

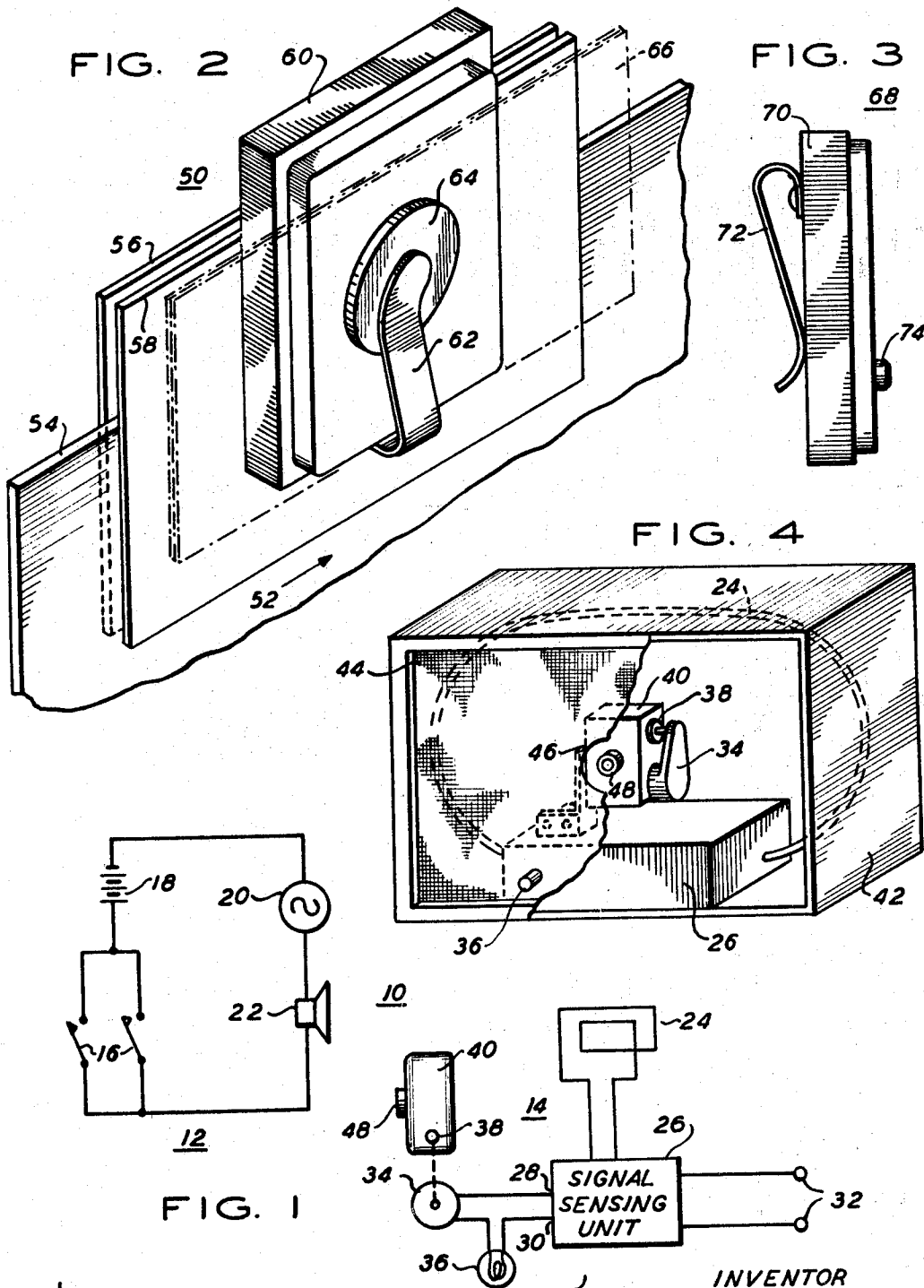
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PHOTOGRAPHIC PROTECTIVE SYSTEM

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PHOTOGRAPHIC PROTECTIVE SYSTEM
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ABSTRACT OF THE DISCLOSURE

A photographic protective system having a still camera positioned about an area to be protected. The camera is operated from a plurality of portable remote transmitters. One of the transmitters is contained in the till of a cash drawer and transmits a signal upon the removal of marked bills from a spring switch. Another transmitter is carried by a person and is operated by a push-button switch. Each transmitter transmits a double modulated radio frequency signal to a receiving device. The receiving device, which includes a signal sensing unit and an electric motor, is mounted in a box with the camera. When the transmitted signal is sensed, the motor actuates the camera shutter and advances the film to take a series of photographs.

In general, this invention relates to a new and improved photographic protective system and more particularly to a photographic protective system for use in banks to take the pictures of persons who might attempt to rob the bank.

In the past, there have been many types of photographic protective systems for banks and other institutions which would normally be prime targets for robberies. The prior devices have all utilized switches which, when closed, completed electrical circuits to movie cameras which would then start to take pictures of a robbery as it took place. Certain problems arose with respect to these systems. First, if the switch were placed in the cash drawer, as was usual, the normal closing and opening of the cash drawer tended to wear the wires and cause short circuiting of the same long before there was an actual need for operating the alarm. Further, the need for wired switches limited the number of places where they could be positioned and, further, those persons in the bank who were not always at one position could not trigger the alarm. Still further, with a wired system, it was necessary to interconnect all of the units utilized in the system in order that switch closed by any teller would operate all of the units. This interconnection arrangement caused problems when short circuiting occurred in any one unit as it would effectively prevent operation of all of the other units.

Thus, the present invention is directed to a new and improved photographic protection system in which a plurality of continuously operative still cameras are positioned about the area to be protected. Each of these still cameras is operated when a signal is transmitted from any one of a plurality of remote control devices. These devices can be operated in a simple and easy manner by a teller or other authorized persons in the bank. Any one of the plurality of remote control devices will initiate operation of the cameras. Each remote control device comprises a small portable unit which, when a switch is closed, transmits a radio frequency signal, modulated in a particular manner, to a receiving device which includes a motor. When the signal is sensed, the motor is operative to drive continuously a still camera whose shutter is continuously cocked so that a plurality of still pictures will be taken over a given period of time at regular intervals.

The remote control device switch can be placed in the cash drawer of a teller and be made operative when the teller withdraws a certain particular pack of dollar bills, this step being taken during the course of a robbery. The

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removal of the dollar bills from the cash drawer would automatically cause the remote control device to transmit its modulated radio frequency signal in the manner stated above. It should be noted that this would eliminate the need for wiring in the cash drawer as the remote control device is made as a self-contained unit. Further, since no wiring is required between each of the remote control devices and the particular receivers which cause operation of the camera, malfunctioning of any particular remote control device will not effect the operation of the entire system. Still further, the remote control devices, in their unitized form, can be carried by guards and other bank personnel on their person and, accordingly, it is not required that these be placed in any particular part of the bank. Thus, any one of these persons need merely press the button on his remote control device and he can cause the cameras in the bank to start photographing the scene of the robbery. Also, even personnel not on the main floor of the bank, but who are aware of the robbery, can initiate the operation of the cameras, as the radio frequency signals will be effective throughout the building. The use of a particularly modulated radio frequency signal eliminates the chance of error and a false initiation of the operation of the cameras utilized in the system. That is, the present invention contemplates the utilization of a radio frequency signal modulated by two lower frequency signals, which total signal would be almost impossible to depulicate by chance.

Thus, it is the general object of this invention to provide a new and improved photographic protective system. Another object of this invention is the provision of a new and better photographic protective system operative through remote control techniques and which is especially useful for photographing the robbery of a bank or similar institution.

Still another object of this invention is the provision of a new and better photographic protective system which utilizes remote actuating devices built as small self-contained units.

A further object of this invention is the provision of a new and better photographic protective system which cannot be misoperated through chance or by design of those who might wish to foil the system.

Other objects will appear hereinafter.

For the purpose of illustrating the invention, there are shown in the drawings forms which are presently preferred; it being understood, however, that this invention is not limited to the precise arrangements and instrumentalities shown.

FIGURE 1 is a schematic showing of the photographic protective system of the present invention.

FIGURE 2 is a perspective view of a remote control device built in accordance with the principles of the present invention utilized in a cash drawer of a teller.

FIGURE 3 is a second embodiment of the remote control device of the present invention.

FIGURE 4 is a partially broken away perspective view of one type of mounting for the receiving portion of the photographic protective system of the present invention.

In FIGURE 1, there is shown the photographic protective system of the present invention generally designated by the numeral 10. The system 10 includes a transmitting device 12 and a receiving device 14.

The transmitting device 12 simply comprises an operating switch or switches 16 operative to close the circuit between a battery 18, oscillator 20, and transducer 22. Upon closing of the switch 16, the oscillator 20 is energized to produce a double modulated radio frequency output signal. In one specific embodiment of the present invention, the oscillator 20 had a carrier frequency output of 27 megacycles modulated by a first modulating frequency between 2 and 6 kilocycles and a second low

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frequency modulating signal of approximately 30 cycles per second. This double modulated radio frequency signal would be almost impossible to reproduce by accident, and thus the entire system, being dependent on this signal, could not be tripped except by operation of the transmitting device 12. The double modulated radio frequency signal transmitted by the transducer 22 will be picked up by an antenna 24 forming a portion of the receiving device 14. The antenna 24 is connected to a signal sensing unit 26 which will only produce an output signal at its terminals 28 and 30 when the antenna 24 picks up the particular double modulated radio frequency signal produced by the transducer 22. The signal sensing unit 26 can be supplied by an ordinary alternating current source 32 or, in the alternative, it could utilize a battery type source. The signal sensing unit 26 is one manufactured by the Perma-Power Company, Chicago, Ill., and is called their Radio Control Unit Model G270.

The output of the signal sensing unit 26 is transmitted to a motor 34 and an incandescent lamp 36. Thus, the motor 34 will be driven and the incandescent lamp 36 will be energized when the signal sensing unit 26 senses the reception by antenna 24 of the particular double modulated radio frequency output signal of transducer 22.

Motor 34 is operative to drive the windup spool 38 of a 35 millimeter still camera 40. The camera 40 normally has its shutter fixed in a cocked position so that as the take-up reel is continuously driven the shutter will open and close as each successive frame of the film in the camera 40 passes the lens 48 thereof. The still camera 40 is, in the particular example to be discussed, one taking 72 exposures on a roll. The motor 34 is designed to rotate four revolutions per minute and, accordingly, it would be possible to take four exposures per minute for eighteen minutes with the apparatus of the present invention.

The receiving device 14 is mounted within a box 42 very similar to that normally utilized for speakers. That is, the boxes 42 are placed about a bank in various positions such as on a wall near a ceiling, on a wall above an exit, etc. where speakers are normally placed. They are positioned to give the greatest photographic coverage of the bank or other area to be protected. The box 42 has an open front covered by a netting 44 having a central opening 46 aligned with the lens 48 of the camera 40. Only the incandescent lamp 36 shows through the exterior of the netting 44. Accordingly, the receiving device 14 is self-contained on the wall of the bank and is not interconnected with any of the other receiving devices which might be placed at different points so as to give complete coverage of the floor of the bank. Thus, if one of the receiving devices 14 is not operative, for any reason, it will not effect the operation of the other receiving devices. Further, all of the receiving devices are tuned to the same double modulated radio frequency signal and, accordingly, any transmitting device 12 can operate all of the receiving devices 14.

The transmitting device 12 can be in one of two embodiments, as shown respectively in FIGURES 2 and 3. In FIGURE 2, there is shown a transmitting device 50 built in accordance with the principles of the present invention for utilization in a cash drawer 52 having one or more partitions 54. The partitions 54 are normally utilized to separate paper money wrapped with binders and standing on edge. The cash drawer transmitting unit 50 includes two spaced parallel plates 56 and 58 positioned to achieve a friction fitted engagement with the divider 54 of the cash drawer 52. One of the plates 58 is fixedly secured to the casing 60 of the transmitting unit 50. The casing 60 includes therein the battery 18, oscillator 20, and transducer 22 shown in FIGURE 1. On the side of unit 60 opposite from plate 58 there is placed a conductive spring member 62. The free end of conductive spring member 62 is adapted to be biased into contact with a flat plate 64 extending through the surface of

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casings 60. Spring member 62 and conductive plate 64 are the equivalent of the switch 16 in the transmitting device 12 shown in FIGURE 1. When the spring member 62 is in contact with the plate 64 the switch is closed and the transducer 22 will transmit the double modulated radio frequency signal discussed previously. When the spring 62 is out of contact with the plate 64, the transmitter 12 will not transmit a signal.

The unit 50 is adapted to have positioned between the spring 62 and the plate 64 a packet of marked bills 66 shown in dotted line in FIGURE 2. Thus, normally the spring 62 does not contact the plate 64 and there is no signal transmitted by the unit 50. However, should a robbery occur and the bandit ask for all of the money in the cash drawer the teller need only pull out the marked bills 66 to hand to the bandit.

Upon removal of the marked bills 66 with the remainder of the money, the spring member 62 will contact the plate 64 and the alarm signal will be transmitted to the receiving device 14. Further it should be noted that as this is in a cash drawer, a wired system would eventually wear and short circuit due to the continual in and out movement of the cash drawer. Additionally, it should be noted that although the cash drawer may be normally made of steel which would prevent the transmission of the signal from the transducer 22, when a robbery is in progress, the cash drawer 52 would be opened to remove the paper money as well as the marked bills 66 so that the signal from the unit 50 can be transmitted to the receiving device 14.

In FIGURE 3, there is shown a unit which can be carried by guards and other personnel in the bank. This unit 68 is completely transportable and includes a casing 70 to which is attached a suitable clip 72 for securing the unit 68 to the person who desires to carry it. Within the casing 70 are placed the battery 18, oscillator 20, and transducer 22 shown in FIGURE 1. The unit 68 also includes a push-button switch 74 which is operatively connected in the manner of the switch 16. When the push-button 74 is depressed, the transducer 22 will transmit its double modulated radio frequency alarm signal. Of course, in normal use, the switch 74 in the position shown is open.

Thus, the present invention has been shown to achieve the objects set forth previously in that any one of the transmitting units 50 or 68 will energize all of the receiving devices 14 and, additionally, failure of one of the receiving devices 14 will not effect operation of the other receiving devices. Further, since no wires are used, the transmitting devices are adaptable for use even outside of the actual room which is being protected as the radio frequency signal will pass through the walls of the building. The absence of wires will eliminate normal wear and tear of the wires which might occur when the unit 50 is placed in a cash drawer.

The present invention may be embodied in other specific forms without departing from the spirit or essential attributes thereof and, accordingly, reference should be made to the appended claims rather than to the foregoing specification as indicating the scope of the invention.

I claim in my invention:

1. A photographic protective system comprising a camera, drive means for winding film in the camera, selectively operable wireless transmitting means for selectively transmitting an alarm signal, receiving means, said receiving means including an antenna for sensing said alarm signal, said receiving means being operative to energize said drive means only when the said antenna senses said alarm signal, said selectively operable wireless transmitting means being mounted within a portable casing, said selectively operable wireless transmitting means including a power source wholly mounted within said casing, a second selectively operable wireless transmitting means substantially similar to said first mentioned selectively operable wireless transmitting means, said second selec-

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tively operable wireless transmitting means being operative to transmit the same alarm signal as said first mentioned selectively operable wireless transmitting means whereby said receiving means will be operative to energize said drive means from a signal received from either or both of said first mentioned and said second selectively operable wireless transmitting means, said camera being a still camera having its shutter in a cocked position, said drive means being operative to windup film in the camera and to simultaneously cause the shutter of the camera to be operated as each frame of film passes by the lens of the camera, said first mentioned selectively operable wireless transmitting means including fastening means secured to said casing for fastening the particular selectively operable wireless transmitting means to a cash drawer divider, each of said selectively operable wireless transmitting means including a switch for selectively connecting the power source within the casing into operative relation to produce said alarm signal, said first mentioned selectively operable wireless transmitting means switch including a clip adapted to receive packets of money, said clip being operative to open said switch when a packet of money is placed therein, said switch being biased to a closed position when the packet of money is removed, said second selectively operable wireless transmitting means including second fastening means for

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fastening said second selectively operable wireless transmitting means to a separate support.

2. The photographic protective system in accordance with claim 1 wherein said alarm signal is a double modulated radio frequency signal, said double modulated radio frequency signal comprising a radio frequency signal frequency modulated by two different signals of a lower frequency.

3. A photographic protective system of claim 1 wherein said selectively operable wireless transmitting means includes an oscillator operative to produce a modulated radio frequency signal, said modulated radio frequency signal being transformed by said transmitting means into said alarm signal, said receiving means being operative to energize said drive means only when said antenna senses said modulated radio frequency alarm signal.

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