Jan. 9, 1945. R. G. LE TOURNEAU 2,366,916

PORTABLE OVERPASS

Filed Dec. 24, 1941 3 Sheets-Sheet 1

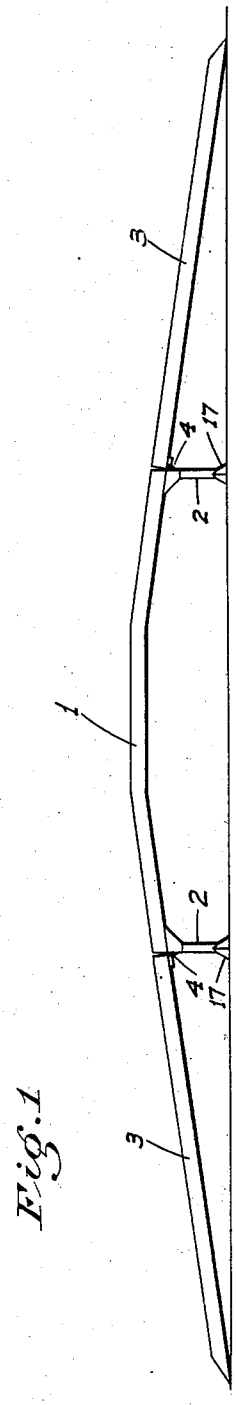


Fig. 1

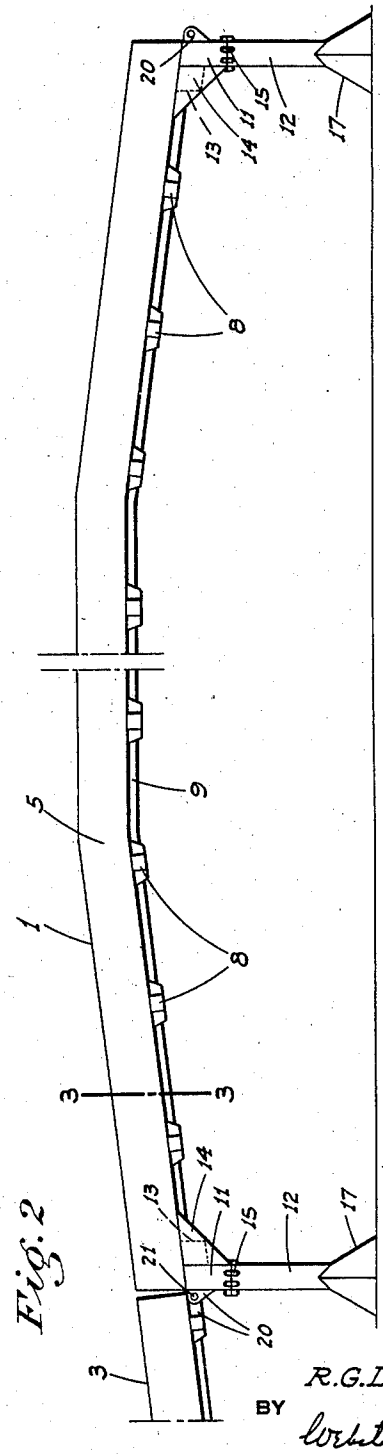


Fig. 2

INVENTOR
R. G. Le Tourneau
BY
Webster & Webster
ATTYS

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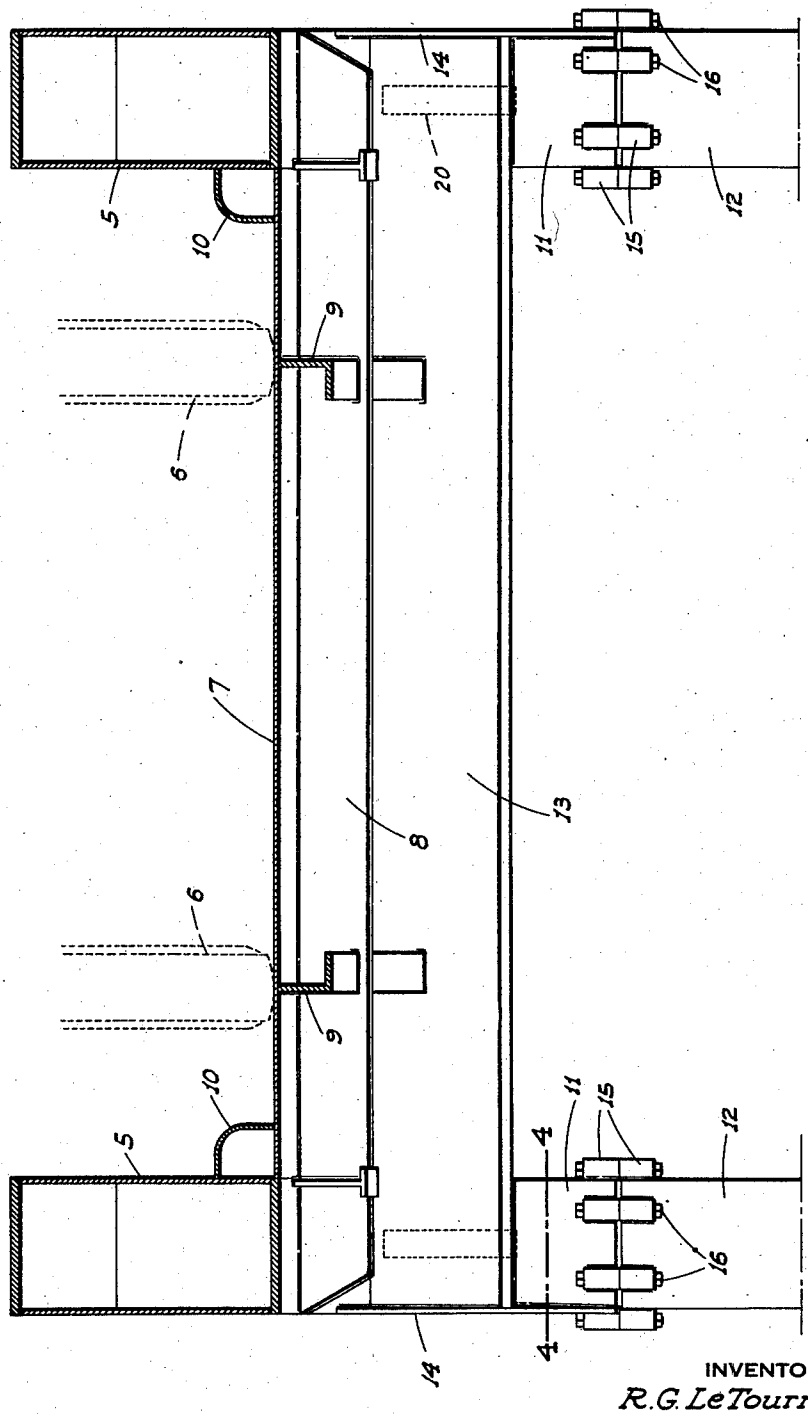


Fig. 3

INVENTOR
R. G. LeTourneau
BY
Lorbeter & Lorbeter
ATTYS

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Fig. 4

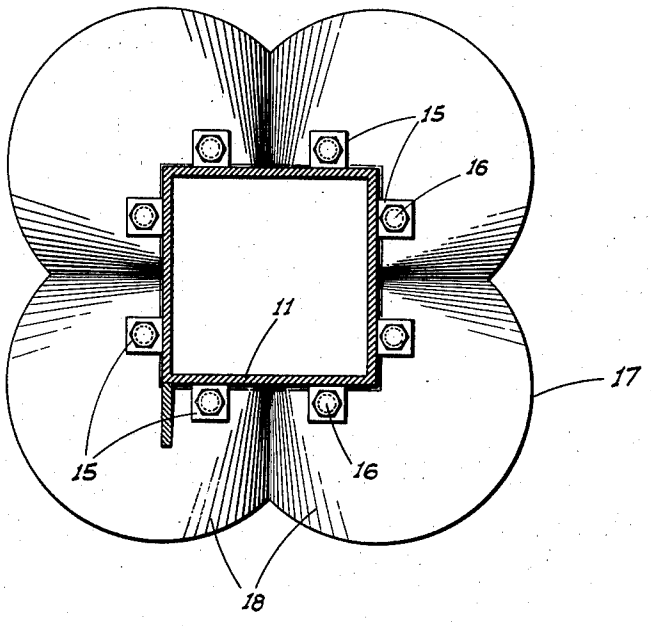


Fig. 5

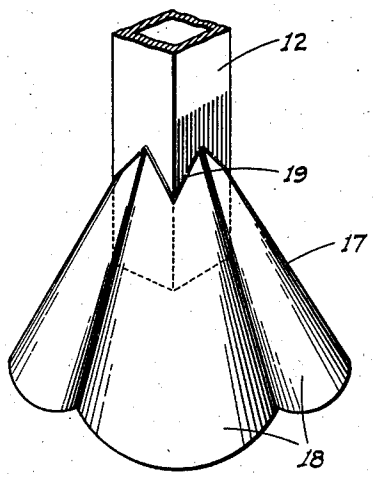
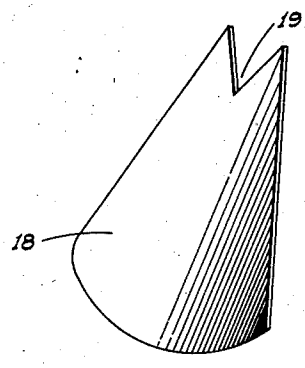


Fig. 6



INVENTOR
R. G. Le Tourneau
BY
Webster & Webster
ATTYS

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2,366,916

UNITED STATES PATENT OFFICE

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PORTABLE OVERPASS

Robert Gilmore Le Tourneau, Peoria, Ill., assignor to R. G. Le Tourneau, Inc., a corporation of California

Application December 24, 1941, Serial No. 424,342

2 Claims. (Cl. 14—1)

The present invention relates to the structure of an overpass designed for use to regulate motor vehicle traffic at busy, congested or dangerous street and road intersections; one of the principal objects of the invention being to provide an overpass for such purpose which is sectional and readily assembled and dissembled, thus making the structure portable and capable of transport from intersection to intersection, as necessity may demand.

A further object of the invention is to provide for use at street or highway intersections, a portable overpass which reduces congestion, danger of traffic accidents, and loss of time, while permitting free traffic flow over an intersecting traffic lane.

Another object of the invention is to provide a portable overpass having unique supporting pier or post assemblies for the center span of the structure; such supporting assemblies each including a vertical sectional pier secured together at adjacent ends in a novel manner, and a ground engaging foot unit on the lower end of the lowermost section of each pier, such foot unit not only conforming readily to ground conditions but also serving effectively as a wheel guard.

An additional object of the invention is to provide a sectional and portable overpass of comparatively lesser weight than the permanent overpass structures, while providing adequate strength to support a full motor vehicle load; the reduced weight of the structure making possible transportation of the overpass, in sections, from point to point.

A further object of the invention is to provide a simple and relatively inexpensive overpass structure for the safe and economical handling of intersection traffic, and to also provide an overpass which will be exceedingly effective for the purposes for which it is designed.

These objects I accomplish by means of such structure and relative arrangement of parts as will fully appear by a perusal of the following specification and claims.

In the drawings similar characters of reference indicate corresponding parts in the several views:

Figure 1 is a diagrammatic side elevation of the portable overpass.

Figure 2 is an enlarged fragmentary side elevation showing mainly the arched center span and the supporting pier assemblies therefor.

Figure 3 is an enlarged cross section on line 3—3 of Fig. 2.

Figure 4 is a cross section on line 4—4 of Fig. 3 looking downward toward the pier section coupling blocks.

Figure 5 is an enlarged fragmentary perspective view of the lower end of one of the sectional piers showing the unique form of clover-leaf footing secured thereto.

Figure 6 is a perspective view of one of the segments of the clover-leaf footing.

Referring now more particularly to the characters of reference on the drawings, the portable overpass, as shown diagrammatically in Fig. 1, comprises a flatly arched central span 1 supported in ground clearance relation by supporting pier assemblies indicated generally at 2. End spans 3 rest at their outer ends on the ground so that their floors are substantially flush with the ground or pavement, and at their inner ends are detachably secured to the adjacent ends of the central span 1 by means of hinge assemblies 4. All the spans are substantially the same length, although this is not essential.

As the spans of the overpass are of substantially the same construction, with the exception that the central span is arched, as shown, it is unnecessary to describe each span in detail, and a description of the central span will suffice.

This span comprises a pair of parallel longitudinal side girders 5 of hollow box-beam construction; these box-beam side girders being disposed in transversely spaced relation a distance somewhat greater than the overall width of the motor vehicles which pass over the span, the tread of the motor vehicle being indicated diagrammatically in Fig. 3 by the fragmentary representation of tires, as at 6.

A floor plate 7 extends the full length of the span and is secured along opposite sides in connection with the box beam side girders 5 at the bottom of the latter. In order to strengthen and stabilize the span a plurality of box beam cross girders 8 are secured beneath the floor plate 7 in longitudinally spaced relation and extending from side to side of the span and under girders 5. Further rigidity is provided by means of longitudinal angle members 9 which connect between the box beam cross girders directly below and supporting the floor plate in transversely spaced longitudinal planes, which are substantially beneath the portion of the floor plate upon which the vehicle tires 6 run.

When the girders 5 are rectangular as shown, tire or wheel guards 10 are formed along opposite sides of the floor plate and enclose the corner between said floor plate and the adjacent or inner wall of the box beam side girders 5. These

guards 10 are of sufficient width transversely of the span to assure that no portion of the vehicle will engage the side girders 5 when a tire 6 rides along the guard.

At each end, span 1 is supported by a pair of transversely spaced pier assemblies which comprise the following:

Each such pier assembly includes a vertical, sectional pier or post, rectangular in cross section, the upper section being relatively short and indicated at 11, while the lower section 12 is considerably longer. The reason for making sections 11 relatively short is so that they do not materially project from the central span and thus when the structure is being transported in sections, do not form an obstruction. The upper section is fixed in connection with the span and particularly with end cross beams 13 formed in the span at its opposite ends, these end cross beams being of box construction but substantially larger and of greater strength than the cross girders 8. An angle gusset plate 14 is secured between each one of the upper sections 11 of the posts and the adjacent portion of side girders 5, whereby to positively assure of rigidity of said post sections 11.

The upper and lower sections 11 and 12 respectively of each post are connected together in rigid, alined but detachable relation by means of a plurality of pairs of coupling blocks or bosses 15 welded to the exterior of the post in symmetrically spaced relation, the separate coupling blocks on each section projecting somewhat beyond the adjacent end of said section and abutting square and machined relation with the end of the corresponuding block on the other section. Such corresponding and matchingly engaging blocks have alined bores through which securing bolts 16 extend. It will be seen that by virtue of the fact that the coupling blocks 15 project beyond adjacent ends of the sections 11 and 12, said ends always remain in slightly spaced relation; the rigid securing of the sections and perfect alinement thereof being accomplished readily by engagement of the coupling blocks with each other, rather than by means requiring the engagement of the adjacent ends of the post sections themselves, which are rough-cut. Further, by using these coupling blocks, the post sections are easily detachable one from the other.

Each post terminates at its lower end in clearance relation to the ground but is supported therefrom by a novel form of footing, indicated generally at 17, which is shown in detail in Figs. 4–6, inclusive. Each such footing 17 is substantially frusto-conical in configuration and is constructed of a plurality of segments 18 of the frustum of a hollow cone, these segments being welded together in edge to edge relation, whereby the resulting footing 17 is of clover-leaf design in plan. The upper end of each segment 18 is notched downwardly as at 19 and in the assembled footing each of these notches engages a corner of the lower section 12 of the post and extends half way across the adjacent sides thereof. By virtue of the notching 19 the line of contact between the upper end or edge of each clover-leaf footing and the corresponding lower post section 12 is zig-zag or undulating. This is advantageous for the reason that the footing is welded along this line to the post section 12 and an undulating "burn" does not tend to weaken the post as would a straight-around burn on the same.

Due to variance in street elevation beneath different supporting posts, and as the height of the center span above the street may vary from one installation to another, the footings 17 are initially separate from the lower post sections; the latter being of sufficient length to permit the footings to be welded in place on said sections in such relative vertical positions as conditions may require to seat the footing on the street. Also the footings initially have a certain loose play relative to the post sections whereby to enable the footings to be adjusted to street contour and then welded to the post sections.

The end sections 3 are connected at their upper ends with the adjacent ends of the central span 1 by means of transversely spaced, cooperating ear assemblies 20 included in part on post sections 11, each assembly being detachably connected by means of a pivot 21. It should also be noted that when the end spans 3 are connected with the central span 1, the floor of the end spans and the adjacent portion of the floor of the central span are in substantial parallelism, whereby there is no hump at the point of juncture of the end spans with the central span, and as is desirable in an overpass structure.

The above described overpass is substantially of all welded construction, and is therefore very strong and capable of resisting vibration, etc., caused by motor vehicles passing thereover.

While each overpass is intended to serve only one-way traffic at an intersection, two-way travel in opposite but parallel directions may be served by the use of two of the structures disposed in side by side relation and in longitudinal alinement with the traffic lanes.

From the foregoing description it will be readily seen that I have produced such a device as substantially fulfills the objects of the invention as set forth herein.

While this specification sets forth in detail the present and preferred construction of the device, still in practice such deviations from such detail may be resorted to as do not form a departure from the spirit of the invention, as defined by the appended claims.

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

1. In a portable overpass which includes a central span, a plurality of posts supporting said span above the ground, said posts each comprising an initially separate upper and lower section, and means detachably and rigidly securing said sections together in alined but slightly spaced relation; said means comprising a plurality of pairs of coupling bosses disposed in spaced relation about the post, one boss of each pair being fixed on the upper post section and the other boss of each pair being fixed on the lower post section, the adjacents ends of each pair of bosses projecting beyond corresponding ends of the respective post sections, the bosses of each pair being in end to end alined engagement, and a securing bolt passing through each pair.

2. A portable multi-section overpass comprising a central span having transversely spaced relatively short post sections depending in rigid relation therefrom at the ends, relatively long corresponding post sections initially separate from the central span, means adapted to rigidly connect corresponding ones of said relatively short and relatively longer post sections in rigid, central span supporting relation, an end span for each end of the central span, said end spans be-

ing adapted to extend from ground level at an upward incline to the adjacent end of the central span, and means adapted to connect adjacent ends of the central and end spans with the floor levels thereof at said ends in close relationship; said means comprising, below said levels, connector members on and projecting from said relatively short posts, and matching connector members on and projecting from the upper ends of the end spans below floor level, and an element connecting corresponding connector members of the central and end spans.

ROBERT G. LE TOURNEAU.