

SPEEDWAY PLANS FOR ACCURATE TIME

**Remarkable Instrument to Be In-
stalled Which Will Register
All Events Minutely.**

WILL USE A STEEL TOWER

**Sixty-Foot Structure to Inform
Spectators Exactly What Is
Taking Place.**

A. P. Warner and C. H. Warner of the Warner Speedometer Company are building the greatest timing device ever designed for instantaneous timing. The instrument when completed will be used at the Indianapolis Motor Speedway. The timing device—wiring, automatic score board and complete equipment—will cost \$10,000, and it will be possible to record the time to a hundredth part of a second with the recording clock-like instrument, which, in addition to scoring the time, will record same on a record sheet which will be filed in the Speedway library for future reference.

There will be a steel tower sixty feet in height, from the top of which large dials will record the first three cars, giving their time, the number of the car and the miles they traveled. The clock-like instrument in the judges' stand will record the separate times of the three leading cars, as well as all the other cars, on a large circular table arranged for that purpose.

A perfect automatic list will be kept and each lap recorded as the cars pass the tape, while the separate kilometers

SUCCESS MEETS ENGINEERS SOLVE P

**QUIET-RUNNING MOTORS.
GREAT STUDY AND EXPERI-
TION ON THE PART OF
BILE MAKERS OF COU**

A problem on which the the Association of Licensed Manufacturers have, with un- cess, spent a good deal of st- perimentation is that of m- running gas engines for the A. L. A. M. members.

Some of the principal cau- ing-gear noises are inaccur- work on the crankcase, caus- variation in the distance b- centers; unsuitable cranksha- shaft bearings, causing jum- shafts when the motor is ru- curately spaced and poor- gears, causing warping after- of cutting the teeth is remov- most care must be taken i- cam gears, and sometimes o- the gears may be changed- vantage, even though they ar- the same size and shape.

The chief cause of noise in- is the uneven or intermittent- the lifting action of the ca- intermittent pressure on the- even reverse pressures, prop- ping of the gear teeth, due- There are a number of points- into consideration in a well- condition, such as reducing t- the valve mechanism, proper- the valve springs, the use- relatively nonresonant mater- cams to give soft action t- plungers, proper pitch and l- gears, and amount of perm- lash.

Noise Eliminated

Noise from pistons, connect- crankshafts has been pract- nated by good accurate wor- ings, and proper lubrication- ance between the pistons ar-

leading cars, as well as all the other cars, on a large circular table arranged for that purpose.

A perfect automatic list will be kept and each lap recorded as the cars pass the tape, while the separate kilometers and miles will also be made a matter of record, if it is so desired, by adjusting the timing wires at the mile and kilometer posts. Scoring with the new timing device will be easy and accurate while errors will be impossible.

Board of Timers.

In addition to the automatic timing device there will be a board of timers and scorers so as to keep the double check system. While such a system will be absolutely unnecessary, still it is the intention of the Speedway management to safeguard against even the slightest possibility of error, so that all time and record marks established on the course can be given out as authentic, so that the public as well as the manufacturer will know exactly how the cars are performing.

The automatic score board will show a number eighteen inches in height that can be easily read for a third of a mile. In addition to the perfect timing device there will be a telephone system installed to every point of the grounds. This will be controlled by a main station in an observing tower.

The grounds will be divided into six equal parts, and at each point of the track there will be a phone system with its booth and man stationed to give and receive reports. Soldiers will be stationed throughout the grounds, but at each of the stations a squad of ten men will be held for any emergency. These will be controlled by the chief dispatcher at the official telephone tower.

Another series of wires will direct the team managers so that they can post their drivers from the team bulletin boards. These boards will be posted on the opposite side of the track from the main grand stand so that the drivers can receive their instructions as they whirl by.

Method to Advise Drivers.

Another device that will be quite original will be the method of advising the drivers that they have finished the race. The usual flag system will be used, as these signals are international. They are as follows:

Red Flag—Clear course.

Yellow Flag—Stop immediately.

Green Flag—Starting last lap.

Checkered Flag—You are finished.

White Flag—Stop for consultation.

As soon as the green flag is shown a number or series of numbers will be displayed from the signal wire that will stretch right over the center of the track. The driver finishing the last lap will see his number displayed so that only he alone may know that he is signaled that he is finishing. His number will remain fixed until he receives the checkered flag

Noise from pistons, connecting rods, crankshafts has been practically eliminated by good accurate workings, and proper lubrication. The clearance between the pistons and the cylinder walls will be of equal weight and as light as possible. The crank shaft must not have any undue side play of connecting rods. This will be avoided.

The principal cause of value in a piston is the lowing the value to slap on it. The descent of the value should be arrested just before it strikes the cylinder either by a slight rise in the crown or by a very gradual taper. The valve should be of sufficient strength to hold the roller in contact with the cam. The leading experimenter says that the design of the sound produced by the valve can not be heard with the manifolds, car muffler connected. The weight of the valve is necessary to give the best results. The matter for mature consideration. The thickness of wall and shape of the valve are also important.

Sparks and Chug From Glidden

DETROIT, Mich., July 17.—The Glidden tour started from the city and turned the Glidden tour started from the city, turned the year set fire to the city, turned the candle that attracts motor motorists from all over the country over. Every phase of the automobile industry, from the odor of gasoline to the consolidation of factories, involved in the tour was aired through hotel lobbies and corners. Men who have their heads in the clouds and who hail from the direct four winds have shed light on the automobile subjects of the day.

New Yorkers boast a race for the Automobile Club to be known as "other little grand prize," for next year's cars are to be the entrants. The man who suggested this said that it would be difficult to organize a car show this fall that would attract a representative field of international cars. Therefore the boosters are busy planning an event for those that come with their car classification.

Walter Hempel, Barney Oldfield, was here booking a race July 30-31 at Grosse Pointe track. Strang and Burman are also booked for this event. Oldfield will drive an apolis-made car, "Old Glory."

Bugle calls from automobile manufacturers to the tourists early on the morning start. Manager Foster of the General Motors Manufacturing Company of

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Other methods for posting the contestants and the patrons of the Speedway will be arranged as necessity demands, while the most perfect equipment in the world will be used to safeguard the public and help make the events interesting from every point of view. Special gates are being constructed, as the balloon races taught that a crowd of 30,000 needs to be accommodated with the utmost care. There will be two additional automobile gates on the Crawfordsville road, and these roads will be rock-built to accommodate the heavy traffic.

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Representatives of the Thomas Company who were on deck dec this firm will re-enter the rac with renewed energy. Nine cars drivers will be maintained for th Flyer racing team. Salzman will be the head driver, while there A. W. Greiner, the amateur, bec of the pilots. These cars will p entered on the Indianapolis Speed

Mayor Brettmeyer went down