

(No Model.)

H. PETTERSON.  
SUPPORTING STRUCTURE.

No. 524,347.

Patented Aug. 14, 1894.

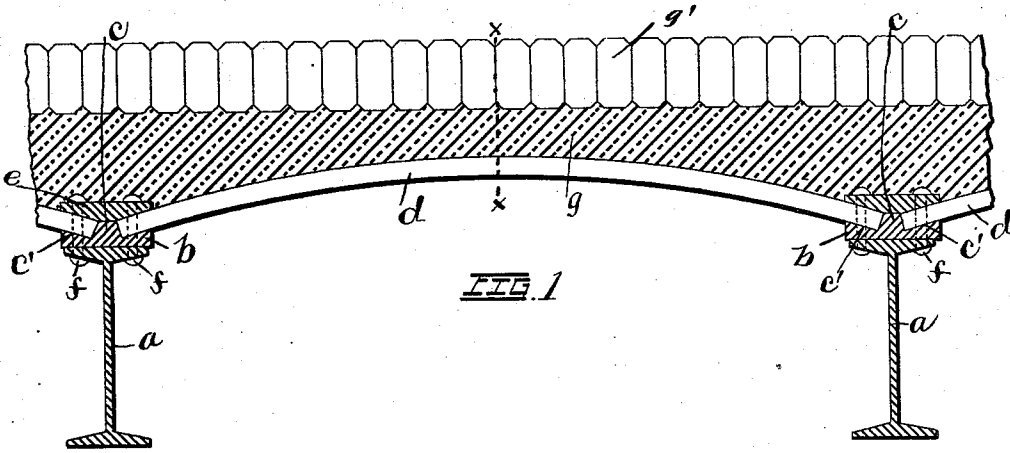


FIG. 1

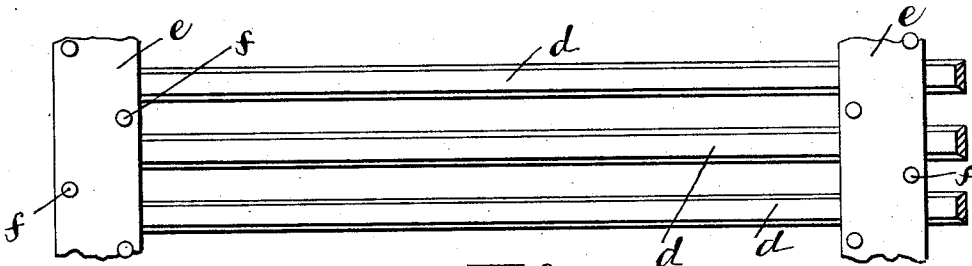


FIG. 2

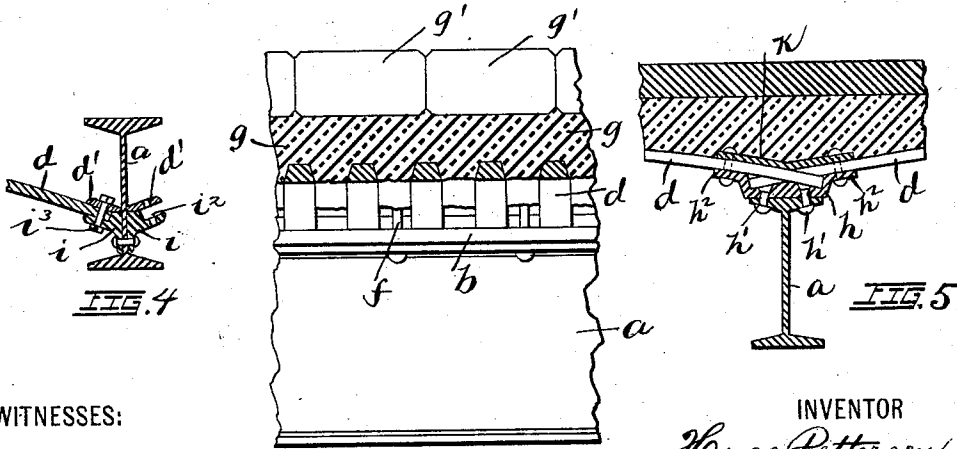


FIG. 3

WITNESSES:

*H. B. Bradshaw*  
*A. I. Phelps*

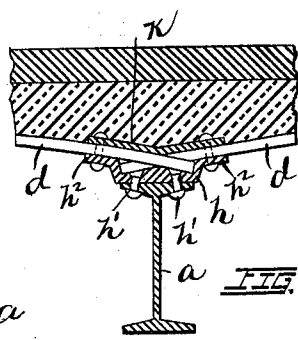


FIG. 4

INVENTOR

*Hugo Pettersen*

BY

*Oraly and Shepley*  
ATTORNEYS.

FIG. 5

# UNITED STATES PATENT OFFICE.

HUGO PETTERSON, OF COLUMBUS, OHIO.

## SUPPORTING STRUCTURE.

SPECIFICATION forming part of Letters Patent No. 524,347, dated August 14, 1894.

Application filed December 20, 1893. Serial No. 494,196. (No model.)

To all whom it may concern:

Be it known that I, HUGO PETTERSON, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented a certain new and useful Improvement in Supporting Structures, of which the following is a specification.

My invention relates to the improvement of supports for bridge or building floors and the objects of my invention are to provide a support of this class of superior construction and arrangement of parts; and to produce improvements in details of construction which will be more specifically pointed out herein after. These objects I attain in the manner illustrated in the accompanying drawings, in which—

Figure 1 is a sectional view through one of the supporting arches. Fig. 2 is a plan view of a portion of one of said arches with the supported floor or pavement removed therefrom. Fig. 3 is a sectional view on line  $xx$  of Fig. 1. Fig. 4 is a sectional view showing a modification in the manner of connecting the arch bars with the parallel beams and Fig. 5 is a similar view representing a second modification of the same.

Similar letters refer to similar parts throughout the several views.

In constructing my improved support I provide at corresponding intervals parallel I-beams or other well known forms of beams  $a$  and upon the upper side of each of said beams is supported and secured longitudinally as hereinafter described a seat bar or plate  $b$ . In the construction of this seat bar, I preferably form the same, as shown in Fig. 1 of the drawings with a central longitudinal rib or projection  $c$ , the latter having inclined sides which taper toward their upper ends. As indicated at  $c'$  I also cause the upper surface of the bar  $b$  to incline or slope upwardly from opposite sides of the central rib piece  $c$ . The seats thus formed on opposite sides of the central tongues or ribs  $c$  of the seat bars  $b$  are adapted, as shown in the drawings, to receive the ends of upwardly bowed arch bars  $d$ , the bow or curvature of the latter resulting in the ends thereof fitting against the inclined sides of the seat bar ribs

$c$ , and in a fitting contact of the under sides of said arch bar ends with the inclined or beveled upper face of said seat bars.

As indicated in Fig. 2 of the drawings the arch bars  $d$  of which there may be any desired number are arranged in parallel positions at equidistant points and preferably with separating spaces between them equivalent to their width. In order to retain the ends of said arch bars in the seats above described, I provide above each of the seat bars binding plates  $e$  of equal width with said seat bars. The central portion of the under side of each of these binding plates bears, as shown, upon the upper side of the central rib or tongue  $c$  of the seat block and on opposite sides of said central bearing portion said under surface is inclined or beveled outward and upward to conform to the curvature of the upper surfaces of the arch-bar ends upon which said binding plate rests. By means of suitable vertical rivets or bolts  $f$  which pass through said binding plates between the arch bar ends and through the head flanges of the I-beams  $a$  the arch bar ends so seated are firmly held in place.

As shown at  $g$  a bed of concrete or other suitable or similar substance may be supported above the arches and joints thus formed and above said concrete may be arranged one or more layers of paving blocks  $g'$ . However, I do not desire to confine myself to the construction of the floor to be supported, as any suitable or desirable material may be employed.

As indicated in the drawings, I may form the arch bars  $d$  with beveled sides or flaring surfaces this form serving to better support a plastic mass from above.

As indicated in Fig. 5 of the drawings, I may substitute for the seat plate or bar  $b$  a seat plate  $h$ , the latter being bolted or riveted as indicated at  $h'$  to the top of the I-beam and being formed with a substantially central channel against the opposite walls of which may abut the ends of the arch bars  $d$ , the seated ends of the latter being so arranged therein as to result in the bar ends of one arch crossing the bar ends of the adjoining arch. In this latter construction I also em-

ploy a binding plate which is indicated at  $h$ , the latter being slightly angular in cross section and having its outer portions or wings united to the side flanges  $h^2$  of the seat bar  $h$ .

5 In Fig. 4 I have shown another modification in the manner of supporting the bars from the I-beam. In this latter construction I secure on opposite sides of the web of the beam longitudinally arranged seat bars  $i$ , each of  
10 the latter being provided in its upper and outer sides with an angular seat or depression  $i^2$  which is adapted to receive, as shown, the end of one of the arch bars  $b$ . The arch bar ends thus supported are firmly held in place  
15 by means of clamping cover plates  $d'$  which bear, as shown, both upon the upper sides of the seated end portions of said arch bars and upon the upper sides of said seat bar and which are secured in place by means of suitable bolts  $i^3$ .

From the construction herein described it will be seen that a strong, durable and effective arch support is formed for a floor or roadway and that by the use of the parallel arch  
25 bars which I have described the necessity of employing buckle plates is entirely obviated.

It will be observed that the means shown

and described in supporting the ends of said arch bars, are such as to retain the same firmly and accurately in their positions. 30

It is evident that a supporting structure such as I have herein described may be rapidly and effectually produced and at a reasonable cost of manufacture.

Having now fully described my invention, 35 what I claim, and desire to secure by Letters Patent, is—

In a supporting structure the combination with vertical and parallel supports  $a$ , seat bars or plates  $b$  upon said supports, depressed 40 seats and shoulders formed in said seat bars adapted to receive and form abutments for the end of arch bars as described, of parallel arch bars  $d$  resting in said seats and clamping 45 plates  $e$  having their under sides conforming to the curvature of said arch bar ends upon which they rest, and bolts or rivets connecting said clamping plates, seat plates and supporting bars, substantially as and for the purpose specified.

HUGO PETERSON.

In presence of—

C. C. SHEPHERD,  
BARTON GRIFFITH.