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Garland

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(54) **WEARABLE VIBRATING RADAR DETECTION DEVICE**

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(52) **U.S. Cl.** **342/20**; 342/56; 342/175; 342/176; 343/718

(58) **Field of Search** 342/20, 51, 56, 342/146, 147, 175, 176; 340/500, 539.1, 539.13, 539.32, 572.1, 573.4, 573.1, 573.6, 604, 691.6; 455/100, 277.1, 344, 346, 348; 343/702, 718, 898; 2/410, 901, 906, 909

(56) **References Cited**

U.S. PATENT DOCUMENTS

3,660,844	A		5/1972	Potter	
4,181,910	A		1/1980	Hitterdal	
4,673,936	A	*	6/1987	Kotoh	342/51
4,719,462	A		1/1988	Hawkins	
4,725,840	A		2/1988	Orazietti	
4,906,999	A	*	3/1990	Harrah et al.	342/20
5,005,661	A		4/1991	Taylor et al.	
5,034,747	A		7/1991	Donahue	
5,049,884	A		9/1991	Jaeger et al.	
5,049,885	A		9/1991	Orr	
5,114,060	A		5/1992	Boyer	
5,525,967	A	*	6/1996	Azizi et al.	340/572.1
5,525,989	A		6/1996	Holt	
5,668,554	A	*	9/1997	Orr et al.	342/20
5,684,488	A		11/1997	Liautaud et al.	
5,781,145	A		7/1998	Williams et al.	
5,900,817	A	*	5/1999	Olmassakian	340/573.1
6,005,525	A	*	12/1999	Kivela	343/702
6,043,771	A	*	3/2000	Clark et al.	342/13
6,049,301	A	*	4/2000	Weagant	342/13
6,384,776	B1	*	5/2002	Martin	342/357.09
6,486,777	B2	*	11/2002	Clark	340/539.1
2001/0050613	A1	*	12/2001	Clark	340/539

FOREIGN PATENT DOCUMENTS

WO WO-93/25875 * 12/1993

OTHER PUBLICATIONS

"Technology developments in the RF tracking and locating of personnel and objects", Loubert, G.; Security Technology. Crime Countermeasures, Procs. Institute of Electrical and Electronics Engineers 1992 Int'l Carnahan Conf. on , Oct. 14–16, 1992, Ps: 206–212.*

* cited by examiner

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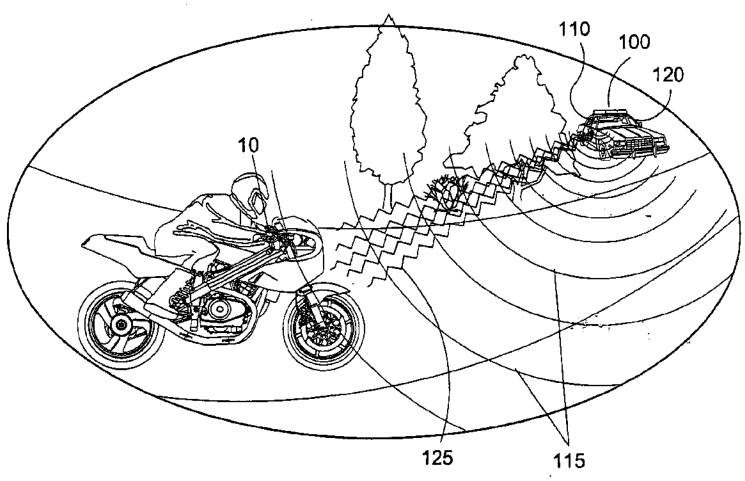
(57) **ABSTRACT**

A detection device is described configured for receiving radar and laser signals. The detection device is a self contained stand alone assembly having a watch like configuration and positionable on an arm of a vehicular driver such as a motorcyclist. The detection device is a warning receiver configured to receive signals, identify the signals as being in frequency bands for vehicular speed measuring systems used in law enforcement, and providing a warning to the vehicular driver. In addition, the detection device is configured for calculating the angle and distance from the detection device to the source of the speed measuring system.

9 Claims, 5 Drawing Sheets



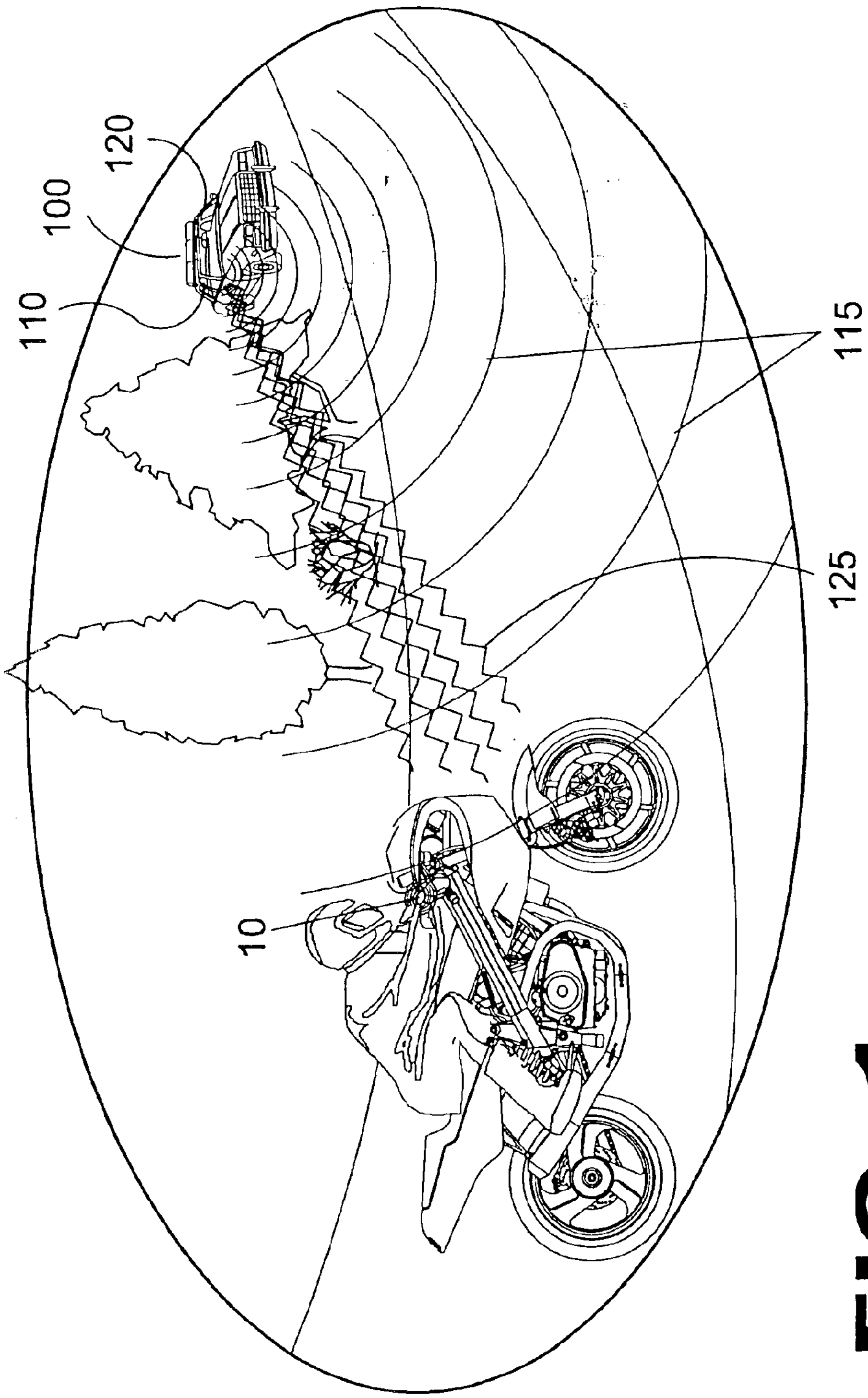


FIG. 1

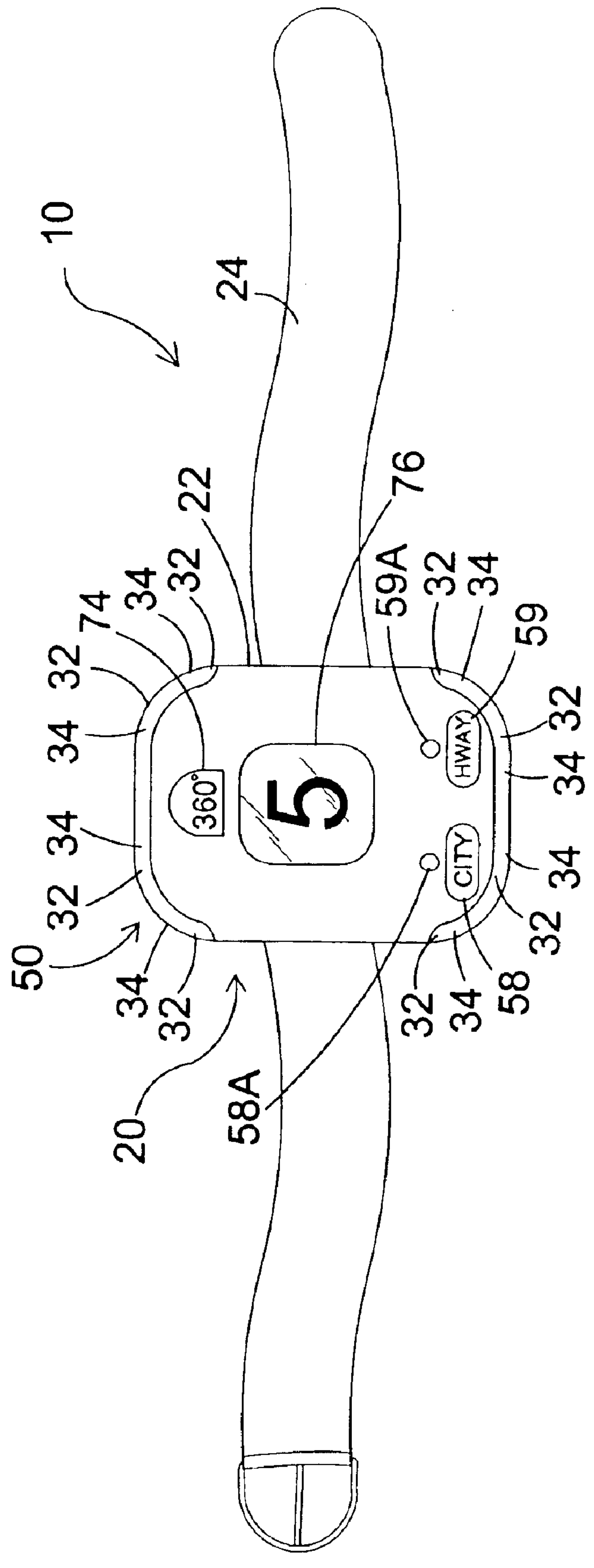


FIG. 2

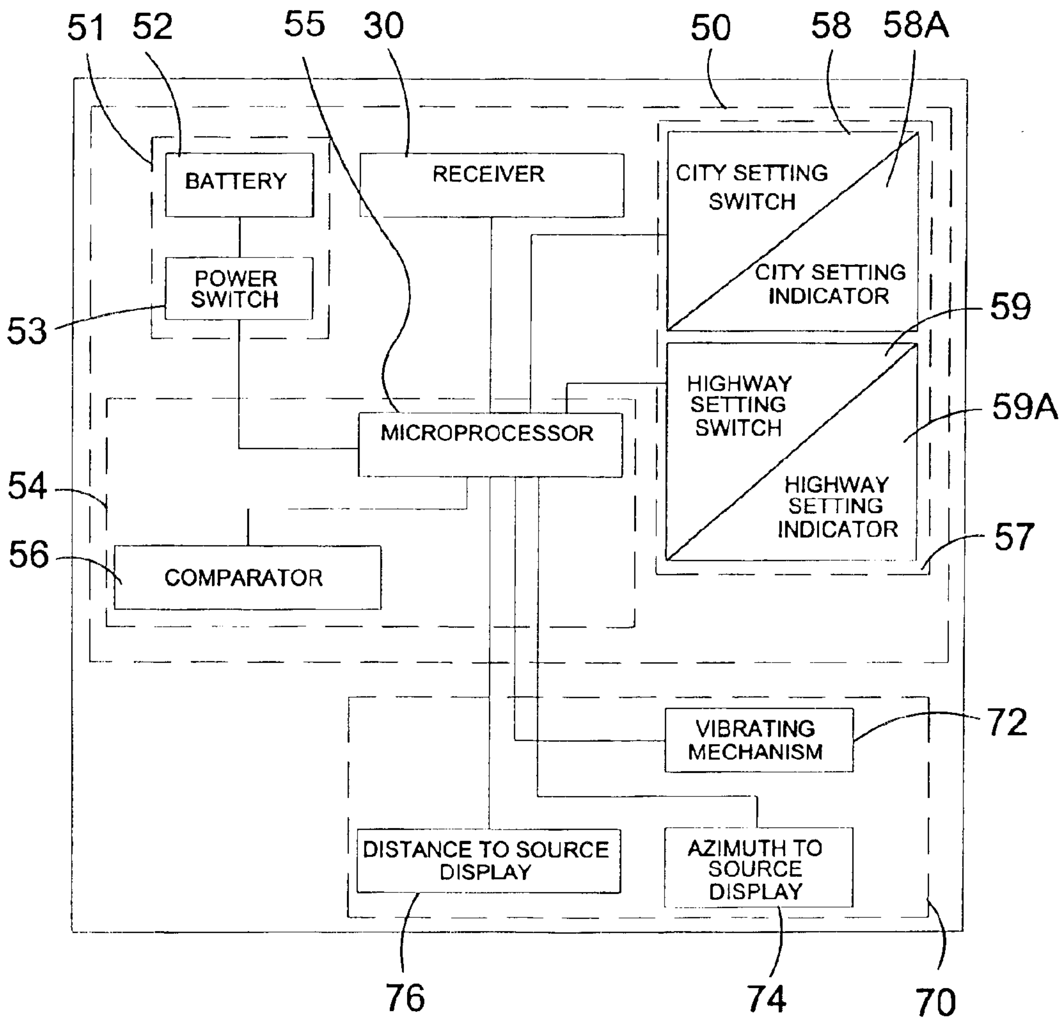

51
52
55
30
50
58
58A
BATTERY
RECEIVER
CITY SETTING SWITCH
CITY SETTING INDICATOR
POWER SWITCH
53
59
HIGHWAY SETTING SWITCH
59A
MICROPROCESSOR
54
HIGHWAY SETTING INDICATOR
57
56
COMPARATOR
VIBRATING MECHANISM
72
DISTANCE TO SOURCE DISPLAY
AZIMUTH TO SOURCE DISPLAY
76
74
70

FIG. 3

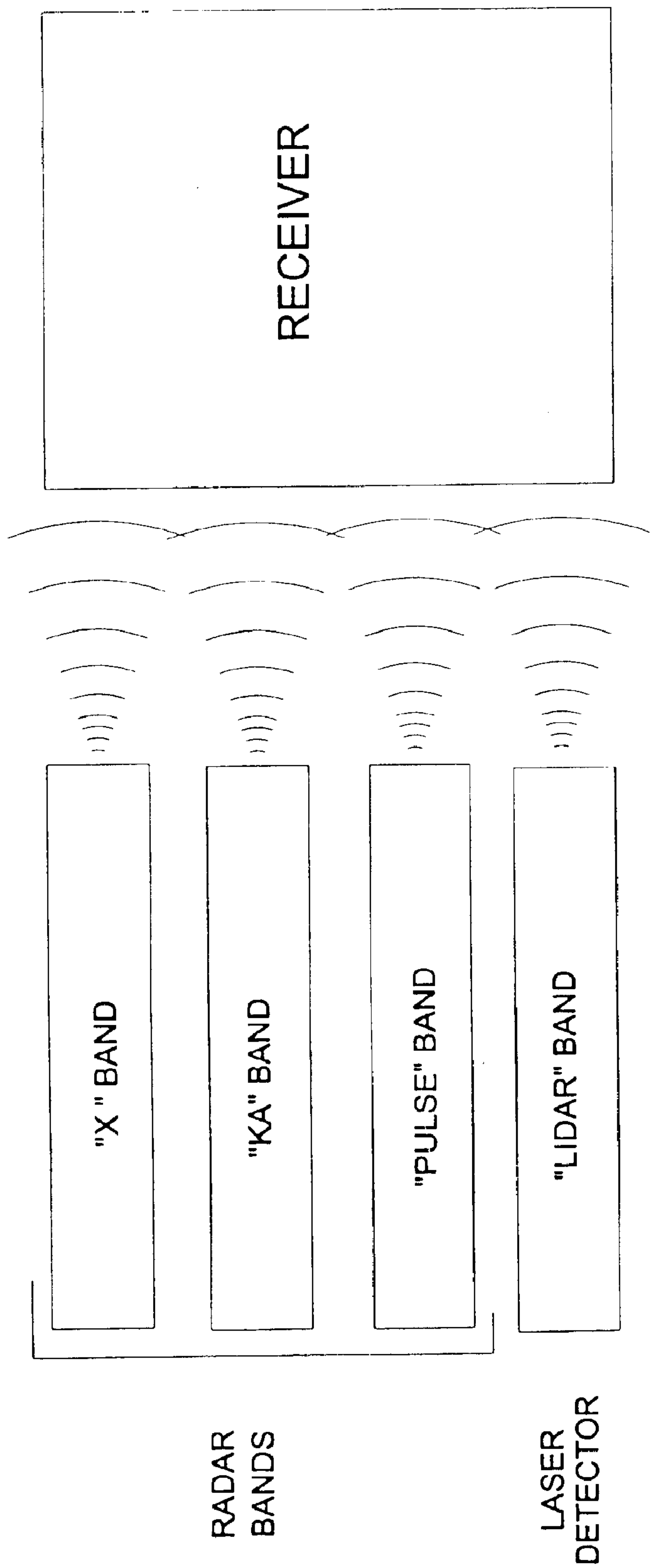

RECEIVER
"X " BAND
"KA" BAND
"PULSE" BAND
"LIDAR" BAND
RADAR BANDS
LASER DETECTOR

FIG. 4

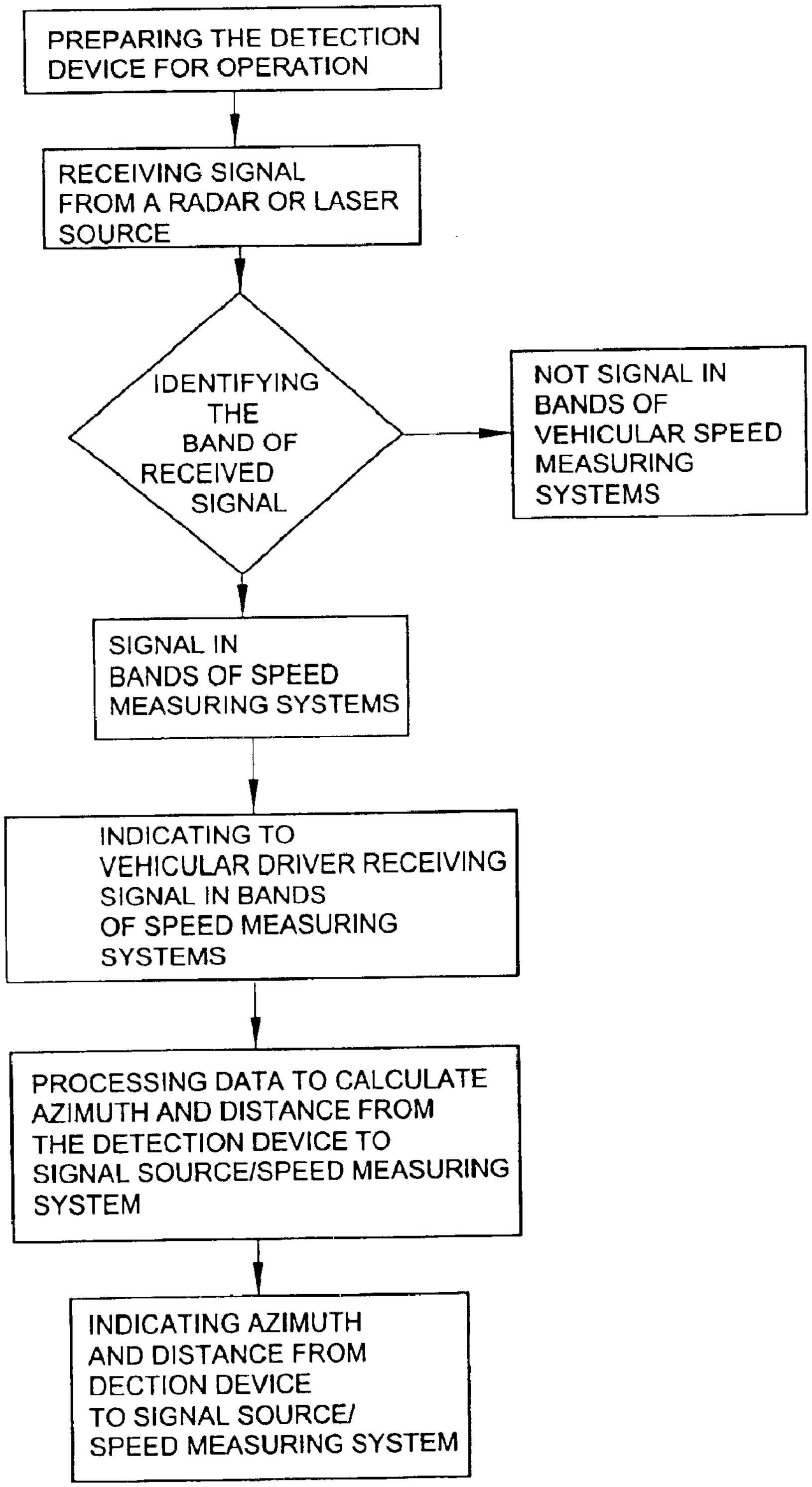

PREPARING THE DETECTION DEVICE FOR OPERATION
RECEIVING SIGNAL FROM A RADAR OR LASER SOURCE
IDENTIFYING THE BAND OF RECEIVED SIGNAL
NOT SIGNAL IN BANDS OF VEHICULAR SPEED MEASURING SYSTEMS
SIGNAL IN BANDS OF SPEED MEASURING SYSTEMS
INDICATING TO VEHICULAR DRIVER RECEIVING SIGNAL IN BANDS OF SPEED MEASURING SYSTEMS
PROCESSING DATA TO CALCULATE AZIMUTH AND DISTANCE FROM THE DETECTION DEVICE TO SIGNAL SOURCE/SPEED MEASURING SYSTEM
INDICATING AZIMUTH AND DISTANCE FROM DECTION DEVICE TO SIGNAL SOURCE/ SPEED MEASURING SYSTEM

FIG. 5

WEARABLE VIBRATING RADAR DETECTION DEVICE

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to warning receivers for signals emitted by vehicular speed measuring systems and, more specifically, to self contained devices configured for detecting and indicating the reception of signals in the bands emitted by vehicular speed measuring systems.

2. Description of the Prior Art

Radar was developed during World War II for the detection and acquisition of targets such as aircraft, ships, and submarines. Since then, radar has been applied in a wide variety of differing military and commercial applications such as those by law enforcement to measure the speed of vehicles and determine whether they are within the designated speed limit. In addition, laser range finders, another well established military technology, has been adapted for commercial applications, such as those for surveying, and is now also employed by law enforcement officers for measuring the speed of vehicles.

As a result of the applications of military technology by law enforcement to enforce speed limits, sensing devices for detecting radar and laser signals have proliferated. A sizable percentage of these devices are configured for the unique requirements of motorcycle applications. The sensing devices warn the motorcyclist of the presence of speed measuring systems so that motorcyclists can verify and adjust their current speed, as required, relative to the speed limit.

A radar detector and identifier device is described configured for being carried and used by persons, such as military personnel, to warn them when they are being illuminated by radar, to provide such persons with the capability of roughly determining the direction from which the radar illumination is coming, and especially to provide them with the capability of identifying the radar signal as originating from an enemy or a friendly source by identifying certain characteristics of the radar signal itself such as its pulse repletion frequency and its pulse width. Potter, however, is limited by its inability to detect the distance to the radar emitter and the exclusion of a laser detection device.

Hitterdal teaches a hand carried radar-detecting control box configured as a receiver and indicator. An antenna is connected by a short coaxial line to a radar broadband detector. A flexible transmission line connects the detector/indicator to the remain ing receiver circuitry including electronic components such as an amplifier, a limiter, a multivibrator, and tone generator positioned in the pocket sized control box. The tone generator drives an earphone. Hitterdal, is limited by not including any laser detection or direction finding capability. Further, Hitterdal has a separately positioned antenna and receiver circuitry distinct from the pocket sized control box.

A superheterodyne radar detector includes a compact watertight and durable housing to which a variety of clips and fastening means may be attached. Batteries are provided for powering the radar sensing circuitry, as well as means for recharging and/or replacing batteries. Two antenna horns are mounted within the housing directed perpendicularly with respect to one another and a shield is provided for mounting over one of the two antenna horns. The device is positionable in a pocket of the wearer. A sensed radar signal is indicated by an earphone and/or an indicator light and/or a speaker. Orazietti, however, lacks a laser detector and a capability for noting the direction of the radar pulse.

A motorcycle mounting for a radar speed monitor in which the visual indicator or monitor can be readily mounted and removed. The monitor is connected to a radar transmitter/receiver positioned in the motorcycle structure by a cable. The motorcycle mounting for the monitor includes a first support member with releasable strap for holding a radar monitor in position, second support members extending from each side of the first support member, each being attached at its upper end to the first support member, clamps may be used at the lower end of each second support member for attachment of the lower end of each second support member to the handlebar of a motorcycle; a mounting bracket is also included for positioning a radar transmitter/receiver on the motorcycle. Taylor et al. is limited as a result of teaching a relatively complex permanent structural addition for mounting a two component radar detection system.

A detachable radar unit for a motorcycle unit is taught. An outer shell is permanently attached to the side of a motorcycle helmet. A radar sensing unit may be inserted into the shell, making electrical contact with a microphone and light panel for communicating the status and alerts of the unit are attached to the helmet. The radar sensing unit may also be detached from the helmet and attached to a car or boat by using separate shells permanently mounted on the car or boat. A special quick disconnect plug in the unit's power supply cord is provided which quickly and easily disconnects the helmet from the motorcycle should the need arise. Donahue has separate components having separate physical locations for sensing and visual indication. Further, Donahue fails to teach a laser sensor system.

An apparatus configured for securely mounting a compact, commercially available radar detector unit on either the handlebars or fairing of a motorcycle. The apparatus provides a sealed chamber configured for removably receiving the detector unit. The chamber includes shock absorbing devices, configured to reduce the vibrations levels on the receiver, and a mounting assembly. The mounting assembly is configured to accommodate positioning the unit on the motorcycle handlebars in various angular orientations. This enables the apparatus to be used on motorcycles with handlebars having widely varying rake angles. Boyer fails to teach an apparatus such as radar or a laser detection system.

A helmet and radar detector integration system is described comprising a radar and laser detector connected to a light cluster array positioned in the helmet of the motorcycle rider. The light cluster array, when illuminated, is reflected off the transparent windshield of the helmet and into the eyes of the person. When the radar laser detector illuminates the light cluster array, the person can safely look out through the helmet without any visual obstructions. A structure is included for mounting the radar laser detector onto a motorcycle. Holt, however, is limited by its separate components and mounting systems on the motorcycle and in the helmet which create an undesirable connection between the helmet and the detector positioned on the cycle. Further, Holt lacks the capability for determining and indicating the directional source of the speed sensor emitter.

A radar/laser speed detection countermeasure device configured for use on a motorcycle is disclosed which detects and annunciates the receipt of radar and/or laser based speed detection signals. The device consists of a main detector body mounted in an interior cavity of a motorcycle, which is electrically connected to a remote mounted sensing head unit and a remote mounted indication and control panel. The main detector body includes a speaker for communicating the receipt of radar/laser signals. Hidden components and interconnecting wiring reduce the chance of theft and preserve the appearance of customized motorcycles. Williams et al. is limited by its utilizing two separately positioned components for detection and the main detector body. While Williams et al. provides for radar/laser detection it does not provide directional indication of the source of the radar/laser. Further, Williams et al. is configured to reduce its vulnerability to theft, the device remains positioned on the motorcycle and is therefore limited to being damaged or stolen.

It is desirable to have a compact radar/laser detection device that is self contained and can be positioned as a single component directly on a motorcyclist. It is further advantageous for the motorcyclist to receive indication of receiving signals in the bands of vehicular speed measuring systems using sensors that do not require the vehicular driver to take their eyes off the road. It is still further desirable to indicate the general directional location and distance to the source of the radar/laser.

A continuing need exists for a stand alone radar/laser detector system that can be positioned directly on the motorcyclist, detect radar and laser signals, and indicate signals from speed measuring systems without visually or aurally distracting the motorcyclist, and provide warning of the direction and distance to the source of the radar/laser.

A primary object of the present invention is to provide a stand alone wearable radar detection device positioned in a housing that will provide indication to a vehicular driver of receiving signals in the bands of speed measuring systems.

Another object of the present invention is to provide a wearable radar detection device that is strapped to a limb of the vehicular driver.

Still another object of the present invention is to provide a wearable radar detection device that vibrates when the radar receiver detects radar and laser signals at least in designated bands.

Yet another object of the present invention is to provide a wearable vibrating radar detection device configured for acquiring data suitable for calculating and displaying distance and direction information from the detection device to the source of the signal and effectively the speed measuring system.

Still another object of the present invention is to provide a wearable vibrating radar detection device that will respond to a plurality of radar bands including KA, X and pulse as well as the LIDAR laser band.

Additional objects of the present invention will appear as the description proceeds.

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawing, which forms a part hereof, and in which is shown by way of illustration specific embodiments in which the invention may be practiced. These embodiments will be described in sufficient detail to enable those skilled in the art to practice the invention, and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. In the accompanying drawing, like reference characters designate the same or similar parts throughout the several views.

DESCRIPTION OF THE REFERENCED NUMERALS

Turning now to the reference numerals used, the following numbering is used throughout the various drawing figures:

10 Wearable vibrating radar detection device
20 housing assembly for 10
22 housing
23 housing face
24 first side of the housing
25 second side of the housing
26 third side of the housing
27 fourth side of the housing
30 receiver
32 radar sensor
34 laser sensor
50 microprocessing group
51 power group
52 battery/power source
53 power switch
54 processing group
55 microprocessor
56 comparator
57 operational mode group
58 city setting switch
58A city setting indicator
59 highway setting switch
59A highway setting indicator
70 indicator group
72 vibrating mechanism
74 azimuth to speed measuring system indicator
76 distance to speed measuring system indicator
100 speed measuring system
110 radar speed measuring system
115 radar signal from 110
120 laser speed measuring system
125 laser signal from 120

BRIEF DESCRIPTION OF THE DRAWING FIGURES

In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawing in which:

FIG. **1** is an illustrative view of a wearable vibrating radar detection device constructed in accordance with the present disclosure positioned on a motorcyclist;

FIG. **2** is a top view of the vibrating radar detection device of FIG. **1**.

FIG. **3** is a simplified block diagram of the vibrating radar detection device of FIG. **1**;

FIG. **4** is a simplified block diagram of radar and laser bands detectable by the receiver of the radar detection device of FIG. **1**, and

FIG. **5** is a block diagram of a method for using a vibrating radar detection device in accordance with the present disclosure.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following discussion describes in detail one embodiment of the invention and several variations of that embodiment. This discussion should not be construed, however, as limiting the invention to those particular embodiments. Practitioners skilled in the art will recognize numerous other embodiments as well. For a definition of the complete scope of the invention, the reader is directed to the appended claims.

FIG. **1** depicts the wearable vibrating radar detection device or detection device **10** positioned on a vehicular driver such as, but not limited to a motorcyclist. Detection device **10** is a stand alone assembly configured for detecting, classifying, and processing signals from a vehicular speed measuring system **100**. Stand alone device as defined herein being a self powered and self contained system. Vehicular speed measuring system **100** includes devices such as, but not limited to radar devices **110** and/or laser devices **120** typically positioned in police cruisers.

Detection device **10** is a discrete warning receiver configured to notify the vehicular driver when radar signals **115** and laser light signals **125** are detected from vehicular speed measuring devices **100**. In addition, detection device **10** can determine an azimuth and a distance from detection device **10** to measuring system **100**.

FIG. **2** shows detection device **10** in one preferred embodiment configured as a watch-like device positionable on a wrist of the wearer. Detection device **10** includes a housing assembly **20**, a receiver **30**, a microprocessing group **50**, and an indication system **70**.

Housing assembly **20** includes a housing **22** connected to an attachment means **24**. Housing **22** includes a top or face **23**, a bottom (not shown), a first side **24**, a second side **25**, a third side **26**, and a fourth side **27**. Housing assembly **20** is suitable for use in environmental conditions including driving rain, high vibration, and temperature extremes experienced by positioning detection device **10** on an outer garment of a motorcyclist. In particular, housing **22** is configured as a waterproof container. In this one embodiment housing **22** has four sides, but housing **22** could take any shape suitable for the positioning of receiver **30**, microprocessing group **50**, and indicator system **70**.

In this one preferred embodiment, attachment means **28** is a wrist band **29** having an adjustable buckle connector system, but it can also include, for example, a range of attachment devices such as, but not limited to a biased band or clamping mechanisms for attachment to a sleeve, strap, or pocket.

Referring now to FIGS. **1–4**, receiver **30** includes a plurality of sensors **32** and **34** configured for detecting the presence of specific ranges of radar signal frequencies and laser light, respectively. Sensors **32** are antennas tuned to bands associated with radar measuring systems **100**. Similarly, sensors **34** are laser light or signal detectors tuned to the radar and laser bands of measuring systems **100**. Sensors **32** and **34** are strategically positioned on face **23**, bottom (not shown), first side **24**, second side **25**, third side **26**, and fourth side **27** for the detection of incoming radar signals **115** or laser signals **125** from any directional angle.

Sensors **32** in th is one preferred embodiment are configured for detecting radar **110** signals in the "X" band, "KA" band, "Pulse" band. Laser sensors **34** are configured to detect laser signals **125** in the "Lidar band." Signals not within these bands of sensors **32** and **34** are discarded by detection device **10**. Detection device **10** is configured for being updated for new bands and, as required, new or revised sensors **32** and **34** for detecting the new bands.

Microprocessing group **50** is positioned in housing **22** and includes a power group **51**, a processor group **54**, and an operational mode group **57**. In addition, microprocessing group **50** is connected to indicator system **70** and receiver **30**.

Power group **51** includes a source of electrical power such as a battery **52** and an on/off power switch **53**. Power switch **53** is connected to processor group **54**. Battery **52** has a suitable long life for sustaining detection device **10** for an extended period of operation. Battery **52** also includes a function for detecting low voltage level and providing an indication to the wearer of a discrete pulsed vibration at distinct intervals identifying a limited remaining life of the battery to the wearer. Battery **52** can be a rechargeable battery using recharging means or a single use disposable power source.

Processor group **54** includes one or more microprocessors **55** receiving input from at least receiver **30** and control group **50**. Processor group **54** also includes a comparator **56** configured to analyze the signals received by receiver **30** and identify those signals originating in the frequency ranges of vehicular speed measuring devices **100**. In addition, processor group **54** activates indicator system **70** to provide detection, azimuth, and range warnings to the wearer. Microprocessor **55** includes a clock having suitable precision for the measurement of the arrival of radar and laser signals at the plurality of sensors **32** and **34**.

Microprocessor group **54**, including comparator **56** and microprocessor **55**, in combination with receiver **30** function to determine the time difference of arrival and/or phase difference of arrival as received by the separately positioned plurality of sensors **32** and **34** on housing **22**.

The time differences of arrival and/or phase difference of arrival parameters are measured as distinct individual events over time as detection device **10** moves at a velocity on the motorcycle defining a track on the ground. The varying time difference parameters are stored and analyzed to determine azimuths from device **10** to measuring system **100**.

In order to calculate distance, a micro electromechanical accelerometer system integrated with microprocessing group **54** measures the relative acceleration of device **10** in up to three dimensions along the vehicular track. Microprocessor **55** identifies at least two points on the track having suitably distinct azimuths to measuring system **100** while radar signals **115** and/or laser signals **125** are being received. Based on these para meters the velocity and distance traveled is calculated simultaneous with the storing of the time difference parameters.

Given the known distance between the points and the azimuths defined from the points to measuring system **100**, the geometry and distance parameters suitable for triangulation have been defined. The triangulation calculation is performed and the distance to measuring system **100** is provided to indicator system **70** for display. This distance information, for example, can also be updated to compensate for the ongoing velocity of device **10** positioned on the motorcycle.

Detection device **10** is also configured to adapt to the dynamic positioning of measuring system **100** and still provide an estimated azimuth indication relative to measuring system **100**.

The approximation of a dynamic vehicular speed measuring system **100** signal can also be calculated utilizing the rate of change of the signal power or intensity. For example, when the signal power and/or intensity are increasing relative to the wearer, device **10** can be programmed to initiate an additional or heightened state of indication using indicator system **70**.

Operational mode group **57** includes selectable switches for a city mode **58** and a highway mode **59** of operation. Switches **58** and **59** have corresponding LED type indicators **58**A and **59**A which are lit upon selecting the corresponding mode. City mode **58** couples the signals from receiver **30** to additional filtering in microprocessor group **54** configured to discriminate between erroneous or relatively weak radar signals **115** or laser signals **125** refracted by the reflective environment of the city. Highway mode **59** has increased sensitivity relative to city mode **58** for the detection of measuring system **100** from greater distances.

Indicator system **70** includes a vibrating mechanism **72**, a directional indicator **74**, and/or a distance indicator **76**.

Vibrating mechanism **72** is activated by microprocessor **55** after comparator **56** has confirmed the signal as an emission in the band of or effectively from measuring systems **100**. Vibrating mechanism **72** is a conventional device for providing vibrations having an amplitude and frequency suitable for penetrating through a sleeve of a jacket and providing an identifiable tactile indication to the wearer. Vibrating mechanism **72** can also communicate additional warnings, as noted previously, such as low battery voltage, communicate the status of detection device **10** by diagnostic vibrations to validate the operational status to the wearer, or, for example, provide discrete vibrations for the detection of laser signals **125** versus radar signals **115**.

Directional indicator **74** is a visual display device configured for receiving a directional electronic signal from microprocessor **55** indicating the relative position of vehicular speed measuring device **100** and displaying to the wearer the directional orientation of the vehicular speed measuring signals being received. In this one preferred embodiment the visual display is configured for numeric characters indicating the position of the strongest vehicular speed measuring device **100** signal using the 360 degrees of a circle for orientation. Directional indicator **74** preferably uses Light Emitting Diodes (LEDs) or another similar highly reliable form of light emitting indicating device suitable for providing clearly discernable indications in conditions of bright sunlight and night.

Alternative configurations of directional indicator **74** include a dial indicator having a pointer or hand and light indicators positioned at the approximate hours of a clock. The dial indicator includes one or more LEDs configured to rotate through 360 degrees to orient in the direction of the origin of the vehicular speed measuring device **100** signal. The hour point visual indicators are LEDs positioned at the different positions of hours points around the perimeter of face **23**. The hour points are LED type devices that illuminate pointing in the direction of the origin of vehicular speed measuring device **100** signal.

Distance indicator **76** is a preferably a LED type indicating device having a standardized measuring system based on selectable options such as, for example, 100 yard, mile, 100 meter, or kilometer increments. Distance indicating signals are received from microprocessor group **54**. It is also envisioned that directional indicator **74** and distance indicator **76** can be combined into a single indicator.

Referring now to FIGS. **1–5**, the detection device **10** is prepared for operation by attaching to a vehicular driver such as a motorcyclist. The attachment means is preferably configured for securely attaching to the motorcyclist's wrist and turning the power switch to the on position. The desired operational mode, either highway or city, is selected.

As the motorcyclist is riding, radar sensors **32** and laser sensors **34** are positioned on the wrist of the motorcyclist for detecting signals such as radar signals **115** or laser signals **125**. Received signals are forwarded to microprocessing group **54** where they are analyzed to determine if they fall within the designated bands. If the signals fall within the designated KA, X, and pulse radar bands as well as the LIDAR laser band, detection device **10** responds to the presence of the signal by actuating vibrating mechanism **72** alerting the rider of the presence of radar signals **115** or laser signals **125** in the bands of vehicular speed measuring devices. If the signals are outside of the designated bands no warning is provided.

Once signals are identified as effectively originating from speed measuring system **100**, microprocessing group **54** uses the received signal data and internal data, such as that from accelerometer system, to calculate and send electronic signals representing the azimuth and the approximate distance to measuring system **100** from device **10** to indicator system **70**. Representations of the azimuth and distance to measuring system **100** are then displayed by indicators **74** and **76**, respectively.

It is understood the term vehicle used herein encompasses not only automobiles, but vehicles such as but not limited to motorcycles, ski mobiles, jet skis, and boats.

What is claimed as new and desired to be protected by letter patent is set forth in the appended claims:

1. A warning receiver adapted for sensing signals in the bands of vehicular speed measuring systems comprising:

a self contained detection device positioned in a housing, the housing being connected to attachment means, said housing being in a watch-like configuration adapted to be secured on a wrist of a user;

a receiver positioned in the housing, the receiver including a plurality of sensors adapted for at least receiving signals in the bands of vehicular speed measuring systems, said sensors being strategically positioned on a face, sides and bottom of said housing for the detection of incoming radar and laser signals from any directional angle;

a microprocessing group connected with the receiver and positioned in the housing, the microprocessing group being configured for at least identifying signals in the bands of the signals emitted by speed measuring systems;

a power source positioned in the housing and connected to the microprocessing group;

an indicator system connected with the microprocessing group and positioned in the housing, the indicator system being adapted to indicate receiving signals in the bands of vehicular speed measuring systems;

said housing including a vibrating mechanism for providing an identifiable tactile indication to a wearer of said receiver, said vibrating mechanism being also capable of communicating additional warnings, including low battery voltage and discrete vibrations for the detection of laser signals versus radar signals.

2. The detection device of claim **1**, wherein the microprocessing group calculates and the indicator system displays the azimuth from the detection device to the speed measuring system.

3. The detection device of claim **1**, wherein the microprocessing group calculates and the indicator system displays the distance to the speed measuring system.

4. The detection device of claim **1**, wherein an operational mode group is positioned in the housing, the operational mode being selectable between a city mode and a highway mode.

5. The detection device of claim 1, wherein the microprocessing group at least identifies signals in the KA, X, and pulse radar bands and LIDAR laser band.

6. The detection device of clam 1, wherein the housing has a waterproof seal and is configured to operate while being exposed to vehicular vibrations and severe weather environments.

7. A method for detecting speed sensing devices adapted for use with a motorcycle driver comprising the steps of:

placing over an outer garment of a wrist of said motorcycle driver a wrist watch configured detection device adapted for detecting signals from speed measuring systems, the detection device being configured for stand alone operation as a self contained assembly;

preparing the detection device for operation;

using a vibrating mechanism system in said housing to notify the driver that the detection device received signals in at least one band used by speed measuring systems; and

said vibrating mechanism also communicating additional warnings, including low battery voltage and discrete vibrations for the detection of laser signals versus radar signals.

8. The method of claim 7, wherein the step of notifying further includes calculating and displaying an azimuth from the vehicular driver to the speed measuring system.

9. The method of claim 7, wherein the step of notifying further includes calculating and displaying a distance from the vehicular driver to the speed measuring system.

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