No. 670,570. Patented Mar. 26, 1901.

W. F. WALKER.

BRIDGE.

(Application filed Oct. 25, 1900.

(No Model.)

Fig. 1.

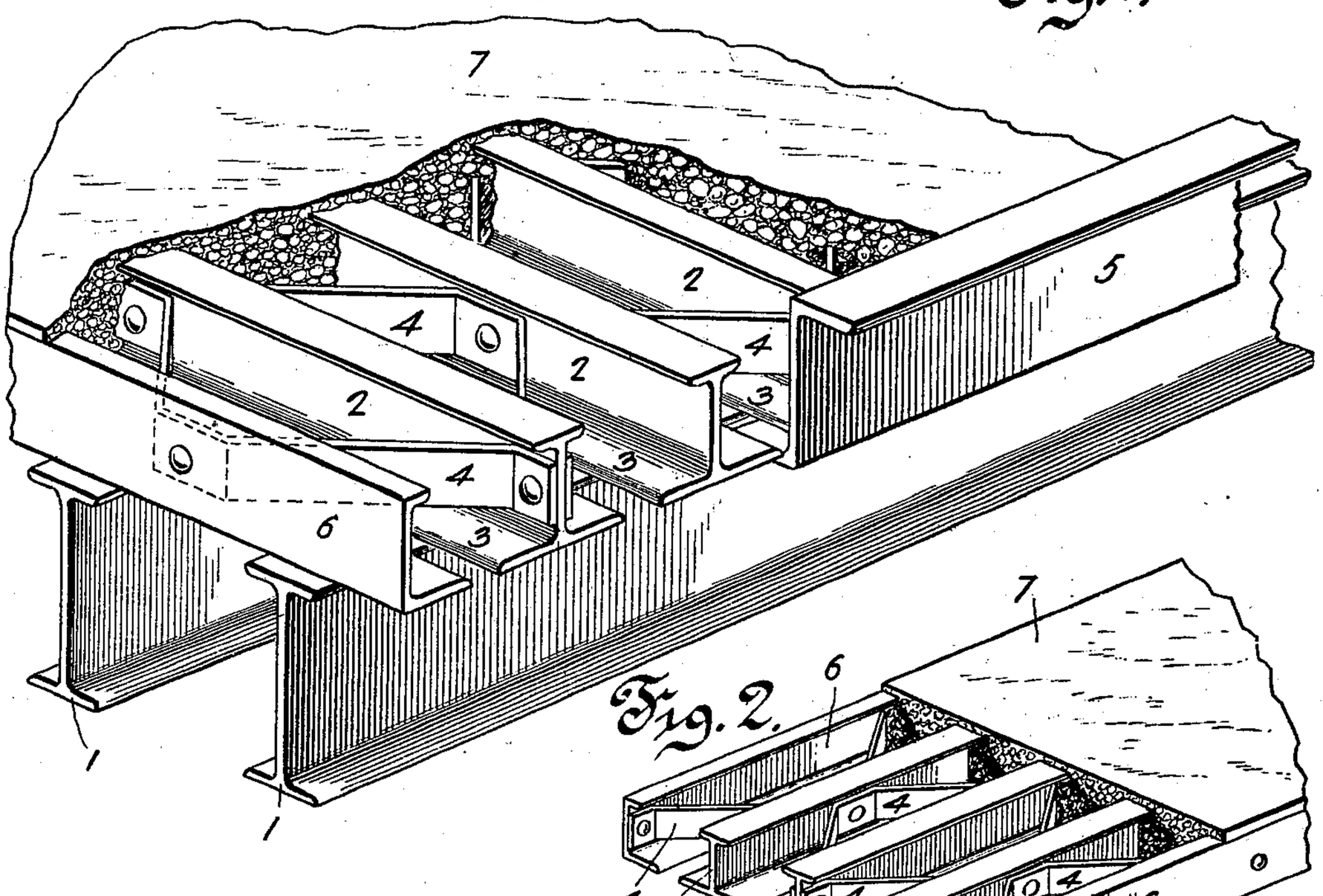


Fig. 2.

Fig. 3.

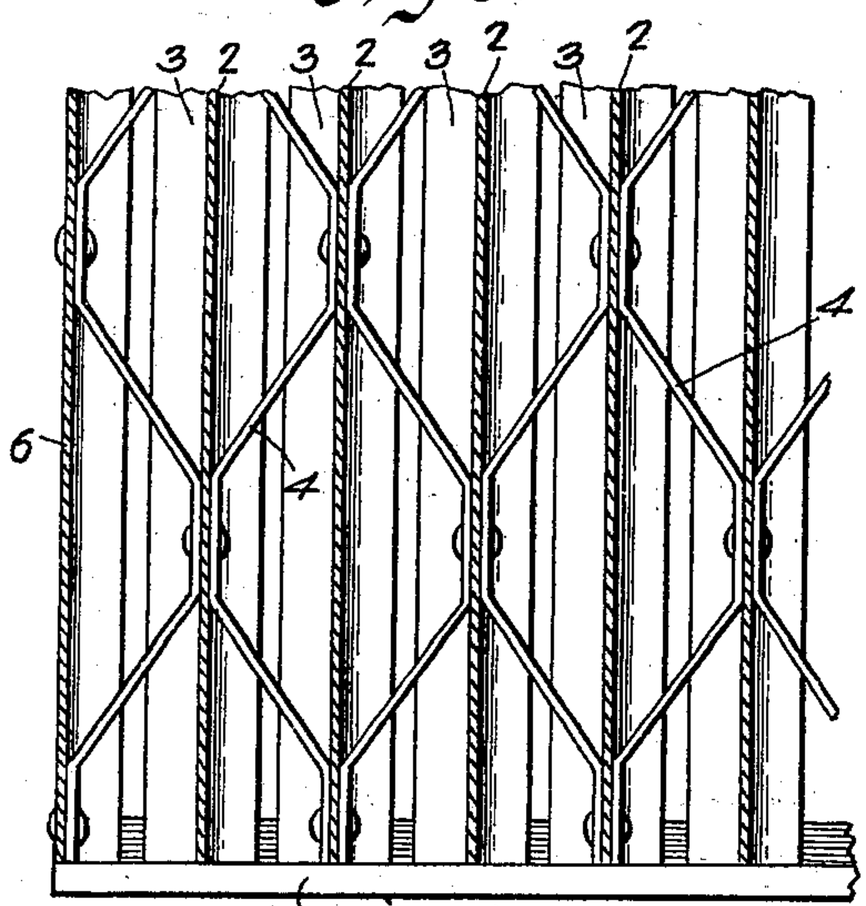
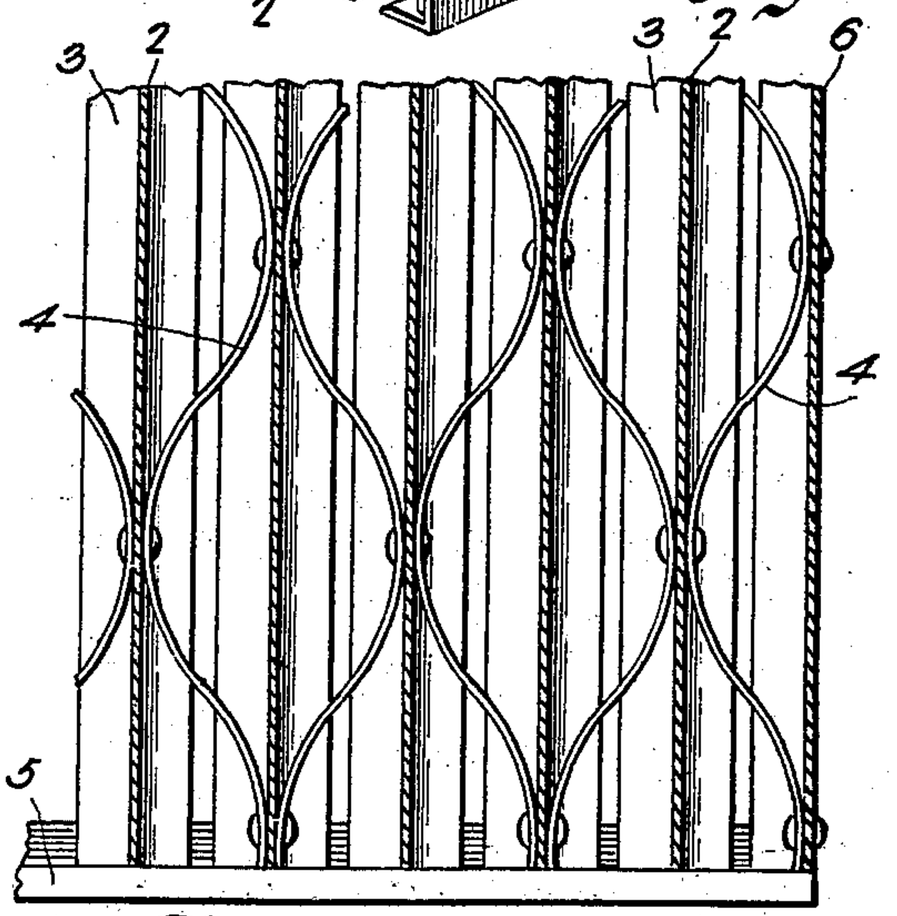


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIS F. WALKER, OF CHARLESTOWN, WEST VIRGINIA.

BRIDGE.

SPECIFICATION forming part of Letters Patent No. 670,570, dated March 26, 1901.

Application filed October 25, 1900. Serial No. 34,330. (No model.)

To all whom it may concern:

Be it known that I, WILLIS F. WALKER, a citizen of the United States, residing at Charlestown, in the county of Jefferson and State of West Virginia, have invented a new and useful Bridge, of which the following is a specification.

This invention relates to bridges, and particularly refers to road-beds, footwalks, and the like for the same; and the object in view is to provide simple and effective means for constructing such parts of a bridge in sections to fit within a certain area, in single form to wholly fit in and fill a bed extent, or in lengths or blocks of different dimensions for application similar to the ordinary wooden planks or paving-blocks, respectively, for a bridge-bed or footwalk, and to have said unitary parts, sections, lengths, or blocks of a strong and durable nature to overcome the numerous disadvantages incident to the use of planks or boards for a like purpose and obtain the advantages and wearing capabilities of a concrete or plastic bed or walk, with the additional convenience of removability and replacement or substitution without in the least affecting the general bridge structure.

The invention consists in the construction and arrangement of the several parts, which will be more fully hereinafter described and claimed.

In the drawings, Figure 1 is a sectional perspective view of a portion of a bridge or other bed embodying the features of the invention. Fig. 2 is a similar view of a bed-section embodying the features of the invention. Fig. 3 is a top plan view of the framework for the improved bed; and Fig. 4 is a top plan view of the framework for the improved bed, showing a modification of the braces or tying devices.

Similar numerals of reference are employed to indicate corresponding parts in the several views.

The numeral 1 designates a plurality of girders or other supporting-irons ordinarily employed in bridge construction and secured at opposite extremities to any preferred form of side structures and held at intermediate points in some instances on auxiliary supporting devices. The improved composite road-bed or footwalk is supported directly on and secured to said girders or other irons 1 and irrespective of the dimensions of the bed or walk filled by a unitary structure embodying the improved features, a section or block or a length. The same includes two or more T-irons or analogous members 2, having broad base-flanges 3 contiguously disposed and tied to each other by brace bands or bars 4. These T irons or members are arranged longitudinally parallel and are preferably covered at the ends by suitable channel-iron or analogous members 5, and likewise at the sides marginal channel-irons 6, of similar construction, are applied to complete the structure, securing devices being inserted through the lower flanges of the said channel-irons or applied to the other members for securing coincidence with the girders 1 or the like. As shown, the brace bands or bars are secured at different points to the opposite members 2 and may be either curved or straight, the curved bands or braces in some structures allowing more lateral expansion than the straight ones; but it will be understood that either form of the band or brace may be selected at will and in accordance with the particular structure desired and the expansible conditions which may be apparent or demanded. In the lengths simulating planks, channel-irons, or analogous members will be employed, as shown, and in the sections or blocks a composition of the channel and T irons or other suitably-shaped members will be used, the exact shape of the said members being immaterial as long as they have lower flanges of considerable width to dispose the edges of the same in contiguity to provide a reliable base-holding means.

From the foregoing it will be understood that the main object in view is to obtain a strong framework commensurate with the dimensions of the part, whether it be unitary to cover a large area, a section, or a block, and after the large or small frame is fabricated it is rested on a suitable flat surface and a filling 7 of asphaltum, cement, or a composition is filled thereinto and rolled, heated, or otherwise treated to render it hard and substantially homogeneous, the top finished surface of the said filling being above the plane of the upper surface of the frame, but flush with the lower surfaces of the base-

flanges of the irons or members composing the frame. It will be seen that the filling becomes keyed by the bands or braces and the projecting portions of the members, and is thereby prevented from working loose or breaking out, and by having the upper finished surface thereof above that of the frame vehicles and pedestrians will be afforded a smooth surface to travel upon, and wear of the filling into ruts that would arise if the heads of the members were exposed through the filling is overcome. By having the lower exposed portions of the filling flush with the bottom surfaces of the flanges at the bases of the members the structure can be more readily and accurately disposed on the bridge-girders or other devices for receiving the same and no truing or other preparatory work is necessary for this purpose.

At any time desired and in the event of the top surface of the filling becoming worn said surface may be repaired by the addition of similar material as the filling, or, if found necessary, the entire structure can be readily taken out by disconnecting the fastening devices, or a section or block embodying the same features may be replaced by another of a like formation. Under the most adverse circumstances, however, the wearing qualities of the improved structure will be of prolonged duration, as the filling is reinforced by the frame structure set forth, and the cost of application will be comparatively small when considered in relation to the inconvenience of the ordinary plank floors or beds and the requirement of continual substitution of the parts thereof in order to keep the same in proper condition. Furthermore, the portability of the improved structure makes it possible to apply it to bridges in general and convey the same to the place of application in a condition ready for securement to the bridge-framework and without the delay incident to a particular preparation directly on the said framework. It will be but a small matter to prepare the complete structure, sections, blocks, or lengths in accordance with the dimensions of the bed to be covered at some point of manufacture and have them ready for delivery and application at the time the bridgework is complete to receive the same. This will produce a great saving of time in bridge construction and erection, and while it is preferred to exclusively utilize the improved structure in bridges it will also be understood that at times it may be used for any other purpose to which it is applicable.

Changes in the form, size, proportions, and minor details may be resorted to without departing from the principle of the invention.

Having thus described the invention, what is claimed as new is—

1. A road-bed or footwalk structure for a bridge or other purpose comprising a frame having members with upper and lower flanges and a filling of some adhesive material and formed independently of and applied to a road-bed or walk, the filling being flush with the under surfaces of the lower flanges.

2. A road-bed or footwalk structure for a bridge or other purpose comprising a frame having members connected to each other and spaced apart, and having lower broad horizontal flanges with the edges in contiguous arrangement and parallel, and a filling of asphaltum, cement or other composition interposed between said members.

3. A road-bed or walk structure for a bridge or other purpose formed independently of the device to which it is applied, comprising a frame having flanged members spaced apart and arranged in parallel straight longitudinal relation, the flanges of said members forming a partially-closed bottom for the frame, and a filling of asphaltum, cement or other composition interposed between and over the said members and flush with the bottom surfaces of the said lower broad horizontal flanges.

4. A road-bed or walk structure formed independently of and applicable to a bridge or other purpose, comprising a frame having flanged members connected to each other by transversely-extending braces alternately attached to opposite members, the said members being spaced apart from each other and arranged in straight longitudinal relation, and a filling interposed between and over the said members and flush with the bottom surfaces thereof.

5. A road-bed or walk structure formed independently of and applicable to a bridge or other purpose, comprising a frame having members with wide base-flanges, the edges of the flanges being parallel and contiguous, means for connecting said members, and a filling of some primarily soft material interposed between the said members and hardened after application, the said material being flush with the bottom surfaces of the said flanges.

6. A road-bed or walk structure formed independently of and applicable to a bridge or other purpose, comprising a frame having a series of longitudinally-disposed parallel members spaced apart from each other and having base-flanges, braces connecting said members, and a filling of some primarily soft material interposed between and above the top surfaces of said members and hardened after application, the said material being flush with the bottom surfaces of the flanges.

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

WILLIS F. WALKER.

Witnesses:

C. E. DOYLE,

H. N. WATSON.