

## Technology

By VICTOR K. McELHENY

*New York Times* (1857-Current file); May 11, 1977; ProQuest Historical Newspapers The New York Times

pg. 74

# Technology

## *A Promising Design for Electric Motors*

By VICTOR K. McELHENY

TUSTIN, Calif.—In the energy-conservation field as in any other, it is a rare invention indeed that becomes a commercial success. Besides promising unique or at least unusual advantages, the invention must be developed to the level of practical usefulness, win public attention and find the right pattern of ownership, financing and marketing.

One well-publicized idea that has passed nearly all these tests is a new design for the electric motors that burn about 60 percent of the nation's electricity. The new design, which has been rigorously tested by an electrical utility, the Southern California Edison Company, makes electric motors run more efficiently. The design can also be used in an attachment to improve the efficiency of existing motors.

The invention, by Cravens Wanlass, an engineer of neighboring Santa Ana, in southern California, involves adding a second and shorter coil of wire and an electricity-storing capacitor to the winding and capacitor of a typical electric motor.

The result, Mr. Wanlass said in an interview here, is "transferring electrical energy into the motor in a more controlled way," thereby bringing the motor's electricity demand more into line with the amount of work the motor is doing.

The basic patent on the invention, applied for in 1975, has had its claims allowed by examiners of the United States Patent Office and is expected to be issued shortly, he said. Patent applications have been filed in more than 20 other countries.

Among the claims in the patent applications, Mr. Wanlass said, is a refinement that would make the invention attractive for motors that regularly cycle through several levels of electricity demand and need a setting to maximize efficiency for each workload, workload.

The refinement is an "automatic step optimizer" that would be applicable to new washer and dryer controls, or for motors of automatic pin-setting machines in bowling alleys.

A bowling alley machine, Mr. Wanlass said, spends most of its time idling, waiting for bowlers to get ready to roll a ball. When idling, the machine demands far less power than when it sweeps away pins, lifts them and sets down a fresh tray of pins.

In normal circumstances, the rating of the motor must be set for the peak electrical demand, thus making the motor far less efficient when it is idling.

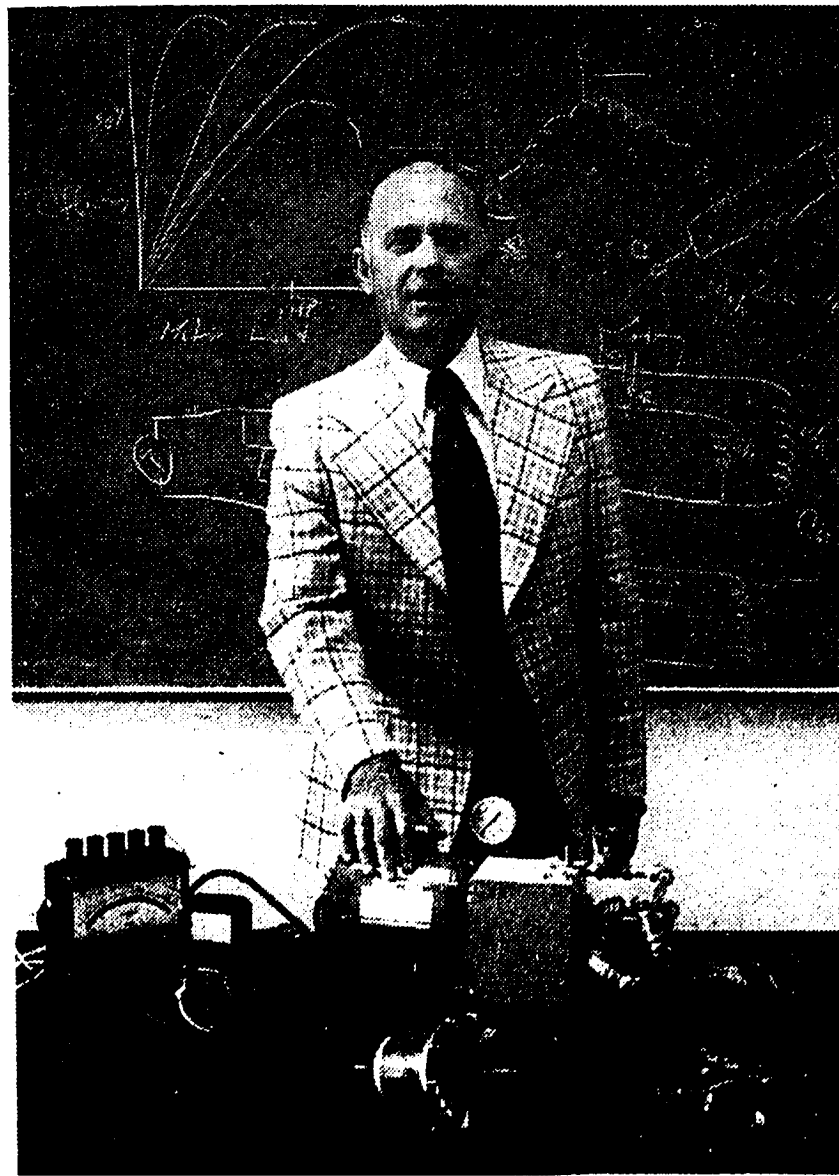
Most of the 43 United States patents that the Utah-born, 51-year-old Mr. Wanlass has been granted came from work with large aerospace and electronics companies, including divisions of what are now Rockwell International, T.R.W., the Lockheed Missiles and Space Company and the Ford Aerospace and Communications Corporation.

From work on computers that began in the electrical engineering department of the University of California at Berkeley, where he received a master's degree, Mr. Wanlass moved on to power-regulating devices, and finally to what he calls his controlled torque electric motor.

In four months of testing with the attachment version of the controlled torque motor, Mr. Wanlass said, Southern California Edison used the most efficient motors it could find—motors whose electricity demand was tuned closely to the actual workload.

At a news conference April 25, Southern California Edison officials reported that the attachment improved efficiency of the motors 10 to 18 per-

Continued on Page D14



David Gordon

Cravens Wanlass with the electrical motor that he invented, the cylindrical device beneath his hand. The drawings on the board show the invention's extra coil and capacitor, which make the motor more efficient.

# Technology: A Promising Design For Cost-Saving Electric Motors

Continued From Page D1

cent. Sponsoring the news conference were the California Public Utilities Commission and the California Energy Resources Conservation and Development Commission.

Glenn Bjorklund, manager of customer services for the utility, said that, if the Wanlass design were adopted for most new and old electric motors in the utility's service area over the next 10 years, a billion kilowatt hours would be saved annually. This could allow the utility to forgo construction of a 550-million watt generating station, he said.

• • •  
Mr. Bjorklund's statement, which spurred immediate inquiries from other electric utilities across the country, hinted at the concerns underlying his company's investigation of the Wanlass controlled torque motor concept.

Electric utilities have not been adding to their generating capacity at a rate they consider sufficient to meet the demands they expect to face in the early 1980's.

Meanwhile, construction of nuclear power plants has been slowed by environmental and safety considerations and by uncertainty about fuel supplies. And supplies of coal are uncertain for at least some of the plants required to convert from oil or gas to coal by Federal regulations.

Commitments to new plants were slowed not only by an apparently temporary flattening of demand after the 1973-74 oil embargo, but also by steep rises in interest rates that increased the cost of all power plants, including the nuclear ones that take longest to complete.

An invention to improve the efficiency of existing and new electric motors could ease the pressure on electric utilities.