United States Patent

Smith

[15] **3,660,762**

[45] **May 2, 1972**

[54] APPARATUS AND METHOD FOR TRANSMITTING MESSAGES TO VEHICLES IN PRESELECTED OFF THE HIGHWAY AREAS

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[22] Filed: **Aug. 6, 1969**

[21] Appl. No.: **847,853**

[52] **U.S. Cl.** **325/51,** 325/54, 325/178, 340/31

[51] **Int. Cl.** **H04h 1/00**

[58] **Field of Search** .....325/51, 54, 117, 312; 340/22, 340/31, 31 A, 32, 38 R, 272, 224; 179/82

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[57] **ABSTRACT**

A transmitter operatively mounted for transmitting prerecorded messages to mobile radio receivers within a predetermined area, sign adjacent the area to indicate the frequency of the transmitter and condition responsive means, such as a pressure-sensitive switch, for causing the transmitter to transmit at least one complete message upon the occurrence of the condition, such as an automobile passing over the pressure-sensitive switch.

5 Claims, 2 Drawing Figures

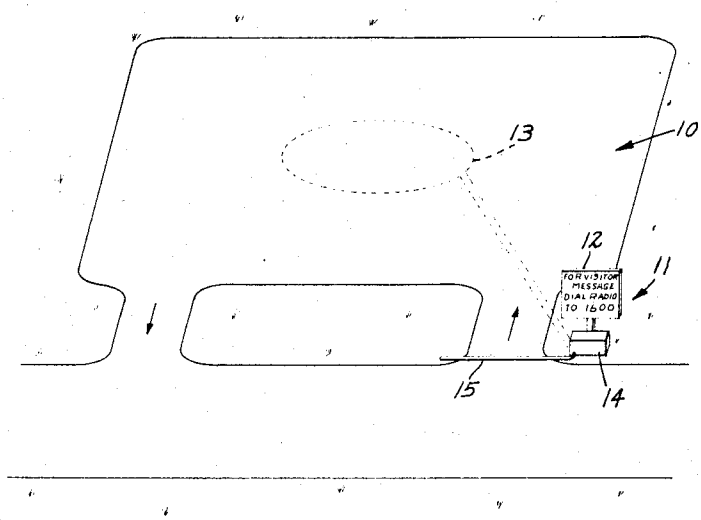


FIG. 1

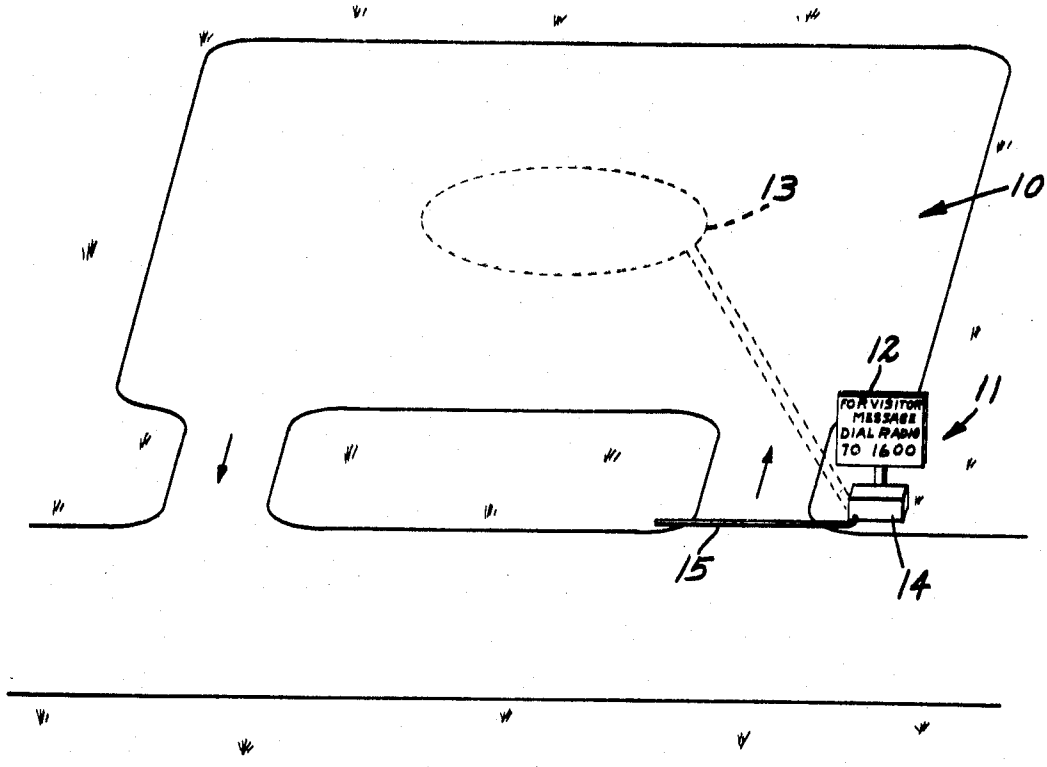
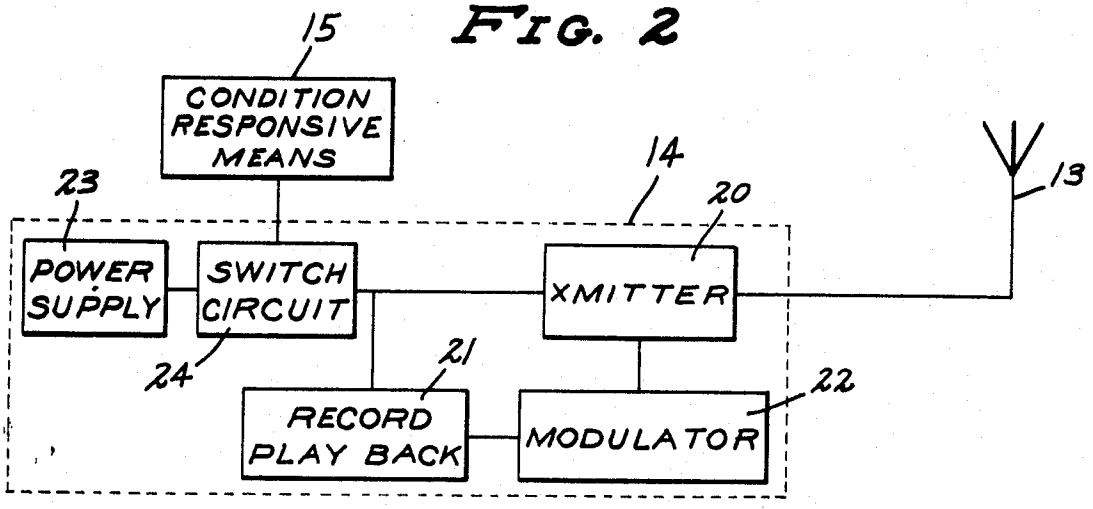


FIG. 2



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APPARATUS AND METHOD FOR TRANSMITTING MESSAGES TO VEHICLES IN PRESELECTED OFF THE HIGHWAY AREAS

BACKGROUND OF THE INVENTION

1. Field of the Invention

Because of the great number of automobiles and other mobile units, such as trucks, boats, airplanes, snowmobiles, etc., and because of the amount of time spent traveling in these mobile units, it is often desirable to transfer information to the occupants of the mobile units advising them of scenic views, historic sites, facilities and accommodations, points of interest, travel hazards, and many many other types of intelligence of general interest to people traveling in a particular area.

2. Description of the Prior Art

In the prior art the most general manner of transferring intelligence of general interest to passersby is the brochure. To obtain this information a passerby or traveler must find the place where the brochures are stored, leave his mobile unit to obtain a copy of the brochure and then return to his mobile unit and spend time reading the brochure. In many instances it is difficult to read the brochure and simultaneously view the subject matter to which it refers.

Other prior art methods of transferring information to occupants of mobile units include devices such as large signs visible from the mobile unit which may be read as the mobile unit passes the location or as the traveler views the scenic or historic site. In general these methods of transferring information are undesirable because they are inconvenient and generally add little aesthetic value to the landscape.

SUMMARY OF THE INVENTION

The present invention pertains to apparatus for the volitional transfer of intelligence including a radio frequency transmitter operatively mounted to transmit a message-bearing signal to a predetermined area with condition responsive means attached thereto for actuating the transmitter upon the occurrence of a condition generally relating to the presence of a mobile unit and means mounted adjacent the area for apprising occupants of a mobile unit of the frequency of the transmitter. The invention further pertains to a method of transferring intelligence utilizing a transmitter constructed to be actuated by mobile units.

It is an object of the present invention to provide improved apparatus for the volitional transfer of intelligence to occupants of mobile units.

It is a further object of the present invention to provide an improved method of transferring intelligence upon command by way of a mobile radio receiver.

It is a further object of the present invention to provide apparatus and method for transferring intelligence to occupants of mobile units with increased efficiency and convenience.

These and other objects of this invention will become apparent to those skilled in the art upon consideration of the accompanying specification, claims and drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Referring to the drawings, wherein like characters indicate like parts throughout the figures:

FIG. 1 is view in perspective of the present apparatus in operative position; and

FIG. 2 is a block diagram of the electrical circuitry in the present apparatus.

DESCRIPTION OF THE PREFERRED EMBODIMENT

In the figures the numeral 10 generally designates a roadside area over which it is desired to transmit a message. The roadside area 10 is the entrance to a scenic or recreation park, a scenic overlook, a parking or resting area, etc. The message to be transmitted over the roadside area 10 is of general interest to occupants of automobiles and other vehicles passing

the roadside area 10 and may be, for example, description or history of a scenic view, park regulations or points of interest, information as to facilities, camp sites, etc., information as to road conditions and/or weather conditions, etc. The apparatus for the volitional transfer of intelligence within the roadside area 10 is generally designated 11.

Apparatus 11 includes means 12 for indicating the radio frequency of the transmitted message, an antenna system 13, electronic circuitry 14, and condition responsive means 15. In the present embodiment the means 12 for indicating frequency of the transmitted message is a small prominently displayed sign adjacent the entrance to the roadside area 10. In general, the means 12 will be formed of any convenient material and in any convenient manner so as to be quickly and easily discernible from a mobile unit or vehicle passing or entering the roadside area 10.

While the area over which it is desired to transmit a message is illustrated as roadside area 10 in the present embodiment, it should be understood that the configuration and position of the desired transmission area are not critical and will be restricted only by the area and position over which the message is of interest. Further, the apparatus 11 is not limited to use in conjunction with automobiles but may, in special circumstances, be adapted for use with many other mobile units, such as airplanes, boats, snowmobiles, etc., the only limitation being that a radio receiver is required in the mobile unit. Examples of other commodious areas are elongated expanses including several miles of road (generally scenic or historic area), areas of road preceding particular situations which a motorist should be aware of such as construction or detours, areas of road adjacent but not passing through towns or other scenic area, etc. Some of these embodiments will be described in more detail in conjunction with the description of the apparatus 11.

Referring specifically to FIG. 2 a block diagram of the antenna system 13, electronic circuitry 14 and condition responsive means 15 is illustrated to show one possible connection thereof. In this embodiment, the electronic circuitry 14 includes a transmitter 20 having a record playback unit 21 connected thereto through a modulator 22. A power supply 23 is connected through a switch circuit 24 to the transmitter 20 and record playback 21. The condition responsive means 15 is operatively connected to the switch circuit 24 so that the switch circuit 24 operates upon the response of the means 15 to the condition to which it is sensitive. In FIG. 1 the condition responsive means 15 is illustrated as a pressure-sensitive conduit extending across the entrance to the roadside area 10 so that the entrance of a vehicle to the roadside area 10 causes a pressure in the responsive means 15, which in turn operates the switch circuit 24. Many other condition responsive means 15 might be utilized, such as light-sensitive devices, proximity switches, sound detectors, etc., to sense the presence of a mobile unit in the transmission area.

The power supply 23 is a battery pack or a suitable rectifying and filtering unit adapted to be connected to a suitable source of convenient electrical power. The particular type of power supply 23 utilized will depend upon the position of the apparatus 11 and the availability of power thereto. Because the apparatus 11 is only in operation when it is triggered by a mobile unit in the transmission area, the power output requirements of the power supply 23 are relatively small and may vary in accordance with the number of mobile units entering the transmission area in a given unit of time. In the present embodiment the switch circuit 24 is connected between the power supply 23 and the remainder of the circuits in the electronic circuitry 14 since this is the most efficient connection for conserving power. However, many other circuits might be designed for energizing the electronic circuitry 14 at the desired time.

Upon operation of the switch circuit 24 power is supplied from power supply 23 to the transmitter 20 and the record playback unit 21 so that a prerecorded message in the record playback unit 21 is transmitted to the transmission area. In

general, the record playback unit **21** is some type of unit in which the prerecorded message returns to the beginning upon the completion thereof. An example of this type of playback unit is a tape playback unit utilizing continuous tape-type cartridges.

In the present embodiment the transmitter **20** is an amplitude modulated transmitter operating on a frequency in the broadcast band, that is from 540 kilocycles to 1,600 kilocycles. It should be understood that other types of modulation and different frequencies might be utilized but most automobiles and the like, at the present time, have radio receivers therein which are AM receivers tunable throughout the broadcast band. To transfer a message to the largest segment of the traveling population it is, therefore, the simplest and most efficient, at the present time, to utilize AM transmission in the broadcast band. A particular transmitter **20** in a given area is tuned to a frequency which will not disturb or interfere with the transmission of local radio stations or adjacent similar apparatus **11**. Also, it is imperative that local radio stations or adjacent similar apparatus **11** do not interfere with the signals transmitted by the transmitter **20**. Since the transmitter **20** in the apparatus **11** is designed with a limited range, in general the range coincides as closely as possible with the relatively small area over which it is desired to transmit the signal and will comply with F.C.C. Rules and Regulations governing "Low Power Radiation Devices," the proper selection of transmission frequency generally eliminates any interference problems.

The antenna system **13** is, in general, designed for the specific area over which it is desired to transmit a signal. Where the apparatus **11** is mounted in relatively secluded areas and vandalism may occur, it is desirable to utilize an antenna system **13** which is hidden or otherwise inaccessible. Several suitable types of antenna systems **13** have been developed through experimentation. If the transmission area is relatively large, a loop antenna can be buried beneath the surface of the ground, generally in a horizontal plane, approximately in the center of the area or so that the transmitted signal is sufficiently strong throughout the area. If the transmission area is, for example, an elongated stretch of road, the antenna system **13** may include a piece of transmission line generally coextensive with the road lying beneath the surface of the ground adjacent thereto. In areas which are not secluded, such as park entrances, and the like, or if it is desired to mount the entire apparatus **11** on a mobile unit for ease of movement to changing areas (for example, to keep the public informed about detours, etc.), a whip antenna may be utilized as the antenna system **13**. In some areas it has been found that the sign designating the particular frequency of the transmitter **20** may be mounted on a metal pole, which pole may also serve as the antenna system **13**. Thus, a variety of antenna systems **13** may be utilized and they should be constructed so that the transmission area or pattern covers the area over which it is desired to transmit the signal so that the transmitted signal is sufficiently strong throughout the predetermined area for adequate reception thereof.

Thus, apparatus is disclosed for the volitional transfer of messages without the need for spending substantial periods of time reading large unsightly signs or brochures. The transfer of intelligence is provided to the occupants of a mobile unit through a standard radio receiver in the mobile unit. Through proper mounting of the apparatus, vandalism and the like is substantially eliminated. Further, because the apparatus is not operating continually but only upon demand, the apparatus can be installed in remote areas and the like and left without maintenance or supervision for long periods of time.

What is claimed is:

1. Apparatus for the volitional transfer of intelligence to vehicles in a preselected off-the-highway area comprising:

a. radio frequency transmitting means operatively mounted adjacent said off-the-highway area and pretuned to a desired radio frequency within the broadcast band for transmitting a low power radiation signal within a predetermined relatively small area substantially coextensive with said off-the-highway area upon actuation thereof and including modulating means for modulating said transmitted signal with a desired message;

b. an antenna system connected to the transmitting means and constructed so that the said low power radiation signal is sufficiently strong throughout said off-the-highway area for adequate reception thereof by mobile radios, the transmission area of said antenna system generally coinciding with said off-the-highway area;

c. means mounted adjacent said off-the-highway area indicating the presence of said intelligence transferring apparatus and said desired broadcast band frequency for informing observers to allow tuning of a mobile radio carried by said vehicle;

d. switching and maintaining means connected to said transmitting means for actuating said transmitting means upon operation of said switching and maintaining means, said switching and maintaining means maintaining said transmitting means actuated for at least the time required to transmit the desired message one complete time; and

e. vehical sensing means connected to said switching means and mounted adjacent said indicating means for operating said switching and maintaining means in response to the presence of a vehical within said off-the-highway area.

2. Apparatus as set forth in claim **1** wherein the antenna system includes a loop positioned generally horizontally below the surface of the ground.

3. Apparatus as set forth in claim **1** wherein the vehical sensing means includes a pressure-sensitive switch disposed so that vehicals pass thereover when observing the indicating means.

4. Apparatus as set forth in claim **1** wherein the modulating means includes tape playback apparatus having a continuous tape cartridge therein.

5. A method of transferring prerecorded intelligence upon command by way of a mobile radio carried by a vehical including the steps of:

a. selecting an off-the-highway area accessible to vehicals;

b. providing a radio frequency transmitter for transmitting a low power radiation signal, including record playback apparatus for modulating a transmitted signal with a desired message, and pretuning said transmitter to a desired radio frequency approximately in the broadcast band for transmitting said signal within a predetermined relatively small area generally coinciding with said off-the-highway area upon actuation thereof;

c. placing a prerecorded message in said record playback apparatus which message contains information of interest to individuals adjacent said off-the-highway area;

d. operatively mounting said transmitter adjacent said off-the-highway area so that the transmitting area generally coincides with said off-the-highway area accessible to said vehicals;

e. indicating said off-the-highway area and said desired radio frequency to vehicals generally adjacent said off-the-highway area;

f. positioning generally within said off-the-highway area vehical sensing means operable for actuating said transmitter to transmit said prerecorded message at least one complete time;

g. connecting said actuating means to said transmitter; and

h. transmitting said prerecorded message each time said actuating means is operated said prerecorded message being returned to its beginning upon completion of said transmission.

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