

INVENTIONS

Two-Purpose Machine Gun Mount Is Recent Patent

Other Notable New Inventions Include Novel Type of Moving X-Ray Target and Midget Air-Cooling System

QUICK change from firing on enemy troops on the ground to attacking airplanes aloft can be effected with a new machine gun mount for which U. S. patent No. 2,210,538 has just been granted George Ironside, of Hartford, Conn.

Since the gunners must crouch near the ground while in combat with other soldiers, in order to make themselves as poor a target as possible, the trunnions on which the gun is supported must be kept low. Then it is fired in a horizontal position. But when aimed at an overhead target, the trunnions must be considerably higher, to permit the muzzle to be elevated and the breech correspondingly depressed.

Mr. Ironside's mount, rights of which have been assigned to Colt's Patent Fire Arms Manufacturing Company, has a hinged cradle, mounted on the usual tripod. The gun is supported on the cradle, which is horizontal when used for ground firing.

For anti-aircraft work, the gun is removed from the cradle, which is then swung to a vertical position and locked. At its upper end is another pair of trunnions; the gun is remounted on these and is then ready to fire at aircraft.

Also among recent inventions is one for a new X-ray tube. This, No. 2,209,963, was granted to Jesse W. M. Du Mond, who assigned it to the California Institute of Technology, Pasadena, Calif.

X-rays are generated when high voltage electrons, produced in a vacuum tube, are shot at a mass of metal called a target. Since the target is heated in the process, and it could actually be melted, a limit is set to the amount of power and the length of time that the tube may be operated. Many methods have been used for cooling the target. One is to have it moving, so that the electrons are all the time hitting different parts and it can never rise to an excessively high temperature. Usually, such a moving target is simply a spinning disk.

In Dr. Du Mond's tube, the target has various forms, the first being that of a cylinder open at both ends, shaped like an old-fashioned napkin ring. This is

turned around its axis by means of a gearing from a motor. The electrons are aimed at the inner surface of the cylinder. They are not reflected, as light would be, but instead a beam of X-rays is produced. With this arrangement, Dr. Du Mond claims many points of superiority over other moving target X-ray tubes.

Several modifications of the idea are described in the patent specifications. In one, the electrons are not aimed directly at the target, but are bent towards it by a magnetic field. With the tube, the inventor says, operation can be continued with very high power over extended periods, without detriment. With such high powers, he states, short exposures may be made when taking X-ray photographs, thus stopping any movement of the subject. He also says that it will make possible sharper radiographs.

Lester S. Keilholtz, of Highland Park, Mich., received patent No. 2,210,458 for an individual air conditioner. One of its objects, he explains, is to provide "a small, inexpensive and economical air conditioning unit which may be adapted to condition the air within a selected and changeable localized space, said space

being only a portion of the entire volume of an enclosure."

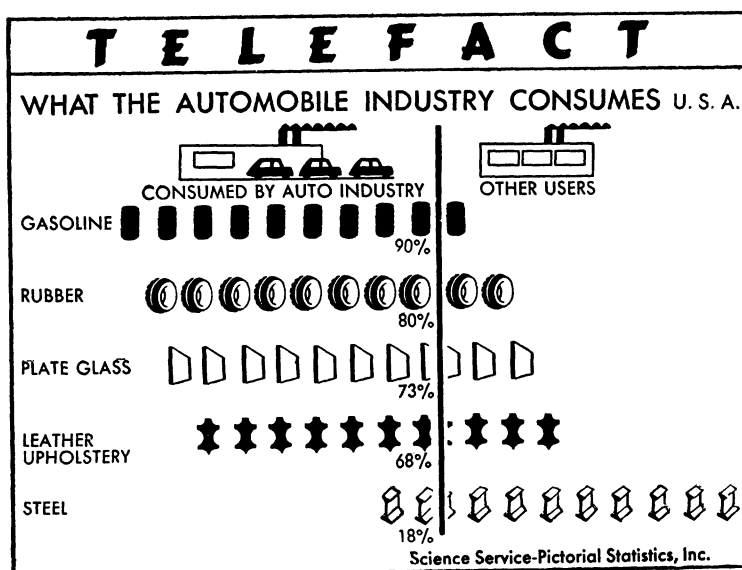
In one form, the invention is really a shower-bath of cool air. The cooling unit is contained in a cabinet on the floor, and the conditioned air is carried in a pipe and sprayed out above the user, who may be seated in a chair. Cool air being heavier than warm, falls around him, forming "a conical tent-like screen of conditioned air," as the inventor states. Inside the spray nozzle from which the cool air emerges is an intake. This sucks the air back and circulates it again for cooling. Other forms of the device use screened enclosures to keep the cool air confined.

To Gilles Holst and Jan Hendrik de Boer, of Eindhoven, the Netherlands, went patent No. 2,209,971, for a method of making a sound record on film of a thin metallic layer. Sound movie films have the record of the sound along the side, and this is made of small particles of silver, like those forming the picture itself. With highly perfected reproducing methods, the grain of the film introduces noise, and this invention avoids that. By a chemical process, the sound track is converted into a thin film of metal.

One plant patent, number 415, was granted during the week to John H. Kluis, of Boskoop, the Netherlands. This was for a dwarf hydrangea, and was assigned to Joseph S. Merritt, of Dundalk, Md.

Science News Letter, August 17, 1940

The Spanish conqueror Cortes was the first European to see *rubber* in use—he watched Aztec Indians playing with rubber balls.



Science News Letter, August 17, 1940

