

# UNDERSLUNG CAR'S EFFICIENCY GREAT

Like Football Player Running Close to Ground Is Latest Motor.

AUTO IS LESS OF TARGET

Natural Forces, Which Generally Tend to Retard Progress of Machine, Foiled by Design Now Popular, Says H. E. Jaggard.

Like the football player who learns to run and charge and buck low, the underslung motor car presents the greatest efficiency of automobile design today. Just as the football player running as closely as he can to the ground offers less of a target to the opposing tackle than the man who runs straight up, so does the underslung motor car, with its low center of gravity, offer less of a target to those natural forces which tend to retard its progress.

There are a number of natural physical forces to be reckoned with in the operation of a motor car. Perhaps the most important of these is the side sway that makes for undue stresses and excessive wear on various parts of the machine and discomfort for the occupant. With the weight of the car along below the axles and the center of gravity thereby lowered to a very appreciable extent, the side-swaying out strains are either overcome or so distributed that the effect is equalized and lessened all around.

In overal construction the centrifugal strain exerted in rounding corners comes unevenly above the spindles of the wheels and vertically on the springs. This is the case of side swing. In the underslung is centrifugal force is applied equally on both wheels, and at practically the same height as the wheel spindles, with only lateral and no vertical strain on the springs. Therefore, the body is held practically against all lateral motion.

Same Level Enjoyed. Underslung construction brings the centers of weight, support and suspension to the same level, making for the uniform pressure on the wheels. In the overhung car this effect cannot be attained because there must necessarily be a differentiation of these three centers. It is plain to see that the force, that with this uneven pressure on the wheels, the overhung car is more difficult to steer at high speed, when the side sway influence is greatest.

Another great advantage of the underslung construction is that the center of gravity is lowered and the danger of capsizing much less. Road tests, both intentional and impromptu, have been made which show that, on turning abruptly at high speed, the wheels of the underslung car do not leave the ground. The low center of gravity produces a tendency for "hugging" the road that practically eliminates the danger of turning over.

Though the whole weight of the American underslung is on the springs below the frame, there is no possibility of disaster in case a spring should be broken. This we have proved by scores of experiments. In such cases the springs fail to do its duty, the weight of the car is carried by the other three without materially decreasing the amount of road clearance or placing undue strain on any one part. Even with one front and the opposite rear spring broken, the upcurved frame would slide along the ground, while the front axle would move back against the radiator and the driver would still have control of his car.

Much Advantage Gained. By the use of underslung construction we are enabled to take the greatest of another important item to the car owner—large wheels. The benefits of large wheels are manifold and universally recognized. Not only is a greater degree of comfort assured the passenger, because the large wheel passes undisturbed over indentations and irregularities in the road that would be instantly felt in a smaller wheel, but there is a great economy of tires.

The average tire has a contact surface of about four inches as against six inches for the large tire in use on the American. It is well known that braking and driving strains are borne by the surface in contact with the ground and a larger contact therefore reduces wear. Then, too, the larger contact surface tends to reduce the danger of skidding, as there is better opportunity for gripping. This also allows for larger brakes, for the limit of brake efficiency is at the point where the wheels lock. The larger gripping surface of the tire allows for a more powerful application of the brakes, offering additional smoothness and safety of operation.

Last, but by no means least, the low-bunging frame allows for the most highly developed form of the artistic rakish body which characterizes American cars. The long, low, graceful lines of the exterior are but indications of the comfort and luxury made possible in interior design.

THREE MARION CARS ENTERED  
Handley Makes First Big Entry in Tour to Pacific Coast.

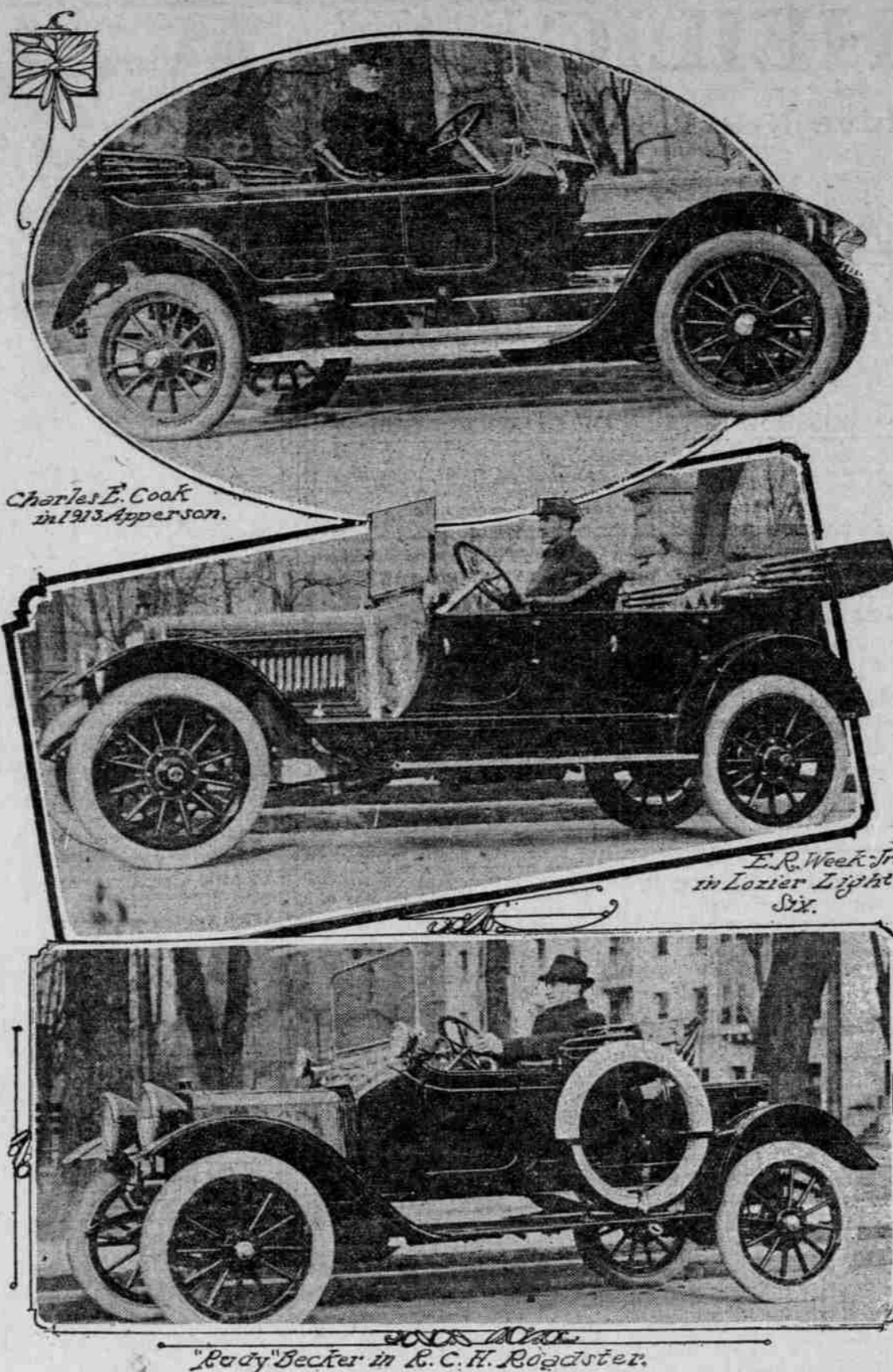
INDIANAPOLIS, Feb. 8.—J. L. Handley, president of the Marion Motor Car Company and of the American Motor Company, today made the first entry of a complete touring car, which he found in the Far West for the coming caravan of Hoosier motorists.

This entry by Mr. Handley is the third manufacturer's entry since the lists opened, the other two being two American underslung touring cars entered by D. S. Menasco, vice-president of the American Motor Company, and two Henderson touring cars, entered by R. P. Henderson, vice-president of the Henderson Motor Car Company.

Harry Stutz has today asked for entry blanks for two Stutz touring cars. Mr. Handley has recently returned from a trip to the Pacific Coast and his action in entering a full team of cars is a result of the enthusiasm which he found in the Far West for the coming caravan of Hoosier motorists.

L. W. Luder and Scott Campbell, of Caro, Mich., expect to make a three-weeks' motorcycle tour of the East in June. They plan to visit New York, Boston, Portland, Me., Washington, D. C., Philadelphia and possibly Baltimore.

NEW MODELS THAT ARE ATTRACTING WIDE ATTENTION FROM PORTLAND MOTORISTS.



Charles E. Cook in 1913 Apperson.

E. R. Week in 1913 Lozier Light Six.

Bob Becker in K. C. H. Roadster.

## FEW CHANGES MADE

Marion Cars Remain Unaltered Except in Few Details.

SELF-STARTING IS ADDED

Essential Features of Design That Has Stood for Ten Years Are Retained by Corps of Indiana Engineers.

Economy in gasoline and tire cost, better equipment than ever and all the refinements desirable in a high-grade product are the features advanced by Boltin & McFarland in support of the Marion cars.

"Marion cars are in their tenth year, and so successful have they always been in design, material and construction methods that no radical change has been made for 1913," says Manager Boltin. "In fact, chassis and body, in all essential construction features, are unchanged from last year, refinements and increased equipment being the only departure from the Marion standard. All models are equipped with electric-lighting units and self-starters; new English steel springs have been substituted for the old style; the brake levers have been enlarged to increase efficiency and the steering wheel is fluted, with positive grip friction design for more and more altered to produce a more harmonious whole; upholstery and seat cushions are deeper and more luxurious; a deep cowling has been perfected; tool boxes have been removed from the running boards; the chassis has been lowered one and three-quarters inches, and all wood trimmings are of mahogany.

Full Equipment Is Feature.

"Model 37-A, a big, roomy, five-passenger car, which is mounted on the regular Marion 30-40 horsepower chassis, is a straight-line creation, unmarred by unsightly projections anywhere. Everything in the way of accessories or appointments has been placed out of sight, spare tires on demountable rims being hung in special tire cradles at the back of the tonneau and door handles and catches being placed inside. The finish is in either Brewster green or a deep rich wine color, with full nickel-plated trimmings and fenders, hood, lamps and brackets of black, baked on enamel.

"The model 48-A, the 48-horsepower touring car, also accommodates five passengers, with generous leg and elbow room. Its exterior lines are practically identical with those of the 37-A, with due allowance for the difference in size. This model is equipped with a Westinghouse electric motor starter, which, engaging the toothed flywheel, will spin the engine as long as necessary. Its fifth and equipment specifications are the same as the smaller model.

"The 'Bobcat' Model Speedy. In the model 35-A the company offers an aristocratic touring car for two. The lines follow closely those of the 37-A. The body is of the torpedo, forefoot type, with seats slightly higher than the 'Bobcat' model, and general style and dignity seldom found in moderate-priced roadsters. Part of the equipment is a roomy leather trunk, which, with the big gasoline tank, occupies the space back of the seat. This model is finished in either Brewster green or wine color.

"Bobcat," which long since took its place among the fast light roadsters, is a look-alike practically the same make-up as last year. While identical with the 37-A in all essentials, the 'Bobcat' has a higher gearing, which makes a mile-a-minute speed possible at all times.

"All Marion models come to the purchaser with complete equipment, including silk mohair top, curtains and 'do curtain, ventilating windshield, Warner speedometer, demountable rims, foot and robe rails, tire irons, tools, 'fire repair outfit, pump and jack."

HARD TRIP EASY FOR R-C-H

Little Car Wades Through Mud and Snow Without Effort.

Through a driving snow storm and over roads that seemed impassable E. H. Whiteside, of the Valley Motor Car Company, of Salem, drove a 1913 R-C-H recently from the state capital to New Era. The trip was made at the request of J. R. Davies, of the Pacific Telephone and Telegraph Company, who wanted to inspect the line between the towns mentioned. O. H. Gilbert, of the same company, accompanied them.

After numerous Salem dealers refused to let a car out on the trip, Mr. Whiteside declared his willingness to attempt it with an R-C-H. In writing of the run, he stated it was the hardest he ever made and that the way the little car came through was a revelation even to him.

Truck Tire Prices Cut. Reduction of 10 per cent in the price of truck tires was announced last week by one of the leading firms. This cut was made possible, it is said, by the large increase in the number of auto trucks sold during the past year and his increase in production planned for 1913. This company alone has contracted with makers to supply tires enough to equip more than 16,000 machines.

## LONG DEMONSTRATIONS VIRTUAL CUT IN PRICES

Free Trials Big Concession to Buyer and Takes Just So Much Value From Distributor or Manufacturer.

THE demonstration problem, like most of the others, grows out of the developing conditions in the trade and the eagerness of manufacturers and their selling connections to get their new methods into service in certain cities and with large companies having national prominence.

Purchasers of horses never ask for a week's demonstration of what a team can do in their service, because from past experience they know, and why it is not possible for a salesman or a maker of motor trucks that is well established in any of our large cities to dodge the demonstration question and point to the service the trucks are giving daily under the very eyes of the prospective purchaser, who is at liberty to make inquiries himself of the users? But the salesman for a new make of truck finds he must satisfy the buyer of the truck as to its load capacity, speed, hill climbing power and the general reliability of his machine.

Reasonable demonstrations in such cases are not objectionable, although they are of no value to the purchaser in determining either the cost of maintenance or the stability of the truck. The trouble is that the demonstration is subject to abuse from both sides. Long free demonstrations offered as an inducement to effect sales are in fact the same as price concessions, because they are of value to the prospective purchaser, who is getting a large amount of his hauling done free of

## ROADS ARE TALKED

Missionaries Visit Southwest Washington Counties.

SOME HIGHWAYS USELESS

George P. Larsen and Ernest F. Ayres Report Sentiment of Public in Favor of Constructive Legislation in This Line.

VANCOUVER, Wash., Feb. 8.—(Special.)—As a result of the lecture tour just completed by George P. Larsen, secretary of the Southwest Washington Development Association, and Ernest F. Ayres, of the Association of Western Portland Cement Manufacturers, Southwest Washington is thoroughly imbued with the good roads spirit.

Forty-three meetings were held on the recent campaign, large audiences gathered for the good roads advocates in the smaller towns of Klickitat, Skamania, Clark, Cowitz, Wahkiakum, Lewis, Pacific, Thurston and Chehalis counties. It had the effect of arousing keen interest in the work prior to the annual meeting of the association at Olympia. The good roads men will meet for a two-day session at the Capitol Wednesday. Mr. Larsen was assured that there will be a good representation at the convention.

Some Roads Impassable. Every opportunity was afforded the campaigners to study the country roads at their worst. They went into sections where the farmers were forced to walk to the meetings, owing to the deplorable condition of the highways. They invaded communities where the children are unable to attend school because of the rough character of the roads. Only on the peninsula, in Pacific County, and in parts of Chehalis County were the roads in good condition.

Road conditions were so bad in Clark County that the lecturers were forced to hire a team to reach Highland School. The proprietor of the livery stable where they applied for the conveyance knew the rough character of the roads they were going over so well that he refused to let them have horses. Mules, he said, were the only safe animals to drive. Mr. Larsen said that if mules were not employed they probably would have not been able to reach their destination.

"The interest in good roads legislation has been paid in, only to rest in the state treasury until some provision could be made by the next Legislature. The interest in good roads legislation of the past two years whereby the taxes have been paid in, only to rest in the state treasury until some provision could be made by the next Legislature.

Public Pulse Felt. "From the number of the people as shown at the meetings, it is very evident that it will be political suicide for those responsible if the present Legislature fails to enact some constructive measures along this line. This campaign was inaugurated for the purpose of spreading the good roads gospel among the residents of the smaller towns and rural districts. Few of the larger towns being visited. We found the people with high hopes of the present Legislature enacting a comprehensive and constructive plan for a system of roads throughout the state. There is marked interest in the Pacific Highway, which the voters favor as the main line for the west road system. They realize all these roads cannot be built immediately, but they do believe that by adopting this plan as a system of roads for Southwestern Washington, results will be attained. For the Pacific Highway it was suggested that an appropriation of sufficient size to open, grade, gravel and otherwise put in good shape for its entire length should be made.

"Much interest was displayed in the coming meeting at Olympia. I am sure there will be a representative gathering there."

Read Your Answer in the Users



These Firms Use THE Lippard-Stewart Delivery Car

Meier & Frank  
The Oregon Journal  
Olds, Wortman & King  
Jones Market  
Peoples Fruit & Produce  
J. E. Kelly  
Chancellor & Lyon  
Ballou & Wright

Can it be that they did not know what they were buying? Query them. They will tell.

Commercial Wagons, any style body, different length chassis. We guarantee service.

Ask us.

The Moores Motor Car Company OREGON DISTRIBUTORS. Sixteenth and Alder, Portland.

THE PIERCE-ARROW FIVE-TON TRUCKS Are Worm-Driven

This system is more efficient than the side chain drive.

THE PIERCE-ARROW SALES COMPANY

Factory Branch H. S. COLVER, 14th and Couch Streets, Marshall 339, A 6388.

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Motorcycle Notes

THE Hamilton, Ont., Motorcycle Club has grown so rapidly during the past year that it has twice been compelled to move to larger quarters.

Two motorcycles are to be included in the equipment of Dr. F. M. Bell, of St. Louis, who is planning a gulf coast tour in his biplane.

**"BIBENDUM" PUDDING**  
Select four prime MICHELIN TUBES (red ones) four French Non-skid MICHELIN CASES, four heaping tablespoons talcum powder. To each case add one tablespoon of the powder. Gently trace tubes inside the cases, put on rims and inflate until hard. Serve with lots of satisfaction.

**ARCHER AND WIGGINS**  
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AUTO SUPPLIES SPORTING GOODS

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Warm Caps Overcoats  
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Everything for Your Auto

**Ballou & Wright**  
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**REO and HUDSON**  
AUTOMOBILES  
C. L. BOSS & CO.  
PORTLAND AGENCY  
615-617 Washington Street Phones Marshall 4022, A 4959

**BOWSER** GASOLINE and OIL TANKS  
STORAGE SYSTEMS FOR PUBLIC AND PRIVATE GARAGES. S. D. Stoddard, Representative, 205 Columbia Bldg. Main 1474.

**"Firestone" TIRES**  
Vulcanizing and Retreading. H. E. BLODGETT, 20-21 North 14th St. Main 7003.

**Overland** J. W. Leavit & Co.  
Coast Distributors  
529 Washington Street  
A 2422-Marshall 2779

**HAYNES** PACQUET & PECK  
AUTOSALES CO  
OREGON DISTRIBUTORS  
Hawthorne Ave. at East Eighth Street, Portland

**FORD** Peterson & Sleret Co.  
AGENTS  
450 Hawthorne Ave., Corner 8th  
Phone E. 648

REFLEX SPARK PLUGS NON-BURN BRAKE LINING  
AUTOMOBILE TOOLS AND SHOP SUPPLIES

**Preer Cutlery and Tool Co.**  
74 SIXTH AND 311 OAK STREET  
Distributors of  
**EAGLE AND MM**  
MOTORCYCLES  
In Oregon and Washington

**THE MIGHTY MICHIGAN**  
MICHIGAN AUTO & BUGGY COMPANY  
East 1421, B 1345 369-371 Hawthorne Avenue

REO HUDSON LITTLE  
**NORTHWEST AUTO CO.**  
DISTRIBUTORS  
F. W. VOGLER, President  
617 Washington Street. Phones—Main 8887, A 4959.

covered the roads, three members of the St. Louis Motorcycle Club recently made the round trip to Eureka, Mo., a distance of about 60 miles. To make going more difficult, it began to rain before more than half of the journey was completed. However, the boys made the trip in good time and arrived home without accident.

Five thousand seven hundred miles on one set of tires is the record of E. Ferris Lamon, an enthusiastic motorcyclist of Bordentown, N. J.

Hutchinson, Kan., has formed a motorcycle club, which will be affiliated with the F. A. M.

"Never too old to learn," is the motto of George V. Ward, of Columbus, O., who has just purchased a motorcycle. Mr. Ward is 72 years old.

Winnipeg, Can., has added four motorcycles to its police department. The first motorcycle patrol in Winnipeg was organized in 1910, and during the time of their service these motorcycles have covered from 20,000 to 30,000 miles.

In a race between an aeroplane and a motorcycle of Tampa, Fla., the motorcycle won by about 100 feet.

Indiana motorcyclists will have a state convention May 15, 17 and 18.

Special features of the trucks are the differential lock operated by a foot pedal which effectually prevents the annoyance of one wheel turning independently of the other in slippery places. By means of this lock both wheels may be driven positively. The countershaft of the transmission is extended to permit equipping with sprockets to drive a leading wheel either on to the wagon from the ground or from the truck to any desired height. The front wheels are equipped with pneumatic tires while the rear wheels have the solid type.

Each county is expected to send at least one delegate.

About 30 Savannah motorcyclists celebrated the birthday of General Lee on a 51-mile run.

**VELLE MOTOR TRUCKS ARRIVE**  
Heavy Commercial Cars Have Features of Special Design.

Two models of the Velle commercial cars were received by the John Deere Plow Company last week. The shipment comprised a three-ton and two-ton trucks, which are typical of Velle construction. They represent the latest and most reliable methods of truck design.