

# Current U. S. Patents

➤ A METHOD to help keep stable the fusion reactions by which scientists hope to obtain electrical power from ocean water was granted a patent by the U.S. Patent Office.

The method is one of the many in the "bagful" that will be needed if the fusion reactions of the hydrogen bomb are to be tamed, its inventor told SCIENCE SERVICE.

Dr. Richard F. Post of the University of California's Lawrence Radiation Laboratory, Livermore, said that the method is useful now in investigating ways to control fusion. He predicted it should be even more useful in the future when scientists have learned how to harness the tremendous energy released by joining together, or fusing, two lightweight atoms to make a heavier one. One of the most promising elements for such reactions is tritium, which is found in large quantities in ocean water.

The key to achieving on earth the fusion reactions by which stars are stoked is to confine a plasma for a sufficiently long time at an extremely high temperature. Magnetic fields are the only means now known to "bottle" a plasma under these conditions. Stability of the plasma is the problem in controlling fusion reactions.

The method developed by Dr. Post consists of injecting ions of the specific energy, charge and mass required to maintain stability into the plasma in which fusion can occur.

In a plasma, the atoms are partially

ionized, or separated into positive ions and negative electrons. Although a plasma is electrically neutral as a whole, it can conduct an electric current.

Dr. Post assigned rights to patent 3,257,284 to the Government through the U.S. Atomic Energy Commission, the agency that sponsors much of the research on fusion at the Livermore facility, as well as in many other laboratories around the country.

## Double Check on Computers

The equipment necessary to double check an electronic computer to make sure that its error-testing circuits are operating correctly earned patent 3,257,546.

William McGovern of Poughkeepsie, N.Y., assigned rights to International Business Machines Corporation, New York. The double-check circuits operate during every computing cycle, which lasts only a millionth of a second or less.

The fleeting test shows whether or not the error-checking circuits built into a digital computer are really doing their job.

The system developed by Mr. McGovern can be adapted to any digital computer and is expected to be even more widely used in the future than it is now. It guarantees that the computer is operating correctly during any cycle or that the lack of accuracy will be recognized, and, therefore, can be corrected.

## Other Interesting Patents

The method that helps Columbia Broadcasting System keep in touch with its station managers and other key personnel on a 24-hour basis was awarded patent 3,257,617. Dr. Peter C. Goldmark, director of research for CBS Laboratories, Stamford, Conn., and Abraham A. Goldberg and Benjamin B. Bauer, both of Stamford, assigned rights to CBS.

After 15 years, details on the piezoelectric fuse invented by four scientists for use with such weapons as anti-tank guns have been revealed. Jacob Rabinow, Henry D. Saunderson, Israel Rotkin and William M. Piper developed the fuse to be used in combination with a shaped-charge missile while working for the Government's Harry Diamond Laboratories, when it was at the National Bureau of Standards. They assigned rights to patent 3,256,817 to the Government through the Secretary of the Army.

Syntex Corporation, manufacturer of hormone pills and other drugs, was assigned rights to 15 patents. Several of these patents cover methods of making compounds that can be used to control conception, some of which are now undergoing clinical trials. The last

three digits of the patents, all prefixed by 3,257, are 383, 386 through 389, 391, 425 through 427, 429 through 431, and 433 through 435.

• Science News, 90:31 July 9, 1966

## TECHNOLOGY

## Square Language Designed for Computers

➤ SOME of the squarest English prose in the world will soon be going in and coming out of a computer. It is a standardized form of the language called FASE for "Fundamentally Analyzable Simplified English," developed by Bell Telephone Laboratories.

The language is very conventional—verb following subject, object following verb and all the adjectives and adverbs in their proper places—but it is English. And for a computer that is an accomplishment.

Computer translation has in the past been stymied by the machine's inability to handle the ambiguities and surprising twists of living languages. Therefore, the best it could do was a word-by-word translation.

Bell Telephone Laboratories hopes that now by eliminating all the vagaries in syntax or word order, a sentence can be made to come out properly. However, the major problem of word interpretation remains unsolved. The machine still will not know whether a "ball" means a round object or a party.

FASE, devised by psychologist Dr. Lee E. McMahon, could be used for automatic information retrieval in libraries, according to Bell Laboratories. However, for the language to be useful, all the material in the library would have to be converted to FASE. Bell Laboratories expects that the immediate application will lie in retrieving scientific abstracts and documents.

• Science News, 90:31 July 9, 1966

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