No. 857,505. PATENTED JUNE 18, 1907.

J. WELFLE.

BRIDGE CONSTRUCTION.

APPLICATION FILED MAR. 20, 1907.

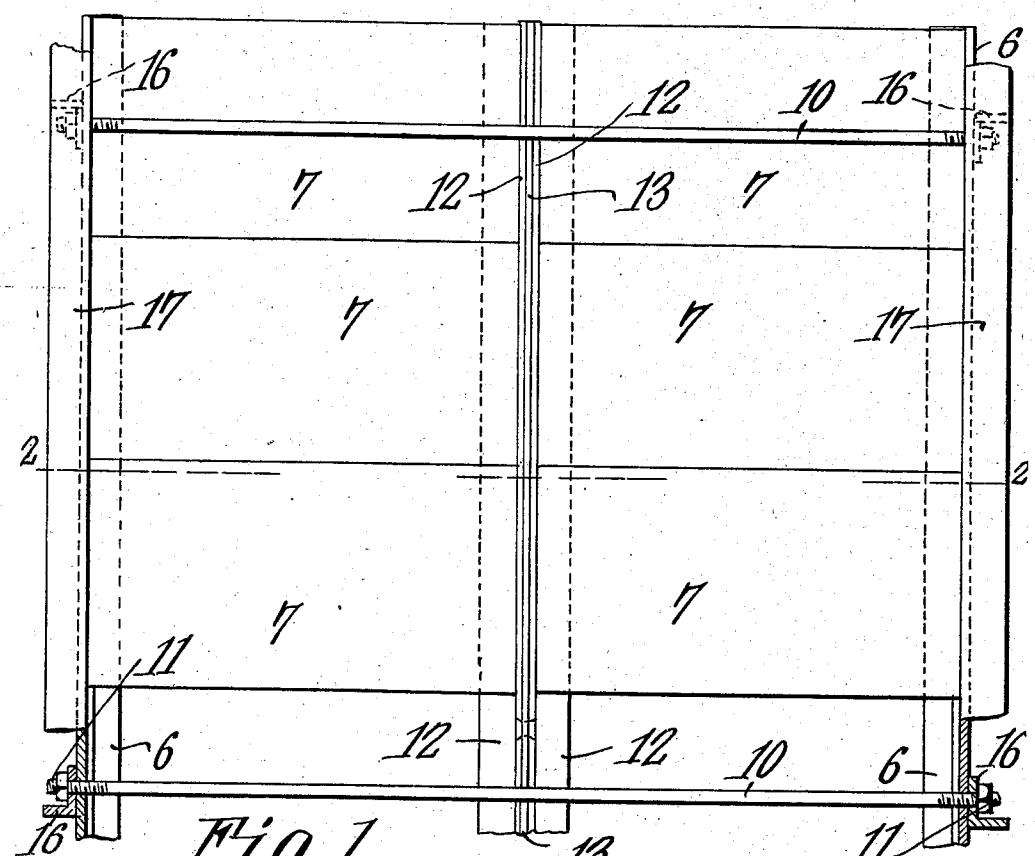

Fig. 1.

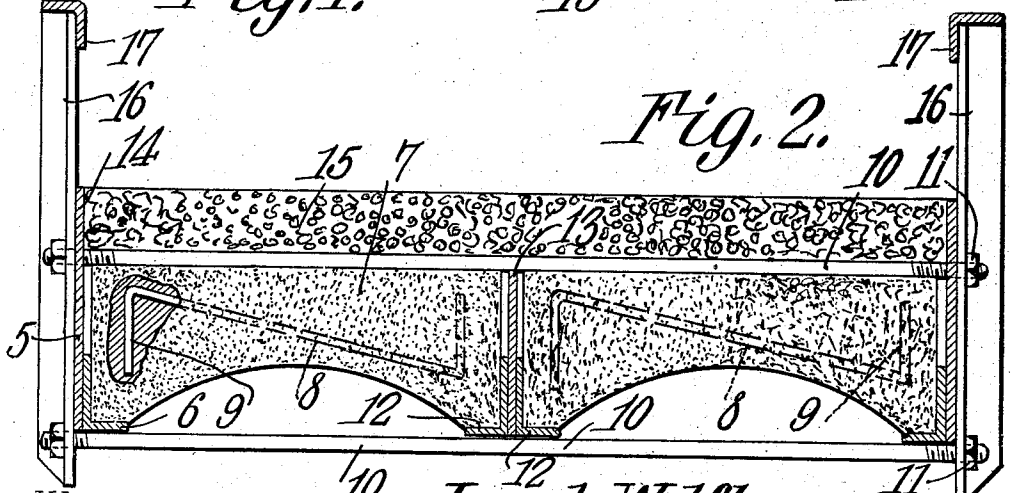

Fig. 2.

WITNESSES:

E. F. Stewart

T. N. Acker

Joseph Welfle, INVENTOR.

By C. A. Snow & Co.

ATTORNEYS

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOSEPH WELFLE, OF HAMLER, OHIO.

BRIDGE CONSTRUCTION.

No. 857,505. Specification of Letters Patent. Patented June 18, 1907.

Application filed March 20, 1907. Serial No. 363,504.

To all whom it may concern:

Be it known that I, JOSEPH WELFLE, a citizen of the United States, residing at Hamler, in the county of Henry and State of Ohio, have invented a new and useful Bridge Construction, of which the following is a specification.

This invention relates to bridges and more particularly to the construction of the top or road bed of the bridge.

A further object of the invention is to provide a bridge the top of which is formed of a plurality of reinforced concrete blocks having their opposite ends supported by longitudinal beams and their intermediate portions bowed laterally thereby to form a strong durable tread surface or road bed capable of being quickly placed in position on the bridge and which will effectually resist the action of the elements for an indefinite period.

A further object is to provide a bridge top having its parallel side walls connected by transverse tie rods which extend above and below the concrete blocks so that by adjusting the tension of said rods the blocks may be securely locked against accidental displacement.

A still further object of the invention is to reinforce and strengthen the concrete blocks by the provision of diagonally disposed rods having their opposite ends bent laterally to form terminal anchoring arms thereby to assist in preventing crumbling or disintegration of said blocks.

Further objects and advantages will appear in the following description, it being understood that various changes in form, proportions and minor details of construction may be resorted to within the scope of the appended claims.

In the accompanying drawings forming a part of this specification: Figure 1 is a top plan view of a bridge top constructed in accordance with my invention. Fig. 2 is a transverse sectional view taken on the line 2—2 of Fig. 1.

Similar numerals of reference indicate corresponding parts in all of the figures of the drawings.

The improved bridge forming the subject matter of the present invention includes a supporting frame comprising parallel side walls or plates 5 to the lower longitudinal edges of which are riveted or otherwise rigidly secured L-shaped angle irons 6 which form supports for the adjacent ends of the blocks 7.

The blocks 7 are substantially rectangular in shape, said blocks being formed of cement, concrete or other suitable plastic material and preferably reinforced and strengthened by diagonally disposed rods 8 having their opposite ends bent laterally to form terminal anchoring members 9.

The side plates 5 are connected by a plurality of transverse tie rods 10 the opposite ends of which are threaded for engagement with suitable clamping nuts 11 so that by adjusting the nuts on the threaded ends of the rods the several blocks may be securely locked against accidental displacement.

The inner ends of the blocks 7 are supported on L shaped angle irons 12 similar in construction to the angle irons 6 and which are in turn supported on a longitudinal division plate 13 the latter being disposed intermediate the side plates 5 and adapted to rest on the lower transverse tie rods 10.

The upper longitudinal edges of the side plates 5 are preferably extended vertically above the adjacent tie rods 10 to form oppositely disposed flanges 14 thereby to form a compartment for the reception of a quantity of sand, gravel or similar material 15 which covers the upper surface of the blocks 7 and forms the tread surface or road bed of the bridge.

Secured to the side plates 5 are spaced standards or up-rights 16 preferably formed of angle iron and having their upper ends connected by longitudinal angle bars 17 which form the hand rails of said bridge.

The lower ends of the standards 16 extend below the adjacent L shaped supporting members 6 and are provided with terminal perforations for the reception of the adjacent transverse tie rods 10, there being similar perforations formed in the standards 16 for the reception of the upper tie rods, as shown.

It will thus be seen that the tie rods not only serve to lock the several blocks against accidental displacement but also serve as a means for securing the standards in position on the frame work of the bridge.

Attention is here called to the fact that when the clamping nuts 11 are adjusted on the transverse tie rods 10 the plates 5 will be forced inwardly so as to clamp the blocks in engagement with the supporting bars of the central partition.

In constructing the bridge the lower transverse rods 10 are extended through the lower ends of the uprights 16, and the division plate 13 carrying the supporting bars 12 is placed in position on said rods after which the concrete blocks 7 are laid in horizontal alinement on the bars 6 and 12 and the upper tie rods 10 passed through the openings in the side plates 5, as best shown in Fig. 2 of the drawings.

The clamping nuts 11 of the several tie rods are then adjusted so as to draw the side plates together and thus lock the blocks against accidental displacement, the sand, gravel or other material being subsequently placed between the flanges 14 to form the road bed of the bridge.

By constructing the top of the bridge of concrete blocks the latter may be quickly placed in position on the bridge so that the bridge may be immediately used for ordinary purposes without the necessity of waiting for the cement or concrete to dry, which must be done when the top of the bridge is formed of a continuous layer of cement or plastic material.

From the foregoing description it will be seen that there is provided a strong, durable and comparatively inexpensive bridge structure which will last for an indefinite period and which may be readily repaired when necessary.

Having thus described the invention what is claimed is:

1. A bridge construction including side walls, blocks interposed between the side walls, and tie rods connecting the side walls and extending above and below the blocks for locking the latter against accidental displacement.

2. A bridge construction including side walls, supporting members secured to the side walls, blocks resting on the supporting members, and tie rods connecting the side walls and extending above and below the blocks for locking the latter against accidental displacement.

3. A bridge construction including side walls, supporting members secured to the side walls, a division plate provided with corresponding supporting members, blocks resting on said supporting members, and tie rods connecting the side walls and extending above and below the blocks for locking the latter in engagement with the supporting members.

4. A bridge construction including side walls, supporting members carried by the side walls, blocks resting on the supporting members, a longitudinal division plate interposed between the ends of adjacent blocks, tie rods connecting the side walls and extended above and below the blocks for locking the latter against accidental displacement, the side walls being extended vertically above the adjacent tie rods to form a compartment for the reception of a surface forming material.

5. A bridge construction including side walls, supporting members secured to the side walls, blocks resting on the supporting members, standards secured to the side walls, longitudinal rails carried by the standards, and transverse tie rods piercing the standards and side walls and extending above and below the blocks for locking the latter in engagement with the supporting members.

6. A bridge construction including side walls, standards secured to the outer faces of the side walls, longitudinal rails carried by the upper ends of the standards, supporting members secured to the inner faces of the side walls blocks interposed between the side walls and resting on the supporting members, rods extending above and below the blocks and having their opposite ends threaded and extended through the side walls and adjacent standards, and clamping nuts engaging the threads on said rods for regulating the tension of the latter.

7. A bridge construction including side walls, standards secured to the exterior faces of the side walls, longitudinal rails carried by the upper ends of the standards, supporting members secured to the inner faces of the side walls, a division plate extending longitudinally of the bridge intermediate the side walls, supporting members carried by the division plate, concrete blocks engaging adjacent supporting members, tie rods extending above and below the blocks and division-plate and having their opposite ends threaded and extended through the side walls and adjacent standards, clamping nuts engaging the threads on the tie rods for clamping the blocks in engagement with the supporting members, the upper longitudinal edges of the side walls being extended vertically above the adjacent tie rods to form a compartment for the reception of the surface forming material.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature in the presence of two witnesses.

JOSEPH WELFLE.

Witnesses:
J. A. JACKMAN,
GEO. M. MCKEE.