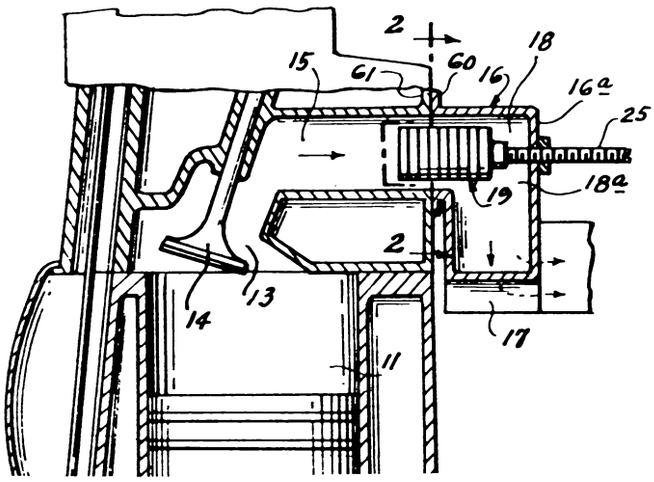
current patents

AIR POLLUTION

Auto Exhausts Cut

A new approach to cutting auto exhaust emissions, patented last week, may help clear up the auto air pollution problem.

The device, developed by independent inventor Vincent Guarnaschelli of Greenlawn, N.Y., consists of a



cylindrical insert in the exhaust manifold of the engine. The metal insert retains the heat of the exhaust gas as it comes out of the cylinder and slows the gases down so that more complete burning takes place.

Unburned hydrocarbons, carbon monoxide, and oxides of nitrogen are the principal polluting emissions in automobile exhausts. All are reduced by more complete burning of the gasoline.

Raymond Shea, president of Mutual Industries Inc., Worcester, Mass., says the control device had shown up well in tests, even on old cars. Mutual, which supported Guarnaschelli's research, was assigned the patent.

Shea said the prototype model of the device, in combination with an intake pre-heater also patented by Mutual, brought hydrocarbon emissions on a four-year-old, 67,000-mile car from 722 parts per million down to 278 ppm in a California test.

Carbon monoxide emission was reduced from 1.69 ppm to 1.08. Nitrogen oxides came down from 11.81 to 3.50, he said.

Present California standards for that type of car are 275 ppm hydrocarbons and 1.50 ppm carbon monoxide. No standards for nitrogen have been set.

Shea says the combination intake and exhaust burner system should cost less than $25 on new cars. He believes it could be installed on used cars in a half hour.

Although the device slows down the exit of exhaust gasses, there is no back-pressure which could cause lower power, according to Shea.

Present auto emission standards on new cars are being met largely by more careful tuning of the engine and by introducing air into the exhaust to dilute the pollutants.

These methods won't be able to handle more stringent standards and they tend to lose their efficiency as the car gets older.

Patent 3,354,635

PETROLEUM

Well Technique Patented after 14 years

Pan American Petroleum Corp. finally won a patent last week for a process that gets more oil out of the ground than ordinary pumping. The application was filed in 1952.

The secondary process consists of drilling a second well, pumping in a petroleum solvent such as alcohol, then following it with a driving agent, such as water.

Another secondary process uses fire to force oil out of the rocks. A Pan Am spokesman says the solvent method works better than the thermal process in reservoirs where the petroleum is not too viscous.

The process also displaces more oil than simply driving gas or water in without the solvent, he said.

Pan American, which is owned by Standard Oil (Indiana), has been using the process for seven years. The method was invented by Richard A. Morse.

Patent 3,354,953

TRANSPORTATION

Atomic Powered Hovercraft

Hovercraft use an air cushion to lift the vehicle off the water, cutting friction and allowing high speeds. But the fans needed to create the air cushion use a tremendous amount of fuel.

A gas-cushion vehicle patented last week uses steam instead of air to form the cushion. The power source for making the steam is a nuclear reactor. Water is drawn into the system from the ocean.

According to the inventors, John A. Boutland of Hythe, England, and Sidney T. Jelly of Ottawa, Canada, the vehicle should have a very long operating range with small fuel consumption. The patent was assigned to the British firm Hovercraft Development Ltd. A Hovercraft spokesman said the invention was still in the idea stage.

Patent 3,354,858

HOSPITALS

Air Streams Support Patients

Another invention using the gas cushion principle, patented last week, is a hospital bed which supports the patient on a cushion of air.

For patients with burns or other sensitive areas, the Hoverbed, as it is called, supports the body on a cushion of air without contact with the bed structure.

Air cushion beds have been used in Britain for several years.

The patent was granted to Dr. John T. Scales of Stanmore, England, and John Kerr of Glasgow, and assigned to the National Research Development Corp. of London.

Dr. Scales first developed the air-cushion technique in 1961, when he tested it on animals. A pig treated for a wound on its back was supported for an hour on the Hoverbed, giving the wound a chance to dry out completely. The air stream also reduced the pig's fever.

Patent 3,354,476