Dec. 26, 1967 W. W. PLEASANTS 3,359,587

SUSPENDED OVERPASS

Filed May 17, 1966 3 Sheets-Sheet 1

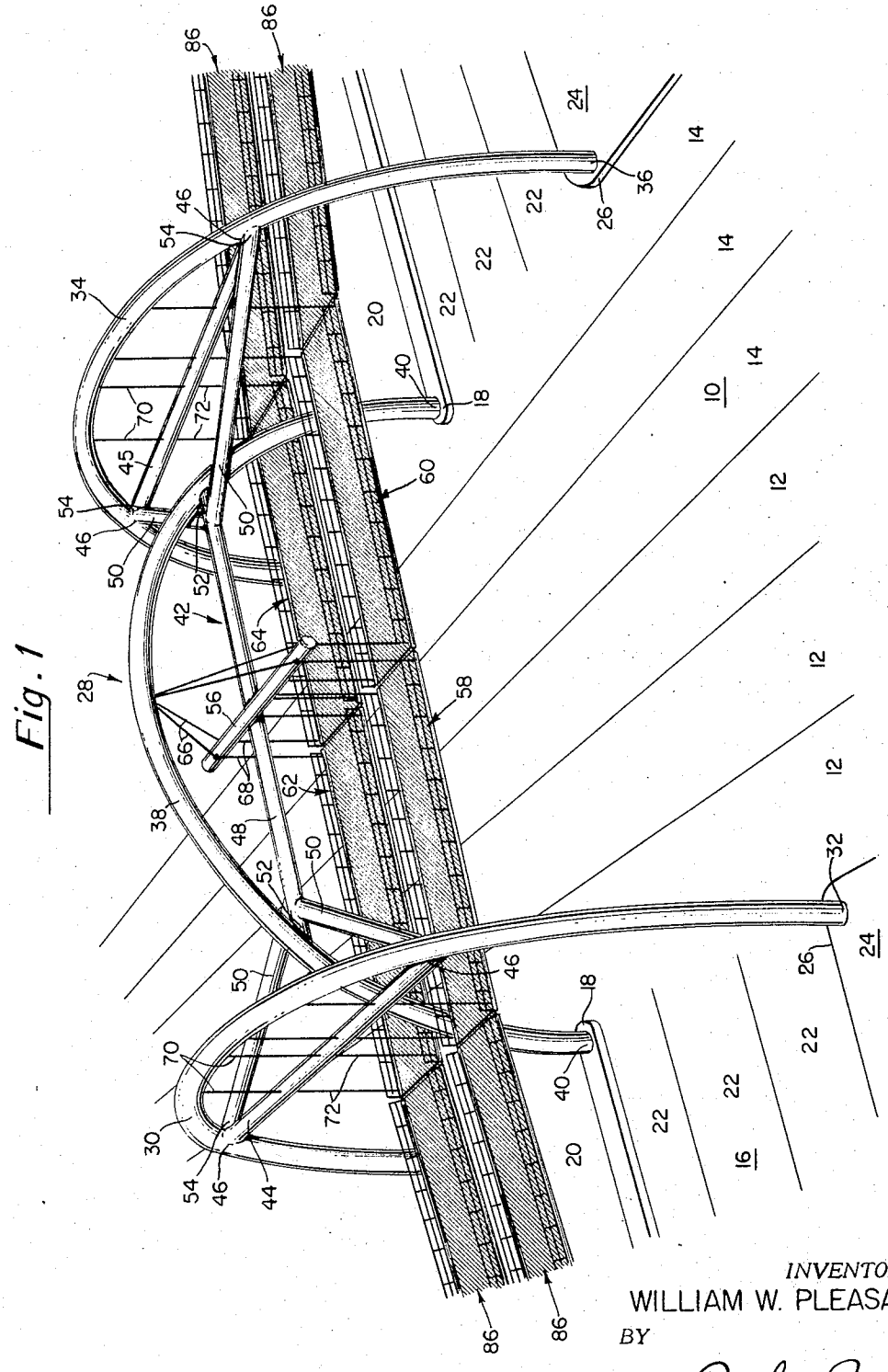


Fig. 1

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SUSPENDED OVERPASS

Filed May 17, 1966 3 Sheets-Sheet 2

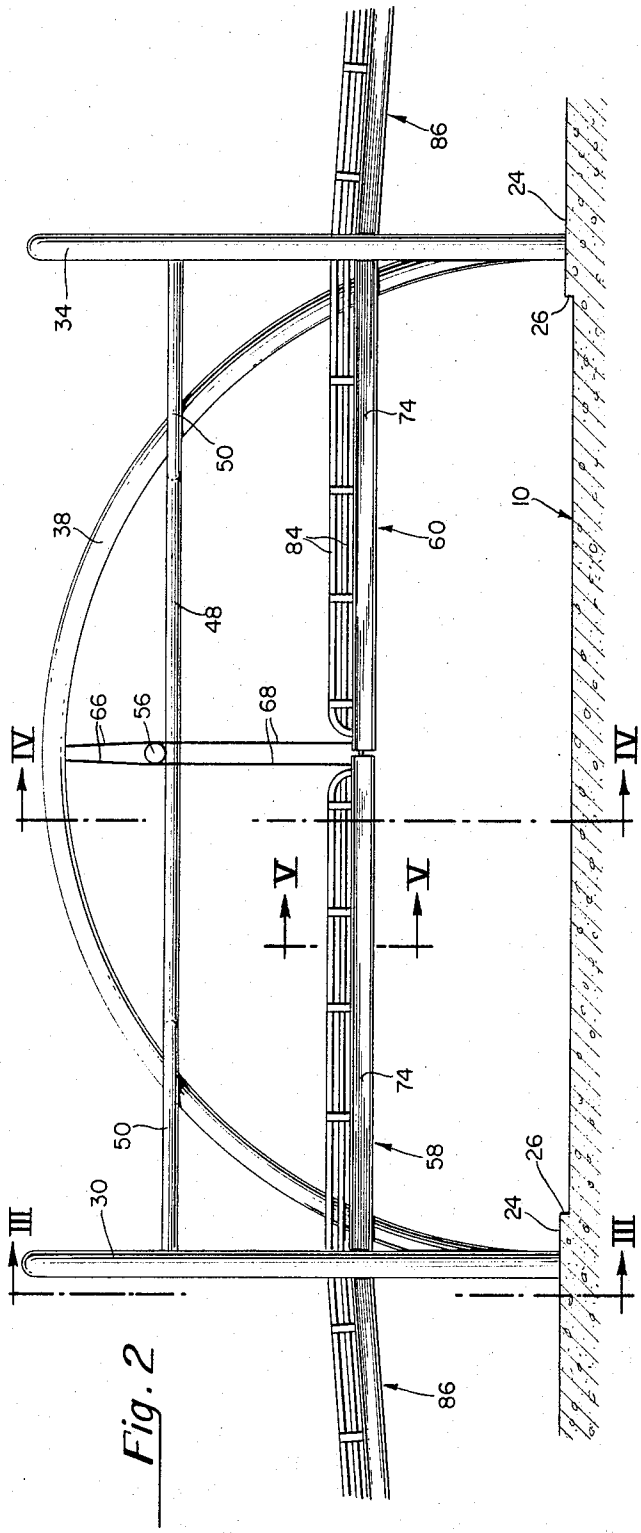


Fig. 2

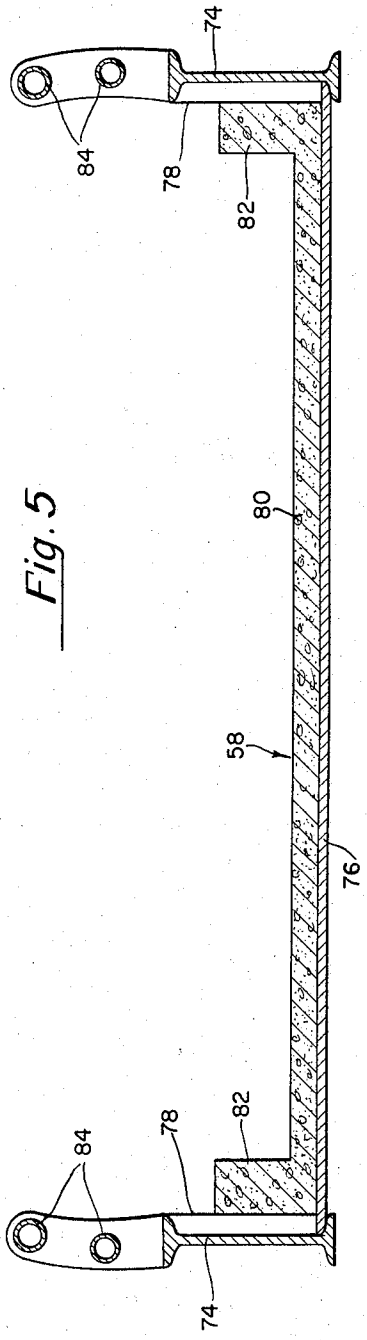


Fig. 5

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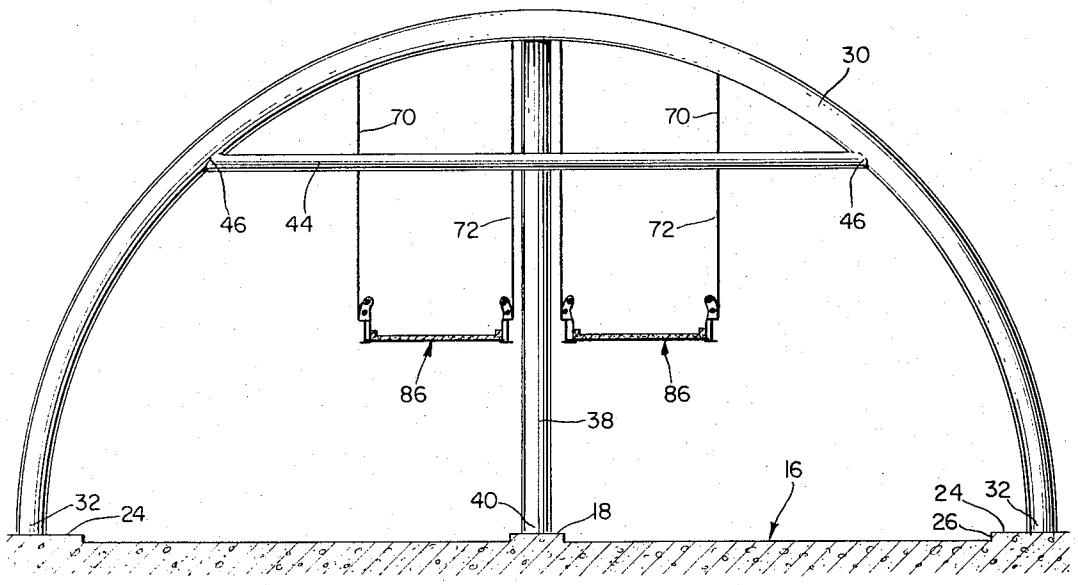


Fig. 3

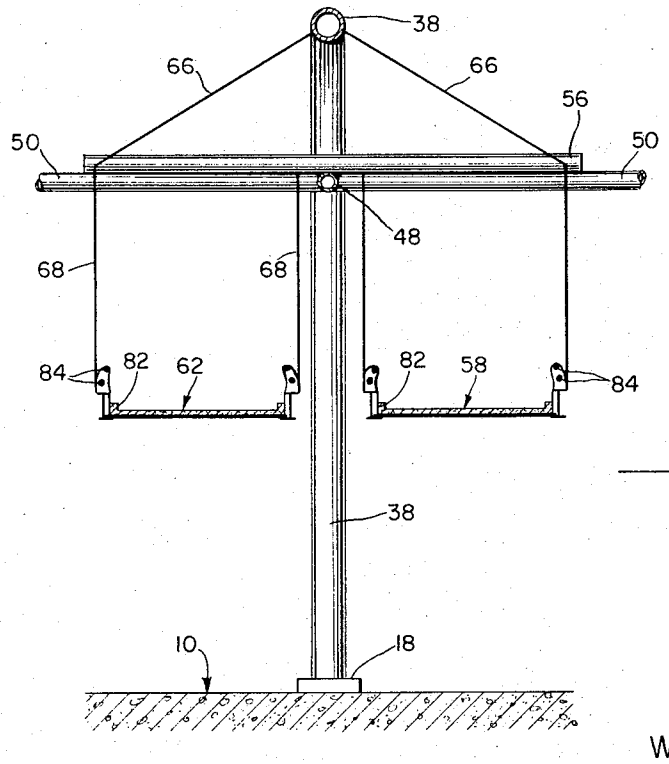


Fig. 4

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3,359,587

SUSPENDED OVERPASS

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7 Claims. (Cl. 14—1)

ABSTRACT OF THE DISCLOSURE

A structural framework spanning the intersection of major and minor thoroughfares carries an overpass suspended therefrom by cables. Ramps serve to provide approches to the overpass from the minor thoroughfare and exits from the overpass to the minor thoroughfare.

BACKGROUND OF THE INVENTION

(1) *Field of the invention*

The invention relates to overpasses for facilitating the movement of vehicles at the intersection of two thoroughfares.

(2) *Description of the prior art*

My Patent No. 3,247,539, issued Apr. 26, 1966, teaches an overpass suspended by cables from a ground-supported framework characterized by a pair of interconnected frame mebers each arching diagonally over the intersection of two streets whereby to facilitate movement of vehicles in an urban area where space is at a premium and disturbance of existing construction is impractical. The patented arrangement is used to great advantage at relatively small intersections, e.g., where one or both of the streets has a total of four traffic lanes. When each of the intersecting streets has a total of traffic lanes in excess of four, the patented arrangement is not used to full advantage because the span of the arched frame members extending diagonally across the intersection becomes excessive.

SUMMARY

The structural framework from which the overpass is suspended comprises three ground supported semicircular frame members. One extends along the median of a minor thoroughfare and arches over a major thoroughfare, and the other two extend respectively along opposite sides of the major thoroughfare and arch over the minor thoroughfare. Thus, in plan view, the frame members are arranged in the form of the letter H, as a consequence of which the spans of the frame members are held to a minimum.

In the accompanying drawings:

FIGURE 1 is a perspective view of a suspended overpass erected at a street intersection and embodying the invention;

FIGURE 2 is an elevation of the overpass shown in FIGURE 1;

FIGURE 3 is a section on line III—III in FIGURE 2;

FIGURE 4 is a section on line IV—IV in FIGURE 2; and

FIGURE 5 is an enlarged section on line V—V in FIGURE 2, showing details of a typical overpass section.

The following description is directed to the specific embodiment shown in the drawings. It is not addressed to the scope of the invention, which may be practiced in a variety of forms.

Referring to the drawings, a major thoroughfare or street **10** is provided with three lanes **12** of traffic in one direction and three lanes **14** of traffic in the opposite direction. The major thoroughfare **10** intersects a minor

thoroughfare **16** provided with median strips **18** dividing three lanes **20** of traffic in one direction from three lanes **22** of traffic in the opposite direction. A sidewalk **24** defined by a curb **26** is at each corner of the intersection.

The suspended overpass constructed in accordance with the invention comprises a rigid framework, generally designated **28**. The framework includes an arched, semicircular upright frame member **30** spanning the minor street **16** and disposed on one side of the major street **10**. The opposite end portions **32** of the member **30** are suitably supported upon and anchored to the ground, each within the associated sidewalk area **24**. An arched semicircular upright frame member **34** spanning the minor street **16** is disposed on the opposite side of the major street **10**. The opposite end portions **36** of the member **34** are suitably supported upon and anchored to the ground, each within the associated sidewalk area **24**. Spanning the major street **10** is an arched, semicircular upright frame member **38**, opposite end portions **40** of which are suitably supported upon and anchored to the ground, each within the associated section of the median strip **18**. It will be understood, of course, that the ground supports for the opposite end portions of the arched members may assume various forms. Above the intersection, near the top of the framework is a system of frame members, generally designated **42**, including an auxiliary frame member **44** extending horizontally between corresponding opposite side portions of the member **30**, an auxiliary frame member **45** extending horizontally between corresponding opposite side portions of the member **34** and an auxiliary frame member **48** extending horizontally between corresponding opposite side portions of the member **38**. Each end portion of each member **44**, **45** and **48** is rigidly affixed to the associated member **30**, **34** or **38**. Diverging outwardly from each of the member **48** are a pair of branches **50**, each pair of branches forming a crotch **52**. The extremity of of branch **50** is rigidly affixed to the associated member **44** or **45**. It will be appreciated that the system of frame members **42** is operative to interconnect the members **30**, **34** and **38** thereby to secure the same against lateral movement.

Affixed to the member **48**, midway between the opposite end portions thereof, is a crossarm **56** parallel the major street **10**.

Extending across the major street **10** and disposed on one side of the member **38** at a suitable distance above the intersection are a pair of aligned overpass sections **58** and **60**, and extending across the major street **10** and on the opposite side of the member **38** at a suitable distance above the intersection are a pair of aligned overpass sections **62** and **64**. Hanger rods **66** extend downwardly and outwardly from the crown of the member **38** to each end of the crossarm **56**, and hanger rods **68** extend downwardly from the crossarm **56** to the underlying end portions of the overpass sections **58**, **60**, **62** and **64**. Hanger rods **70** extend downwardly from the crowns of the members **30** and **34** to the members **44** and **45**, and hanger rods **72** extend downwardly from the members **44** and **45** to the underlying end portions of the overpass sections **58**, **60**, **62** and **64**. Thus each overpass section is suspended at each end.

Referring particularly to FIGURE 5, each overpass section comprises a pair of stringers **74** carrying a deck plate **76** and cover plates **78**. Overlying the deck plate **76** is a reinforced concrete roadway **80**, on opposite sides of which respectively are a pair of curbs **82**. Surmounting each stringer **74** is a railing **84**.

Suitably connected to the outer end of each overpass section is a ramp **86** extending downwardly to the surface of the minor street **16**.

The overpass sections and the ramp sections conveniently may be made substantially identical.

It should be noted that the overpass sections are suspended from overhead so that there are no supports rising from the street level in the intersection area. This eliminates the possibility of vehicles running into bridge supports in the intersection area, and eliminates any obstruction to visibility between vehicles entering the intersection. The structure may be arranged for use as a temporary structure during permanent construction, or it may be put to other temperoray uses, at resorts, athletic events, conventions, fairs, etc.

Semicircular steel arches spanning in the order of 80–150 feet are readily available for the purpose intended. Preferably three such arches spanning the same distance are used. It will be noted that since each of the arches is parallel to one or the other of the thoroughfares, the spans of the arches are held to a minimum, in consequence of which the suspended overpass structure is particularly suited for relatively large intersections.

What is claimed is:

1. In a structure for facilitating the movement of vehicles along intersecting major and minor thoroughfares, the combination comprising a rigid framework including a pair of upright, arched frame members respectively on opposite sides of the major thoroughfare and fully spanning the minor thoroughfare, the opposite end portions of each of said members being supported upon and anchored to the ground without said thoroughfare, another upright, arched frame member, fully spanning said major thoroughfare and having opposite end portions supported upon and anchored to the ground between the lanes of traffic of said minor thoroughfare, and a system of auxiliary frame members interconnecting the several arched frame members for mutually bracing the same against lateral movement, overpass means aligned with said minor thoroughfare, means fully and freely suspending said overpass means directly from said framework above the intersection of said thoroughfares, and ramp means from said overpass means to said minor thoroughfare providing approaches to and exits from said overpass means.

2. The combination according to claim 1 wherein the system of auxiliary frame members interconnecting the several arched frame members includes auxiliary frame members each disposed in underlying spaced relation to the crown portion of one of said arched frame members and affixed by longitudinally spaced portions thereof to corresponding opposite side portions of the associated arched frame member, and additional auxiliary frame members bracingly interconnecting the first mentioned auxiliary frame members.

3. The combination according to claim 1 wherein the system of auxiliary frame members terminates at each end in outwardly diverging branches forming a crotch therebetween, and the arched frame member spanning the major thoroughfare passes through both crotches.

4. The combination according to claim 3 wherein the arched frame member spanning the major thoroughfare is affixed to the system of auxiliary frame members in the vicinity of the crotches, and at each end of the system of auxiliary frame members the branches thereof forming the crotch are affixed to an auxiliary frame member extending across the minor thoroughfare.

5. The combination according to claim 1 wherein at the center of the major thoroughfare the overpass means is suspended from the crown portion of the arched frame member spanning said major thoroughfare, and at opposite sides of said major thoroughfare the overpass means is suspended respectively from the pair of arched frame members spanning the minor thoroughfare.

6. The combination according to claim 1 wherein the overpass means are disposed respectively on opposite sides of the arched frame member spanning the major thoroughfare, and a ramp is provided for each end of each overpass means.

7. In a structure for facilitating the movement of vehicles along major and minor thoroughfares substantially the same in width and intersecting substantially at right angles to each other, the combination comprising a rigid framework including a set of three upright, arcuate frame members semicircular in shape and formed to the same radius, a pair of said arcuate frame members being disposed respectively on opposite sides of the major thoroughfare, and being of a size to fully span the minor thoroughfare, the opposite end portions of each of said pair of arcuate frame members being supported upon and anchored to the ground without said thoroughfares, the remaining one of said arcuate frame members being disposed proximate the centerline of said minor thoroughfare, and being of a size to fully span said major thoroughfare, the opposite end portions of said remaining arcuate frame member being supported upon and anchored to the ground, a pair of auxiliary frame members extending across said minor thoroughfare and disposed respectively in underlying spaced relation to the crown portions of said arched frame members spanning said minor thoroughfare, each of said auxiliary frame members being affixed by opposite end portions thereof to corresponding opposite side portions of the associated arched frame member, and an auxiliary frame member extending across said major thoroughfare, disposed in underlying spaced relation to the crown portion of said arched frame member spanning said major thoroughfare and terminating at each end in outwardly diverging branches forming a crotch therebetween, the arched frame member spanning said major thoroughfare being passed through both crotches, and being affixed to said crotched member, the outer extremities of the branches forming each crotch being affixed to the associated auxiliary frame member extending across said minor thoroughfare, overpass means close adjacent to the arched frame member spanning said major thoroughfare and disposed respectively on opposite sides thereof, means suspending said overpass means from the crown portions of the arched frame members, and ramps from each of said overpass means to said minor thoroughfare to provide approaches to and exits from said overpass means.

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JACOB L. NACKENOFF, *Primary Examiner.*