Jan. 28, 1964 G. J. ERIKSSON 3,119,590

ADJUSTABLE, COLLAPSIBLE, AND ARTICULATED BRACKET FOR SUPPORTING A CONCRETE FORM FOR A BRIDGE FASCIA

Filed July 1, 1963 3 Sheets-Sheet 1

Fig. 1.

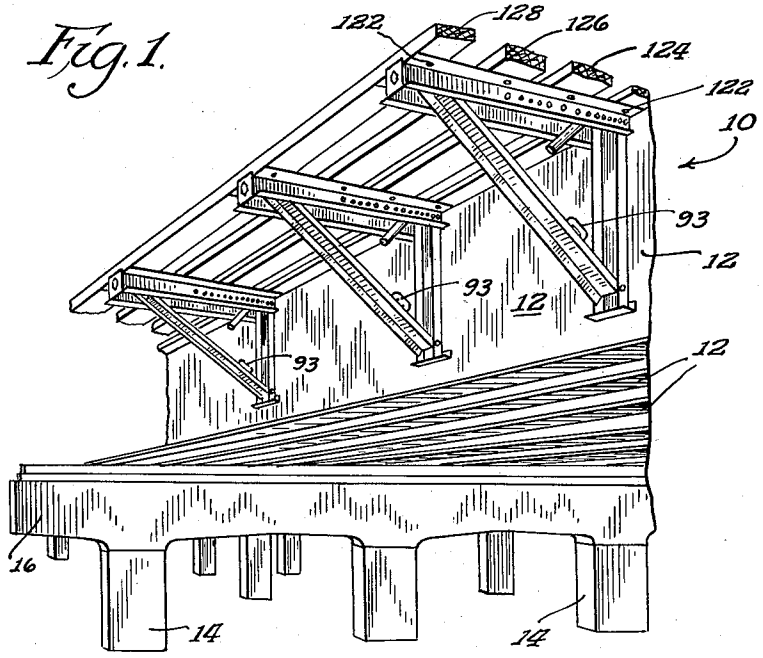


Fig. 9.

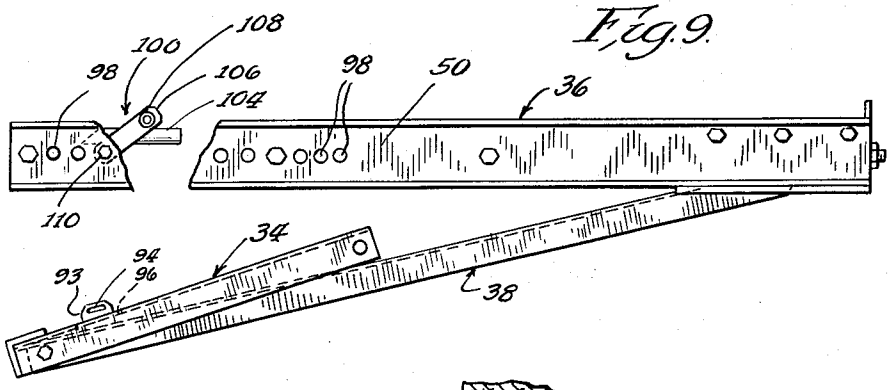
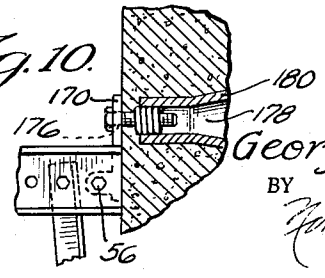


Fig. 10.



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ADJUSTABLE, COLLAPSIBLE, AND ARTICULATED BRACKET FOR SUPPORTING A CONCRETE FORM FOR A BRIDGE FASCIA

Filed July 1, 1963 3 Sheets-Sheet 2

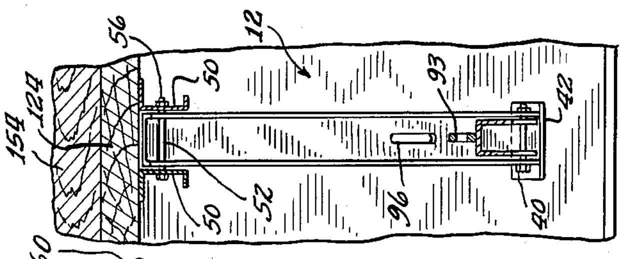

Fig. 3

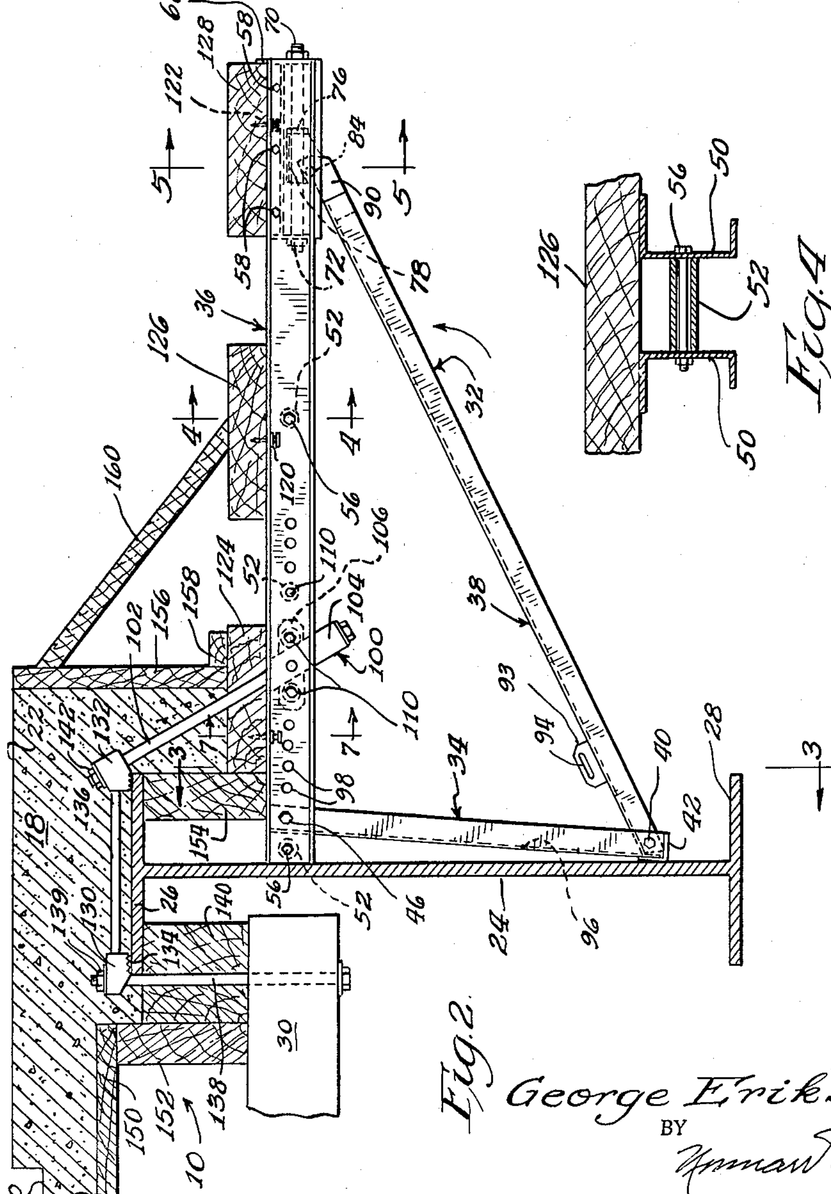

Fig. 4

Fig. 2

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ADJUSTABLE, COLLAPSIBLE, AND ARTICULATED BRACKET FOR SUPPORTING A CONCRETE FORM FOR A BRIDGE FASCIA

Filed July 1, 1963 3 Sheets-Sheet 3

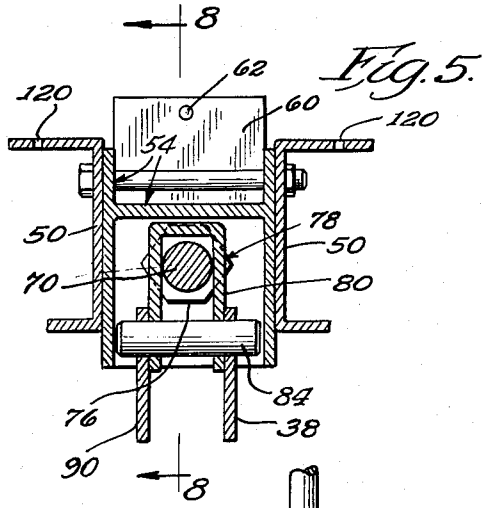


Fig. 5.

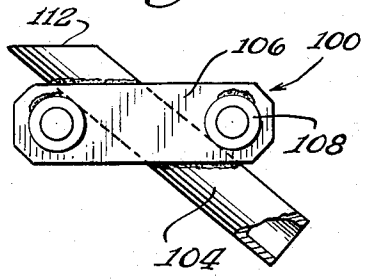


Fig. 6.

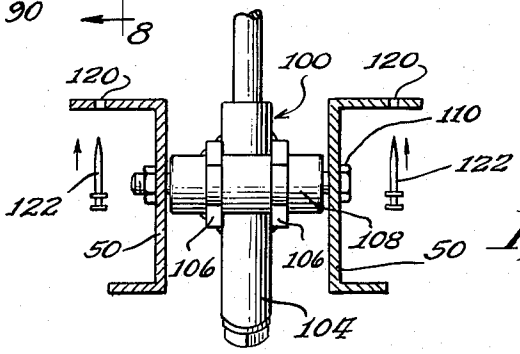
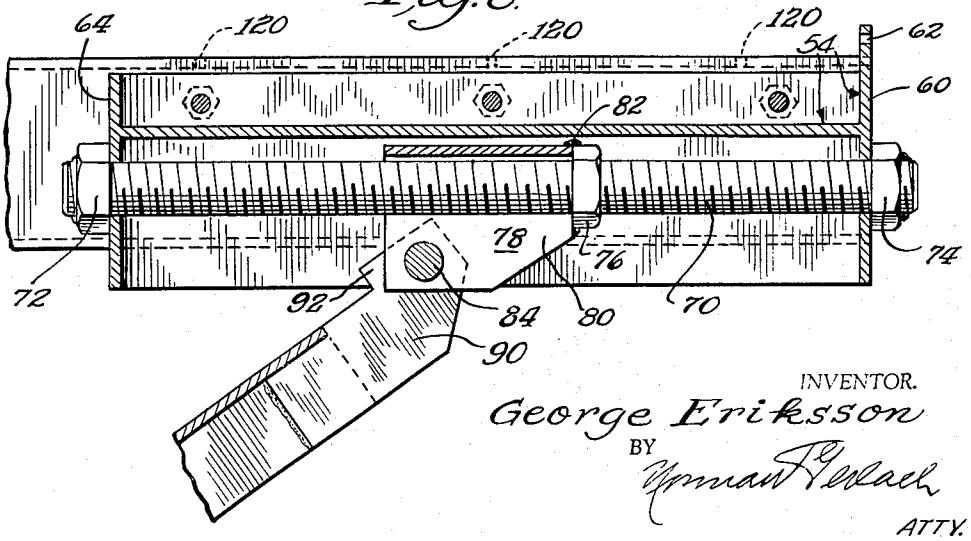


Fig. 7.

Fig. 8.



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3,119,590

ADJUSTABLE, COLLAPSIBLE, AND ARTICULATED BRACKET FOR SUPPORTING A CONCRETE FORM FOR A BRIDGE FASCIA

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Filed July 1, 1963, Ser. No. 291,647
9 Claims. (Cl. 248—240.3)

The present invention relates to a bracket for supporting a concrete form during a concrete-pouring operation and has particular reference to a novel form of adjustable and collapsible supporting bracket and associated structure by means of which a concrete bridge fascia, such, for example, as the marginal roadway and deck or side wall portion of a concrete bridge, may be formed with greater facility than has heretofore been possible in connection with use of standard or conventional materials and procedure. The adjustable features of the present bracket are of paramount importance, and by reason of them, adjustment for the slope of the underside of the fascia for any given installation may be effected while, if required, a final adjustment for grade can be made at any time, even after concrete-pouring operations have been completed.

The formation of a bridge fascia or overhang during the erection of a concrete bridge has previously presented numerous difficulties, each installation giving rise to its own particular set of problems, the problems usually differing from those encountered in other installations and requiring special materials, implements for installing them, and special skills in their application. In many installations, large quantities of lumber have been employed and the various lumber pieces must be cut to size and much of the associated work performed at the scene of the installation. The lumber is ordinarily not reusable and in the installation thereof, adjustments must be made from both above and below the usual supporting beams that are employed in connection with such fascia work, thus contributing to high labor costs, as well as the cost of the involved extraneous lumber and concrete form hardware. The improved supporting bracket of the present invention is designed to overcome the above-noted limitations that are attendant upon the formation of bridge fascia of the curb and deck type, and toward this end, the invention contemplates the provision of a novel form of collapsible and adjustable bracket, the bracket serving, when installed, both as a support for portions of the concrete fascia form, as well as for the planking that is associated with the fascia scaffold. By the use of the present fascia form supporting bracket, the need for special joists, props, knee braces, ties and much of the lumber work which is ordinarily associated with fascia construction is eliminated, while at the same time, labor and transportation costs are reduced to a minimum.

The provision of a bracket such as has been briefly outlined above being among the principal objects of the invention, it is a further object to provide a bracket which is capable of being easily set into place and adjusted to its final position either from above or from below the top of the fascia-supporting I-beam so that no underbeam adjustments are required at any time during the fascia construction up to and including the time of final form-stripping operations.

Another object of the invention is to provide a concrete fascia form supporting bracket which is capable of use without modification in a wide variety of installations and will accommodate both high and low beams utilizing the same type of concrete form hardware.

A still further object of the invention is to provide a

fascia form supporting bracket which is capable of use without modification on a wide variety or types of prestressed, precast concrete girders, or alternatively, on steel I-beam supports or the like.

Another and important object of the invention is to provide a fascia form supporting bracket which is capable of being collapsed into a folded position wherein the various parts thereof consume but little space in connection with storage thereof, means also being provided whereby the collapsed bracket may be locked in its folded or collapsed condition so that the bracket constitutes a compact package-type unit which is capable of being easily handled for shipping purposes and of being easily erected for use in the field.

It is still another object of the invention to provide a fascia form supporting bracket which, in its erected or operative position, is generally of triangular shape and includes a generally horizontal bracket leg for direct fascia form support, the leg having associated therewith a novel form of strut support which is designed for cooperation with a conventional steel hanger whereby the proximate end of the leg may be securely but temporarily anchored in the installation with which it is associated.

The provision of a fascia form supporting bracket which is of relatively simple construction in that the principal parts thereof are formed of metallic channel stock; one which is rugged and durable and, consequently, will withstand rough usage; one which may be initially assembled in its folded condition and shipped as a package unit to the scene of installation; one which, after use, may be salvaged and reused indefinitely, thereby making it available on a rental basis; one which utilizes standard concrete form hardware for its installation, much of which likewise is capable of being salvaged and reused; and one which otherwise is well-adapted to perform the services required of it, are further desirable features which have been borne in mind in the production and development of the particular bracket which constitutes the present invention.

Other objects of the invention and the various special characteristics and advantages of the improved bracket will be apparent from a consideration of the following detailed description.

With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts shown in the accompanying three sheets of drawings forming a part of this specification.

In these drawings:

FIG. 1 is a fragmentary perspective view of a bridge fascia concrete form and scaffold assembly embodying a number of the improved supporting brackets;

FIG. 2 is an enlarged fragmentary sectional view taken transversely through the bridge fascia after concrete-pouring operations have been completed and prior to removal or stripping of the fascia form, the view being taken in the vicinity of one of the form supporting brackets embodying the invention;

FIG. 3 is a vertical sectional view taken on the line 3—3 of FIG. 2;

FIG. 4 is a vertical sectional view taken on the line 4—4 of FIG. 2;

FIG. 5 is an enlarged vertical sectional view taken on the line 5—5 of FIG. 2;

FIG. 6 is a side elevational view, partly in section, of a particular suspension tube assembly which is employed in connection with the present invention;

FIG. 7 is an enlarged vertical sectional view taken on the line 7—7 of FIG. 2;

FIG. 8 is a longitudinal sectional view taken on the line 8—8 of FIG. 5;

FIG. 9 is a side elevational view showing the im-

proved fascia form supporting bracket in a partially folded condition; and

FIG. 10 is a fragmentary detail sectional view taken vertically through a wall plate attachment device which is capable of being employed in connection with the present invention.

In FIG. 1 of the accompanying drawings, there is disclosed, purely for illustrative purposes, a fragmentary portion of a bridge construction, the construction being designated in its entirety by the reference numeral **10**. The bridge construction which has been selected for illustration herein to show the manner of installation of the present fascia form supporting bracket depends for its basic support upon a series of longitudinally extending metallic I-beams **12**. The bracket of the present invention is, however, readily applicable to a bridge construction which depends for its basic support upon prestressed concrete, I-beam-type girders, the mode of application of the improved bracket in the last-mentioned construction being similar to the mode of application of the bracket to bridge construction which depends for its basic support upon the use of metallic I-beams, especially since the cross-sectional shape of prestressed concrete, I-beam-type girders does not differ in a material sense from the cross-sectional shape of steel I-beams. It will be understood, therefore, that in the following description and in the appended claims, reference to an I-beam does not necessarily imply the use of a steel I-beam having relatively thin top and bottom flanges and a connecting web portion. Such reference to an I-beam, especially in the appended claims, is intended to include the use of a structural prestressed concrete girder of the type which is frequently employed in the construction of bridges and includes top and bottom enlargements or flanges which are connected by a comparatively thick vertical web portion.

Irrespective, however, of the particular type of bridge construction with which the bracket of the present invention may be associated, the essential features of the invention are at all times preserved.

The illustrated bridge construction **10** includes a series of supporting pillars **14** which are arranged in transversely extending rows and upon which there are supported arch members **16**. The latter, in turn, serve to support a series of the longitudinally extending I-beams **12**. Only one of the outermost longitudinally extending I-beams **12** on one side of the bridge construction **10** has been illustrated herein. Such one beam appears in FIGS. 1 and 2 of the drawings and is intimately associated with the concrete fascia portion of the bridge. The fascia portion is designated by the reference numeral **18** and includes a marginal portion of a roadway **20** and a raised deck or side wall portion **22**. The steel I-beam **12** includes the usual central vertical web portion **24** and upper and lower flange portions **26** and **28** (see FIG. 2).

Suspended from the upper flange portion **26** of the I-beam **12** by means which will be presently described in detail are the outer ends of a series of spaced apart, transversely extending, centering joists **30** which may be in the form of wooden boards of the 2" x 6" variety. The inner ends of the joists **30** are supported by conventional beam saddles (not shown) which are associated with the upper flange portion of the next adjacent I-beam. Operatively supported on the outside of the I-beam **12** by means which likewise will be described in detail subsequently, is a concrete fascia form and scaffold supporting bracket which has been designated in its entirety by the reference numeral **32**. Such bracket is of novel design and constitutes the present invention. It is adapted with similar brackets in spaced apart relation therewith to perform the dual function of adjustably maintaining the bridge fascia concrete form assembly in position and of supporting the scaffold planking for the bridge structure as best shown in FIG. 2.

The bracket **32** is in the form of a generally triangular structure including substantially vertical and horizontal

leg assemblies **34** and **36** and an inclined or diagonal brace **38**. The vertical leg assembly **34** is relatively short as compared to the leg assembly **36** and the brace **38** and is comprised of a length of channel stock and arranged so that the side flanges thereof project outwards. The lower end of the leg assembly **34** is pivotally connected to the adjacent end of the brace **38** by means of a nut and bolt assembly **40**. A short length of channel stock **42** is welded to the pivoted lower end of the vertical leg **34** and extends transversely thereof, this length of channel stock constituting a foot piece for the bracket **32** as a whole. The upper end of the vertical leg assembly **34** is removably connected to the inner end of the horizontal leg assembly **36** by means of a nut and bolt assembly **46**, the point of connection between the two leg assemblies **34** and **36** being capable of selective adjustment in a manner that will be made clear presently.

The horizontal leg assembly **36** comprises two channel pieces **50** which are maintained in back-to-back opposition and spaced relationship by means of three spacer sleeves **52** which are appropriately spaced along the longitudinal extent of the leg assembly **36**. As shown in FIG. 7, the channel pieces are so arranged that their webs extend vertically and their side flanges horizontally and outwards. Said channel pieces are also spaced apart by means of a rigid box-like carriage housing **54** which is of elongated design and is positioned between the channel pieces and adjacent to the outer end of the leg assembly **36**. Nut and bolt assemblies **56** pass through the spacer sleeves **52** and serve with said sleeves to clamp or maintain the channel pieces **50** in their spaced apart relationship. The horizontal leg assembly **34** is adapted to support the fascia concrete form directly and, by changes or adjustments in sti own deviation from a horizontal plane, to effect adjustment of the form for slope or grade.

The carriage housing **54** is in the form of an H-member which is securely clamped between the two channel pieces **50** by a series of three nut and bolt assemblies **58** (see FIGS. 5 and 8). An end plate **60** is fixedly connected to and serves to close the outer end of the carriage housing **54**. The upper portion of the end plate **60** projects upwardly a slight distance above the uppermost level of the channel pieces **50** and is provided with a nail-receiving hole **62** for a purpose that will be explained presently. A second end plate **64** (see FIG. 8) opposes the end plate **60** and is fixedly connected to and serves to close the inner end of the carriage housing **54**. The lower portions of the two end plates serve to support therebetwen a rotatable adjusting screw **70** which extends lengthwise of the carriage housing. The ends of the adjusting screw **70** extend through holes in the end plates **60** and **64** and have nuts **72** and **74** welded thereto. The nut **74** is located adjacent to the outer side of the end wall **60** and is designed to receive thereover a suitable tool, such, for example, as a wrench, by means of which the adjusting screw **70** may be turned in either direction. A third nut **76** is threadedly received on the adjusting screw **70** and constitutes an element or part of a longitudinally shiftable carriage **78**, which is adapted, in connection with turning of the adjusting screw, to travel along the adjusting screw **70** from one end thereof to the other within the carriage housing **54**. The carriage **78** comprises, in addition to the nut **76**, an inverted U-shaped carriage body **80** which is welded as at **82** to the nut **76** and which straddles the adjusting screw **70** as best illustrated in FIG. 5. A horizontal pivot pin **84** projects across, and through aligned holes in, the depending side flanges of the inverted U-shaped carriage body **80** and serves as a means for attachment of the adjacent or outer end of the inclined or diagonal brace **38**.

The inclined brace **38** is in the form of a length of channel stock of somewhat less width than the channel stock from which the leg **34** is formed so that a portion of the brace **38** may be nested within the vertical leg assembly **34** when the bracket **32** is in its folded condition

as illustrated in FIG. 9. The outer end of the brace 38, i.e., the end that is adjacent to the outer end of the leg assembly 36, carries a U-shaped attachment piece 90 (see FIG. 8). Such attachment piece embodies at the front upper corners of its side flanges attachment ears 92 by means of which the brace is pivotally connected to the carriage 78. The attachment ears 92 are disposed outwards of the side flanges of the carriage body 80 and have aligned holes through which the ends of the pivot pin 84 extend loosely. The pivot pin 84 lies wholly within the confines of the carriage housing 54 and is prevented from endwise movement by the side walls of the carriage housing. As shown in FIGS. 2 and 9, a bolting flange 93 with a longitudinal slot 94 therein is connected to and projects upwards from the brace 38 at a region spaced inwardly a slight distance from the point of pivotal connection between the inner end of the brace 38 and the lower end of the leg assembly 34. This bolting flange is adapted to be projected through a longitudinal slot 96 in the web portion of the leg assembly 34 when such assembly is folded upon the brace 38 as shown in FIG. 9. The slot 94 is designed for selective register with a series or row of holes 98 in the web portion of each channel piece 50 of the horizontal leg assembly 36 when the folded brace 38 and the normally vertical leg assembly 34 are, in turn, folded upon the leg assembly 36.

As shown in FIGS. 2, 6 and 7, the bracket 32 comprises, in addition to the parts heretofore mentioned, an adjustable strut anchor assembly 100 which is capable of selective placement upon the horizontal leg assembly 36 at different longitudinal regions therealong for the purpose of receiving the lower end region of a downwardly and outwardly inclined suspension rod 102. This strut anchor assembly 100 is in the form of a tubular sheath 104 to which there are welded on opposite sides thereof in straddling relationship two horizontal attachment straps 106. Horizontal, open-ended, tubular, bolt-receiving sleeves 108 project outwards from the ends of each strap 106 (see FIG. 6) and are welded in position thereon. The spacing between the bolt-receiving sleeves 108 on each attachment strap 106 is equal to the spacing between alternate holes 98 in the row of holes in the web portion of each channel piece 50 of the horizontal leg assembly 36 so that the sleeves 108 may be selectively aligned with these holes and a pair of attachment nut and bolt assemblies 110 may be passed through the aligned and registering holes and the sleeves in order to retain the strut anchor assembly 100 in its selected adjusted position on the leg assembly 36 between the two channel pieces 50, as illustrated in FIG. 7. When the attachment straps 106 are installed within the leg assembly 36 so that they extend horizontally, the axis of the tubular sheath 104 is downwardly and outwardly inclined as shown in FIGS. 2 and 6 for proper registry with the aforementioned suspension rod 102. The upper open rim of the tubular sheath 104 is relieved or cut off on an angular bias as indicated at 112 so that the upper end of the sheath does not project above the upper level of the channel pieces 50. In connection with collapsing or folding of the bracket 32, one of the nut and bolt assemblies 110 is removed and the assembly 100 is swung bodily as a unit into the position wherein it is shown in FIG. 9. In such position, the assembly is, for the most part, disposed within the confines of the leg assembly 36.

As shown in FIGS. 2, 5, 7 and 8, the top flanges of the two channel pieces 50 of the horizontal leg assembly 36 are formed with longitudinal series of appropriately spaced nail holes 120 therethrough. These holes 120, in combination with the nail hole 62 in the outer end plate 60, are adapted selectively to receive therethrough nails such as have been indicated at 122 in FIG. 7 and by means of which various plank-type supporting members may be fixedly applied to the leg assembly 36. In FIGS. 1 and 2, three wooden planks of the 2" x 6" variety are shown as being supported on and nailed to the bracket 32, these planks being designated respectively by the reference numerals 124, 126 and 128. The innermost plank 124 constitutes a base concrete form or deck plank for the fascia portion 18 of the bridge structure, while the planks 126 and 128 constitute scaffold planks. The nails 122 serve to prevent shifting of the planks on the bracket 32, and in order to facilitate pulling of the nails when stripping operations are resorted to, the nails 120 are of the dual or double head type. In order to facilitate the nailing operation, the width of the top flange of each channel piece 50 is greater than the width of the bottom flange as clearly shown in FIGS. 5 and 7. By reason of this greater top flange width, clearance is provided for free hammer swing when driving the nails 120 to their home positions, as well as affording a clearance for the hammer claws when extracting the nails during form-stripping operations.

The bracket assembly 32 is adapted to be "hung" so to speak on the I-beam 12 solely by the use of beam saddle. The latter is in the form of a conventional steel hanger assembly of the type which is shown in, and forms the subject of, United States Patent No. 2,985,937, granted on May 30, 1961, and entitled "Outside Hanger Assembly for Suspended Concrete Forms." Hangers or saddles like that of said patent are manufactured in various styles and sizes and reference may be had to Patent No. 2,985,937 for a full disclosure and understanding of the manner of use of the herein illustrated hanger assembly of beam saddle. For purposes of discussion herein and of relating the beam saddle to the bracket assembly 32 of the present invention, it is deemed sufficient to state that the beam saddle or hanger assembly is comprised of three parts or pieces, including two U-shaped anchor pieces 130 and 132. The latter are mounted on the top flanges 26 of the I-beam 12 and having tooth-equipped bottom edges 134 which provide anti-friction means for preventing slipping of the anchor pieces on the I-beam flange 26. A horizontal rod 136 extends between, and is welded to, the two anchor pieces 130 and 132 and holds them in their spaced relationship. An elongated, vertically extending, bolt 138 passes through the anchor piece 130 and a spacer block 140, as well as through the subjacent centering joist 30, the head of the bolt underlying said centering joist and serving to support the latter. The previously-mentioned suspension rod 102 passes through the anchor piece 132 and the deck plank 124, as well as through the sheath 104. The head of the suspension rod underlies the lower end of the sheath while the upper end of the rod has mounted thereon an adjusting nut 142.

The concrete form for the fascia 18 further includes a deck panel 150, the outer side edge of which is supported on a plank 152 which, in turn, is supported on the subjacent centering joist 30. A longitudinally extending wooden strip 154 is set on edge between the horizontal leg assembly 36 of the bracket 32 and the underneath face of the outer side margin of the I-beam top flange 26 and is clamped in place by the action of the suspension rod 102. The strip 154 abuts against the inner edge of the deck plank 124, and in combination with the I-beam flange 26, defines the inside and underneath corner of the concrete fascia overhang. The remainder of the concrete form comprises a vertical form side or plank 156 consisting of a wooden member which is set on edge above the deck plank 124 and is held in position thereon by a nailed-in-place strip 158. The latter is positioned on the deck plank 124 outside of the plank 156. Reinforcing means for the vertically extending plank 156 includes a diagonal brace member 160 which extends between the scaffold plank 126 and the upper edge region of the plank 156.

The manner in which the roadway 20 and the deck or side wall portion 22 of the bridge fascia portion 18 are formed is extraneous to the present invention which consists of the bracket 132 and the various parts that are

associated therewith whereby it is supported in position beneath and outside of the space where the concrete fascia portion **18** is formed. However, it may be mentioned that conventional strickle devices will be employed in the formation of fascia parts and that the upper longitudinal edge of the plank **156** may be used as a strickle guide in conjunction with use of strickle devices to level off the concrete deck or side wall portion **22**.

After the bracket **32** has been hung from the aforementioned hanger assembly as heretofore mentioned and the various parts of the concrete form for the bridge fascia portions **18** have been set in place, the footpiece **42** will bear against the lower portion of the web **34** of the I-beam **12** to maintain the bracket in approximately its final position in the form assembly. It will be understood, of course, that prior to hanging the bracket **32**, a proper selection of the particular aligned holes **98** in the channel pieces of the generally horizontal leg assembly **36** will be made for cooperation with the nut and bolt assembly **46** in securing the upper end of the vertical leg assembly **34** to the inner end of the leg assembly **36**, any one pair of opposed holes in the elongated rows thereof being available for this purpose. To bring the leg assembly **36** of the bracket **32** to its horizontal position, or to adjust the leg assembly otherwise for grade, the adjusting screw **70** will be turned in one direction or the other, utilizing a suitable wrench on the nut **74** for this purpose. The carriage body **80** will thus be shifted in one direction or the other along the adjusting screw **70** thereby varying the inclination of both the brace **38** and the leg assembly **36**. This adjustment for grade is preferably effected before the nut **142** on the upper end of the suspension rod **102** is tightened, and when the desired inclination of the leg assembly **36** has been attained, the nut **142** is then tightened to lend support to the medial regions of the leg assembly **36**. It will be understood, of course, that prior to hanging of the bracket **32**, the proper holes **98** also will be selected for installation of the adjustable strut anchor assembly **100**. The depth of the fascia overhang, the width thereof, and the desired inclination of the leg assembly **36** are all factors which may affect the selection of holes **98** for strut anchor assembly installation.

In certain instances, as, for example, where installation of the bracket **32** is to be made on a concrete beam or the like where use of a beam saddle is not feasible, the bracket may be hung from a separate detachable wall plate such as is shown in FIG. 10 and designated by the reference numeral **170**. In such an instance, the adjustable strut anchor assembly **100** may be removed by removing the nut and bolt assemblies **110**, together with the tubular sheath **104** and the straps **106**. The wall plate **170** is designed as a replacement for the strut anchor assembly **100** and is in the form of a flat plate having marginal ears **172**. The latter have holes which are designed for registration with and to receive the innermost horizontally and outwardly extending nut and bolt assembly **56** when the plate is interposed between the inner ends of two channel pieces **50** of the leg assembly **36**. By using a spacer sleeve **174**, the ears **172** will be clamped between the ends of the spacer sleeve **174** and the web portions of the channel pieces **50** so that the wall plate **170** as a whole will be fixedly secured in position at the inside end of the leg assembly **36** with the plane of the plate extending vertically. The plate **170** projects a slight distance above the uppermost level of the leg assembly **36** and is provided at its upper portion with a hole **176** by means of which the plate may be secured by a lag screw **178** to an embedded coil tie anchor insert **180**, only a portion of which appears in FIG. 10 and may be of the type that is shown and described in United States Patent No. 2,794,396, granted on June 4, 1957 and entitled "Lag Screw Anchoring Insert for a Concrete Slab."

An important feature of the present invention resides in the facility with which the bracket **32** may be folded

into a compact package-type unit and locked in its folded condition. The manner in which the bracket **32** may be folded is illustrated in FIG. 9 wherein it will be observed from the illustration of the partially folded bracket that the bracket leg assembly **34** is capable of first being folded upon the brace **38**, after which the brace, with the leg assembly **34** folded thereon, may be folded upon the leg assembly **36** so that the three principal bracket parts assume a substantially coplanar relationship. To enable such folding of the bracket, the width of the channel stock from which the leg assembly **34** is formed is slightly greater than the width of the channel stock from which the brace **38** is formed. When the leg assembly **34** is folded upon the brace **38**, the slot-equipped bolting flange **93** moves into register with and is projected through the slot **96** in the web portion of the channel-shaped leg assembly **34**. The slot **94** in the bolting flange **93** moves into register with at least one of the pairs of opposed holes **98** in the web portions of the channel pieces **50** of the leg assembly **36** at such time as the brace **38** is folded upon leg assembly **36**. The particular holes with which the slot **94** will register depends, of course, upon the particular position of the carriage **78** at the time that the bracket **32** is collapsed. Preferably, the carriage **78** will be moved to its extreme right-hand position as viewed in FIG. 9 to yield the shortest longitudinal extent possible when the various bracket parts are folded upon one another. The spacing between the two channel pieces **50** of the normally horizontal leg assembly **36** is greater than the over-all width of the channel stock from which the leg assembly **34** and the brace **38** are formed so that the two folded bracket parts **34** and **38** may enter between the channel pieces **50** when the bracket is collapsed.

To avoid interference of the adjustable strut anchor assembly **100** with proper folding of the bracket **32**, one of the two nut and bolt assemblies **110**, by means of which the strut anchor assembly **100** is held in its operative position, may be removed so that the assembly **100** may be swung to the position in which it is shown in FIG. 9 prior to folding of the various bracket parts. After the bracket parts have been folded, the bolt and nut assembly **110**, which was removed from the strut anchor assembly **100**, may be employed to lock the bracket in its collapsed condition by passing the same through the pair of opposed holes **98**, which, at the time of collapse of the bracket, is in register with the slot **94** in the bolting flange **93**. The extreme free end of the tubular sheath **104** will then rest upon the upper adjacent surface of the collapsed leg assembly **34**.

The invention is not to be limited to the exact arrangement of parts shown in the accompanying drawings or described in this specification as various changes in the details of construction may be resorted to without departing from the spirit or scope of the invention. Therefore, only insofar as the invention has particularly been pointed out in the accompanying claims is the same to be limited.

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

1. In a concrete form for bridge fascia presenting an overhang on the outside of a marginal longitudinally and horizontally extending I-beam having upper and lower beam flanges connected by a vertical web, an articulated concrete form and scaffold supporting bracket of triangular configuration, positioned on the outside of the I-beam and extending in a vertical plane and also outwardly from and at right angles to said I-beam, said bracket including a substantially vertical leg positioned adjacent to the I-beam web, a substantially horizontal upper leg extending outwards from the upper end of the vertical leg, and a lower diagonal brace extending between the lower end of the vertical leg and the outer end of the horizontal leg, said bracket being positioned against the outer side of the I-beam with the inner end of the horizontal leg and the lower end of the diagonal brace effectively bearing against the adjacent side of the I-

beam, said horizontal leg being adapted to receive and support thereon the concrete form for the bridge fascia and, by adjustments in its own deviation from a horizontal plane, to effect adjustments of the form for slope, means pivotally connecting the adjacent ends of the vertical and horizontal legs, means pivotally connecting the adjacent ends of the vertical leg and the diagonal brace, an adjusting screw rotatably mounted on the outer end region of the horizontal leg and extending in the longitudinal direction of said leg, a carriage threadedly received on the adjusting screw for axial shifting movements therealong, means pivotally connecting the upper end of the diagonal brace to the carriage, means facilitating turning of the adjusting screw, and means for temporarily supporting said bracket in position on said I-beam.

2. In a concrete form for bridge fascia presenting an overhang on the outside of a marginal longitudinally and horizontally extending I-beam having upper and lower beam flanges connected by a vertical web, an articulated concrete form and scaffold supporting bracket of triangular configuration, positioned on the outside of the I-beam and extending in a vertical plane and also outwardly from and at right angles to said I-beam, said bracket including a substantially vertical leg positioned adjacent to the I-beam web, a substantially horizontal upper leg extending outwards from the upper end of the vertical leg, and a lower diagonal brace extending between the lower end of the vertical leg and the outer end of the horizontal leg, said bracket being positioned against the outer side of the I-beam with the inner end of the horizontal leg and the lower end of the diagonal brace effectively bearing against the adjacent side of the I-beam, said horizontal leg being adapted to receive and support thereon the concrete form for the bridge fascia and, by adjustments in its own deviation from a horizontal plane, to effect adjustments of the form for slope, means pivotally connecting the adjacent ends of the vertical and horizontal legs, means pivotally connecting the adjacent ends of the vertical leg and the diagonal brace, said horizontal leg comprising a pair of spaced apart, longitudinally extending, channel pieces, a carriage housing interposed between and connected to the outer ends of said channel pieces and serving to maintain said outer ends in their spaced relationship, said carriage housing including vertically and transversely extending end plates one of which is disposed at the extreme outer end of the horizontal leg, a rotatable adjusting screw extending lengthwise of said horizontal leg and having its end regions journalled in the end plates respectively, a carriage nut threadedly received on the adjusting screw, a carriage body secured fixedly to the carriage nut, means pivotally connecting the upper end of the diagonal brace to said carriage body, a noncircular wrench-receiving adjusting head connected fixedly to the outer end of said adjusting screw, disposed exteriorly of the carriage housing and outwardly of the outer end of the horizontal leg and adapted to facilitate turning of the adjusting screw in either direction, and means for temporarily supporting said bracket in position on said I-beam.

3. In a concrete form for bridge fascia, the combination set forth in claim 2 and wherein said channel pieces of the horizontal leg are provided with upper outwardly extending flanges having nail-receiving holes therethrough, and said one transverse end plate of the carriage housing embodies at its upper portion an integral upwardly extending extension which projects above the level of the top flanges of the channel pieces and is provided with a nail-receiving hole therethrough.

4. A generally triangular articulated collapsible supporting bracket comprising, in combination, a substantially vertical leg, a substantially horizontal leg extending outwards from the upper end of the vertical leg and a diagonal brace extending between the lower end of the vertical leg and the outer end of the horizontal leg, the horizontal leg being comprised of two spaced apart, longitudinally extending, channel pieces including vertical web portions having top and bottom flanges projecting outwardly therefrom in opposite lateral directions, the inner end of said vertical leg and the lower end of the diagonal brace being adapted for positioning effectively against a vertical surface of a form support, said horizontal leg being adapted to receive and support thereon a concrete form for a bridge fascia and, by adjustments in its own deviation from a horizontal plane, to effect adjustment of the form for slope, said vertical leg being channel shape in cross section and having its side flanges directed towards the brace, said diagonal brace also being channel shape in cross section and having its side flanges directed away from the horizontal leg, the width of the vertical leg being slightly greater than the width of the brace in order that the side flanges of the vertical leg are adapted to straddle the side flanges of the brace in connection with folding of the vertical leg over the brace in the collapsed condition of the bracket, a horizontal bolt projecting through the adjacent end portions of the side flanges of the vertical leg and brace and serving pivotally to connect the vertical leg and brace, a removable horizontal bolt projecting through the upper end portions of the side flanges of the vertical leg and the inner end portions of the web portions of the channel pieces of the horizontal leg and serving pivotally to connect the vertical leg and the horizontal leg, an adjusting screw rotatably mounted between the outer end regions of the web portions of the channel pieces of the horizontal leg and extending in the longitudinal direction of said leg, a carriage threadedly received on the adjusting screw for axial shifting movements therealong, means pivotally connecting the upper end of the diagonal brace to the carriage, and means facilitating turning of the adjusting screw, the distance between the web portions of the channel pieces of the horizontal leg being greater than the width of the vertical leg whereby, upon withdrawal of the removable bolt from the side flanges of the vertical leg and the web portions of the channel pieces of the horizontal leg, the vertical leg may be folded upon the diagonal brace and the latter, together with the vertical leg, may be folded upon the horizontal leg and substantially contained between the said web portions.

5. A generally triangular articluated collapsible supporting bracket as set forth in claim 4 and including, additionally, a bolting flange having a bolt-receiving hole therein, formed on the web portion of said diagonal brace adjacent to the lower end thereof and directed towards the horizontal leg, there being a slot formed in the lower region of the web portion of the vertical leg through which the bolting flange projects when the vertical leg is folded upon the diagonal brace, the web portions of said channel pieces of the horizontal leg being formed with a pair of aligned bolt-receiving holes therein in horizontal register with the bolt-receiving hole in the bolting flange when the folded vertical leg and diagonal brace are received therebetween.

6. A generally triangular articulated collapsible supporting bracket as set forth in claim 4 and wherein the inner regions of the web portions of the channel pieces of the horizontal leg are formed with a longitudinal series of spaced pairs of aligned bolt-receiving holes in which pairs of holes the removable bolt is selectively receivable for varying the effective point of pivotal connection between the upper end of the vertical leg and the inner end of the horizontal leg.

7. A generally triangular articulated collapsible supporting bracket as set forth in claim 4 and including, additionally, a bolting flange having a bolt-receiving hole therein, formed on the web portion of said diagonal brace adjacent to the lower end thereof and directed towards the horizontal leg, there being a slot formed in the lower region of the web portion of the vertical leg through which the bolting flange projects when the ver-

tical leg is folded upon the diagonal brace, the inner regions of the web portions of said channel pieces of the horizontal leg being formed with a longitudinal series of spaced pairs of aligned bolt-receiving holes in which pairs of holes the removable bolt is selectively receivable for varying the effective point of pivotal connection between the upper end of the vertical leg and the inner end of the horizontal leg, and which pairs of holes also are designed for selective register with the bolt-receiving hole in the bolting flange when the folded vertical leg and diagonal brace are received between said channel pieces.

8. In a concrete form for bridge fascia presenting an overhang on the outside of a marginal longitudinally and horizontally extending I-beam having upper and lower beam flanges connected by a vertical web, an articulated concrete form and scaffold supporting bracket of triangular configuration, positioned on the outside of the I-beam and extending in a vertical plane and also outwardly from and at right angles to said I-beam, said bracket including a substantially vertical leg positioned adjacent to the I-beam web, a substantially horizontal upper leg extending outwards from the upper end of the vertical leg, and a lower diagonal brace extending between the lower end of the vertical leg and the outer end of the horizontal leg, said bracket being positioned against the outer side of the I-beam with the inner end of the vertical leg and the lower end of the diagonal brace effectively bearing against the adjacent side of the I-beam, said horizontal leg being adapted to receive and support thereon the concrete form for the bridge fascia, and by adjustments in its own deviation from a horizontal plane, to effect adjustments of the form for slope, means pivotally connecting the adjacent ends of the vertical and horizontal legs, means pivotally connecting the adjacent ends of the vertical leg and the diagonal brace, an adjusting screw rotatably mounted on the outer end region of the horizontal leg and extending in the longitudinal direction of said leg, a carriage threadedly received on the adjusting screw for axial shifting movements therealong, means pivotally connecting the upper end of the diagonal brace to the carriage, means facilitating turning of the adjusting screw, a strut anchor removably mounted on said horizontal leg in the medial region thereof for selective placement longitudinally therealong and comprising an open-ended tubular sheath the axis of which is inclined outwardly and downwardly with respect to the outer end of the horizontal leg, a beam saddle supported on the upper beam flange, a suspension rod carried by said beam saddle and projecting completely through said inclined tubular sheath, and an adjusting nut threadedly received on the lower end of said suspension rod and engageable with the lower open end of the tubular sheath, said beam saddle and suspension rod serving to support the bracket in position on the outside of said I-beam.

9. A generally triangular articulated collapsible supporting bracket comprising, in combination, a substantially vertical leg, a substantially horizontal leg extending outwards from the upper end of the vertical leg, and a diagonal brace extending between the lower end of the vertical leg and the outer end of the horizontal leg, the horizontal leg being comprised of two spaced apart, longitudinally extending, channel pieces including vertical web portions having top and bottom flanges projecting outwardly therefrom in opposite lateral directions, the adjacent ends of said vertical leg and the diagonal brace being adapted for positioning effectively against a vertical surface of a form support, said horizontal leg being adapted to receive and support thereon a concrete form for a bridge fascia and, by adjustments in its own deviation from a horizontal plane, to effect adjustments of the form for slope, the inner end regions of said channel pieces being provided with a longitudinal series of spaced pairs of opposed holes in the web portions thereof, said vertical leg being channel shape in cross section and having its side flanges directed towards the brace, said diagonal brace also being channel shape in cross section and having its side flanges directed away from the horizontal leg, the width of the vertical leg being slightly greater than the width of the brace in order that the side flanges of the vertical leg are adapted to straddle the side flanges of the brace in connection with folding of the vertical leg over the brace in the collapsed condition of the bracket, a horizontal bolt projecting through the adjacent portions of the side flanges of the vertical leg and brace and serving pivotally to connect the vertical leg and brace, a removable horizontal bolt projecting through the upper end portions of the side flanges of the vertical leg and selectively receivable in the aligned pairs of holes for establishing varying points of pivotal connection between the adjacent ends of the vertical and horizontal legs, an adjusting screw rotatably mounted between the outer end regions of the web portions of the channel pieces of the horizontal leg and extending in the longitudinal direction of the leg, a carriage threadedly received on the adjusting screw for axial shifting movements therealong, means pivotally connecting the upper end of the diagonal brace to the carriage, means facilitating turning of the adjusting screw, the distance between the web portions of the channel pieces of the horizontal leg being greater than the width of the vertical leg whereby, upon withdrawal of the removable bolt from a selected pair of aligned holes, the vertical leg may be folded upon the diagonal brace and the latter, together with the vertical leg, may be folded upon the horizontal leg and substantially contained between said web portions, and a strut anchor mounted for selective placement on said horizontal leg between the web portions of the channel pieces thereof and comprising an open-ended tubular sheath designed for reception therethrough of a suspension rod, and an attachment strap secured to said sheath and provided with a pair of spaced bolt-receiving holes therethrough and designed for selective registry with the aligned holes of adjacent pairs of holes in the web portions of said channel pieces.

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Disclaimer

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Hereby enters this disclaimer to claim 1 of said patent.

[*Official Gazette April 20, 1971.*]