

## INVENTION

# Patents of the Week

► A BUSINESS MACHINE for small offices that cannot afford large electronic computers for preparing their business forms has been patented.

The machine, which is in production, is relatively simple and inexpensive. When not needed for accounting purposes, it can be used as a typewriter. The typewriting calculating machine won patent No. 3,012,713 and No. 3,013,250, awarded respectively to Richard K. Richards of Wappingers Falls, N. Y., and Gerald A. Maley of Poughkeepsie, N. Y. Both assigned rights to International Business Machines Corporation, which manufactures the device as the IBM-632.

This machine is compact and moderately rapid. It automatically accomplishes a limited number of arithmetic computations and records the results. The information for computation can be entered by an operator in much the same way as typing, and no special training in accounting is needed to operate the machine.

Among other patents granted recently was No. 3,012,728, awarded to Gene R. Marner of Marion, Iowa, who assigned rights to Collins Radio Company, Cedar Rapids, Iowa. Mr. Marner devised a computer for determining the apparent position of any satellite. It will continuously show the satellite's correct ascension and declination.

Reginald P. R. L. Saunders of Toronto, Canada, has developed a slide rule kind of calculator to determine the center of gravity for an airplane. He was awarded patent No. 3,012,715 and assigned rights to The De Havilland Aircraft of Canada, Ltd. No mathematical computations are necessary to use the device, which has a graph scale showing how the plane's center of gravity varies with changing loads.

Two games related to airplanes and space were invented by the same man. For his "spaceship navigation game apparatus" Sol Friedman of the Bronx, N. Y., was granted patent No. 3,012,368. The game simulates the operation of a spaceship from the earth to a satellite or planet, one purpose being to correct the dangerous conditions that could occur as the vehicle travels through space.

Mr. Friedman also won patent No. 3,012,780 for his "jet dogfight game." This provides for two model airplanes manually operated to rotate about circular orbits. Points are scored when a player maneuvers his plane into a position where it can hit the opponent's plane. The requirement that each player must adjust both speed and position makes the game more instructive than when position is the only basis for winning, Mr. Friedman claims.

A method for growing strain-free crystals by flame fusion won patent No. 3,012,374 for Leon Merker of the Bronx, N. Y., who assigned rights to the National Lead Company of New York. Although synthetic crystals have been produced by flame fusion for many years, one problem plaguing their manufacturers has been to make them

strain-free. Mr. Merker accomplishes this by controlling the temperature within the furnace chamber for long periods of time after the flame used to produce the crystals has been extinguished.

Graham Trippe of Chicago has developed a bird-repellent light for which he received patent No. 3,013,145, assigning rights to the Trippe Manufacturing Company, also of Chicago. The light will not hurt the bird or offend bird lovers, he claims.

A cage around the light contains silhouettes of wings on a rotatable platform. As the wing-shaped objects rotate in the bulb's light, they cast shadows that flap up and down like the wings of birds in flight to repel unwanted birds.

• Science News Letter, 80:430 December 30, 1961

## DENTISTRY

## Dental X-Rays Safe, Nationwide Study Shows

► THE AVERAGE DENTIST is operating X-ray machines under safe conditions, a survey of approximately 2,000 dental offices has shown. Some operators, however, are receiving too much radiation.

Ten dental schools cooperated with the University of Illinois College of Dentistry in Chicago on a study of the status of radiation hygiene in dental offices in the Central, Pacific Coast and Atlantic Coast areas.

Dr. Seymour H. Yale, head of the department of radiology, has reported to the American Dental Association that there has been an improvement during the three-year period since data were compiled in a previous survey in Chicago. Unpublished data from a second Chicago survey made in 1960, Dr. Yale said, "compare favorably with those of the ten-state investigation."

The investigators found, however, that some dentists are operating unsafely with respect to roentgen dose to the operator himself.

"Many dentists are receiving more than the permissible dose per second," Dr. Yale said, "and are safe only because of limited utilization of X-ray equipment." He referred to Handbook 76, "Medical X-ray Protection Up to Three Million Volts," National Bureau of Standards, U. S. Department of Commerce.

Profession-wide interest has been found in the radiation control problem. A large number of requests for surveys were received from dentists not included in the study. Approximately one out of every 49 dentists in the United States was involved in the survey.

The problem of radiation hazards in dentistry will be solved, the radiologist said, when all dental X-ray machines "are properly filtered and collimated and high-speed dental X-ray film is used."

The survey included 1,955 dental X-ray machines.

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*DIET EXPERIMENT—Dr. Marjorie Nelson of the University of California observes the effect of diet on two pregnant animals.*

## NUTRITION

## Birth Defects Traced To Diet Deficiency

► PROPER DIET in the early stages of pregnancy is vital to prevent birth defects.

A pregnant woman must have a diet adequate in vitamins and minerals during her early pregnancy, the National Foundation-March of Dimes points out. To find out just how the absence of these substances affects offspring, the Foundation is sponsoring research with animals.

Dr. Marjorie Nelson, working under a March of Dimes grant at the University of California, has demonstrated in her San Francisco laboratory that even a temporary deficiency of a vitamin such as folic acid during early pregnancy can cause birth abnormalities in young laboratory animals.

The defects range from the relatively minor to the very severe, including brain damage, displacement of intestinal organs, or malformations of the heart and eyes.

When Dr. Nelson puts normal pregnant animals on a folic-acid-deficient diet during the second week of pregnancy, at least 80% of the embryos die or are malformed.

However, if she carries out the same experiment about a week earlier or later, the young appear to suffer no adverse effects, thus underlining the importance of proper diet at the critical stages of pregnancy. In a woman, the comparable period of pregnancy extends primarily from the second to the eighth week of the baby's development.

Because of the increasing problem of birth defects, the National Foundation-March of Dimes has recently set up a number of special treatment and clinical study centers in various parts of the country. It is estimated that significant malformations occur in one out of every 16 babies born in the U.S. each year.

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