SCIENCE NEWS LETTER

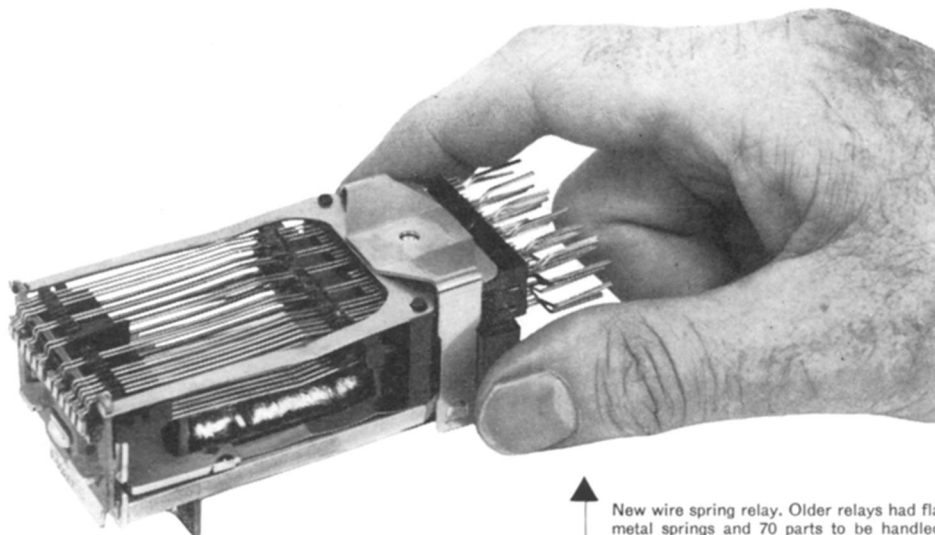## THE WEEKLY SUMMARY OF CURRENT SCIENCE

Eye-Deceiving
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A SCIENCE SERVICE PUBLICATION

It splits seconds even faster

New wire spring relay. Older relays had flat metal springs and 70 parts to be handled, compared with 12 in the new model. Relays operate by means of an electromagnet which responds to high-speed pulses.
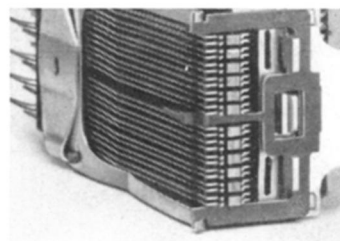
IN A split second, relays, which are high-speed switches, set up dial telephone connections. Then they are off to direct the next call. Yet even this speed is too slow for Bell Laboratories scientists in quest of still faster switching.

Scientists and engineers devised a new relay — the wire spring relay — and worked out the production problem with Western Electric, manufacturing unit of the Bell System. This is twice as fast, uses less power and costs less to make and maintain.

With speedier relays, switching can be done with less equipment . . . and calls go through faster. The wire spring relay is a practical example of how Bell Telephone Laboratories and Western Electric pool their skills to improve telephone service while keeping its cost down.

New relays must be able to operate one billion times—equal to once-a-second for 30 years. Employing a sound recorder as a precision vibrator, Bell scientists learned to evaluate the effect of sideways motion on relay life. Such rubbing motion is limited to one-thousandth of an inch in the new relays.

Dynamic Fluxmeter, developed by Bell Telephone Laboratories, indicates flux build-up in intervals of 25 millionths of a second. Precise information like this was essential to higher speed operation.
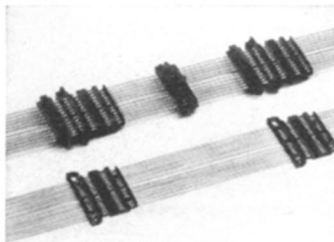
Relay springs as they come from Western Electric molding machine, before being cut apart for use. Molding technique saves time and money . . . makes possible the maintenance of relays in precision adjustment.

Bell Telephone Laboratories

Improving telephone service for America provides careers for creative men in scientific and technical fields.