hitch 14 by the securing bolts 5 15 and 16.

Disposed between the sides adjacent the points where they begin to converge are the cross braces 17 which are provided with openings 18 for reception of the bolts 19.

Pivotal connected at 20 to the sides of the cleaner 10 is the blade 21 which projects a predetermined distance below the lower edge of the sides. When the cleaner is being pulled in one direction the blade or scoop is disposed in one position. On the other hand, when the direction of travel is reversed, it is necessary only to flip the blade over so that it is in the dotted line position shown in both Figs. 1 and 2.

In order to stop the blade at a predetermined point in its pivotal movement, a cross brace or blade stop 22 is provided, it being suitably secured to the sides of the cleaner. While this cross brace is shown in Figs. 1 and 2, as a V-shaped member, it is possible for it to be a substantially horizontal or flat element. The greater or major portion of said cross brace lies substantially above the plane defined by the bottom edges of the sides of the cleaner, but below the upper edges of said sides as shown in Fig. 2. It will also be observed in said figure that the point of pivotal connection of said blade to said sides is substantially vertically above the vertex of said V-shaped cross brace. Additionally it will be noted in that figure that the blade is pivotally connected to the sides adjacent the upper edge of the blade.

A slight superstructure 23 may be provided to give greater depth to the cleaner and to keep the debris from going over the sides as much as possible.

In Fig. 3, a modified form of cleaner is illustrated, it being of the one-way type. In that embodiment, the sides 110 also are formed of cold rolled steel or the like and have the hitch 114 electrically welded or otherwise fixedly secured thereto. Twin grader blades or scoops 121 are provided, they being inclined at different angles. These blades may be reinforced and supported by the cross member 17. This cleaner is designed primarily for concrete type box culverts.

In use, that cleaner will be used which is best adapted to the culvert to be cleaned. The hitch will then be connected to the pulley and winch and it may then be pulled back and forth through the culvert until it is effectively cleaned, it being understood, of course, that the blade 50 will be flipped over or pivoted to the desired side of the cross brace.

While the invention has been illustrated and described in detail in the drawings and foregoing description, the same is to be considered as illustrative and not restrictive in character, it being understood that only the preferred embodiment has been shown and described and that all changes and modifications that come within the spirit of the invention and the scope of the claims are also desired to be protected.

The invention claimed is:

1. A culvert and syphon cleaner comprising elongated spaced sides having lower edges in a horizontal plane, said sides converging at opposite ends, hitches connected to said ends, a cross brace extending between said sides intermediate their ends, said cross brace providing longitudinally spaced abutments extending between said sides, and a downwardly and selectively forwardly and rearwardly inclined blade extending between and pivotally connected to said sides, the axis of pivotal connection of said blade lying substantially vertically above said cross brace, said transverse abutments being engageable by opposite sides of said blade for stop purposes upon selective

pivotal movement of said blade up and over said cross brace, whereby the movement of the cleaner may be quickly reversed without removal from the culvert or syphon and without adjustment of the blade stop.

2. A culvert and syphon cleaner comprising elongated spaced sides having lower edges in a horizontal plane, said sides converging at opposite ends, hitches connected to said ends, means providing longitudinally spaced abutments extending between said sides intermediate their ends, a downwardly and selectively forwardly and rearwardly inclined blade extending between and pivotally connected to said sides, the axis of pivotal connection of said blade lying substantially midway between and vertically above said abutments, said abutments being engageable by opposite sides of said blade for stop purposes upon selective pivotal movement of said blade up and over said abutments, whereby the movement of the cleaner may be quickly reversed without removal from the culvert or syphon and without adjustment of the blade stop.

3. A culvert and syphon cleaner comprising elongated spaced sides, said sides converging at opposite ends, hitches connected to said ends, a cross brace connected to and extending between said sides adjacent each of their opposite ends, a V-shaped cross brace connected to and extending between said sides intermediate their

opposite ends, the greater portion of said last mentioned brace lying above the plane defined by the bottom edges of said spaced sides but below the plane defined by the top edges of said sides, and a downwardly and selectively forwardly or rearwardly inclined blade extending between and pivotally connected to said sides adjacent the upper end edge of said blade, the axis of pivotal connection of said blade lying substantially vertically above the vertex of said V-shaped cross brace, said V-shaped cross brace being engageable by opposite sides of said blade for stop purposes upon selective pivotal movement of said blade up and over said V-shaped cross brace, whereby the movement of the cleaner may be quickly reversed without removal from the culvert or syphon and without adjustment of the blade stop.

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