

New Gearless Auto Saves Fuel

Engineering

A new transmission for automobiles that eliminates shifting gears and automatically changes speeds was described to the Society of Automotive Engineers by its inventor, D. Sensaud de Lavaud, a French engineer.

Automobiles run on the streets of Paris fitted with this new transmission have convinced M. de Lavaud that his device is not only sound technically but can be applied commercially to motor vehicles. Development of the transmission has required seven years.

Because with ordinary gear-shift cars the driver never operates continuously at the most efficient relation between speed of engine and wheels, M. de Lavaud claimed that the automatic transmission will increase the average speed possible

and effect a fuel saving of more than 20 per cent. in general, and some 40 per cent. in the dense traffic areas of cities.

A long transmission shaft is driven directly from the engine and rotates an inclined "inertia hub," which changes the rotation of the shaft into reciprocating motion. Connecting the inertia hub with the drive of the rear axle are rods which, by acting on roller ratchets, translate the back and forth thrusts into rotary motion applied by the axles to the wheels. The trick of the transmission consists in the variation of the inclination of the inertia hub with the engine torque and road resistance which automatically varies the throw of the connecting rods, consequently the rotation of the wheels and the speed of the car.

This automatic transmission is combined with a gearless differential and a planetary reverse-gear located on the rear axle.

Advantages of his automatic transmission over gear transmission are listed by M. de Lavaud as follows:

Ordinary down grades can be negotiated, even with full throttle, without noticeably changing the speed of the engine.

It is impossible on level stretches or on upgrades to accelerate the engine beyond normal speed for the transmission.

Stalled engines are impossible.

The power of the automobile is controlled entirely by the throttle.

Acceleration, particularly to usual speeds, is much better than with gear transmission.

The car coasts freely downhill.

New Relics from Ur

Archæology

The latest news from Ur of the Chaldees, the city that is famous as having been the home of Abraham, is shown in the two pictures on the cover. Two of the 5000-year-old relics dug up by the joint expedition of the British Museum and the Museum of the University of Pennsylvania are represented. They were found during the season of 1927-28. After a division of the finds had been made with the Irak Museum, the remainder were sent to the British Museum in London, where they were cleaned and photographed. They are now on exhibition there for the summer, after which another division will be made, and the University Museum's share will come to Philadelphia.

The head of the bearded bull is from a statue made of thin gold over wood, with the hair, beard, eyes and tips of horns of lapis lazuli. The beard is thought to be a religious symbol whereby the animal sacrificed was identified with the god in whose honor the sacrifice was made, so that those who ate of its flesh would be in communion with the deity.

The background shows probably the original checker-board. It is a gaming board found in one of the tombs, along with the men—sets of round pieces of shells with lapis and gold dots.

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In This Issue—

The end of the *gear-shift*? p. 2—Around, and *around*, and around, p. 3—Distant heating plant, p. 5—Understanding the *mind*, p. 6—Where to find it, after p. 6—Removing *stains*, p. 7—Not *Lon Chaney*, but really an insect, p. 7—What *may* happen, p. 8—Modern Marvels, p. 8—*Back* and forth, p. 9.



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