

Chrysler Corporation research engineers have developed this new gyroscopic ride recorder to measure the slightest rolling, pitching or zigzag motions in cars under test.

The recorder is so sensitive and quick thinking that it evaluates certain important ride qualities instantly and without the need for mathematical calculations or allowance for centrifugal force on curves. It has been used to help determine the merits of various combinations of suspension systems and components, such as stabilizer bars, in contributing to passengers' riding comfort.

The ride recorder feels and thinks with the aid of a small gyroscope, a gas-driven turbine, a spark coil and a metal pointer that writes the answers on a roll of waxed paper.

One terminal of an electrical spark gap is formed by the tip of the pointer. A plate behind the moving waxed paper tape supplies the ground. Current from the car's electrical system operates the spark coil and drives the tape.

While the case that houses the waxed paper tape and the frame of the gyroscope moves with the car body, the gyroscope holds the pointer steady, with the tip almost touching the tape. As the paper moves past the pointer, intermittent sparks from the pointer trace on it an accurate pattern of roll, pitch or zigzag motion. This information can be interpreted accurately in half degrees from the tape record.

Science News Letter, February 16, 1952

#### INVENTION

### Hand Mold Insures Hand-Tailored Hamburgers

➤ A HAND mold for hamburgers which insures that they will all be of the same size and fit the bun exactly has been invented by Augustus H. Belt, Bloomington, Ill. He received patent number 2,584,536 for his invention.

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#### NUTRITION

## Budget Protein Foods

➤ MOST HOUSEWIVES try to have one meat dish for the family each day, not only because it tastes good but because they know it is highly nourishing.

There are, however, many other foods that furnish the same kind of nourishment in the form of high quality protein. And often they are less expensive than meat. Some comparative values of these foods are given by Miss Elizabeth E. Ellis, home economist of the University of New Hampshire.

"If you have a dollar to spend on foods providing protein," she says, "it is interesting to find that at today's prices you could buy the most for one dollar from foods in the following order: Skim milk, cottage cheese, American cheese, pork liver, codfish or haddock, whole milk, tuna fish, pork shoulder, eggs, hamburger, fowl or chicken, beefsteak (round), veal chops, pork chops and lamb chops.

"Vegetable proteins from dried beans and cereals do not have as good body building qualities, but they are valuable, especially when combined with proteins from animal sources. There is very little research to show us just how to mix animal and plant proteins for best results. A good rule is for adults to get one-half their protein from animal sources, and children should get even more than this."

To help in planning for the daily supply of protein, Miss Ellis points out that one egg, one glass of milk, 3 ounces of fish and one ounce of cheese equals 5¼ ounces of round steak in protein content; that ½ ounce of cheese, a glass of milk and 3 ounces of chicken will provide an equal amount of protein; or 3 cups of milk and 3 ounces of pork shoulder. If the older children have 4 cups of milk, 3 ounces of pork shoulder and one egg; or 3 ounces of fish, one egg, one glass of milk and

one ounce of cheese, they will get as much protein of good quality as in 8¾ ounces of round steak.

The remainder of the protein for the day could come from such sources as cereals, dried beans, and peanut butter.

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