

ends, it is clearly revealed in a shaft of light focused from below.

By watching the pipes, a ship's officer can easily detect a fire in any part of the hold. As an added precaution when he turns his back, there is an "electric eye" watchman which automatically samples the air from each of the pipes in turn, making the rounds in about two minutes. When smoke breaks the light beam, an alarm rings and a signal flashes showing the location of the fire. The smoke-sniffing pipes also act as fire hoses, and carbon dioxide rushes down the pipe to smother the flames.

Similar CO<sub>2</sub> fire-fighting systems have been installed in plants where fire-hazardous work is done. Sometimes the gas closes the windows and smothers the fire in the same operation. CO<sub>2</sub> systems are made to order for electrical power plants where liquid extinguishers are out of the question. Repositories of articles of great value, like the Archives Building at Washington, have fixed CO<sub>2</sub> systems, while many other establishments, like the Sterling Memorial Library at Yale, are protected by portable soda pop gas extinguishers.

The energy of expanding CO<sub>2</sub> is even being used to propel bullets. Ray J. Monner, Denver inventor, is manufacturing a so-called "dry-ice gun," and the Colorado Defense Force has ordered the first hundred to use in place of the Springfield taken over by the Army. A cylinder beneath the barrel is loaded with crushed "dry ice" which becomes liquefied. When the trigger is pulled, a valve is opened, and a little of the violently expanding gas drives the .22 caliber bullet from the barrel. One loading is good for 1800 shots.

This becomes less of a Buck Rogers dream when you consider that there are 30,000 foot-pounds of energy in a single pound of the compressed gas. And if it can open a bomb bay, launch a life raft, close a window and shoot a gun, it can be used for other specialized power jobs. So engineers are making plans.

Whatever these plans may come to, soda pop gas still packs its triple threat as life-saver, fire-fighter and refrigerant, and has an expanding future both in war and peace.

*Science News Letter, January 9, 1943*

the foot control must go in order to eliminate the fatigue which it gives to dentists who are one-legged cranes every time they operate the dental engine."

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#### ENGINEERING

### Tire Wear on Passenger Cars Reduced by Half

► TIRE WEAR on passenger cars is now less than half as great as it was a year ago on main rural highways, a new report by O. K. Norman, highway engineer-economist of the Public Roads Administration, indicates. Traffic counts made after rationing showed 40% reduction compared to traffic a year ago. There was also a fourth less tire wear per travelled mile, due to lower speeds, according to studies by the Public Roads Administration and state highway departments.

More than half the drivers travel at speeds over 35 miles per hour, a survey in rationed areas indicated. Average for passenger cars was 36.6 miles per hour in a rationed area, and only 37 even in areas that were not rationed at the time of the survey.

Trucks now travel at about the same speed as passenger cars. Prior to rationing and the new speed limit, average car speed was nearly 50 miles per hour.

Considering that there has been little enforcement of the 35-mile speed in some states, it is encouraging to find that so few drivers travel at speeds more than five miles per hour in excess of the limit, Mr. Norman stated.

Most of the studies on the 35-mile limit were conducted within a month after the new law became effective. Since many states had not started to enforce the reduced limit or changed their speed signs at that time, Mr. Norman points out that a further decrease in average speeds is probably now in progress.

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#### DENTISTRY

## Fingertip Control

New gadget relieving dentists' feet of control of the drill is invented by dentist who tired of being a "one legged crane."

► A GADGET to put dentists back on their feet has been invented by Dr. Maurice I. Blair, Chicago dentist. Dr. Blair's fingertip dental engine control, which changes the control of the dental engine from foot to hand, has just been given its first public display.

The fingertip control which, Dr. Blair reports, is the first change in drill control in 30 years, is shockproof. It is manipulated simply by a sensitive electric button on the mirror handle, which is connected by aerial wire to the drill through a two-tube radio.

Dr. Blair reports that the inspiration for this improvement was the fact that he "got awfully tired of always standing on one foot." Dentists now use the foot control which makes it necessary for one foot to be constantly on the control.

Dr. Blair also points out that the foot control is an eyesore and a nuisance since most dentists' floors are waxed to a point of slipperiness and the foot con-

trol is always slipping out of reach, with the dentist sliding with it. Many a patient who has tripped over it will bless Dr. Blair for his invention.

In the two years that it took Dr. Blair to perfect his invention he ran across many disappointments when he found it impossible to use his original idea of placing the button directly on the drill. However, he hit upon the safe and happy idea of placing it in the mirror handle and it has proved to be successful.

After the end of the war, Dr. Blair's control will be manufactured so that other dentists may share in his invention.

"I am now working on an improvement which will use a low voltage switch to start and stop the dental engine, thus eliminating the radio circuit which has given a little trouble in some areas because of interference," Dr. Blair has just reported.

"I am more convinced than ever that

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