

#### THE RECONSTRUCTED CHRISTIE RACER AND ITS RECORD AT THE AUTOMOBILE CARNIVAL.

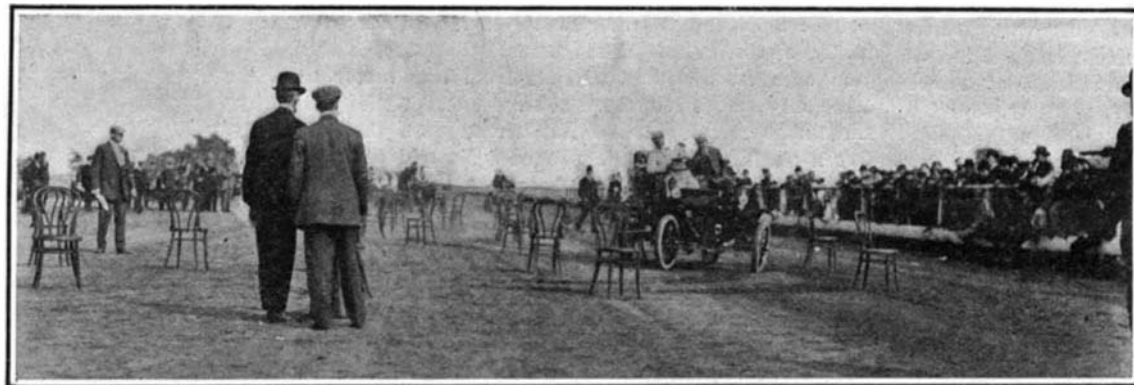
On the last day of the auto carnival and open-air show at the Empire City track, Walter Christie ran his reconstructed 135-horse-power direct-drive racer twice around the mile track in 54 1-5 and 53 seconds respectively. The second figure ties the track record made by Oldfield in a Peerless racer on a specially prepared track at Los Angeles, Cal., two years ago. It is equivalent to a speed rate of 67.92 miles an hour.

Our illustrations show the appearance of the Christie racer and its motor at the present time. The machine holds the world's record for the mile for a 4-cylinder car, it having covered that distance in 35 1-5 seconds on a soft beach at Atlantic City last April, as against 39 seconds scored the same day by an 8-cylinder Darracq. It has therefore run at the rate of 102 miles an hour, as against 122 miles an hour made at Ormond in January by the latter

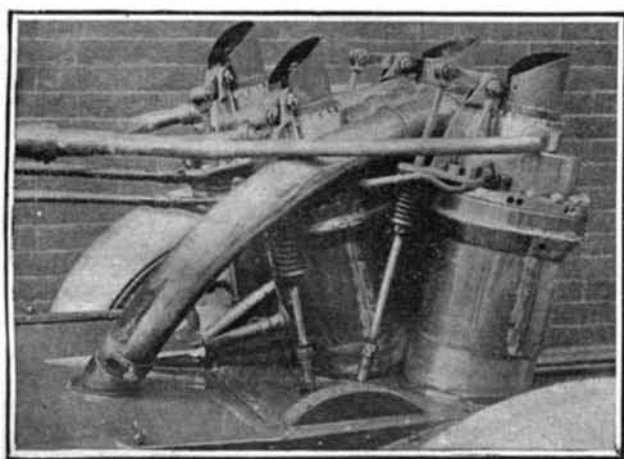
surface. The cylinders are of steel having a 7 $\frac{3}{8}$ -inch bore and stroke. A 2 $\frac{3}{4}$ -inch crankshaft of chrome steel is used. The engine weighs complete only 470 pounds. In making the record at Florida, it turned up 1,125 R. P. M. The weight of the complete machine is only 1,800 pounds. The original Christie car was illustrated in the 1905 Automobile issue of the SCIENTIFIC AMERICAN.

Besides the record made by the Christie racer, sev-

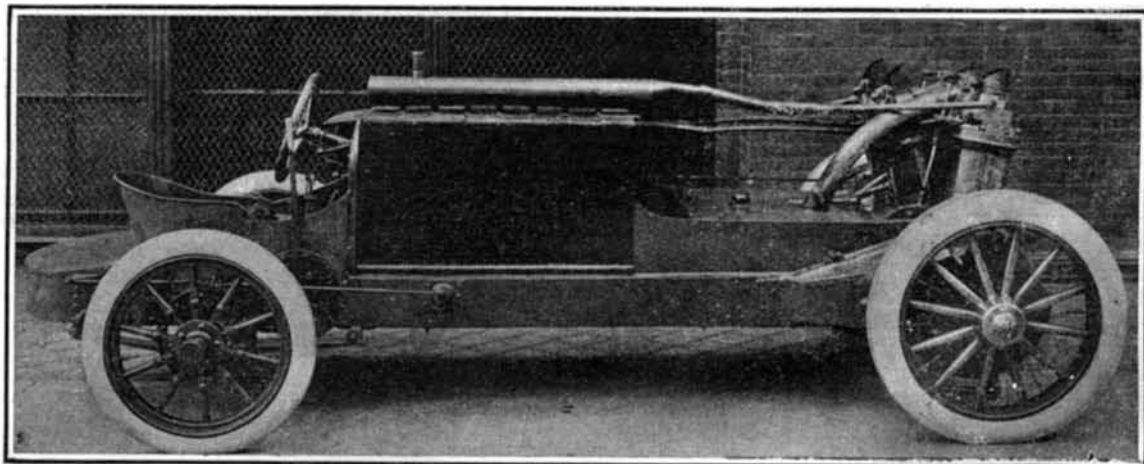
One of the most interesting events was a one-mile race between two 10-horse-power single-cylinder Cadillac machines, each of which carried 10 passengers. The winner covered the mile in 2:46. A 3-mile match race was won in 4:04 4-5 by a 26-horse-power Oldsmobile, with two Ardsley machines second and third. A tug of war between a 24-horse power Autocar and a similar machine gave an effective demonstration of the efficiency of the single-disk clutch lined with cork, which seemed to hold better than the multiple-disk type of clutch used in the latter car.



An Automobile Obstacle Race. A Car Making a Quick Turn As It Passes Through a Line of Chairs.



The Four-Cylinder Engine of the Christie Racer, Showing the Exhaust Valve at the Top.



The Christie 135-Horse-Power Racer Which Recently Made a Record of a Mile in 35 1-5 Seconds.

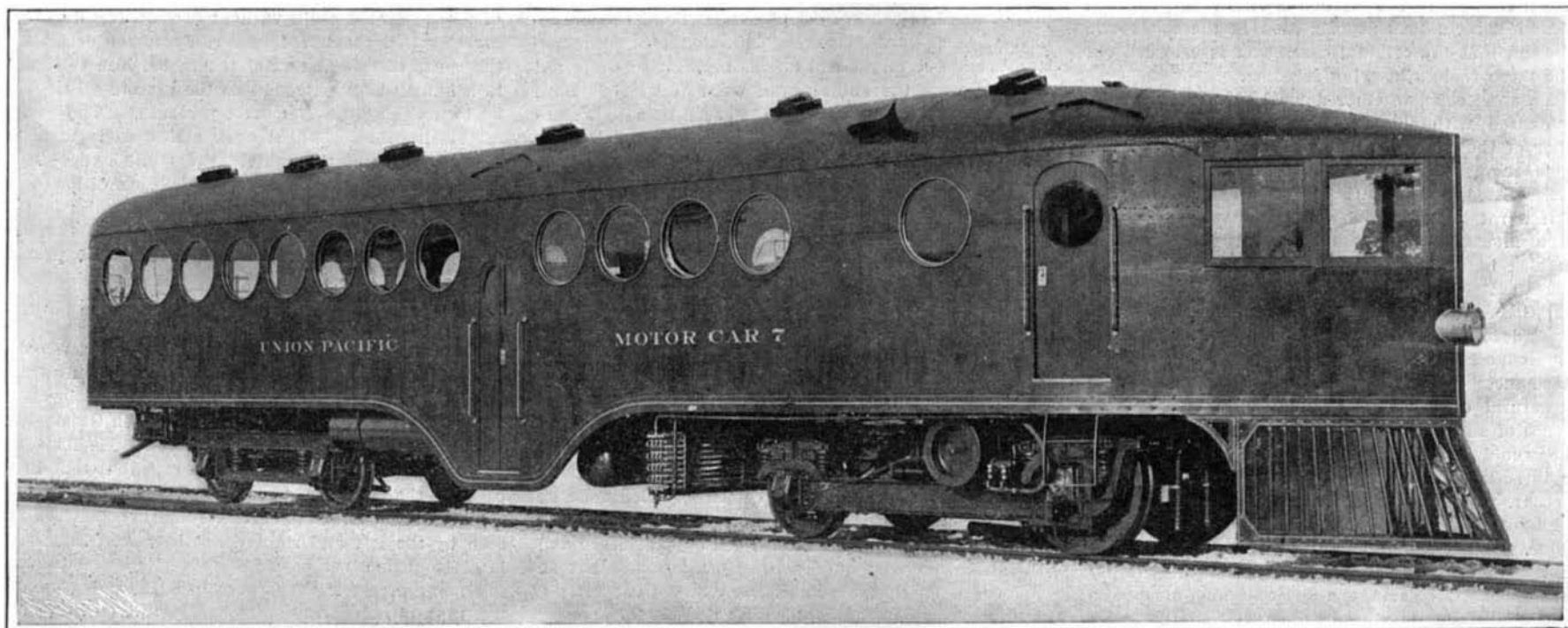
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French car. In rebuilding his racer, Mr. Christie aimed at getting as powerful a motor as possible between the two front wheels. In order to accomplish this he placed the cylinders at a slight angle, as this enabled him to set the cylinders close together at their bases and still have room for the greater diameter of the water jackets and the heads. Electrolytic copper water jackets were first used, but these developed leaks and were subsequently replaced by clamped sheet-metal jackets. The exhaust valves (which are very large, being 3 $\frac{1}{2}$  inches in diameter) are in the center of the cylinder heads and are water-jacketed. Eight 1 $\frac{1}{2}$ -inch automatic, flat-seated inlet valves occupy the remainder of each flat cylinder head. Thus both the incoming and outgoing gases have a direct passage into and out of the cylinders. The spark plugs screw into inclined holes at the edge of the cylinder heads. The pistons have four plain compression rings with square ends. They are also inlaid with three wide bronze rings which form the bearing

eral interesting tests were carried out. Among these were included a vibration test, a traction test, and an obstacle race. One of our illustrations shows a car making a quick turn while threading its way through a line of chairs in the last-named test. This test was won by a Maxwell runabout in 16 seconds, while a Wayne car was second in 16 1-5 seconds, and an Autocar third in 16 3-5. In the traction test each car was obliged to haul 500 pounds dead weight placed in a stone boat a distance of 200 yards. This was done by a 24-horse-power Autocar in 25 2-5 seconds, by a 24-horse-power Frayer-Miller in 28 4-5 seconds, and by a White steamer in 44 4-5 seconds. The vibration test consisted in carrying a pail filled with water a distance of 200 yards. The car was obliged to start from a standstill, and to cross the finishing line on high gear. The test was won by a 26-horse-power Oldsmobile with a loss of  $\frac{3}{8}$  inch of water. A 35-horse-power Gobron-Brillié was second with a loss of 6-8 inch, and a 40-horse-power Wayne third with a loss of  $\frac{1}{8}$  inch.

tion on various parts of the Harriman railroad system, No. 7 shows numerous structural differences, which make it a decided improvement over the earlier designs. The car was built in the Omaha shops of the Union Pacific Railroad, and has recently undergone a series of successful tests between that city and Grand Island, in which it has demonstrated excellent hill-climbing ability over fairly stiff grades, and has developed a maximum speed of 53 miles an hour. The average speed for runs of four to five hours was from 34 to 36 miles.

The appearance of the car is attractive, and carries with it the appearance of being speedy. Among the conspicuous features of the design are the round, port-hole-like windows, the sharp forward end tapered to a knife-like edge, and the convenient side entrances. The rear end, too, is rounded off as in the earlier motor cars, to avoid the vacuum created by a car with the usual square end. The door apertures for the side entrances are so constructed that by means of patented



UNION PACIFIC MOTOR CAR NO. 7.