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ENGINEERING ABSTRACTS

"BEAMS" OF SOUND TO GUIDE AIRCRAFT

Taking the place of, or rather, supplementing the standard radio beacon at airports, there has been developed a new sound searchlight which is described as sending out a concentrated "beam" of sound that penetrates high into the air as a shaft of light penetrates the darkness. The new device is intended for the purpose of guiding aircraft to the field when they are too close for the radio beacon to be effective and when fog renders the light beacons useless.

The horn was developed by S. T. Williams of the Victor Talking Machine Co., and is known as the "super-directional" horn. In appearance it is a huge wooden box, eight feet square and twenty feet long. Inside it is a cluster of nine conical horn units each carrying a loudspeaker. The box is mounted on a wheeled base by means of pivots and can be pointed in any desired direction.

The main feature of the new horn is that it concentrates the sound waves instead of allowing them to spread, and can therefore be trained on an object in the same manner as a searchlight.—*Popular Science*.

RACING CAR TO BE SHOT AT TARGET

In a short time Major O. D. Segrave, British former speed champion, will attempt to regain his lost record. He is now superintending the building of a car in which he hopes to travel at the speed of 240 miles per hour, or four miles per minute.

The new car, the Golden Bullet, will have a Napier 900 hp. engine, rotating at 3400 revolutions per minute. The frame is braced with steel tubes of the utmost strength. The steering gear controls the front wheels through a separate mechanism for each. The car stands three feet nine inches high, twenty-six feet long, and six feet four inches wide at its widest part. It has a seven-inch ground clearance. The probable speed of the wheels will be about 2500 r.p.m. and the tires are to be 37x7.

The Napier engine is twelve cylindered, the cylinders spreading fanwise in three rows of four cylinders each. The motor is valve-in-head and there are six overhead camshafts. The bore is five and one-half and the stroke five and one-eighth.

The car has been equipped with rifle sights which will be aimed at a target at the end of the course. The target is an enormous bull's-eye which will be suspended from a wire strung between two towers thirty feet high. At the front of the hood is set the front sight—the bead of the rifle. The back telescopic sight is immediately in front of the driver. A black band painted on the hood connects the two sights.—*Popular Science*.

NEW DESIGN IN TELEVISION SETS

The old type of television receiver, with the large scanning disc and large neon tube that required so much current, has been superseded by a more practical piece of apparatus. This new set is the result of four years of television research

and experiments made by C. Francis Jenkins, the owner of Station W3XK, Washington, D. C. The usual television set has a picture screen of 1½" x 1½" whereas the new set produces an image about a foot square. This is done by reflecting the picture through a magnifying glass. In Jenkins' new set, he employs a special lamp with four plates, each plate serving to illuminate one-fourth of the screen. The plates are flashed on the screen in rotation, similar to the way auto spark plugs fire. Enormous illumination may be obtained with only the ordinary radio's two units of audio frequency amplification. The operation spells simplicity in itself; a switch starts the motor that drives the scanning drum. The radio set is tuned to the broadcast wave lengths, or short-wave lengths if convenient, that carry the television signals. A second switch turns on the neon lamp, and a series of parallel lines and flickering shadows appear on the screen. A third switch brings the picture into perfect synchronization with the transmitter. The picture is framed by means of a level placed on the screen.—*Special*.

WIRELESS LIGHT

The ideal of illumination engineers is to produce light that rivals the sun. We are soon going to give up the use of hot-filament electric light bulbs, made of the fine wire that burns up and causes a deposit of metallic vapor to form on the glass, thus reducing lighting efficiency. The proposed lamp will be a crystal globe, free from wires both inside and out. These will be filled with some rare gas. This lamp will receive its energy from a coil concealed in the walls of our houses. Their action is very similar to the neon glow signs that are so prevalent in the modern sign. It has been found certain gases issue a highly illuminate glow when subjected to the fluxuating intensity of a field produced by a high frequency current. In a high frequency coil the current changes direction from maximum in one direction to maximum in the opposite direction many times a second, hence, the field set up by this current varies, likewise many times a second. The electrons in the gas-filled globe are sensitive to the varying force upon them, traveling first in one direction then in another. The intensity of their travel makes them luminescent. The feature of this lamp is, that it is practically wear resistant and cheap to operate as well as being an asset to the aesthetic beauty of the most luxurious home. The source of this high frequency power may in time be transmitted by wireless.—*Popular Mechanics*.

THE ROCKET-AUTOMOBILE

This German novelty is the subject of a brief article in "The Explosives Engineer" by Rudolf Feuchtinger. The development of the rocket-car is due to a German engineer, Fritz von Opel, chief of the firm of Adam Opel, proprietors of the automobile plant at Russelsheim, with the assistance of Messrs. Sander and Valier, his aids, as a preliminary stage to the rocket-airplane and the rocket-airship. We read:

(Continued on Page 24)

ENGINEERING ABSTRACTS

(Continued from Page 13)

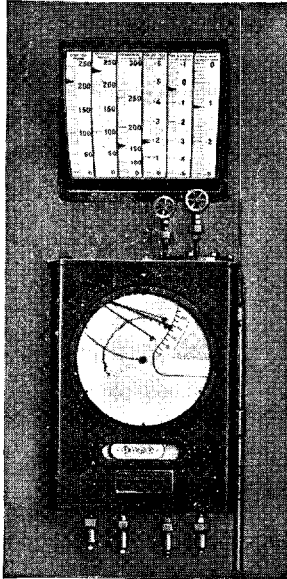
"The first official trial was made April, 1928, with an Opel rocket-car on the so-called 'Avusbahn' race-track near Berlin. The rocket-car, steered by Engineer Fritz von Opel, reached a speed maximum of 122 miles an hour. The total explosive charge of the rockets which were placed in the rear of the car and provided with electric ignition, amounted to about 1,200 pounds.

"Since the world's speed record for automobiles, which is at present about 207 miles an hour, was not reached on this race-track, further experiments and trial drives were continued with an especially constructed railroad rocket-car on an unused railroad line near Burgwedel (Hanover) in June, 1928. The car was started without a driver and reached a maximum speed of 149 miles an hour on this track.

"On a further increase of the rocket charge (about four times as much), the car was hurled from the rails and destroyed almost completely.

"In spite of the failures at the beginning, in a short time the unexpected difficulties will be overcome. This would mean a considerable approach to the practical realization of the idea of flying into space."—*Literary Digest*.

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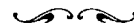
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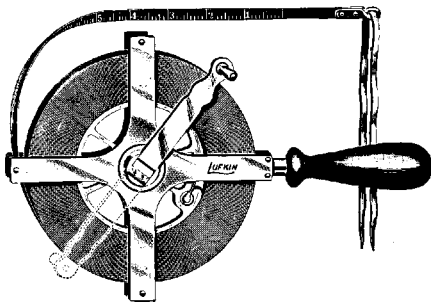
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