

INVENTION

Present U. S. Patent System Founded 100 Years Ago

More Than Two Million Patents Have Been Issued In
That Time; Secretary Ickes Has One for a Dahlia

BESIDES the 160th anniversary of the Declaration of Independence, Uncle Sam has another big event in his history to celebrate this Fourth. It is the 100th birthday of the establishment of the modern American patent system.

While the Declaration of Independence, unprecedented in the history of nations, gave political freedom, the establishment of the modern American Patent System, also without precedent in all history, gave, through the inventive genius which it stimulated, freedom of another kind—freedom from drudgery in the home, industry, office and field.

When President Andrew Jackson affixed his signature to the Act of July 4, 1836, creating the American way of granting patents, the telegraph, typewriter, sewing machine, dynamo, auto, airplane, telephone, radio, and electric refrigeration were, of course, unknown. All these and thousands of other inventions which have increased our comfort, health, convenience and added to human happiness were fostered under this system. To it is attributed the astonishing industrial progress of the U. S. and its number one position among nations in industry.

Many Inventors

In fact, under it Americans have become the most inventive people on earth. Within 100 years some 2,045,000 U. S. patents for inventions have been granted, well over twice that granted by any other country. Probably well over 100,000 applications are pending before the office.

The granting of patents today is a big business. Back in 1836 Patent Office receipts were \$29,289. In 1935 they had jumped to \$4,264,874. The Patent Office is one of the few government bureaus which does not cost the government a cent.

While July 4 marks the 100th anniversary of the enactment of the Patent Act which gave us the modern system, this does not mean that the Federal Government had not granted patents before 1836. Inventors were busy from the very

early days of the colonies, before there was any central government.

Just as now, they wanted exclusive rights to their inventions, and petitioned the colonial legislatures to pass special acts granting them patents or a monopoly.

A number of colonies granted patents for inventions, but since the grant extended only within the territory of the state, the inventor had to seek separate protection in each colony, an expensive and unsatisfactory procedure.

Patents Before 1836

But what was the best way out? Between the Philadelphia meeting of the nation's founding fathers to draw up the Constitution and the final establishment of the present patent system in 1836 the patent laws of the land went from one extreme to the other.

After the first Patent Act of 1790 each patent was signed by the president, the secretary of state and the attorney-general, with the secretary of war also serving on the patent-granting committee.

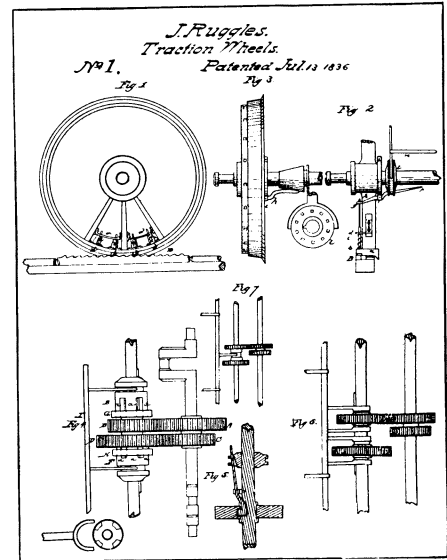
Thomas Jefferson, as secretary of state, made life in 1790 miserable for prospective inventors. Not only did he have inventive ability himself but he had high personal standards of what constitutes invention. Only three patents were granted in the first year! And in three years of existence, only 57!

The resulting howls from this almost dictatorial control reached the ears of Congress and in 1793 the nation's legislators went to the other extreme and made the granting of patents, in effect, only a mere registration with an accompanying \$30.

In the ensuing craze people patented nearly everything in use, new or otherwise. Many people had patents without assurance that they were valid.

Senate Inquiry

Because the law failed to accomplish what it was intended to do, Senator John Ruggles, of Maine, introduced a resolution in the Senate setting up a three-man commission to investigate the



U. S. PATENT NO. 1

patent situation. On April 28, 1836, it had its report all ready. A deplorable state of affairs was revealed.

Largely through Senator Ruggles' efforts the law of July 4, 1836, was enacted. The system of patent law and practice which it established was without precedent in all history. For the first time in any country, a system was set up which protected the rights of inventors in an intelligent, scientific and adequate way. The patent grant was given a prima facie standard of validity.

Separate Bureau

The Patent Office now became a separate bureau in the Department of State, headed by a Commissioner of Patents. Patent fees were \$30 for citizens of the United States, but for Great Britain \$500, because Great Britain charged American inventors that much to get a British patent. There were retaliatory tariffs in the old days, too. Other foreigners paid \$300.

The first patent under the Act of July 4, 1836, Patent No. 1 in the new series, was granted to John Ruggles on July 13, of the same year. This is the same John Ruggles who was so instrumental in obtaining passage of the law. His invention was for a "Locomotive Steam Engine for Rail and Other Roads," which could get up over hills and inclines. The locomotive was provided with special wheels that had pins which gripped a special saw-toothed rail and prevented the wheels from slipping. By the end of 1836, the Patent Office had granted its 109th patent.

Fifty years after the granting of patent number one under the new system, found business in the Patent Office

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