

[11] 3,577,079

[72] Inventors

K

14

Co

W

[21] Appl. No.

733,075

[22] Filed

May 31, 1968

[45] Patented

May 4, 1971

[32] Priority

May 31, 1967

[33]

Great Britain

[31]

25198/67

References Cited

UNITED STATES PATENTS

3,441,858	4/1969	Graham	340/277
			340/224X

Primary Examiner—Benedict V. Safourek

Attorneys—Harry C. Bierman, Jordan B. Bierman and
Bierman and Bierman[54] WATCHMAN'S RADIO LOCATION INDICATING
SYSTEM

4 Claims, 3 Drawing Figs.

[52] U.S. Cl. 325/53,

325/113, 325/118, 325/182, 340/224, 340/306

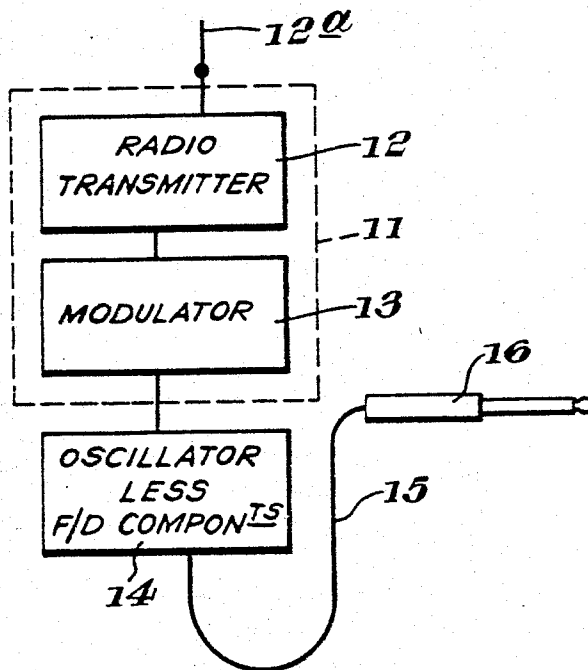
[51] Int. Cl. H04b 1/02

[50] Field of Search 340/286,

287, 306, 351, 365, 311, 313, 417, 224; 343/226;

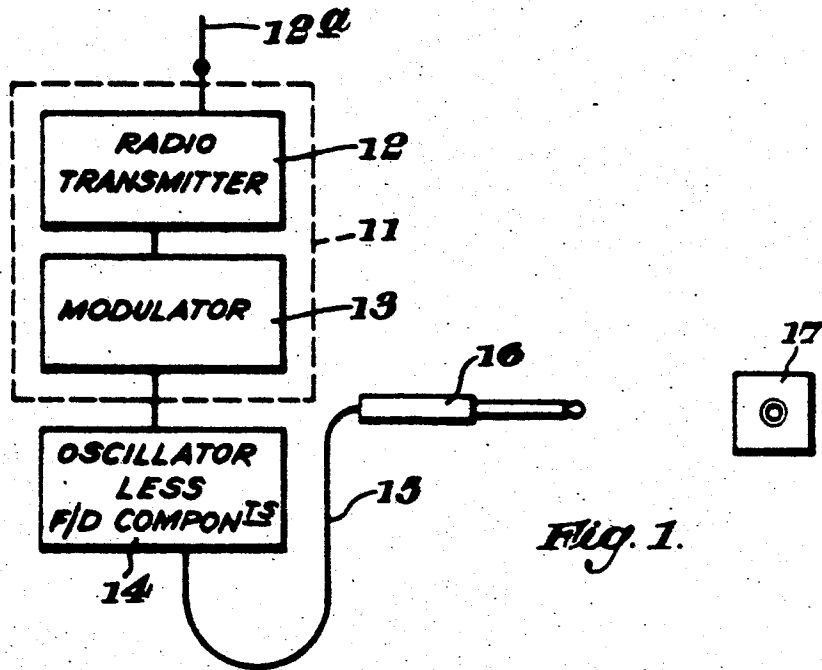
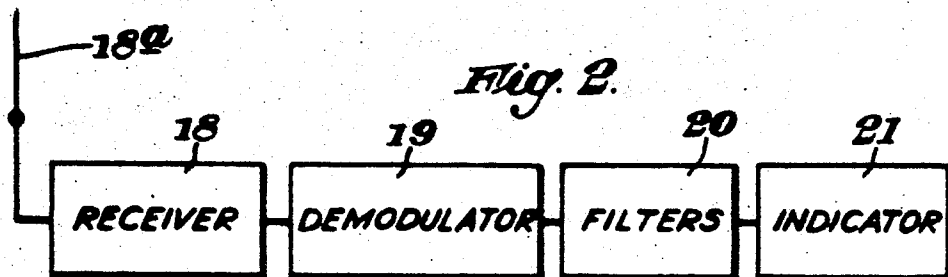
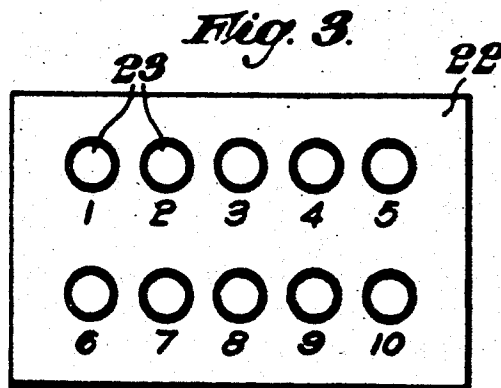
325/51, 53, 118, 111, 113, 181, 182

ABSTRACT: In a location system a radio transmitter carried by a security guard or watchman has a modulator and an oscillator, but without the frequency determining components. At various points which the guard is required to visit are sets of frequency determining components carried in wall boxes, each set of components providing a different modulating frequency. The guard plugs in a lead from the transmitter at each point and the modulated carrier from the transmitter is received at a remote location, demodulated, and the point at which the modulating frequency was generated is identified.



34
57
64
66
117
118

24
2



KENNETH JOHN HORSTMANN
GOLIN GRAHAME DOUGLAS
INVENTORS

By *Billerman & Bierman*
ATTORNEYS

WATCHMAN'S RADIO LOCATION INDICATING SYSTEM

This invention relates in general to security systems, and more particularly to a system by which the movements of a watchman or guard may be automatically recorded at a remote point on a monitoring system which may, for example, be located at the headquarters of a Security Service or in a Police Station.

In order to protect property and maintain a continual watch for the development of fires, it is quite usual to employ a night watchman or security guard whose duty is to patrol the premises in question. To ensure that the watchman or guard carries out his duties correctly it is common practice to provide a number of check points, all of which the officer in question is required to visit at predetermined intervals. In one system the officer is provided with a clock device into which he can insert any one of several keys mounted at discrete locations in order to record each visit to each point on a paper tape within the clock device. However, it is possible for an officer to be attacked by unauthorized persons lurking on the premises and in such a case the fact that after being attacked the officer has not visited any of the check points would not be known until the following morning, and the information would then be useless. If the officer should be attacked he will, of course, desire to summon assistance but this may involve giving the alarm by such means as blowing a whistle or getting to an emergency pushbutton, and he may be prevented from doing either of these things. The object of the invention is to provide a system by which it is possible to monitor at a remote location the movement of the officer so that if he fails to reach a particular location at a particular time this fact is indicated at once.

The invention consists of a location system comprising a radio transmitter to be carried by a watchman or security guard, the radio transmitter including an oscillator and a modulator for modulating the transmitter carrier wave but without a frequency determining element for the modulating frequency, means by which the modulator may be connected to any one of a number of frequency determining elements located at different points, each frequency determining element producing a different modulating frequency, and means to receive the transmitted carrier wave, the receiving means including filters by which particular modulating frequencies may be recognized, and indicating means by which the receipt of each particular modulating frequency is indicated.

To promote a full understanding of the invention one embodiment thereof will now be described by way of example with reference to the accompanying drawings, in which:

FIG. 1 shows the apparatus carried by the officer;

FIG. 2 shows the apparatus at the receiving or monitoring point;

FIG. 3 shows the panel of a suitable indicating device.

Referring first to FIG. 1 there is shown an ordinary mobile pocket radio transmitter (less microphone) indicated by the dotted rectangle 11. The rectangle 11 contains a block 12 representing the radio transmitter with a transmitting aerial 12a having connected to it a transmitter modulator 13. This mobile transmitter may be a very small VHF instrument of the kind carried by policemen who are on ordinary patrol duties covering different beats. In addition to the transmitting apparatus 11 the officer carries further apparatus indicated by the block 14 containing an oscillator which is not provided with one or all of the usual frequency determining components, the missing component or components being referred to herein as a frequency determining element. The block 14 has leading from it a flexible lead 15 terminating in a jack plug 16 which may be plugged into any one of a number of jacks each contained in a different wall box 17 (only one being shown) each of which is in a different location and contains a frequency determining element which will produce a modulating frequency different from the frequencies of all the

other elements. The oscillator contained in the block 14 does not oscillate until it is plugged into one of the wall boxes 17, when all the frequency determining components are connected so that the oscillator circuit is complete.

As the officer makes his rounds he visits the wall boxes 17 in turn and he should arrive at each one at a particular time. Therefore, the output of his mobile transmitter 11 consists of a continuous radio carrier wave with bursts of different location frequencies superimposed from time to time.

At a location remote from the site being patrolled by the officer is a monitoring apparatus consisting of a receiver 18 having a receiving aerial 18a and tuned to the particular carrier frequency which is being transmitted, and a demodulator 19. The demodulated output is passed through a series of filters 20 each one of which responds to one of the location frequencies. Whenever one of the location frequencies is received the particular frequency passes through the respective filter and is caused to provide an indication of its presence, for example, by operating a relay which lights a lamp on an indicator board 21.

FIG. 3 shows a suitable form of indicator 21 which may consist of a front panel 22 having 10 circular bezels each of which contains a glass window 23, which may be colored if desired. The 10 indicators are numbered and a lamp is provided behind each window. It may be arranged that once one of the lamps behind a window 23 has been illuminated by the receipt of one location frequency it will remain illuminated until another location frequency is received, when the indicator corresponding to the location of the new frequency is illuminated and the previously illuminated indicator is extinguished.

The indicator shown in FIG. 3 is only exemplary and indicating means suitable for any desired number of different locations may easily be provided.

It will be evident from the foregoing description that the system according to the invention offers many advantages. In the first place it is possible continuously to monitor the movements of the officer. If he does not arrive at a particular place by a particular time then it is known that something is not as it should be, which may be due either to a failure of duty on the part of the officer or to some other cause. Not only does the invention make it possible to detect quickly the kind of condition which the officer is intended to detect, i.e. the presence of intruders or fire, but the monitoring system will also give an indication if the officer should have an accident or be taken ill so that he is unable to continue his patrol.

We claim:

1. A location system comprising a radio transmitter to be carried by a watchman or security guard, the radio transmitter including an oscillator and a modulator for modulating the transmitter carrier wave but without a frequency determining element for the modulating frequency, means by which the modulator may be connected to any one of a number of frequency determining elements located at different points, each frequency determining element producing a different modulating frequency, and means to receive the transmitted carrier wave, the receiving means including filters by which particular modulating frequencies may be recognized, and indicating means by which the receipt of each particular modulating frequency is indicated.

2. A system as claimed in claim 1 comprising a jack connected to each frequency determining element, and a plug connected to the transmitter modulator by which the frequency determining element may be connected temporarily.

3. A system as claimed in claim 1 in which the transmitter is a VHF transmitter.

4. A system as claimed in claim 1 in which the indicating means comprises an indicator panel having a number of windows each corresponding to one of the locations, a lamp behind each window, and means responsive to the recognition of the respective modulating frequency to cause the lamp to be illuminated.