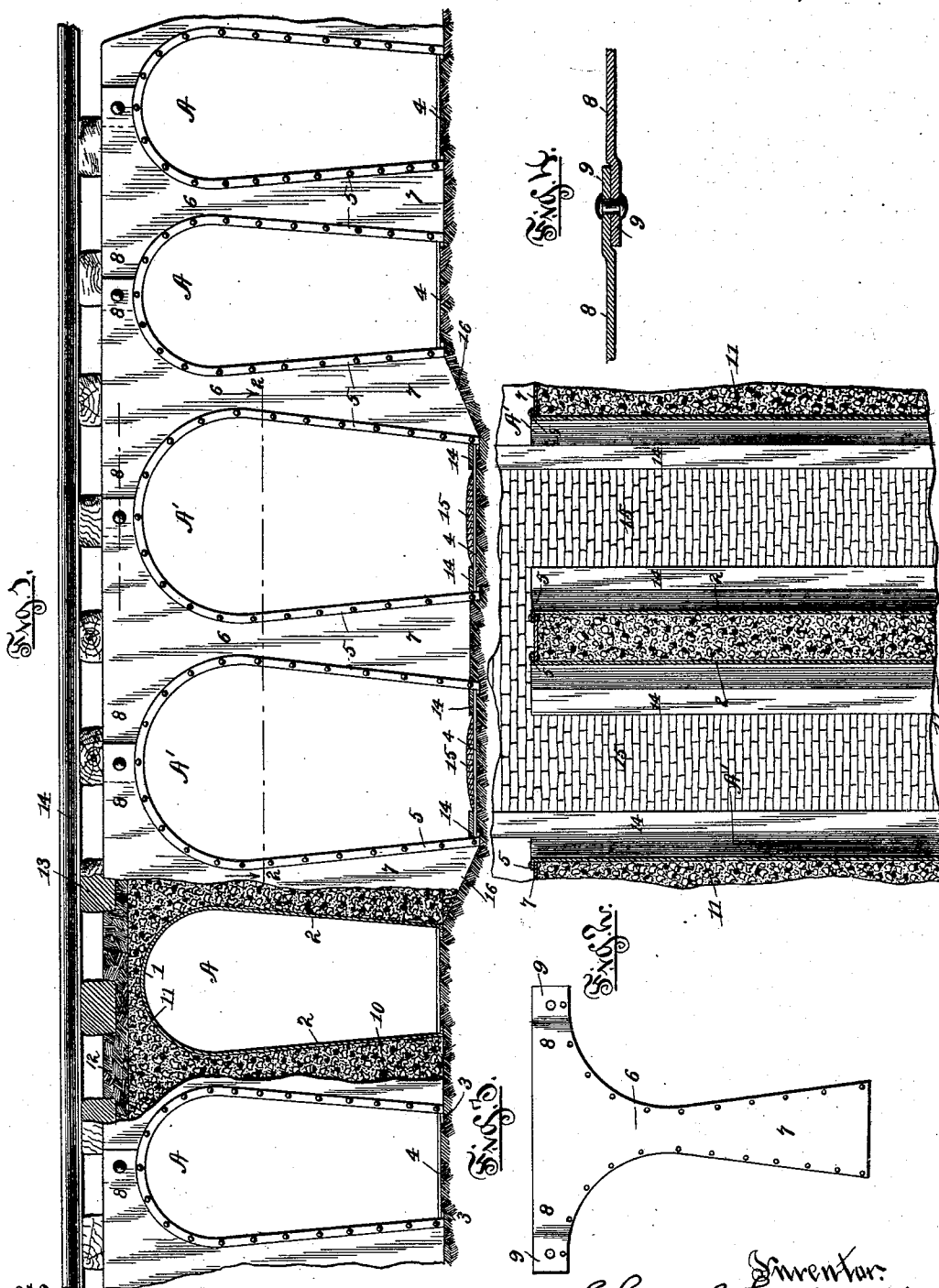


(No Model.)

C. C. LOCKSTAEDT.
ELEVATED STRUCTURE.

No. 477,907.

Patented June 28, 1892.



Witnesses
J. M. Rhem.
O. L. Lockert

Inventor:
Charles C. Lockstaedt
By *Loth Kennedy*
Att'y.

UNITED STATES PATENT OFFICE.

CHARLES C. LOCKSTAEDT, OF CHICAGO, ILLINOIS.

ELEVATED STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 477,907, dated June 28, 1892.

Application filed January 12, 1892. Serial No. 417,852. (No model.)

To all whom it may concern:

Be it known that I, CHARLES C. LOCKSTAEDT, a subject of the Emperor of Germany, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in the Construction of Elevated Structures; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to a novel construction in elevated structures or viaducts designed principally for supporting a railway-track and bed, the object being to provide a durable structure of this kind that will be comparatively inexpensive and of simple construction.

The invention consists in the features of construction hereinafter fully described, and pointed out and specifically claimed.

In the accompanying drawings, illustrating my improved construction, Figure 1 is a side elevation of an elevated structure or viaduct with parts broken away for convenience of illustration. Fig. 2 is a horizontal section taken on the line 2 2 of Fig. 1. Figs. 3 and 4 are detail views.

Referring to said drawings, A A' indicate a plurality of sheet-metal arches having the curved or arched upper ends 1 and the straight sides 2, that converge downwardly. The said sides 2 are connected together along their lower edges conveniently by making an inwardly-turned flange 3 along the lower end of said side pieces and connecting said flanges 3 by a sheet 4. It will be seen, however, that a plurality of tie-rods could be employed for connecting said flanges together instead of such sheet 4. The ends of said arch A along both the arched portion 1 and sides 2 are provided with an outwardly-turned flange 5. The said arches are located side by side along the line that the viaduct is to be built with a little distance from each other and with their ends in alignment. An upright plate or wall 6 is then placed between each of the arches and at the ends thereof behind the flanges 5 thereon. The said plate 6 is shaped, as shown in Fig. 3, with a downward extension 7, having diverging sides that fit in between the sides 2 of the arches. The upper end of

said plate 6 is provided with lateral extensions 8, that are curved on their lower edges to correspond with the curve of the arches. The upper edge of said plate is straight and the lateral extensions 8 are of such length that the lateral extension of the plate overlaps that of the other at about the center of the arch. The end portions 9 of said lateral extensions are conveniently offset slightly, as shown in Fig. 4, whereby when they are riveted together the main portions of the plates will be in alignment. The said plates are also riveted to the flanges 5 of the arches. The spaces between the arches are filled in with concrete, earth, or other analogous filling material, as shown at 10, which filling also preferably extends above the arches, as shown at 11, to cover the same. This filling is suitably packed in between the sides of the arches and the end plates or walls 6, and a suitable road-bed 12 is made upon such filling 11. The ties 13 and rails 14 are then laid upon the road-bed 12 in the usual manner.

From the foregoing description it will be seen that I provide an exceedingly strong structure, as the arches, which can be made of heavy boiler-iron, are capable of withstanding a heavy pressure, and when the filling hardens and sets the structure becomes very firm and rigid. It will be noted, however, that such filling can consist of concrete or other material that will harden or simply of earth rammed in. In the former case such filling, it is thought, will in itself sustain the structure, and it will obviously be seen how much additional strength will be provided by the iron or steel arches, which in themselves are capable of supporting the structure. It will further be obvious that a filling of earth will be sufficient to give firmness and solidity to the structure.

The structure is obviously comparatively inexpensive, as it obviates heavy masonry and the large amount of structural iron usually employed. The interior of the arches can be used for storage, store, or any other purpose found convenient.

It is plainly obvious that the arches may all be of one size and that any one or more can be used for street-crossings; but in Figs. 1 and 2 a convenient manner of making such crossings is shown. In said figures the arches

A', that are larger than the arches A, provide the passage-way for the intersecting street. It is preferable in building such structures to depress the grade of the street a little as it approaches the structure, so that it will be unnecessary to make the structure as high as would otherwise be necessary. Thus in Fig. 1 the bottom of the arches A' is considerably below that of arches A, while said arches A' are larger. The sidewalks 15 and roadways 16 are made in the bottom of the arches in the usual manner. It will of course be understood that the lower edges of the plates 6 between the arches A' and the adjacent arch A are inclined, as shown at 16. In making a curve in the viaduct the ends of the arches on the outside of the curve are arranged farther apart than on the inside of the curve in an obvious manner, the plates 6 being made accordingly. It is further obvious that two or more of the arches can communicate with each other by means of openings or doorways made in the sides of the same.

I claim as my invention —

- 25 1. A viaduct or elevated structure consisting of a plurality of sheet-metal arches located transversely to the length of the same and upon which the road-bed is built.
2. A viaduct or elevated structure consist-

ing of a plurality of sheet-metal arches located transversely to the length of the same and a filling of earth, concrete, or analogous material between and upon said arches and upon which the road-bed is built.

3. A viaduct or elevated structure consisting of a plurality of sheet-metal arches located transversely to the length of the same, plates located between the arches and at the ends of the same and extending above said arches, and a filling of earth, concrete, or analogous material between and upon said arches, upon which the road-bed is built.

4. A viaduct or elevated structure consisting of a plurality of sheet-metal arches located transversely to the length of the same and having outwardly-turned flanges at the ends thereof, plates located between the arches at the ends thereof and extending above said arches and secured to said flanges and to each other, and a filling of earth, concrete, or analogous material between and upon said arches and upon which the road-bed is built.

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

CHARLES C. LOCKSTAEDT.

Witnesses:

HARRY COBB KENNEDY,
OTTO LUEBKERT.