

## New Machines And Gadgets

### Novel Things for War-Time Living

Rust is prevented at the source by a special cream with which the workman coats his hands before working with highly polished precision parts. A bit of perspiration or a fingerprint may start the rusting process, and this is not stopped by afterwards coating the piece with a rust-preventing compound. Rather it is sealed in. Gloves could of course be worn but are a hindrance when doing fine precision work.

Recording of telephone conversations is provided in an invention recently patented. Both the sender's voice and that of the distant speaker are recorded, so that misunderstandings and lapses of memory can be avoided when placing orders or making other business arrangements over the telephone. The device can be cut in or cut out as desired.

Filling sand bags usually requires two men, one to hold the bag open while the other shovels in the sand. This can be avoided by a simple lightweight device that holds the bag open. Since the bag all the while rests on the ground, the filler is readily removed when the bag is full without lifting the bag. The device was originally intended for filling coal sacks, but war brings new uses for many things.

Protection from holdups, especially in banks, is the object of an invention that has recently secured a patent. When the thug thrusts his ugly pistol through the window, the teller steps on a switch, and the device releases a succession of glass tear gas bombs which smash when they hit the floor or other hard surface and release their discouraging contents.

A hobby horse that moves slowly forward when rocked has recently obtained a patent. "Progressive" hobby horses have been provided in the past, the inventor states, but the mechanisms were complicated and even dangerous—likely to pinch a child's finger. This one gets its motion very simply by pushing on the carpet with its tail, although this style of locomotion would seem more appropriate to the kangaroo than the horse.

A black-light flashlamp that can throw a beam of black light to a distance of 10 feet and light up any fluorescent material that may be there, has recently been perfected. Originally intended for snooping around in mines in search of tungsten ore, which is fluorescent, it should be useful also on blackout nights to pick up fluorescent markings. In case such markings are absent, a regular flashlight is included. The whole outfit, including batteries, weighs but 7½ pounds.



Synthetic rubber thread is what you see in this picture. It is being made now exclusively for military purposes, for harness of parachutes, for gas masks and respirators, and other equipment. None is at present available for civilian products, and there is no indication when it will be available for such purposes. The new thread will stretch to eight times its original length, which is comparable to natural rubber thread, while its resistance to the action of perspiration, chafing, dyeing and bleaching are said to be better.

Sewage sludge has two valuable uses as was discovered in a small city sewage treatment plant: The sludge placed in the digesters developed enough gas to run the gas engines and heat the building. The dried sludge thrown outside proved to be a good fertilizer, containing nitrogen, phosphoric acid, potash and humus. Now the plant is making some of its expenses by selling the sludge.

*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 104.*  
*Science News Letter, May 16, 1942*

#### ENGINEERING

### Huge Gears Transmit Power Of Turbines to Propellers

See Front Cover

THE MIGHTY gears shown on the front cover of this week's SCIENCE NEWS LETTER are used on large ships to transmit power from high-speed turbines to the slower propeller shafts.

The smaller or pinion gear on the turbine shaft meshes with the larger gear on the propeller shaft. The herring bone arrangement of the teeth on both gears prevents end play and makes for smooth running.

Turbines are more efficient at high speeds, propellers are more efficient at low speeds. Gearing enables both to work at their best.

Improvements in turbines and boilers as well as in gears enable the modern warship to operate with 25 to 40% less fuel per horsepower-hour than the

same type of vessel in the first world war. The saving in fuel permits the ship to carry more weight in armor and guns, or to carry more fuel and thus strike at a more distant enemy.

*Science News Letter, May 16, 1942*

#### SEISMOLOGY

### Caltech Seismographs Record Naval Gunfire

SENSITIVE seismograph instruments at the California Institute of Technology, set up to catch tremors telling of distant great earthquakes, are also recording the lesser earthquakes set up by heavy gunfire during naval target practice, off the nearby coast of California, reports Dr. Beno Gutenberg, who has charge of the Institute's work in geophysics. It is even possible, by close examination of the quivering lines of the instruments' tracings, to get some idea of the types of explosion causing them.

*Science News Letter, May 16, 1942*

The mountain goat is not a true goat, but is a member of the goat-antelope family to which the chamois belongs.



### FIRST AID Wounds and Fractures



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