ORDNANCE

Sound Camouflage Uses Decoy Cannon-Flashes

➤ IN EARLY STAGES of the Pacific war, the Japs used to set off strings of firecrackers to fool Allied troops into thinking machine-guns were in action against them. The same idea, though more elaborate, underlies a compact, easily carried apparatus for producing fake cannon-flashes and explosions, on which two Milwaukee inventors, Alfred Groth and H. J. Hanauer, received patent No. 2,338,762. The object is to get the enemy to direct his bombers or artillery fire on the wrong spots.

Into a short, wide-mouthed firing barrel, plastic-coated round pellets of powder are dropped, one by one, from a tubular magazine. As they fall to the bottom they are exploded by electrical means. Various sizes of powder pellets may be used to imitate different types of artillery fire. A small battery-driven motor regulates the rate of release from the magazine. The whole operation is automatic; the soldier in charge just sets it down, closes the switch, and then gets rapidly out of the neighborhood while Jerry or Jiro starts banging away at the imagined field piece or mortar.

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PUBLIC HEALTH

Okay to Tell Your Soldier To Wear His Leggings

➤ THAT WELL-NIGH irresistible and universal maternal trait of telling sons, from five to 50 years old, to wear their overshoes when it rains and to guard their health in other ways gets a figurative pat on the back from no less a medical authority than Maj. Gen. Norman T. Kirk, Surgeon General of the U. S. Army.

Mothers and also wives, sisters, sweethearts and other home folks, he believes, can help the Army keep the soldiers in good health by writing on the general subject in their letters.

The Army, it appears, is somewhat in the position many a mother finds herself when Junior—or his Dad—persists in going out on rainy days without the fine new umbrella she has bought for his protection.

"Sometimes soldiers are inclined to think the wearing of gloves and leggings through the jungle is 'sissy,'" General Kirk said. "Yet the realistic fact is that simple protective measures outlined to every man going into foreign areas are highly important to his continued good health. A fighter knocked out by the Anopheles mosquito is just as much a casualty as the one who stops a Japanese bullet.

"Soldiers cherish their letters and read them over and over," he continued. "If these letters urge them to understand the necessity for continuous vigilance against disease, they will gradually absorb the warning. They will come to use their mosquito weapons as automatically and as effectively as their rifles."

The fatality rate from disease and injury in the Army is lower than it has ever been despite the fact that personnel are scattered to virtually all parts of the globe, General Kirk said. There have been no epidemics among soldiers overseas, but to maintain this record, he declares, eternal vigilance is necessary.

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PUBLIC HEALTH

Underground Tubes May Be Used to Collect Trash

➤ NO GARBAGE MAN, no trash man, no ash man will make weekly rounds with dusty, dirty ill-smelling trucks in American cities of the future. This is not a certainty but it is a reasonable possibility. Already, in many homes, kitchen grinders chew up garbage so that it can be flushed into the sewage system. Next may come underground pneumatic tubes to suck household wastes and ashes to central stations, Morris M. Cohn, city sanitary engineer for Schenectady, suggested at the meeting of the American Society of Mechanical Engineers in New York.

"Engineers vision the time when dry rubbish and ashes will be sucked away from homes through underground pneumatic tubes, like subways, which will completely eliminate the storage and handling of these wastes and their surface collection," he said.

"The system would consist of a network of pneumatic ducts under every street of the city, with a connection in every home, store and industry. An airlock chamber will permit the property owner to discharge ground-up wastes into the city's refuse 'veins' from whence they would be sucked to an incinerator which would burn the debris and produce heat and power for the community."

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IN SCIEN

CHEMISTRY

Ozone Protects Meat From Spoiling in Storage

➤ MEAT is protected against spoilage, and the close-rationed supply thus made to stretch that much farther, by an ozone treatment on which U. S. patent No. 2,339,507 has just been granted to two research scientists of the Westinghouse Electric & Manufacturing Co., Dr. Rudolph Nagy and Dr. Harvey C. Rentschler.

Value of ozone as a discourager of the bacteria and molds that spoil stored meat has long been recognized, but it has been difficult to supply it in correctly controlled concentrations. A little of this peculiar and potent form of oxygen goes a long way, yet too much of it would not be good for the meat.

The two scientists have met the difficulty by feeding a constant but small supply of ozone into the conditioned air that is circulated in the space where the meat is stored or is undergoing tenderization treatment. The ozone is generated preferably by means of an ultraviolet lamp placed in an air duct. Ultraviolet radiation converts ordinary oxygen into the short-lived tri-atomic molecules of ozone. To make certain that the ozone concentration does not rise above the desired low figure, a chemically treated glass-wool filter is introduced into the air circuit, with automatic means for throwing it into or out of action as necessary.

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ENGINEERING

Automatic Alarm Devised For Railroad "Hot Box"

➤ AN AUTOMATIC electrical system for giving alarm when the axle bearings on railroad cars become overheated has been devised by Leigh J. Stephenson of Markham, Ill. As all railroad men and most travellers know, these "hot-boxes" are about the most frequent causes of train delays, and have also been responsible for some very bad wrecks. Rights in patent No. 2,339,436, issued on this invention, are assigned to the Pullman-Standard Car Manufacturing Company.

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CE FIELDS

ELECTRONICS

"Electronic Ear" Tests Small-Caliber Shells

➤ AN "ELECTRONIC EAR," to match the well-known "electric eye," is now used in ordnance plants to test the shells for the deadly little 20-millimeter automatic cannon which some of our fighter planes carry and with which the secondary armaments of our warships bristle. (*Army Ordnance,* Jan.-Feb.)

"Sonotest" is the convenience-name that has been given to the device, which tells whether or not shells are sound, and therefore safe to load and use, by the way they ring when dropped on an anvil. It is a variant of the old shopkeeper's trick of tossing coins on the counter to hear whether they "ring true"; as a matter of fact, that was the purpose for which it was first devised.

Properly made shells, without cracks and with their copper rotating bands well seated, will have a certain vibration frequency, or range of tone. Also, perfect shells will ring longer than cracked or misbanded ones. The sound is picked up by a microphone, and the resulting electrical oscillations fed through a hook-up of electronic tubes. Suitable relays light green "go" lights if the shell is good, and warn the operator to discard imperfect specimens.

Each shell is tested twice: once by dropping it on its bottom, again by dropping it on its side. With a little preliminary training, a girl operator can test from 1,200 to 1,800 shells an hour.

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ENGINEERING

1945 Streetcars May Let Standing Passengers See

➤ STREETCARS of 1945 may make less noise, look better and permit passengers who have to stand to see out, as the result of investigation of possible improvements now under way.

The study will consider both the car rider and car operator, according to a report made by A. H. Leschke to the American Transit Association. Passenger convenience and comfort, greater reliability of the streetcar itself, further elimination of noise, improved appearance, reduction in weight, and lower maintenance and operating costs will all be considered.

Comfortable arm rests, new facilities for ventilation, center doors located farther toward the rear to facilitate passenger movement, and standee windows, so that passengers who have to stand can see out and know when the desired stop is approaching, are among the many improvements being considered.

Ten years have elapsed since the appearance of the first streamlined car of the "President's Conference Committee" type, which are smoother and quieter than was ever considered possible for a streetcar. Numerous minor improvements have been made since 1935, but few radical changes.

Several months ago work was started on a study of the entire design of the PCC car so that improvements which ten years of experience would indicate as desirable would be incorporated.

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METALLURGY

Nickel-Plated Steel Wire Replaces Solid Nickel

➤ NICKEL-PLATED steel wire is now being used in this country in place of solid nickel wire for the supports for tungsten filaments in incandescent lamps. The purpose of the replacement is to save war-essential nickel. Approximately 600,000 pounds of virgin nickel metal was consumed annually in the United States before the war in making fine nickel wire for this purpose. With the new wire much less will be required.

Several European countries have been using nickel-plated wire for the support of the tungsten filaments during the past decade or so, according to James H. Conolly and Richard Rimbach of the Hanover Wire Cloth Company, located at Hanover, Pa. They explained the process of the continuous electroplating fine steel wire for use in electric lamps at the Chicago meeting of the Electrochemical Society.

The tungsten filament support and lead in an incandescent bulb is composed of three sections; the support section inside the bulb, the sealed-in section, made of copper-clad nickel-steel wire, passing through the glass wall, and the outer copper section which makes soldered contacts with the brass base. Normally the different metals are joined by welding. The nickel-plated steel wire is in contact with the tungsten.

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PALEONTOLOGY

200-Million-Year-Old Jaw Of Large Reptile Found

➤ AN EXCEEDINGLY toothy fossil jaw (20 inches; 53 teeth), found in a Montgomery County quarry, a short distance outside of Philadelphia, tells of a race of ten- to twenty-foot crocodile-like reptiles that haunted swamps and lakes of the neighborhood some 200 million years ago, in the Triassic period.

Rescued just in the nick of time from the jaws of a modern monster, a stone-crusher, the rock containing the embedded fossil was taken to the Philadelphia Academy of Natural Sciences. There the fossil was identified by Dr. Edwin H. Colbert as being the jawbone of a Clepsysaurus.

This was a genus of reptiles that looked and probably lived very much like crocodiles, but were nevertheless not ancestral to modern crocodiles. They were leading citizens of the animal world in remote days when the later reigning family, the dinosaurs, were still relatively small and inconsequential. The whole great group to which it belonged, known collectively as the phytosaurs, died out as the dinosaurs increased in power and authority. Later still, true crocodiles (and their American cousins, the alligators) appeared and survived to become the largest reptiles in our own time.

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INVENTION

Cushion of Foam Provides Shock-Absorber for Boats

➤ SMALL, high-speed boats slamming their way through rough water hit waves with almost as much shock as if they were solid instead of liquid, with resulting loss of maneuverability, not to mention discomfort to the occupants. Avoiding this is the objective of the invention on which patent No. 2,337,787 was awarded to William Waller, Jr., of Chicago.

Mr. Waller places a perforated shield of metal over the entering portion of the bow, with a separating space between it and the hull. Jets of water spurting through the holes are directed sternward by means of baffles or short tubes. The inventor claims that this device gives the boat a cushion of foam, which breaks the shock of hitting green water, yet does not reduce speed.

Science News Letter, January 29, 1944