

PHYSICS

New Invention Just Patented Makes Scene Visible By Heat

Infra-Red Telescope Might Be Used To Detect Lightless Bombing Planes By Heat From Their Exhausts

DETAILS of a new invention that may already be in use in England to detect lightless bombing planes on a dark night are revealed in a patent just issued by the United States Patent Office. Numbered 2,225,044, the patent was granted to Roscoe H. George of West Lafayette, Ind., who in turn assigned his rights to the Radio Corporation of America.

According to the specifications, the George invention will do essentially what an earlier infra-red telescope, invented by R.C.A. engineer V. K. Zworykin, accomplished, but in a much simpler manner. Dr. Zworykin's device turned the heat or infra-red rays into electrons and focussed them on a screen, which was made to glow where the electrons hit. Mr. George has found a means of avoiding the necessity of using electrons and focussing them.

Basic to his invention is the fact that certain materials, like magnesium or zinc sulfate, are made to glow, not only by electrons, but also by ultraviolet light. This consists of waves too short to be

visible. The infra-red waves are at the other extreme—they are too long to be seen.

When a screen of such material glows it is storing energy and giving it out again as light. If, while such energy is stored, infra-red rays fall upon it, the energy is given off more rapidly, and the screen glows more brilliantly where the heat waves strike.

Mr. George's device is really a reflecting telescope like that used by the astronomer. The picture becomes visible on a screen of the type mentioned. A source of ultraviolet rays floods this screen continually, so that it glows faintly. When in use, the infra-red rays from the distant airplane, or other object to be detected, are focussed on this screen by a dish-shaped mirror. Where they fall the screen becomes bright, and the picture appears.

If infra-red rays pass through fog more easily than visible light, he suggests, the device could be used in the landing of planes or the docking of ships

in fog. On the ground, or on shore, there would be infra-red beacons, and these could be seen with the device. However, a use perhaps more significant is suggested as follows:

"Furthermore, the present invention is useful in ascertaining the position of airplanes at night, particularly under fog conditions, since a certain amount of infra-red light is radiated from the exhaust manifolds of an airplane engine and this infra-red light is sufficient in intensity to make the position of the airplane visible through the use of the present invention even though the airplane itself is invisible when the present invention is not used."

For many months reports reaching the United States from England have told of a mysterious device by which the British defenses can detect airplanes in the dark, but no details have been given. Perhaps the George invention, or something similar, has been used.

Science News Letter, December 28, 1940

ENTOMOLOGY

Public Patent Granted On Codling-Moth Killer

DEADLIER than lead arsenate to codling moth larvae (the "worms" you sometimes find in apples) but harmless to human beings and other warm-blooded creatures, the chemical phenothiazine is now protected by a patent (No. 2,127,566) issued to L. E. Smith, U. S. Department of Agriculture, and dedicated by him to the free use of the American public.

Although it is not a new chemical, phenothiazine is new in its application as an insecticide. Mr. Smith has been working on it in this connection for six years. In 1934 he applied for a patent on its insecticidal use, but litigation with a private company which made similar claims has prevented the final issuance of the patent until recently. The chemical may now be manufactured and sold by anyone; but the Department of Agriculture advises against doing so until certain difficulties connected with its large-scale application as an orchard spray have been ironed out.

In the course of experiments to make sure of the harmlessness of phenothiazine to warm-blooded animals, there were suggestions of its possible usefulness in the treatment of certain germ diseases in human beings, but its use in this connection is still in the experimental stage. It is, however, widely used as a veterinary remedy for worms in animals.

Science News Letter, December 28, 1940



CENTRAL AMERICAN TREASURES

Dr. A. V. Kidder, archaeologist of the Carnegie Institution inspects his ancient pottery at the Annual Exhibit of the Carnegie Institution, Washington. These pottery works were found in the Indian mounds of Guatemala and were lent by the Guatemalan government. They were used for cosmetics and as part of the ritual of worship.