

[54] CAMERA SUPPORTING HARNESS

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[51] **Int. Cl.** **A45f 5/00**

[58] **Field of Search**..... 224/5 V, 5 B, 5 A,
224/25 A, 25 R, 5 P, 5 BC, 5 R

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[57] **ABSTRACT**

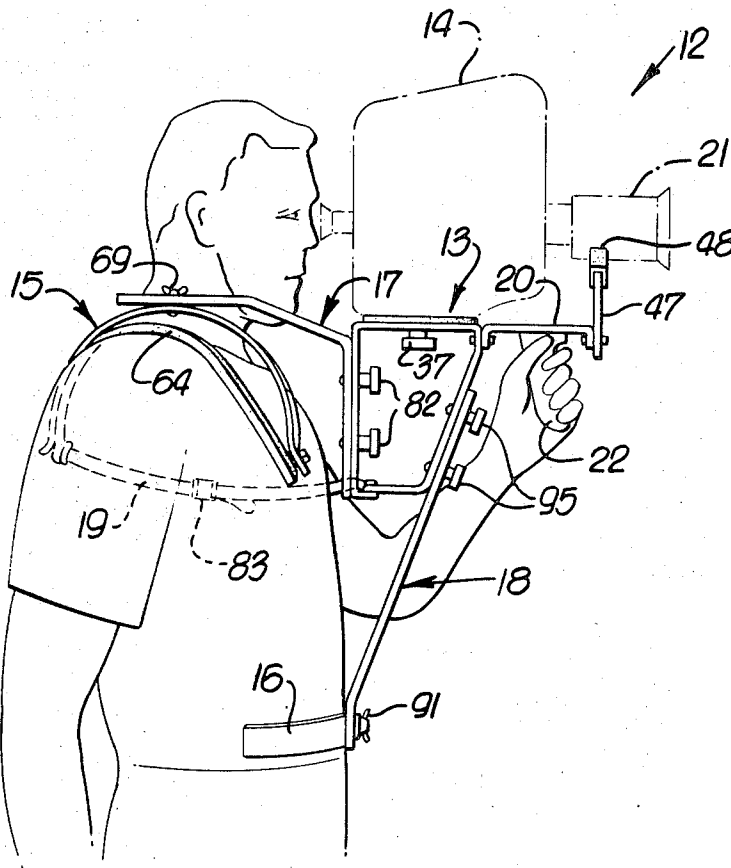
A sheet metal strap is bent and united at its ends to form a small trapezoidal frame including horizontal top and bottom walls, a vertical back wall and a front

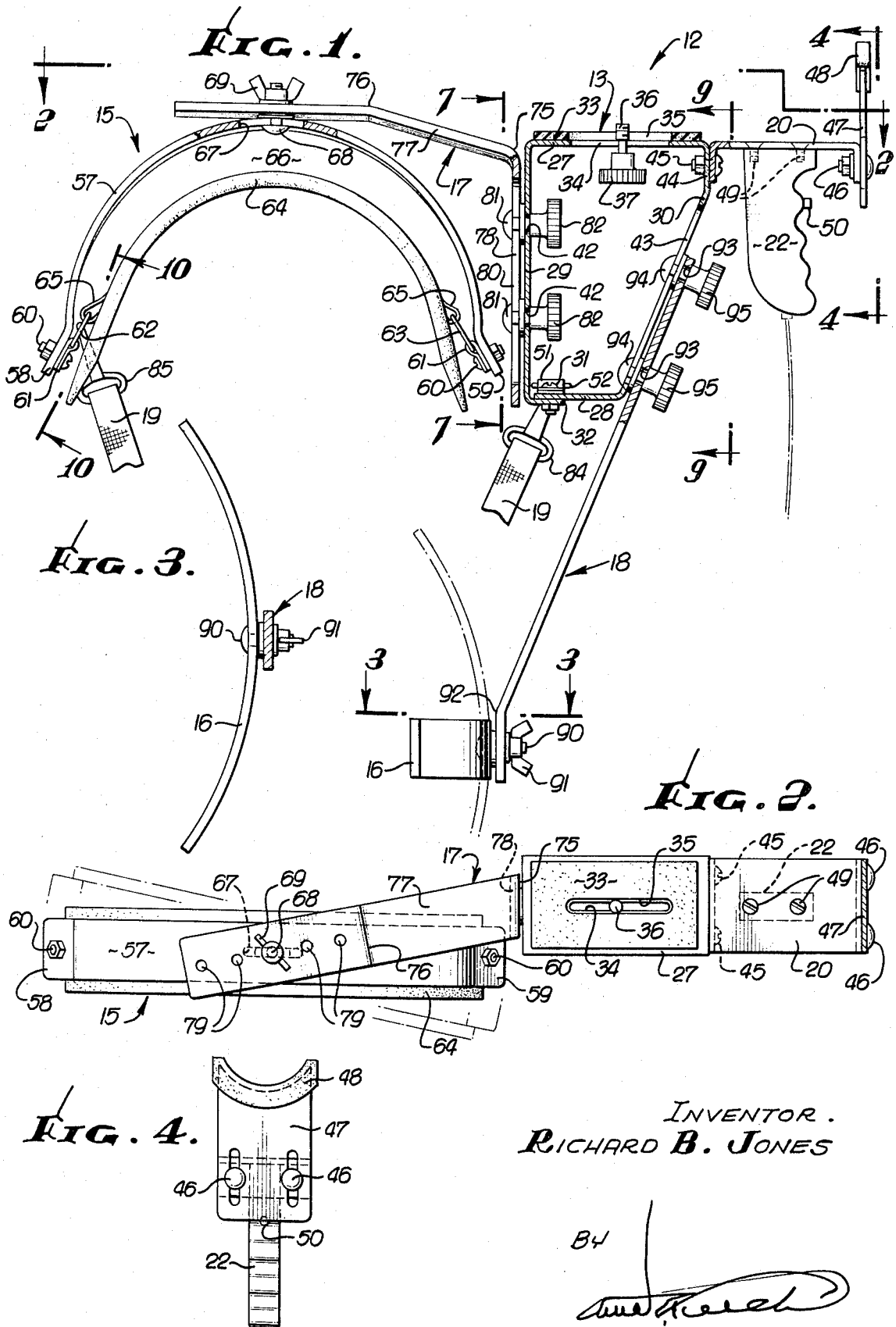
wall, a short upper portion of which is vertical and the balance of which slopes rearwardly and downwardly. The top frame wall forms a camera supporting platform and has a thumb screw for temporarily securing the camera thereto. The aforesaid frame and camera are firmly supported on the right shoulder of the photographer by a flexible form-fitting upholstered strap, opposite ends of which are flexibly linked to inner faces of end portions of a rigid metal saddle bar, arched upwardly therefrom, and pivotally and adjustably connected in a mid section thereof with a horizontal arm of an angle bracket, the vertical front arm of which fits against and is adjustably connected to said frame back wall. A web belt adjustable in length and extending around the left side of the photographer's body snaps at its rear end onto a ring on the rear end of said saddle bar and at its front end, onto a ring on the bottom wall of said frame.

From directly beneath, said frame is supported also by a straight, rigid belly brace that lies flat against and is adjustably fixed to the sloping portion of the frame front wall, this brace being connected centrally at its lower end to a transverse arcuate belly fitting plate which conforms to the body of the photographer.

A forward extension of the camera supporting platform provides a pistol grip for use by either hand in steadying the camera and operating the camera shutter. This extension also provides a padded support for a telescopic camera lens housing where this is desirable.

17 Claims, 10 Drawing Figures





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FIG. 5.

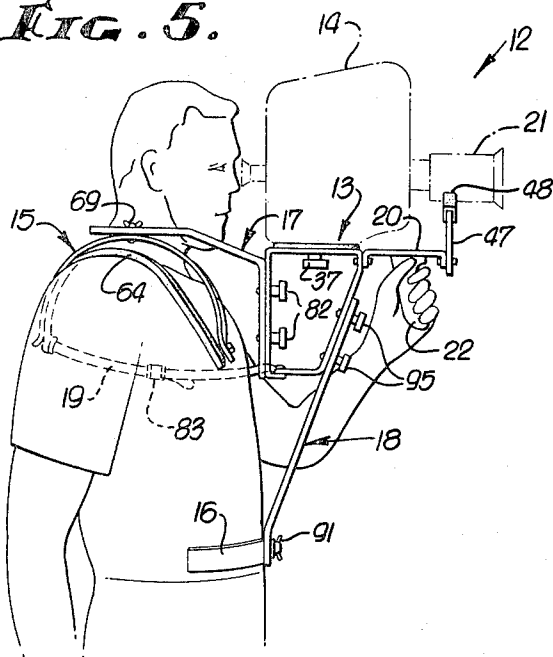


FIG. 6.

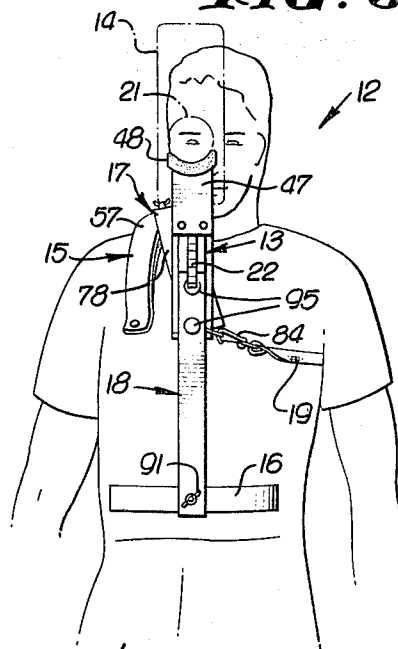


FIG. 7.

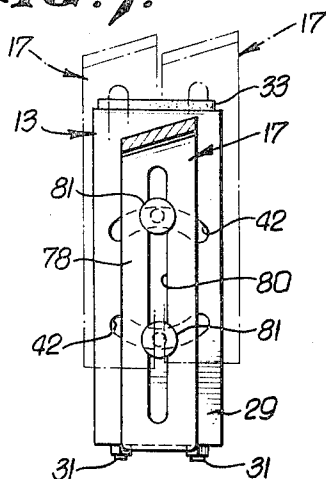


FIG. 8.

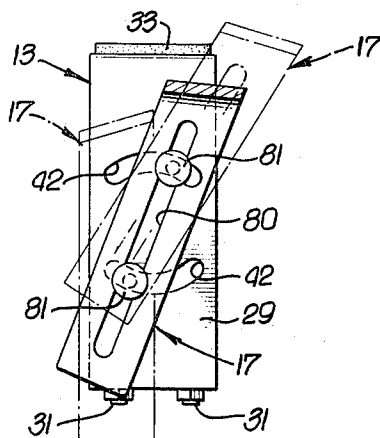


FIG. 9.

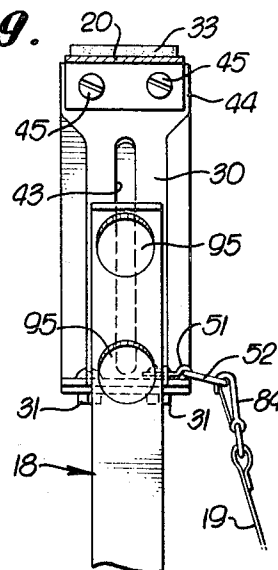
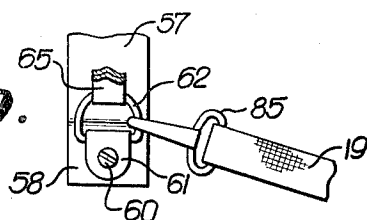


FIG. 10.



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CAMERA SUPPORTING HARNESS

SUMMARY OF THE INVENTION

Harnesses designed to be applied to the body of a photographer for supporting a camera have been heretofore provided, but these were with uncomfortable to wear for long periods or they failed to be adjustable to persons differing radically in posture and size so that such prior harnesses have not come into general use.

It is an object of the present invention to provide a simple light weight camera-mounting harness which is readily adjustable to fit the body of the user so that the harness will be comfortable to wear for long periods and so that a camera supported thereon will be held at a level making it easy for the cameraman to focus the camera in operating the same.

It is another object of the invention to provide such a harness as may be readily folded into a flat space for packaging and shipment.

A further object of the invention is to provide such a harness having a forward extension of the camera-supporting platform which will offer a cushion support for a telescopic lens when a camera having such a lens is mounted on the platform.

Yet another object of the invention is to provide such a harness having such an extension in which the latter is provided with a handle grip equipped with trigger means for operating the camera.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevational view of a preferred embodiment of the invention with parts of this broken away to illustrate the construction thereof.

FIG. 2 is approximately a plan view of the invention taken on the line 2—2 of FIG. 1.

FIG. 3 is a detail sectional view taken on the line 3—3 of FIG. 1 and illustrating the arcuate belly plate of the harness.

FIG. 4 is an enlarged detail front elevational view of the extension of the platform of the invention, and is taken on the line 4—4 of FIG. 1.

FIG. 5 is a right side elevational view of the harness of the invention as this appears when applied to the body of a photographer and with the photographer's left hand applied to the pistol grip of the harness as when actuating the camera (shown in broken lines as mounted thereon).

FIG. 6 is a front view of FIG. 5 showing both arms of the photographer hanging at his sides.

FIG. 7 is a vertical detail sectional view taken on the line 7—7 of FIG. 1 and showing the front straight arm of the angle bracket of the invention adjustably secured to the back wall of the harness frame in vertical parallelism with the latter and in symmetric alignment therewith. Right and left extreme positions in which said bracket may be adjustably secured vertically to said frame back wall are shown in broken lines in this view.

FIG. 8 is a view similar to FIG. 7 which shows (in full lines) the straight arm of said angle bracket secured to said frame back wall in an inclined relation with the latter such as said arm has in the manner in which the harness of the invention is applied to the photographer in FIG. 6. Alternate extreme inclined positions of the straight arm of said angle bracket when the latter is secured to the back frame wall are shown in broken lines in this view.

FIG. 9 is a vertical sectional view taken on line 9—9 of FIG. 1 and shows a front view of the mechanism for vertically adjusting the belly brace on the camera-supporting frame.

FIG. 10 is a fragmentary detail sectional view showing how the rear end of the web belt of the harness of the invention is clipped to a ring employed in flexibly connecting the arched saddle bar of the invention to the flexible upholstered strap thereof.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The camera-supporting harness 12 of the invention preferably embodies a trapezoidal frame 13, on which a camera 14 may be temporarily mounted when in use, a shoulder saddle 15, a belly plate 16, brackets 17 and 18 which adjustably unite frame 13 respectively with saddle 15 and plate 16, a belt 19 extending under the arm on the opposite side of the body from the saddle 15 and connecting at its ends to the saddle and the frame 13, and an extension 20 on frame 13 for supporting a telescopic lens 21 of said camera and also providing a pistol grip 22 for use in steadying the camera and actuating the shutter thereof.

The frame 13 is formed of an aluminum strip of sheet metal, bent, as shown in FIG. 1, in trapezoidal form, to provide upper and lower horizontal walls 27 and 28, rear vertical wall 29, and front downwardly and rearwardly sloping wall 30. Wall 28 overlaps and is secured by bolts 31 to an inturned lip 32 formed on the lower end of vertical wall 29.

Upper wall 27 is provided with a foam rubber cushion 33 for camera 14, and slots 34 and 35 are formed in said wall and cushion to accommodate upward insertion of the threaded shaft 36 of a thumb screw 37 which fits the conventional tapped socket provided in camera 14 and by which the latter is firmly held in place, resting on said cushion.

Rear vertical wall 29 has opposed arcuate slots 42 formed therein and the front inclined wall 30 has a slot 43 formed lengthwise therein.

An upper portion 44 of wall 30 is vertical and has mounted thereon by bolts 45 the forward frame extension 20 which has vertically adjustably secured thereto by bolts 46 a telescopic lens support 47, the latter having a cushioned lens cradle 48 at its upper end.

The pistol grip 22 is secured by screws 49 to the bottom of extension 20 and extends downwardly therefrom. A shutter trigger 50 is provided on grip 22 for actuation by a finger of the hand grasping said grip.

A clip 51 in which a ring 52 is pivotally mounted is fixed by one of the bolts 31 to the frame 13.

The shoulder saddle 15 includes a rigid arched bar 57 extremities 58 and 59 of which are angled outwardly and provided with bolts 60 securing thereto clips 61 in which rings 62 and 63 are pivotally mounted. A soft upholstered shoulder fitting strap 64 is suspended within arched bar 57 by wire loops 65 embedded in said strap and linked to rings 62 and 63, so that an ample free space always is present between bar 57 and strap 64 to permit the latter to freely flex into conformity with a shoulder of the wearer. The central upper portion of bar 57 is provided with a lengthwise slot 67 for receiving a bolt 68 having a wing nut 69.

Bracket 17 is made of aluminum bar stock bent at 75 along an oblique line and slightly bent again at 76. The bracket is thus divided into a slightly angled upper arm

77 and a straight lower arm 78. Arm 77 has a series of holes 79 any of which may receive bolt 68 to secure bracket 17 to arched bar 57, thus adding to the latitude allowed by slot 67, a very large additional degree of horizontal adjustability between bar 57 and bracket 17.

Straight arm 78 of bracket 17 has a single lengthwise adjustment slot 80 for receiving bolts 81 having hand nuts 82, said bolts also extending through arcuate slots 42 for adjustably mounting bracket 17 on frame wall 29 in the wide latitude illustrated in FIGS. 7 and 8.

Belt 19 may be of narrow web material with a slip buckle 83 for adjusting its length and is provided at its ends with spring-closed hooks 84 and 85 for snapping onto rings 52 and 62 with the belt passing under the arm as shown in FIGS. 5 and 6.

Belly plate 16 comprises an arcuately bent piece of aluminum bar stock with a central hole for receiving a bolt 90 having a wing nut 91.

Bracket 18 is a straight piece of aluminum bar stock bent forward at 92 at a slight inclination near its lower end and apertured to receive bolt 90 so as to adjustably secure belly plate 16 to bracket 18. Spaced holes 93 are formed in an upper portion of bracket 18 to accommodate bolts 94 extending through slot 43 and said holes and receiving hand nuts 95 to adjustably secure bracket 18 to frame 13.

OPERATION

The multiple independent adjustments among the various elements thereof, provided for in the harness 12, are to facilitate the harness being applied comfortably to the human bodies of a great many wearers differing radically in size and shape. The harness adjustability also facilitates shifting the camera vertically up or down or laterally or forwardly or backwardly (before setting the harness bolts) to bring the camera into proper relation with the normal line of sight of the person wearing the harness thereby relieving him of the discomfort of being compelled to crane his neck in operating the camera.

It is also to be noted that, with the harness 12 thus properly applied to the body of a photographer as shown in FIGS. 5 and 6, a picture can be taken along an axis inclined either upwardly or downwardly, merely by leaning backward or forward as the case may require.

For panning shots, the photographer needs only to swing his body in the direction desired.

Being largely connected by bolts, the parts of the harness 12 may be quickly assembled for use or disassembled for packing, and of course, requires relatively small space for shipment. All the metal parts with few exceptions are made of aluminum thus keeping the overall weight of the harness down to where it may be worn comfortably for hours as when shooting a scene of continuing interest.

The harness 12 is normally made for application to the right shoulder of the wearer as shown in the drawings. It is to facilitate this that the bracket 17 is bent along an oblique line 75 to divide said bracket into two arms 77 and 78. It is only necessary to provide a left hand bracket like a bracket 17 in which left hand bracket said oblique line 75 is angled in the opposite direction and then to substitute this left hand bracket for the right hand bracket 17 shown in the drawings in order for the harness 12 to be adapted for application to the left shoulder of the wearer. The only other desir-

able change would be to shift the clip 51 from the left hand side of the frame 13 as shown in FIG. 9 to the right hand side thereof.

I claim:

1. In a camera-supporting harness, the combination of:

a camera-supporting platform means;

a flexible, form fitting shoulder saddle means fitting downwardly on a shoulder on one side of the wearer's body;

belly engaging means;

bracket means connecting said platform means to said shoulder saddle means and to said belly engaging means, and

a belt, adjustable in length, connecting to a rear portion of said saddle means, passing under the arm on the opposite side of the body, and connecting to said platform means.

2. In a camera-supporting harness, the combination of:

a camera-supporting platform means;

a flexible form fitting shoulder saddle means including a soft form fitting strap and a rigid overlying arched bar within which said strap is flexibly suspended from its ends;

belly engaging means;

bracket means connecting said platform means to said arched bar and to said belly engaging means; and

means embraced by said bracket means for adjustably relating said arched bar and said platform means in a transverse plane about an axis parallel with the direction faced by the wearer of said harness.

3. A combination as recited in claim 2 wherein said last recited adjustment means provides for a substantial selective shifting laterally and vertically of said arched bar relative to said platform means.

4. A combination as recited in claim 1 wherein said platform means comprises a trapezoidal frame having horizontal top and bottom walls, a vertical rear wall and a rearwardly downwardly inclined front wall, and wherein

said bracket means embraces an angled bracket having an upper arm overlying and pivotally and horizontally adjustably secured to said saddle means, and a downward extending front arm lying against and vertically and laterally adjustably secured to said vertical frame wall, and wherein

said bracket means embraces a belly bar which lies against and is vertically adjustably secured to said inclined front frame wall, and extends downwardly to a connection at its lower end with said belly engaging means; and

means for mounting a camera on said top horizontal wall of said frame.

5. In a camera-supporting harness the combination of:

a camera-supporting platform means;

a flexible form fitting shoulder saddle means fitting downwardly on a shoulder on one side of the wearer's body;

belly engaging means;

a bracket overlying and extending forwardly from over said shoulder saddle means, said bracket being adjustably connected near its rear end to said

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- shoulder saddle means and at its front end to said platform means; and
- a second bracket adjustable lengthwise and connecting at its upper end to said platform means and at its lower end to said belly engaging means.
6. A combination as recited in claim 5 wherein said adjustable relation between said first bracket and said platform means permits the bodily shifting of said elements horizontally relative to each other without relative pivotal movement and then rigidly uniting said elements in their new relation.
7. A combination as recited in claim 5 wherein said adjustable relation between said first bracket and said platform means permits the bodily shifting of said elements vertically relative to each other without relative pivotal movement and then rigidly uniting said elements in their new relation.
8. A combination as recited in claim 6 wherein said adjustable relation between said first bracket and said platform means permits also pivotal adjustment between said elements on an axis parallel with the direction faced by the wearer.
9. A combination as recited in claim 7 wherein said adjustable relation between said first bracket and said platform means permits also pivotal adjustment between said elements on an axis parallel with the direction faced by the wearer.
10. A combination as recited in claim 5 wherein said adjustable relation between said first bracket and said platform means embraces means providing the following options:
- of the bodily shifting of said elements relatively horizontally with or without tilting said elements with respect to each other,
 - of the bodily shifting of said elements relatively vertically, with or without tilting said elements with respect to each other,
 - of the exercise of both of options (a) and (b) concurrently,
 - tilting said elements relative to each other about an axis parallel with the direction faced by the wearer without relatively shifting said elements either horizontally or vertically, and
 - setting the adjustment means to rigidly unite said elements in an adjusted relationship reached by exercising any of the aforesaid options.
11. A combination as recited in claim 5 wherein said first bracket is tangent with said shoulder saddle means and pivotally adjustably connected thereto at the point of said tangency.
12. A combination as recited in claim 11 wherein said connection between said saddle means and said first bracket is effected by a manually actuatable bolt penetrating said elements at said point of tangency;

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at least one of said elements having slot receiving said bolt thereby permitting horizontal as well as pivotal adjustment between said elements.

13. A combination as recited in claim 11 wherein said connection between said saddle means and said first bracket is effected by a manually actuated bolt penetrating said elements at said point of tangency; at least one of said elements having a series of spaced holes optionally penetrable by said bolt and permitting horizontal as well as pivotal adjustment between said elements.

14. A combination as recited in claim 13 wherein a short lengthwise slot is provided in the other of said elements for the reception of said bolt, said slot facilitating relatively short temporary horizontal adjustment between said elements, while said holes facilitate longer more permanent horizontal adjustments.

15. A combination as recited in claim 5 wherein said platform includes a horizontal camera mounting plate, and a transverse wall extending downwardly therefrom; and wherein

said first mentioned bracket has a downwardly bent front portion which lies flat against said wall; and manually adjustable screw means rigidly uniting said wall and front bracket portion while permitting the same to be readily adjusted vertically, horizontally or pivotally relative to each other.

16. In a camera-supporting harness the combination of:

a transversely narrow camera supporting structure which is symmetrical, when properly positioned for use, with a vertical plane parallel with the direction faced by the wearer thereof and close to and parallel with the line of vision of an eye of the wearer elected for sighting said camera;

a flexible form fitting shoulder saddle means fitting downwardly on the shoulder on the same side of the wearer as said sighting eye;

a belly fitting plate; and

bracket means for rigidly connecting said structure to said saddle means and to said belly fitting plate to support said structure in said vertical plane,

said bracket means being readily manually adjustable to elevate or depress said structure or to shift the same laterally relative to said saddle means to fit said harness to individuals varying substantially in physique.

17. A harness as recited in claim 16 including a strap connecting at its ends to front and rear portions respectively of said harness and passing under the arm on the opposite side of the wearer from said shoulder saddle means.

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