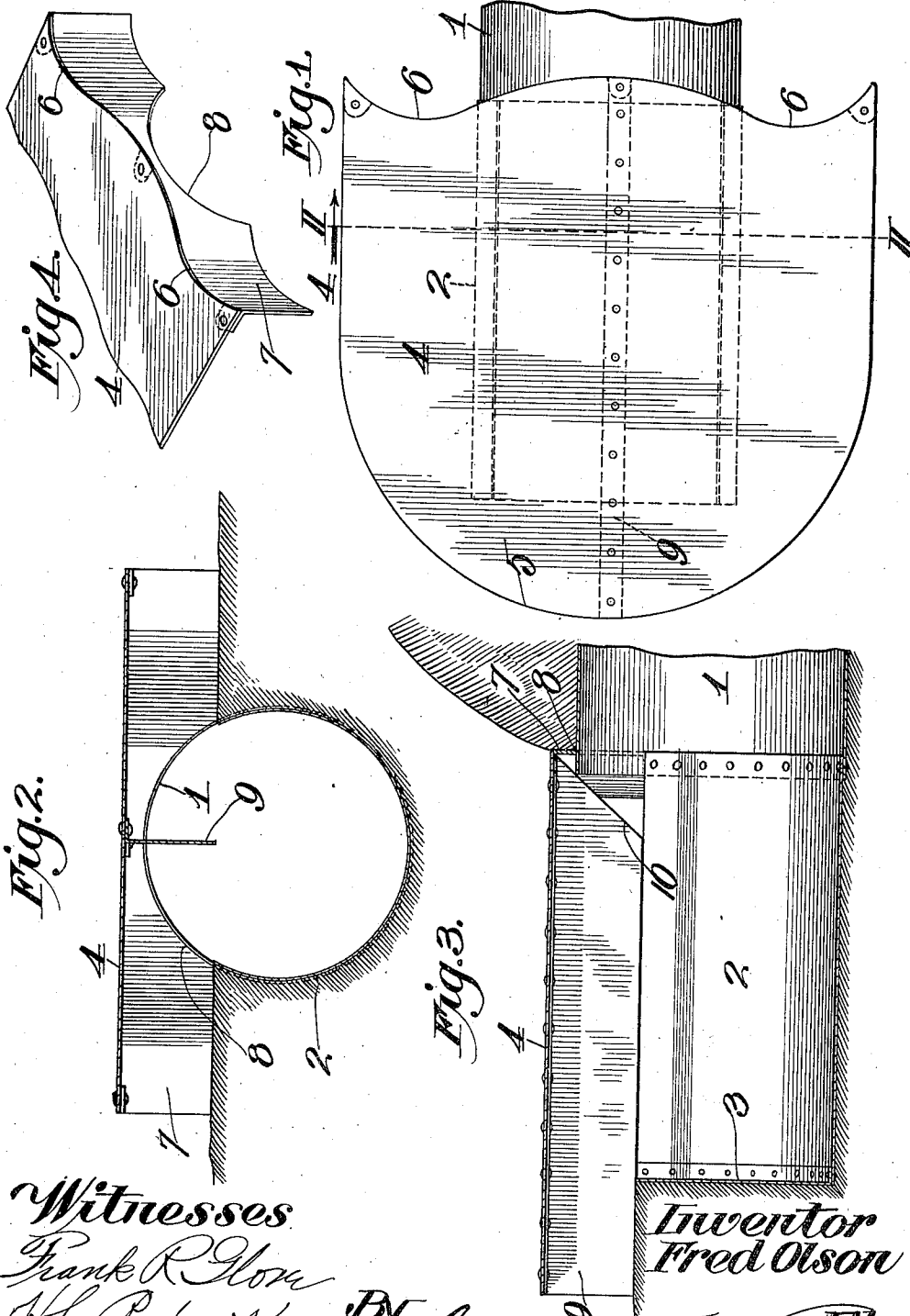


F. OLSON.
CULVERT.

APPLICATION FILED MAY 29, 1911.

1,001,978.

Patented Aug. 29, 1911.



Witnesses
Frank R. Glom
H. C. Rodgers.

By George Thorpe *Atty.*

Inventor
Fred Olson

UNITED STATES PATENT OFFICE.

FRED OLSON, OF CLYDE, KANSAS.

CULVERT.

1,001,978.

Specification of Letters Patent. Patented Aug. 29, 1911.

Application filed May 29, 1911. Serial No. 630,202.

To all whom it may concern:

Be it known that I, FRED OLSON, a citizen of the United States, residing at Clyde, in the county of Cloud and State of Kansas, have invented certain new and useful Improvements in Culverts, of which the following is a specification.

This invention relates to culvert attachments, and my object is to produce a culvert mouth of equal or greater capacity than the culvert and adapted for preventing the entrance of long sticks into the culvert when the water is comparatively low and for collecting practically all sticks floating in the water toward the culvert, when the water is high.

A further object is to provide a culvert mouth which will protect the adjacent embankment of the roadway through which the culvert extends.

A still further object is to produce a culvert attachment of simple, strong, durable and cheap construction, which can be secured in or removed from operative position expeditiously and economically.

With these and other objects in view, as hereinafter appear, the invention consists in certain novel and peculiar features of construction and organization as hereinafter described and claimed; and in order that it may be fully understood reference is to be had to the accompanying drawing, in which:

Figure 1, is a top plan view of one end of a culvert equipped with a mouth attachment embodying my invention. Fig. 2, is a vertical cross section on the line II—II of Fig. 1. Fig. 3, is a central vertical longitudinal section. Fig. 4, is a perspective view of a fragment of the mouth piece.

In the said drawing, 1 indicates a culvert of the sheet metal type, the same in Fig. 3, being shown in operative relation to one of the embankments of a roadway which it underlies, as customary.

2 indicates a trough forming the lower part of the mouth piece attachment, the same being substantially semi-circular in form and preferably of somewhat greater depth than half the diameter of the culvert. At its outer end the trough is closed by an end wall 3 and at its inner end it projects slightly into the culvert and is adapted to be secured thereto in any suitable manner.

The trough is embedded in the ground as shown in Figs. 2 and 3, the level of the water-way leading to the culvert being sub-

stantially flush as shown, with the upper edge of the trough.

Arranged a suitable distance above the top of the crest of the culvert is a substantially horizontal plate 4 constituting the top of the mouth piece and of greater length and width than the trough so that it shall project beyond the wall or outer end and the sides of the same. The outer end of the plate which constitutes the top of the attachment, is preferably rounded as at 5 and at its opposite end it is formed with concave recesses 6 at opposite sides of the trough.

7 indicates a wall depending from the rear end of the top 4 and preferably curved to correspond with the contour of the rear edge of said top, said wall being preferably of sufficient height to extend downward to the plane of the top of the trough, and centrally, said wall is provided with a curved recess 8 snugly receiving the upper part of the culvert, as shown most clearly in Figs. 2 and 3, so that the latter shall constitute a support for the rear portion of the top.

To support the front portion of the top a longitudinal rib or partition 9 depends from the top and preferably extends from its rear end to its front end, and rests near the last-named end on the end wall 3 of the trough, the rear end of the partition being preferably tapered as at 10 to leave a space which will accommodate the upper part of the adjacent end of the culvert, as shown in Fig. 3.

In practice the space between the edges of the trough and the top will equal or exceed the capacity of the culvert so that the mouth piece shall never form a means whereby the proper flow of water to the culvert shall be impeded or retarded.

Assuming that the water is flowing toward the culvert in such volume that its depth shall be equal to or less than the distance between the upper edge of the trough and the top, it will be apparent that it will readily pass into the trough and thence into the culvert, and, as water at such depth will not float sticks or twigs of large size, there is no danger of the mouth piece or culvert becoming choked or clogged. Should the flow of water be in such volume as to exceed the depth mentioned, it will overflow the top and therefore carry large sticks over the latter, and when the water falls such sticks will be collected upon the top in such position that they cannot materially impede the flow of water into the mouth piece. It

will also be apparent that any long sticks which may be partly submerged in the water will be caught by the front end of the top and by the partition, and thereby prevented from entering the trough, the rounded end of the top and the front end of the partition tending to deflect such sticks laterally so as to leave the space between the walls of the trough and the top practically unobstructed. Said rounded end of the top also tends to compel sticks and trash to flow more readily than if such end was square or abrupt. The top, because it projects beyond the sides and front end of the trough, tends to prevent any material suctional or whirling action of the water above it, the suction occurring below the plane of the top where it will have practically no effect on large sticks or trash lying above the top, it being obvious that without the top the suctional action incident to the entrance of water into the trough and culvert would draw large sticks and trash downward upon the trough and against the inlet end of the culvert and obstruct the passage to such an extent as to necessitate removal of the obstruction by hand, whereas with the top and partition 9 the entrance to the trough is at all times protected. The rear wall 7, between the top and culvert protects the embankment and the curved ends of said wall, corresponding to the recesses 6 of the top tends to prevent the water from running as rapidly along the earth embankment as would be the case if said wall was perfectly straight.

From the above description it will be apparent that I have produced a culvert attachment embodying the features of advantage enumerated as desirable and it is to be understood that I reserve the right to make such changes in the form, proportion, detailed construction and arrangement of the parts as properly fall within the spirit and scope of the appended claims.

I claim:

1. A mouth piece attachment for culverts, comprising a trough, a top above and spaced from the trough, a wall at the rear end of the top and between the same and the trough, and a longitudinal partition arranged between the trough and top.

2. A mouth piece attachment for culverts, comprising a trough having an end wall at its outer end, a top above and spaced from the trough, a transverse wall at the rear end of the top and arranged between the same and the rear end of the trough, and a

longitudinal partition arranged between the trough and top and resting upon the wall of the former and secured to the latter.

3. A mouth piece attachment for culverts, comprising a trough, a top above and spaced from the trough and projecting beyond the sides and front end of the latter, a longitudinal partition secured to and arranged between the top and trough and projecting beyond the wall of the latter, and a back wall depending from the rear end of the top to the plane of the upper edge of the trough and extending transversely and projecting beyond the sides of the trough.

4. A mouth piece attachment for culverts, comprising a trough, a top above and spaced from the trough and provided at its rear end and at opposite sides of the trough with recesses, a back wall depending from the rear end of the top and corresponding in contour to the rear end of said top, and a longitudinal partition between the trough and top and projecting forwardly beyond the front end of the former.

5. The combination with a culvert, of a trough embedded in the ground and projecting into the culvert and of less depth than the latter, a top arranged substantially parallel with and above the trough and adjacent to the end of the culvert, a back wall secured to the rear end of the top and extending transversely and provided with a recess in its lower edge snugly receiving the upper part of the culvert, and a longitudinal partition arranged between the top and the trough.

6. The combination with a culvert, of a trough embedded in the ground and projecting into the culvert and of less depth than the latter, a top arranged substantially parallel with and above the trough and adjacent to the end of the culvert, and projecting beyond the side walls and front end of the trough and rounded at its front end and provided at opposite sides of its center with recesses in its rear end, a longitudinal partition secured to the top and resting upon the front end of the trough and projecting beyond such end, and a transverse partition resting on the culvert and secured to the rear end of the top and projecting laterally beyond opposite sides of the trough.

In testimony whereof I affix my signature, in the presence of two witnesses.

FRED OLSON.

Witnesses:

F. R. FRENCH,
E. S. ROGERS.