

## • New Machines and Gadgets •

⚙️ **MOTH PROTECTION** for clothes and household fabrics may now be had from a new odorless stainless spray which makes the fabrics non-edible to the insects. One treatment is said to protect the materials for a two-year period.

*Science News Letter, March 20, 1943*

⚙️ **CARROT JUICE** cocktail in a cellophane package is one of the latest war-time products. By dehydration a cocktail powder is prepared which contains celery and salt as well as carrots. Packed in moistureproof, airtight, laminated cellophane packages, the product not only saves metal cans, but much weight. Only 2¼ pounds of the powder makes the equivalent of 96 twelve-ounce cans of cocktail juice weighing 103 pounds.

*Science News Letter, March 20, 1943*

⚙️ **NEW ADHESIVE** tape recently patented has spaced perforations along its edges so it can be easily torn. Inwardly spaced interruptions in the woven threads also insure that a strip of desired length can be removed with edges smooth and straight.

*Science News Letter, March 20, 1943*

⚙️ **THE ELECTRONIC RAY** guns shown in the picture are 300,000-volt X-ray tubes adapted for use by the Army to take X-ray photographs of bullets as they crash through steel armor plate. These pictures, made in a millionth of a second, aid ballistics experts to study the action of bullets in flight. The device is

also used industrially to study rapidly moving machine parts.

*Science News Letter, March 20, 1943*

⚙️ **A GRAPHIC** calculator has been devised to measure the food value and adequacy of your diet. Amounts of essential dietary elements are registered for each food by raising slides on appropriate scales. When the diet has been completely registered, its degree of adequacy is shown at a glance. The comparative standard can be varied for six types of individuals according to their activities and conditions. Nutrition tables are also included with the device.

*Science News Letter, March 20, 1943*

⚙️ **A NEW AUDIO-SCALE** now in use is operated rapidly and accurately by blind persons. Using the principles of the airplane radio beam, the scale gives an audible signal "A" when the scale shows under the correct weight and the signal "N" for overweight. An unbroken buzz signals correct weight. The blind can thus be employed for such work in war plants.

*Science News Letter, March 20, 1943*

⚙️ **TRANSPARENT CELLULOID** plastic sheets are being successfully used instead of glass in storm windows in cold regions. It is claimed that the plastic has a lower heat conductivity than glass and transmits and traps more radiant heat from the sun. Also it does not break easily from explosion concussions.

*Science News Letter, March 20, 1943*

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 148.

### ENGINEERING

## Automobile Tires Built To Run Without Tubes

➤ **SPECIAL TIRES** built to be run without tubes are being tried with success by the Army, it is reported. They are being made by at least one large tire manufacturer. Their use should not be confused with the use of ordinary tires without tubes as an expediency due to the shortage of rubber.

These special tires have an extra-thick inner coating of rubber which prevents the air from seeping through the sidewalls. They also have extra-stiff, thick sidewalls to make them bullet-sealing

and strong enough to run flat if torn by shell fragments.

They are not practical for private cars at the present time. The extra amount of rubber needed for the inner surfacing is more than enough to make tubes. In post-war days a tubeless tire may be developed which will be put to general use.

Tests are being made in using ordinary tires without tubes but time will have to elapse before it will be known if the plan is fully successful. It was first suggested by the War Transportation Committee of Tulsa, Okla. An experiment is being tried in that city on 150 cars. Other trials are being made in other places.

The National Bureau of Standards is testing inflated casings without tubes in the laboratory, but not as yet on the road. Tires and rims were removed from cars. The insides of the tires were thoroughly cleaned and examined for breaks. Truck valves were inserted in the valve holes on the rims. The casings were then carefully placed on the rims so that they would fit as tightly as possible and a quart of an asbestos sealing fluid added to each through the valves. The wheels were spun rapidly to distribute the sealing fluid, and the tires were filled with air.

The outcome of these trials is still uncertain and tests over a longer period seem advisable before the plan is adopted on a nation-wide basis.

*Science News Letter, March 20, 1943*

Benjamin Franklin in 1785 published an article on the cause and cure of smoky chimneys that is still quite up-to-date.



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