

jumping to such an extent that 390 patents were granted for the week of July 13, 1886.

50th Anniversary Patents

On that 50th anniversary date, Elihu Thomson, one of the champion inventors of the country with a record of some 700 patents to his name, received a patent for a socket for incandescent lamps, which is the forerunner of that used today in automobile headlight lamps. Ottmar Mergenthaler, inventor of the linotype machine, was granted patents for improvements in casting type.

Jumping another 50 years to 1936, the Patent Office is granting some 800 patents each week, covering every phase of scientific endeavor. On April 30, 1935, it granted patent No. 2,000,000. Seventy-five years had passed before patent No. 1,000,000 was granted in 1911, but only 24 years before No. 2,000,000 was issued.

Applications for patents come from every country in the world. All applicants now pay the same fee and Britishers are no longer charged \$500. Everyone, it seems, has a bit of Edison in him. Abraham Lincoln obtained a patent for buoying boats, John Jacob Astor patented a street sweeper, and Secretary Harold Ickes has a patent on a dahlia.

Some 15,000 women have been granted patents. A woman patented the modern paper bag, and a Mrs. Martha J. Coston is the inventor of a signal flare used by seamen all over the world. One woman, the "Lady Edison," has some 50 patents to her name.

In a group of patents just granted, you will find inventions on television, a device for controlling the ionic content of air, a car which speeds over tracks and instantly detects flaws in rails, more efficient electron tubes, and devices for cracking oil which increases the yield of gasoline.

In one respect the Patent Office conducts a big ten-cent store, selling for this sum duplicate copies of the 2,040,000 patents on file. Some 7,000,000 of these so-called "soft copies" are sold yearly.

All of which means that Uncle Sam has something really worth while to celebrate in this centennial of the modern patent system. In one of his speeches made when he was dedicating a library, Abraham Lincoln said that the establishment of the American Patent System was one of the three greatest events in world history.

Science News Letter, July 4, 1936

MEDICINE

Diabetes Treatment Improved By New Insulin Compound

THE advantages of protamine insulin over ordinary insulin in the treatment of certain cases of diabetes were proclaimed by one of the co-discoverers of insulin, Prof. C. H. Best of the University of Toronto, at the meeting of the Canadian Medical Association, at Vancouver.

The new kind of insulin was developed by Danish scientists. It was not intended to supplant ordinary insulin in cases of diabetes which can be satisfactorily controlled by insulin alone, but was found a valuable adjunct to insulin in treating cases of severe diabetes. Protamine insulin is relatively insoluble and tends to be absorbed slowly and over a longer period of time than ordinary insulin. Consequently its blood sugar lowering effect lasts longer—twice as long, in fact.

"The work of the Danish group on protamine insulin has been abundantly

confirmed," Dr. Best said. "Various groups of clinicians in Boston, Toronto, London, and Rochester, Minn., have found that the duration of insulin action is much extended when insulin is combined under appropriate conditions with protamine."

Dr. Best and his associate, Dr. Robert Kerr, found that dogs having no insulin-producing pancreas tissue could be kept free from symptoms of diabetes by one injection of protamine insulin daily. At least two injections of regular insulin are needed to accomplish this result. The fluctuations observed in the amount of sugar in the blood when regular insulin is used are avoided with protamine insulin.

The use of protamine or some even more satisfactory agent will make it possible, Dr. Best said, to maintain certain diabetic patients in a much more normal condition.

Science News Letter, July 4, 1936

PHYSICS-MEDICINE

Hope Neutron Rays May Prove More Efficient Than X-Rays

EXPERIMENTS on the ability of the new neutron rays of science to produce biological changes in living organisms show that they are much more efficient than X-rays, Dr. Raymond E. Zirkle, Johnson Foundation for Medical Physics at the University of Pennsylvania, told the meeting of the American Association for the Advancement of Science.

The ultimate hope of the investigators, Dr. Zirkle revealed, is that the neutron rays will be more destructive to tumorous tissue than to normal tissues. This differential destructiveness is possessed to a certain extent by X-rays, but if the neutron should prove to have it to an even greater degree, it would thereby be a much more potent radiation with which to attack cancer.

"The results to date," he declared, "do not yet justify the prediction of such an extremely fortunate outcome, but are nevertheless distinctly encouraging."

The neutron—one of the fundamental building blocks out of which atoms are built—was only discovered in 1932. Even yet the sources for creating neutron beams for biological study are so weak that only beams of low intensity can be used.

But the encouraging thing, Dr. Zirkle said, is that the effectiveness of neutrons for any certain amount of their ionizing effect (which is the way in which all such rays act on biological material) is greater than that of X-rays. The relative effectiveness has been found to be, for different biological materials, from three to ten times in favor of the neutrons.

Moreover, and still more encouraging, the neutron-X-ray ratio of effectiveness is not the same for all living tissue. "This is of tremendous importance," said Dr. Zirkle.

The reason, he added, is that scientists not only want some ray for their