

O. E. DEPPEN.
CULVERT.

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1,010,875.

Patented Dec. 5, 1911.

Fig. 1.

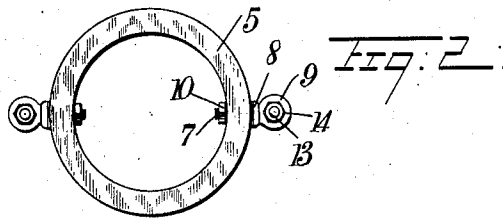
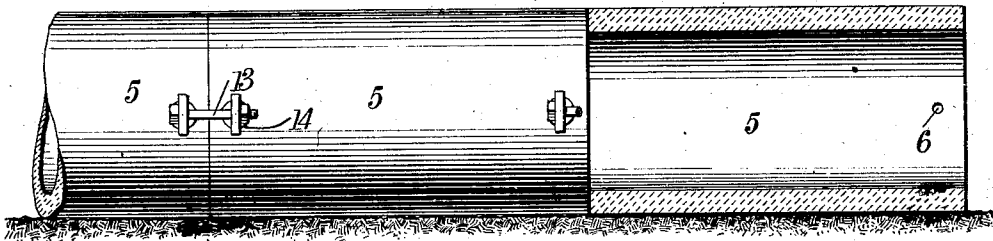


Fig. 3.

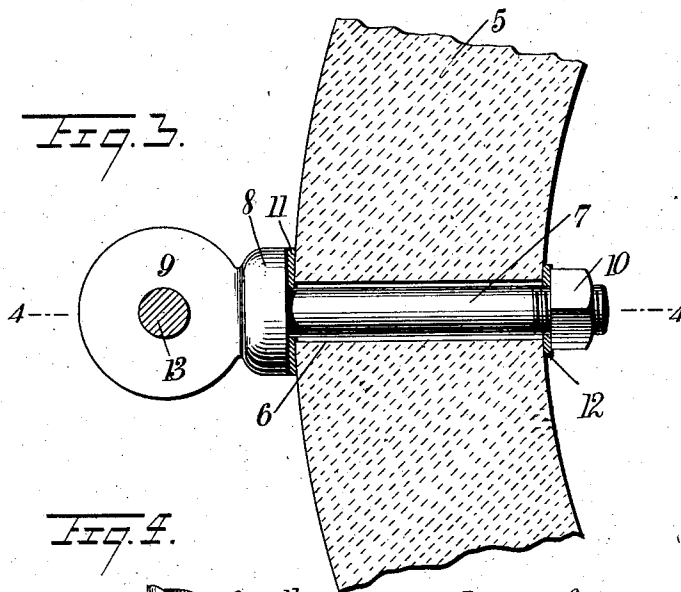
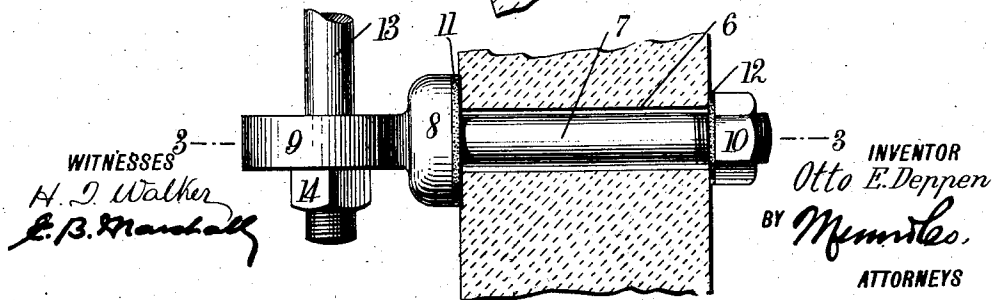


Fig. 4.



WITNESSES

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CULVERT.

1,010,875.

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To all whom it may concern:

Be it known that I, OTTO E. DEPPEN, a citizen of the United States, and a resident of Chattanooga, in the county of Hamilton and State of Tennessee, have invented a new and Improved Culvert, of which the following is a full, clear, and exact description.

My invention relates to culverts and it has for its object to provide vitrified clay culverts with means by which they may be quickly and cheaply held relatively to each other, thereby doing away with the necessity of cutting "bell holes" in the bottom of the trench for receiving the bells and other members now used for uniting culvert members.

Additional objects of the invention will appear in the following complete specification, in which the preferred form of the invention is disclosed.

In the drawings similar characters of reference indicate corresponding parts in all the views, in which—

Figure 1 is an elevation, partially in section, showing vitrified clay culverts, and the means which I provide for holding them together. Fig. 2 is an end view of one of the culverts; Fig. 3 is a sectional view on the line 3—3 of Fig. 4; and Fig. 4 is a sectional view on the line 4—4 of Fig. 3.

Vitrified clay pipe is recognized as the best material for use in the construction of culverts, because when it is properly laid it is permanent. However, clay pipe is ordinarily made with bells or sockets to form the joints, and in order to properly lay the pipe it is necessary to form a bed in the trench having "bell holes" so that the body of the pipe will lie flat in the trench and the bells or other projecting members may be disposed in the "bell holes". If this is not done the value of the vitrified clay pipe as a culvert is greatly impaired. It also happens, in some cases, that the foundation at the end of a culvert is washed away, allowing the last section of the pipe to slip away from the next pipe in the culvert, which destroys the usefulness of the culvert until repairs are made. In order to overcome these objections I have provided a vitrified clay culvert with a means which I will now describe for holding the members

of the vitrified clay culvert together without the necessity of forming any "bell holes" in the trench in which the culvert members are laid.

The vitrified culvert members 5 shown in the drawings are made without bells or sockets and provided with oppositely disposed orifices 6 at their terminals in which are disposed bolts 7 having shoulders 8, which are disposed at the outer side of the culvert members, there being eye members 9 which are integral with the shoulders 8. These bolts 7 are held in place by nuts 10 which engage the bolts 7 at the inner side of the vitrified culvert members 5. As shown in Figs. 3 and 4 of the drawings, I prefer to provide packing members 11 and 12, the packing members 11 being disposed between the shoulder 8 and the outer side of the culvert member 5, and the packing member 12 being disposed between the nut 10 and the inner side of the culvert member 5. These packing members 11 and 12 prevent any leakage through the orifices 6 when the nuts 10 are turned home. When the eye bolts 7 are secured in place in the orifices 6, as has been described, the ends of adjacent vitrified clay members are held together by means of the bolts 13, which are disposed through the eyes in the eye members 9, nuts 14 being provided for engaging the said bolts 13 for drawing the eye members 9 in the direction of each other until the ends of the adjacent vitrified clay members are brought together.

It will be seen that with my improvement the vitrified clay members may be used successfully without necessitating the forming of "bell holes" in the bottom of the trench and that there is also no danger of the end culvert members being displaced by the washing away of their foundation at the bottom of the trench. The culvert members in their fastenings may be manufactured at little expense, and may be secured together with little trouble.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

Clay culvert members, without bells or sockets, having ends with orifices through their sides at their said ends, eye bolts disposed in the orifices with the eyes without the culvert members, and shoulders on the

outer ends of the bolts, nuts on the inner terminals of the bolts for drawing the bolts inward with the shoulders pressing against the outer side of the culvert members, and bolts disposed on the outer ends of the eye bolts on adjacent culvert members for holding the culvert members together.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OTTO E. DEPPEN.

Witnesses:

J. A. ROONEY,
EMERY GILL.