

signal or a chemical spray that would reveal the presence of mines or explosives by changing its color.

The Army does not want new versions of probing methods, however.

The Army does want new ideas and suggestions for destroying mine fields once they are discovered.

Any ideas? Send them along to the National Inventors Council, Department of Commerce, Washington 25, D. C. The Council, which acts in an advisory capacity to the Department of Defense and other Government agencies, will evaluate, guide and analyze your invention.

If you want to submit an invention, here are some rules of the road:

1. No special forms are required, nor are the services of an attorney.

2. All material should be typewritten in English.

3. Funds for transportation for the inventor are not provided.

4. Models of the invention should not be forwarded unless requested.

5. Material submitted cannot be returned, duplicates should be made and kept by the inventor.

6. All submissions are held in secrecy and confidence, but the Council cannot give the protection afforded by a granted patent.

7. The Council cannot assist manufacturers in selling their products to the Government.

8. Acceptance of a disclosure by the Council does not legally obligate the U. S. Government, nor does it obligate the inventor. The Council is not directly concerned with compensation or rewards to inventors, nor in the development of a promising idea into a useful device. Those agencies which might use a promising suggestion, such as the Army, Navy and Air Force, are authorized to make arrangements with the inventor for the use of his invention. This direct method has been found to be mutually satisfactory.

So, if you have a non-magnetic compass, a method for converting light into electrical energy, a destructive ray or wave, or an explosive mine detector, send it along.

Science News Letter, April 6, 1957

MICROBIOLOGY

Ultrasonics Tear Cell Walls Away From Germs

► HIGH frequency sound waves are being used to break apart disease-causing microbes by Dr. Giulio Bosco of the University of Chicago's microbiology department, the University reported in Chicago.

The ultrasonic waves, vibrating at a frequency of 400,000 cycles per second and much too high to be heard by the human ear, are able to tear away the thin, tough wall that encases each of the one-celled organisms. The enclosed cytoplasm of the cell is then freed. It has been killed but left chemically unchanged by the process and can be used in the manufacture of vaccines.

The high frequency vibrations are produced by a 2,000-volt, 800-watt quartz crystal generator. The vibrations' microbe-breaking effect is similar to the breaking of a crystal glass by a very high human voice.

This method offers a quick and convenient way to isolate the cell walls from the main cell body. Older methods involve treating the microbes with alcohols and acids that often cause a change in the chemical composition of the cell structures.

Dr. Bosco first used his ultrasonic technique in Italy where he produced experimental cholera and typhoid vaccines by injecting the dead, but chemically unaltered, microbes into animals. These microbes stimulated the production of antibodies. Blood serum containing the antibodies is then drawn off and refined into vaccines, he said.

Science News Letter, April 6, 1957

● **RADIO**

Saturday, April 13, 1957, 1:45-2:00 p.m., EST.

"Adventures in Science, with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Margaret Lyman, educational director, National Council on Infant and Child Care, New York, will discuss "Doctors, Mothers and Children."



Wrist Radio Weighs 2.5 oz.

All-transistor wrist radio receiver

A broadcast band all-transistor wrist radio has been designed with r-f reflex circuit to provide good selectivity and sensitivity. Three transistors are used which require 4.5 ma total battery current and five button-size mercury cells last up to 100 hours. The receiver features a 2-stage transformer-coupled audio amplifier and a no-whistle regenerative circuit. A high quality hearing aid receiver allows for private listening. Printed circuitry is used throughout. Band coverage

ONLY **\$29.95**

POSTPAID is 550 to 1600 kc. Its small size (2¾ in. long, 1¾ in. wide and ¾ in. thick) and weight (2.5 oz. with batteries) make it well suited for wearing on the wrist or in a shirt pocket. Completely assembled with all batteries.

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**OUTWEARS ORDINARY ROPE 10 TO 1
NYLON BRAIDED CORD**

1/16" dia., 100 lb. test, white, per ft. . . . 1½¢
¼" dia., 375 lb. test, white, per ft. . . . 2¢
3/16" dia., 550 lb. test, olive drab, per ft. 2½¢
In 50, 100, 200, 300, 400, 500 ft. & over lengths.

NYLON BRAIDED LINE

¼" dia., 1000 lb. test, olive drab, per ft. in 30, 50 & 100 ft. lengths. . . . 3¢

NYLON ROPE

¼" dia., 1200 lb. test, per foot. . . . 8¢
5/16" dia., 1900 lb. test, per foot. . . . 12¢
¾" dia., 2700 lb. test, per foot. . . . 17¢
7/16" dia., 3800 lb. test, per foot. . . . 20¢
½" dia., 4700 lb. test, per foot. . . . 28¢
¾" dia., 7300 lb. test, per foot. . . . 45¢
¾" dia., 10,000 lb. test, per foot. . . . 60¢
All in any length up to 1200 feet.

NYLON FISH LINE

Proven best by experienced fishermen. Heat stretched. Will not kink, twist or unravel. 25 lb. test. 300 ft. Reg. \$1 per spool, **NOW 50¢**



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with sturdy steel buckle

Perfect for passenger safety belts, luggage straps, car towlines, car carrying straps, boat trailer straps, etc. The heavy equipment and machinery with greater ease and safety . . . at far less cost. Just the thing for the garage or workshop. 1" wide, 3000 lb. test, per foot. . . . 10¢
1½" wide, 6000 lb. test, per foot. . . . 16¢
In 5, 6, 8, 10, 12 foot lengths

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PLASTIC ROLLS**



Waterproof! Resistant to Dust, Air, Grease—Unaffected by Heat, Cold!
Tack It, Staple It, Heat-Seal It, Tape It!
Lightweight, Strong—Inexpensive!
Protects from dust, dirt, moisture, rust, moths, cold, etc. Transparent! Stains wipe off!
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GARDENS—Protect furniture, equipment, shrubs, plants, newly seeded lawns. Winter greenhouses. 36"x25 ft. . . . \$3.59 96"x25 ft. . . \$7.50
40"x25 ft. . . . \$3.98 120"x25 ft. . . \$9.00
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INDUSTRIAL—Equipment, machinery covers. Fumigation, oxygen tents. Painters' drop cloth. Floor covers for car trunks, trucks. Chases moisture vapor from crawl spaces, etc. Curing concrete. Keep rain, cold away from outdoor work areas.

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Same features as rolls, except .002 gauge plastic, & pre-cut to handy tarpaulin size. Smaller size folds to only 7½" long, weighs only 8 oz. As durable as tarps weighing much more! Carrying bag.
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\$1.98 Removes broken screws fast, easy. One of the highest quality, lowest price tool sets we've ever offered! Each piece specially hardened, beautifully machined chrome vanadium steel. Comes in varnished hardwood case with sliding cover. You get sizes 1-5 screw extractors that remove ¼" to ¾" screws.

K & E Level-Square Tape



Famous K & E. tape, used by mechanics for years, now has these EXTRAS! Built in, accurate, unbreakable level, and square! Wye-face tape is full 10 ft., replaceable! Sliding end hook makes inside, outside measurements accurate. \$1.98

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