MEDICINE

Copper Cement Flooring Prevents Athlete's Foot

DANGER of getting athlete's foot and warts on the soles of the feet from swimming runways, locker and shower rooms may be reduced by use of a copper cement flooring material called hubbellite, Dr. W. L. Mallmann, of Michigan State College, reports. (*Journal of the American Medical Association,* Sept. 6.)

When the fungus that causes athlete's foot was spread on blocks of glass plate, ordinary cement and hubbellite, Dr. Mallmann reports, the fungi multiplied on the glass plate and ordinary cement to double and triple the original number after four and eight hours. On the hubbellite the fungi were reduced from 72,000 to 74 after eight hours.

A practical test of the hubbellite was made by placing an eight-foot strip of it across a hallway in the college gymnasium in a location where all bathers had to travel over it between the showers and lockers. The number of germs, both bacteria and molds, was always lower on the hubbellite than on the adjacent ordinary concrete floor.

Hubbellite was developed by D. S. Hubbell at the Mellon Institute for Industrial Research at Pittsburgh. It is said to owe its germ-killing property to the minute amounts of a copper compound which are released from the flooring when it is wet. It was effective not only when wet with water but when milk was smeared over it, Dr. Mallmann found, suggesting its usefulness on the floors of dairies and kitchens.

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MILITARY SCIENCE

Two-Way Ski Suits to Make Our Troops Hard to See

WHEN winter comes, Uncle Sam's Alaska Defense Force will have a chance to try out brand new equipment, designed to make American ski troops hard to see and ready for anything in the Far Northern field.

Two-way ski suits, green outside and white inside — or vice versa — are an American improvement on cloaks and hoods of snowy white that turned Finns into phantoms in winter fighting. The American reversible uniforms, in War Department estimation, will place the Alaska Defense Force among the best equipped snow troops in the world. The green-white outfits, pictured on page 163, are believed unique.

Camouflage, wind resistance and warmth are the three main requisites of ski uniforms which the U. S. Quartermaster Corps has taken into account, but the ski outfit is also water repellent.

Also especially designed for American ski troops is a miniature stove weighing less than three pounds, tough enough to stand being hurled across a room, and capable of burning gasoline, kerosene, or alcohol. It provides warmth or a means of cooking food, in an emergency, and is so frugal in its use of fuel that a pint of fuel is enough to cook one soldier's meals for ten days.

Protection against cold as severe as 40 below zero is provided in a special sleeping bag for the American in Alaska. Keeping the weight of the three-layer bag down to less than 11 pounds, the Quartermaster Corps figures that it can be carried in a soldier's knapsack. A canopy attached to the bag, to protect the sleeper's head at night, becomes the carrying case for the bag by day.

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INVENTION

Device Varies Spaces To Justify Lines

CHANGE of the spacing between typewriter characters at the will of the operator can be obtained by an ingenious device recently patented. Without this device, when the operator wishes to justify the line with respect to the right hand margin, i.e., to make the lines come out even as in printed matter, he can do so only by increasing the spacing between words to two or more times the normal amount. This is awkward and conspicuous, and moreover the line can only be lengthened, never shortened. With this device, the operator can increase or diminish the spacing, not only between words but between the separate letters of a word, by an adjustable fraction of the normal spacing. (*Harry H. Bernhard, Patent No. 2,233,092*)

Science News Letter, September 13, 1941

INVENTION

Illuminated Umbrella For Dark, Rainy Nights

USEFUL on black-out nights would be the illuminated umbrella stick, a recently patented invention. A light at the tip warns approaching automobiles; a light in the handle illuminates the pedestrian's path. (*Anna L. Campbell, Philadelphia, Patent No. 2,246,836.*)

Science News Letter, September 13, 1941

IN SCIEN

INVENTION

Automatic Feeder Keeps Dishwater Soapy

A DISHWASHING compound in the form of hard briquets simplifies the problem of keeping the wash water at a uniform strength. They are used with an automatic feeder which controls the addition of the compound to the water, so it is always kept at the strength to cleanse tableware most effectively. (*Mathieson Alkali Work, N. Y. C.*)

Science News Letter, September 13, 1941

INVENTION

Machine Tests Wear Of Paper for Money

A MACHINE that first crumples paper intended for currency into a small wad, and then by means of mechanical fingers straightens and smooths it out, has recently been developed by F. T. Carson and V. Worthington of the National Bureau of Standards. The crumpling and straightening are repeated many times until in the course of a few minutes the paper has received as much of this treatment as it would in several months of actual use as money.

Next the paper is tested to determine how much damage it has received. Strength and stiffness are sometimes measured, but a valuable new test, also developed by Mr. Carson, accomplishes many purposes by a single measurement. This is a measurement of the rate at which air will flow through the paper under a given pressure. This determines how much the structure has been opened up, which is closely related to the roughness or fuzziness of the surface, its ability to catch dirt and absorb oil and grease and the probability of impairment of printed images and lettering on the paper, as well as the change in strength and stiffness.

The replacement of worn-out paper currency costs the government several million dollars every year. Research is going on continually for the improvement both of the papers and of the machines for testing them.

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CE FIELDS

RESOURCES

Trees Salvage Waste Land Left By Strip Coal Mines

TREES by the million are being used to salvage the tumbled heaps of waste land left after strip coal mining operations in Illinois. The plantings are carried out in a cooperative program involving the mine-owning companies and the Illinois Division of Forestry under the general direction of Joseph P. Schavilje. (*Journal of Forestry,* August)

Strip mining is resorted to when the coal seam is fairly close to the surface. Huge steam shovels scoop away the soil, piling it in long, parallel ridges and laying the coal bare for removal. There are 102 strip mines, large and small, now operating in the state.

Since topsoil, clay, shale and waste coal are mixed in hopeless confusion in these long spoil-heaps, the land is lost to any possible agricultural use. However, trees will grow on it. Of the species tried thus far, black locust has proved the favorite, with black walnut, cottonwood, and several kinds of yellow pine also in the running.

Planting stock is provided by the Division of Forestry and the mining companies supply the labor. It costs between one and two cents apiece to plant the little trees. Something over 16,000 acres are thus far included in the planting projects, with more than a million trees a year getting started. Future strip mining operations may affect nearly 64,000 acres of land in Illinois.

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ENGINEERING

Fluorescent Lamp Factory Has Germless Air

A HUNDRED modern fluorescent lamps a minute will be produced at Westinghouse's new factory in Fairmont, West Virginia, where artificial daylight illumination, fluorescently produced, dustless air-conditioned atmosphere and a completely blacked-out windowless structure give the maximum in good working conditions.

Daylight indoors is obtained with fluorescent lamps which the plant manufactures. The lighting is unusual because all lamps are of a particular shade of white known as 3500 Degree White which makes feminine complexions normal in appearance. Approximately 75% of the employes are girls.

The volume of light is carefully controlled and directed so as to heighten visibility and to eliminate glare. General illumination is maintained at 45 footcandles, which is extremely good when it is considered that the average in the nation's industrial plants is about 10 footcandles. Where close work puts unusual demands upon eyes, local auxiliary lighting raises it to 100 footcandles.

The main building, a one-story structure, is so big that four football gridirons could be placed in it with ease. From one end to the other, it is 885 feet long, comparable to a couple of good city blocks. From side wall to side wall, the distance is 220 feet.

Nowhere in the entire plant are there any stairs, nor anywhere about the grounds. Carefully graded ramps are used to pass from one level to another.

Dust is taken from the air by electricity. Each particle is charged electrostatically and drawn to a metal plate where it adheres. A battery of more than 100 sterilamps stands guard in the air-conditioning system, radiating invisible ultraviolet rays which kill approximately 95% of the bacteria in the atmosphere passing through the ducts.

Science News Letter, September 13, 1941

RADIO

Alloys Speed Television Through New Invention

A RECENT patent assigned to the Radio Corporation of America covers a use of magnesium alloys which may speed television and be of use in other means of electrical amplification. This patent, 2,233,276, was granted to Dr. Vladimir K. Zworykin, associate director of the RCA Research Laboratories, and two of his colleagues, Humboldt W. Leverenz and John E. Ruedy.

The alloy is used as a "secondary electron emissive electrode." When a few electrons hit such an electrode, many more are given off. A series can be used in a "multiplier tube," to give great amplification. Previous methods of preparing such electrodes were expensive and complicated, and the results very unstable. The inventors have devised a much simpler method of preparing such electrodes, which work satisfactorily even at high temperatures.

Science News Letter, September 13, 1941

INVENTION

New Training Device Lifts Parachutists

A TRAINING apparatus for parachutists that eliminates the elaborate, costly tall tower hitherto used, is one of the inventions on which patents have recently been issued by the U. S. Patent Office.

The device looks as if it might have received its inspiration from the popular spot in amusement parks, where an upward blast of air blows the girls' skirts around their ears. The hopeful candidate for parachute honors stands on a platform, with his parachute draped over a vertical pipe. A blast of air fills and lifts it. Then from a second pipe a more powerful blast blows parachute, candidate and all into the air. Once beyond the range of the lifting blast, he proceeds to drift down.

The inventor, G. G. Serkau of Montreal, claims that his device will cost much less than the tower setup, and will be far easier to transport from one training field to another. It comes much nearer to simulating actual service conditions, too, he says. Obviously, the invention is also adaptable for amusement purposes.

The invention is covered by patent 2,253,586, which has been assigned to F. W. Zelcer, of New York City.

Science News Letter, September 13, 1941

PHYSIOLOGY

X-Ray Saves Animals From CO Poisoning

X RAYS saved the lives of animals nearly dead from carbon monoxide poisoning, in experiments reported by Dr. John A. Cameron of the University of Missouri.

Rats and monkeys were used in pairs. Each pair was exposed to carbon monoxide until near the death point. Then one of the animals was given a heavy dose of X-rays on the underside of its body; the other was left untreated, as a control.

"In about half the cases the X-rayed animal was active and alert after about five minutes; the control dead," Dr. Cameron stated. "In the remaining trials the recovery time of the X-rayed animal was reduced to two-thirds that of the control; often to one-half or less."

Spectrographs of the blood of the animals showed that the carbon monoxide content was actually reduced after X-ray treatment. How this was brought about, Dr. Cameron is not yet prepared to state, although he suggested several possibilities.

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