

## New Machines And Gadgets

### Novel Things for Better Living

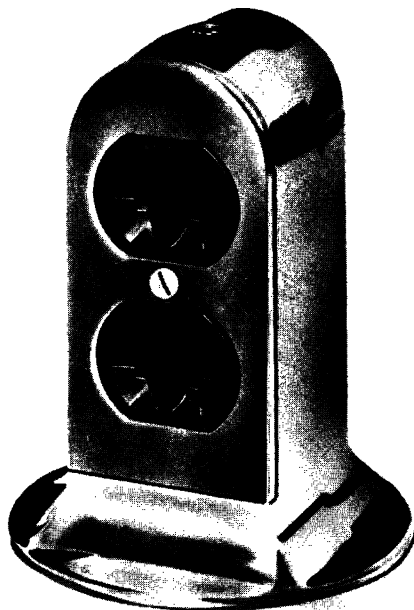
Two types of aluminum solder have been developed. One, to be used on sheet aluminum, melts at 750 degrees and has a tensile strength of 14,600 pounds per square inch. The other, intended for cast aluminum, melts at 900 degrees and the tensile strength tests 29,000 pounds per square inch. Neither type requires any flux.

Digging postholes will be made considerably easier by a newly invented augur that can be attached to the back of a tractor of standard construction and receives power from the tractor itself. Thus the tractor can move along the line of postholes and the digging is a matter of moving a few handles. The device can also be detached from the tractor when its use is not required. It is sufficiently powerful and rugged to operate a rock drill, so that holes may be bored through rock, coal or the like. If the tractor stands on sloping ground, adjustments can be made so that the holes will be vertical.

Scraping the insulation off a wire with a pocket knife is a difficult job for the amateur electrician and not good for the knife. A simple little invention recently patented makes the job easy and saves the knife. It is a flat piece of steel bent in the form of a Z. One end of the Z has a deep V notch cut into it. The sides of this V are beveled and sharpened. The other end of the Z serves as a handle. The wire is pressed into the bottom of the V and the instrument then pulled along the wire, thus scraping the insulation off.

Overheating of an electric iron when resting on its stand is prevented by a special kind of stand which cuts the current off when the iron is too hot. At the same time a lamp within the stand is lighted and its rays can be seen through holes in the stand, indicating that the current is off. The current is arranged to flow first through the stand and then through the iron, so that heat communicated by the iron to the stand operates a thermostat, contained in the latter, which breaks the circuit when the iron is too hot. This is an invention that has recently been patented.

The electric outlet, illustrated on this page, stands on the floor instead of being set into the wall. It is designed for factories, laboratories and other places where many outlets are required for machines, work tables or desks scattered all over the floor. These outlets are especially adapted to a cellular type of floor construction which provides channels for electrical wires, thus making practically the whole floor available for electrical services.



A tiny quartz balance sealed in a glass tube exhausted of air shows, while you wait, how a piece of steel half as big as a razor blade grows in weight as it rusts—a small amount of oxygen being admitted to the tube for this purpose. So sensitive is the balance, that a single layer of oxygen atoms 10 billionths of an inch thick and weighing 15 billionths of an ounce will tip the scales. The weight of the slightest bit of tarnish on a metal can be weighed to a 10-billionth of an ounce. The tests can be made at any temperature from 932 degrees down to -292 degrees Fahrenheit. Tests at different temperatures are important because, for example, stainless steel does not remain stainless above 1000 degrees Fahrenheit. The balance is made of quartz because this substance expands less than any other when heated.

*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 58.*  
*Science News Letter, April 4, 1942*

#### ENGINEERING

### New Blackout Bulb Developed by Army

A BLACKOUT bulb which eliminates need for special drapes and shades, gives ample light to avoid stumbling over furniture, yet cannot be seen from the air has been successfully developed and tested by Army engineers at Fort Belvoir, Va., and will probably soon be on the market.

The new bulb is heavily coated with black except for an orange button about the size of a nickel on the bottom. It burns on average house current and will

sell for about 25 cents. One bulb per room will provide enough light to permit occupants to see each other plainly, as well as furniture, doors and windows. Only the usual household curtains, drapes or shades are needed when this bulb is the sole source of light, engineers said.

Army pilots and engineers tested the bulb recently in a tiny town in New Jersey (only forty houses). Each home was equipped with the blackout bulbs and shades and curtains left up. When pilots flew over they were unable to see a single ray of light.

The bulbs were developed with the cooperation of the Nela Park Engineering Department of the General Electric Company at Cleveland, Ohio.

Army engineers explained that orange was selected as the color for the light-emitting button, since it is near the red end of the spectrum, yet unlike red is not confused with exit lights. Red has been found to be the light least visible from the air.

While the blackout bulb will not permit a person to read or play cards, it is safer and more convenient than no light at all. It can be used to light sections of the house where there are too many doors or windows for practical use of blackout drapes. One room of the house can be blacked out completely to permit reading with ordinary light while the rest of the house can be lighted with the special bulbs.

*Science News Letter, April 4, 1942*

More than 200,000 needed *freight cars* will be constructed this year, using lumber wherever possible to conserve steel.

The *St. Bernard* is one of the largest of dogs—he weighs as much as 200 pounds and measures more than five feet from nose-tip to root of tail.

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## WYOMING

Fish in its mountain streams. Ride horseback thru its hills and canyons. Find Indian relics and marine fossils in this region of great historical and geologic interest.

The Patons welcome a limited number of guests at their ranch home in the Big Horn country. Cabins are comfortable, food good and horses gentle.

Write for illustrated folder with map

**Paton Ranch, Shell, Wyoming**