

By burning the high-temperature gases (1,000 degrees Fahrenheit) that ordinarily would be discharged into the atmosphere, the boiler pays for itself with fuel savings in just a few years.

The steel industry also is benefiting from the increasing number and size of waste heat boiler installations. Republic Steel Corporation has ordered from Babcock & Wilcox the world's largest capacity waste boiler. Designed to reclaim heat from waste gases of two oxygen-lanced open-hearth furnaces, the boiler will generate nearly 300,000 pounds of steam per hour to operate machinery and heat buildings.

Many industries overseas are showing increased interest in cost-cutting installations, such as a petrochemical complex being built in Argentina. The plant's design includes three waste heat boilers that will use hot exhaust from gas turbine generators to make steam for chemical processes and for driving turbines.

The exhaust (about 800 degrees Fahrenheit) will be combined with a base fuel and fired in the boiler. Reclaiming the heat reduces fuel consumption and the oxygen is sufficient to support combustion.

Steam-generating equipment manufacturers have been conducting extensive research and testing models of new and more efficient methods to convert waste heat into useful energy. Most waste and by-products can be heated and turned into energy.

One of the latest improvements is a water-cooled steam-generating hood for basic oxygen steelmaking, a process coming into widespread use in the United States. Made essentially of hundreds of welded steel tubes, the membrane hood fits over the furnace to collect, transport, cool and recover heat value from the high temperature gases (3,500 degrees Fahrenheit).

By cooling the furnace gases, gas cleanup systems can operate still more effectively to remove dust, helping to curb air pollution.

The unit makes steam, at rates up to 200,000 pounds per hour, that can be used by steel mills for power generation and process heat.

Industry's fuel savings can be conservatively estimated at millions of dollars annually—dollars that otherwise might literally have gone "up the stack."

• Science News Letter, 86:282 October 31, 1964

INVENTION

Patents of the Week

The newest policeman's aid is a dual-purpose axe to capture criminals that chops holes in doors and then shoots tear gas grenades—By William McCann

➤ AN AXE that can chop a hole in a door and shoot tear gas into a room barricaded by a criminal has been developed to help make police work a little less dangerous.

Rather than having to batter down a door and face the muzzle of a trapped criminal's gun, police can slash a hole in a door with the axe. With the axe sticking in the door they can pull a ring, shooting a tear gas grenade into the room through a tube that has its opening at the face of the axe.

The device, which is about 30 inches long and weighs 15 pounds, can be swung like a sledge hammer against the door by an officer standing off to one side, thus avoiding exposure to gunfire through the door.

Carl Weinert, Pittsburgh, Pa., was awarded patent 3,152,417 by the U.S. Patent Office for his police saver, which was successfully tested at the FBI Academy at Quantico, Va., earlier this year. Patent rights were assigned to Federal Laboratories, Inc., Saltsburg, Pa.

The invention is most effective in attempting to apprehend an armed criminal in a room without windows or in areas where shooting tear gas from the outside would not be advisable, Mr. Weinert reported in his patent.

Smoke and Fire Alarm

A device that can "see" smoke or "feel" fire and then whistle for firemen has been patented.

The device is a smoke and fire alarm which contains a heat-responsive thermostat and a photoelectric cell unit. The thermo-

stat senses if a room gets too hot and causes an aerosol-operated horn to bellow for help. Similarly, the horn will blow if the hazy smoke comes between the light beam from the photoelectric cell and a receiving eye located across from the cell on the alarm.

The smoke and fire alarm was invented by John L. Jensen, Estherville, Iowa, who was awarded patent 3,153,226.

Back Seat Head Rest

Back seat drivers can now sit back comfortably with the aid of a newly developed back seat head rest.

William Buhl, Medford, Ore., earned patent 3,152,831 for the head rest, which may be easily removed and used as a cushioned seat. It has been designed so that it will not block the driver's view through the back window.

• Science News Letter, 86:283 Oct. 31, 1964

Do You Know?

Most young women in the United States suffer from "pump bumps," a bony outgrowth on their heels, which results from closely-fitting high-heeled shoes.

The number of blind people in the world is expected to increase from today's 14 million to 20 million by the year 2000.

• Science News Letter, 86:283 October 31, 1964

VERNIER MAGNIFIER \$1.25 p.p.

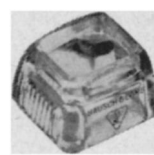


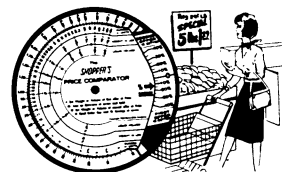
Illustration 1/2 size

Examine stamps, coins, printers screens, minerals, insects, etc. A general utility magnifier. Clear plastic base. Contains two Alnico magnets. @ 1/2 price. Limited stock. Boxed brand NEW. Send \$1.25 at once. Products bulletin 25¢.

HARRY ROSS

Scientific & Lab Apparatus
61-L Reade St., N.Y. 7, N.Y.

DON'T BE MISLED BY PRICES!



Price Comparator computes true unit price of two comparable products having different weight and prices. . . . Automatic arrow points to the best buy and tells you how much you save. Laminated in plastic. ONLY \$1.00 postpaid.

DYNA-SLIDE COMPANY

600 S. Michigan Ave. Chicago 5, Illinois



Save Time & Hundreds of \$\$ on Expensive Hair Trims

Use magic TRIMTEX Invention. Automatic diagonal cutting action & finger tip control assure expertly tapered professional-looking trims. Short, medium, latest Italian & Beate "Razor Trims". Quick & easy, 100% safe, a MUST for all homes. Also ideal & gentle as a breeze for hair on ladies' arms & legs. Can't cut, scrape or coarsen delicate skin. Try TRIMTEX 30 days & save cost many times. Money back if not 100% pleased. Only \$1.98, 2-\$3.75, 3-\$5.25, p.p. Guaranteed 5 years. No CODs, please. Free Bonus: New Swedish Scalp Massager with each TRIMTEX. Wonderful aid to check Dandruff, Thinning Hair.

TERRY ELLIOTT CO., Dept. S

P.O. Box 1918, Grand Central Stat., New York 17, N. Y.

MICRO-ADS

Equipment, supplies and services of special interest to scientists, science teachers and students, science-minded laymen and hobbyists. 25¢ per word, payable in advance. Closing date 3 weeks prior to publication (Saturday).
SNL 1719 N St., N.W., Washington, D.C. 20036

AMAZING CARNIVOROUS PLANTS LURE, catch, eat insects. Fascinating Venus's Fly Traps, 6 quality large bulbs \$2.95, 12—\$4.95 p.p. Carnivorous Plant Set, 3 Fly Trap Bulbs, 1 Miniature Huntsman's Horn, 1 Purple Pitcher, \$3.95. Illustrated brochure 10¢. Armstrong Associates Inc., Box 127-S, Basking Ridge, N. J.

BINDERS FOR SNL — BUFF-COLORED BUCKRAM. Snap-in metal strips hold 52 copies. \$4.00 p.p. Send order with remittance to Science News Letter, 1719 N Street, N.W., Washington, D. C. 20036.

CAMERA FAN? BIG SAVINGS! WHEN BUYING direct from international exporter. Bolex, Rollei, Nikon, Zeiss, many others. Send refundable \$1.00 to Hokophoto, Box 247, Burlingame, California, 94012.

FOR INFORMATION ABOUT A PHILOSOPHY based on natural, not supernatural, phenomena, write to the American Humanist Association, Dept. SNL-3, Humanist House, Yellow Springs, Ohio.

FREE PAPERBACK CATALOGUE. GREAT SAVINGS. New York Paperback-Record Club, 4-H West 43rd Street, New York City 10036.

SURPLUS WIRED IBM MEMORY PLANES SOLD for pennies on the dollar. Inquiries invited. Meshna, Lynn, Mass.