

NEW MODEL TRUCKS ADAPTED TO TRAILER

Additional Speed Changes to
Be Provided.

COUPLING DEVICES ADDED

Manufacturers Give Recognition to
Public Demand for Vehicles
That Give Most Service.

NEW YORK, Jan. 29.—New truck models for 1921 to be put out by a number of manufacturers embody changes that will adapt the trucks for drawing trailers. These include additional speed changes—four, five or six—heavier rear-end construction, coupling devices for trailers and increased braking surfaces.

This is a recognition by the manufacturers of the growing public demand for trucks that can pull trailers satisfactorily and give the maximum of service. The business world is demanding the increased capacity and cheaper hauling costs that result from the use of trailers.

Standard Couplings Wanted.
It is highly desirable, while making these changes, that the truck manufacturers adopt standardized trailer hitches as regular equipment, so that any make of trailer can be used with any make of truck. The Society of Automotive Engineers last year approved the recommendations of a joint committee of its truck standards division and the Trailer Manufacturing association for standardized trailer hitches.

Large corporations operating fleets of more than one make of truck often find, after buying a number of trailers, that the trailers cannot be used with all of the trucks without making expensive changes in some of the couplings.

Interchangeability of trucks and trailers is of growing importance to motor express operators, as indicated by the following case: An operator running 20 to 40 trucks on a schedule over a route of more than 100 miles has been figuring on buying trailers to be used like box cars behind his trucks. In case the goods in the trailer were consigned to points 75 to 125 miles beyond the ends of his own route, he planned to connect the trailer over to operators of connecting or adjoining routes to be hauled by their trucks the remaining distance. It was found, however, that the coupling bars on the trailers would hitch on to only about one-third of the pintle hooks on the trucks operated by any of the companies.

Trailer Business to Expand.
There is no doubt that if this situation is remedied there will be a considerable development along the foregoing line. Trailers being transferred from one motor express line to another just as freight cars are switched from one railroad to another for long hauls.

Another factor to be considered is that destructive effects on improved roads are caused by concentration of weight on single wheels, as compared with high speed. Damage to the highway is correspondingly less when the weight of vehicle and load is distributed over six or eight wheels, as when semi-trailers or four-wheel trailers are used with the trucks to carry part of the load.

When a semi-trailer is towed, the total weight on the drive wheels of the truck is no greater than when a 2½-ton load is carried on the truck alone.

Ten tons can be carried on a truck and trailer without imposing any more weight on one axle or wheel than when five tons is hauled on a truck.

Weight Limitations Interpreted.
State legislatures have sought to save the roads by limiting the total weight of a truck and its load. In some states the limit is 10 tons, in others 12½ and in still others 13 or 14 tons.

Motor vehicle and highway authorities in some states construe the laws to mean that as to weight limitation applies to the six-wheel combination the same as to a four-wheel vehicle. This tends to encourage use of large trucks with six wheels. The weight of heavy loads over six wheels. It is cheaper to haul five to seven tons on six wheels than on four, but the combined weight of such a load often exceeds the limit allowed by law, so the hauler is forced to use a single vehicle and concentrate the weight on the two rear wheels.

The attorney-general of Maryland, who has recently made a study of this matter, holds that the weight limit of ten tons in the Maryland law applies only to one vehicle and that portion of the load that it actually carries or supports on its own wheels. Thus the wheels of a semi-trailer may carry additional weight beyond the weight limit of the law to the extent of the width of the tire on any wheel.

GARY TRUCKS FOR ORIENT
Large Order Placed for Shipment Through This City.

Portland will be the trans-shipment point for 900 Gary worm-drive motor trucks, which will be received here from the factory at Gary, Ind., by rail and sent on by steamship to Oriental ports, according to word received along motor-truck row last week from officials of the Gary Motor Truck company of Gary, Ind.

The contract, it was said, was entered into between the Gary company and the Astoria Overseas corporation, of which J. Fred Larsen is the head. The trucks will come to Portland in knocked-down, crated condition and will be transferred here to vessels for delivery to Australia, China, Japan, the Philippines and other far east points. Shipments, it is stated, will begin in about 60 days.

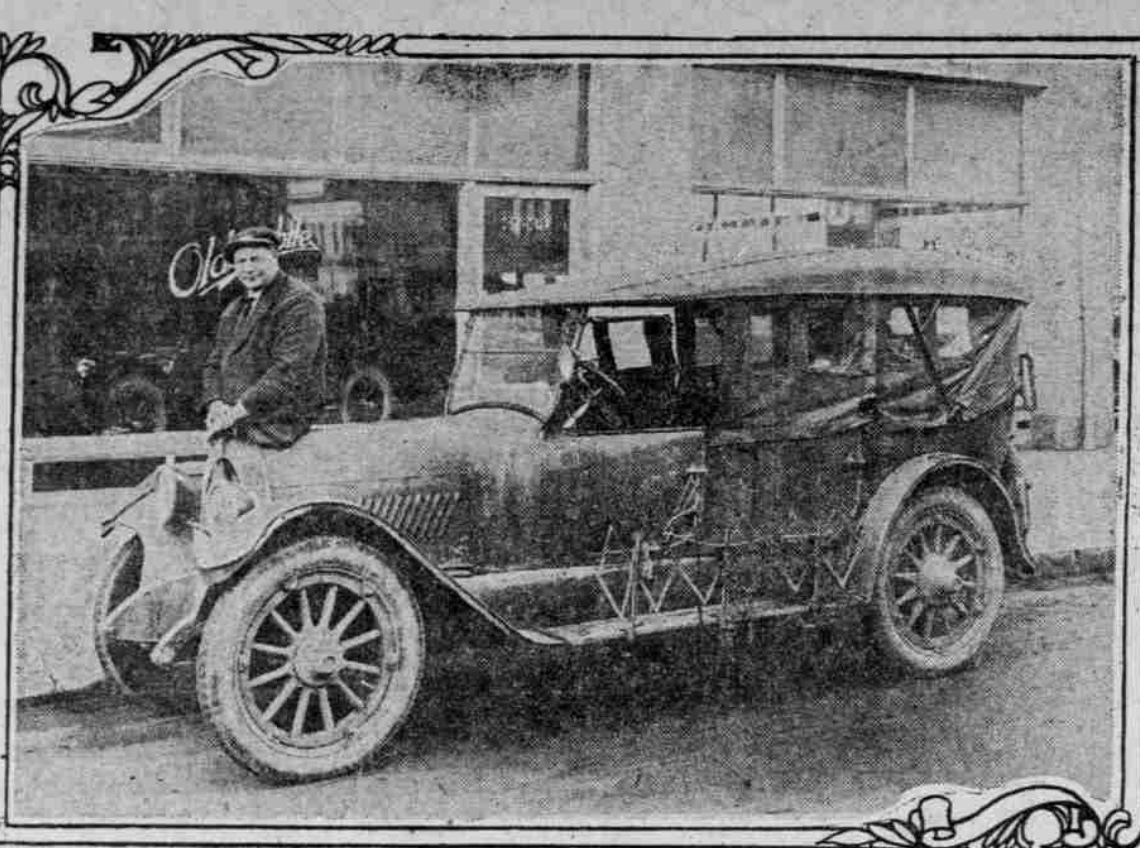
NEW PLATES FOR CALIFORNIA
Over Half a Million Licenses Will Be Issued February 1.

SACRAMENTO, Jan. 29.—After several weeks of preparation, Charles J. Chenu, superintendent of the state motor vehicle department, announces the department is ready for the rush of business that will come with the issuing of 1921 license plates, beginning February 1.

Additional space has been provided in headquarters here, and additions have been made to the clerical force. Applications already are coming in and by the middle of the month there will be a flood of letters.

An order has been placed for 500,000 passenger automobile license plates, 50,000 commercial plates, and 25,000 motorcycle plates. There also will be other plates for dealers, and cars that are exempt.

LEGLESS MAN AT TILLAMOOK IS EXPERT AUTO STAGE DRIVER.



W. H. WITHROW AND HIS 1920 OLDS EIGHT.

The picture shows W. H. Withrow, Tillamook's legless stage driver, who drove to Portland with his 1920 Oldsmobile eight last week for a visit. Withrow operates a stage in the Tillamook section and has the reputation of being one of the most careful and expert drivers in that section. He operates the clutch and the brake with his stub limbs, special rods having been installed in the car which reach up to the front seat cushions.

Mr. Withrow purchased his Oldsmobile from the Oldsmobile company here in Portland in February, 1920, and to date has covered 25,000 miles, mostly over rough country roads. He uses the car for a general freight and stage business and, in addition, hauls 14 school children to and from school each day. His first set of tires made 12,000 miles and he is still on his second set. Withrow, in spite of the misfortune which he experienced when a small boy of losing both his legs, is known in Tillamook as an athlete. He is an experienced basketball player, can beat most men in a race and his friends down there claim he can lick any other man in the county.

IDEAL ROAD UNIT PLANNED
SECTION OF LINCOLN HIGHWAY TO BE WORLD MODEL.

Committee of Technical Engineers Decide on Specifications for Perfect Stretch.
NEW YORK, Jan. 29.—A group of the leading highway engineers of America, sitting in New York in a two-day conference at a technical committee of the Lincoln Highway association to decide on specifications for the "ideal section" to be built on the Lincoln highway as an example to the world of the best type of main-traveled highway that can be constructed, have agreed on the principal specifications.

The engineers had before them the specific problem of designing a section which, without compromise with the question of available funds, would represent the consensus of the best engineering opinion of the United States as to the most economical investment of public funds on main interstate routes of travel. The United States Rubber company, which has furnished the funds for the construction of the section, has expressed the hope that a section can be built that will be the best that modern engineering can devise and at the same time will be in its essential details within the reach of the pocketbook of the average state or municipality. The location of this "ideal section" is still undetermined, but it will be somewhere in the middle west.

The specifications for the "ideal section" are to be predicated upon an average traffic of 15,000 passenger automobiles for a 24-hour day, traveling at a speed of 35 miles an hour, and 5000 motor trucks for a 24-hour day, traveling at an average speed of ten miles an hour.

The width of the right of way shall be 100 feet.

The drainage shall consist of sub-merged drain tile and catch basins.

The section shall be constructed of concrete, 10 inches thick, with reinforcing steel imbedded.

Earth shoulders on either side of the concrete.

Ample lighting.

The technical committee recommends that neither the "ideal section" nor any other road should be built without adequate, intelligent, continuous and prompt maintenance being provided.

No curves having a radius of less than 1000 feet and, wherever reasonably possible, curves should be eliminated.

Curves super-elevated for a speed of 35 miles an hour.

Foot path for pedestrians.

Ample guard and warning signs and all embankments protected by guard rails.

Specifications for the "ideal section" shall be predicated on the ultimate regulation of motor truck design, limiting the super-imposed load to 800 pounds an inch of width of tire actually in contact with the road surface and to 8000 pounds per wheel.

All crossings at grade shall be eliminated.

Establishment of comfort stations, park sites and camp sites recommended.

All wires underground.

All advertising signs prohibited along the right of way and all signs of direction or distance, except those placed or authorized by proper state authority, prohibited.

All distance markings should be eliminated.

TRUCKS TAKE IMPORTANT PLACE IN ROAD DEVELOPMENT IN OREGON.

Getting down to "pay gravel." The photograph shows a busy day at the gravel pit of J. A. C. Tait, near Portland. Tait uses four White trucks to haul the gravel into Portland. The mileage on two of the Whites is 200,000 and 300,000, respectively.

NEW AUTO CLAIMS TO EMPLOY UNUSUAL PRINCIPLE.
No Gear Shifting Is Necessary on Kelsey Car, Even When Climbing to Slope.

NEW IDEAS ARE ALWAYS CROPPING UP in automobile design and construction. This is demonstrated once more in a new car which has just been placed on the market and which embodies two radical changes from conventional construction.

This car has a straight-line shaft drive, friction clutch and transmission with final drive through a jack-shaft to internal gears embodied in the brake drums on the hubs of the wheels. All parts are enclosed and the gears run in oil. The inventor of this unusual combination of engineering principles is C. W. Kelsey, formerly sales manager of the Maxwell-Briscoe Motor company of Newark, N. J., which is manufacturing the new six-cylinder car.

This new car, known as a Kelsey, is claimed to be the first automobile to successfully employ the friction type of transmission—admittedly the ideal method of speed change mechanism under proper working conditions. It is also the first passenger car to make use of internal gear drive, although this has been used in motor truck axles for several years.

An idea of the simplicity and economy of this design may be gained from the fact that it does away with the ordinary clutch, gear transmission and master bevel gear and pinion in the rear axle, together with the necessity for heavy lubrication at these points.

Its advantages from the car-owner's viewpoint may be summarized as follows: Unusual smoothness and silence of operation; remarkable flexibility and positive traction at all times; reduced operating and maintenance expenses; simplicity and ease of operation; freedom from vibration with a consequent decrease in wear of the parts; where a car of the conventional type loses 25 per cent of the power of its engine between the flywheel and the wheels when traveling on high gear, the Kelsey loses only 13 per cent. At these points, it is claimed, there is nothing experimental about the new car, as every part has been worked out in detail after careful research, numerous experiments and practical tests extending over seven years. It is claimed.

The friction type of transmission has for some years been recognized by automobile engineers as an ideal method from a theoretical standpoint, but in some previous tests it is said that it was unable to stand under the wear and tear contingent upon passing the motive power from the engine to the rear wheels. The gear of the new Kelsey car, however, is claimed to have overcome this defect.

King Representative Here.
Herman Alperin of Detroit, factory representative of the King Motor Car company, makers of the King, is in Portland for an extended business visit. He is conferring with officials of the Rubin Motor Car company, King distributors here, and is meeting other men along Portland's automobile row.

With a wicker body and driven by an aerial propeller, an automobile built in England is light enough for two men to carry.

MODERN MANIFOLDS ADD TO EFFICIENCY

Methods of Carburetion Are
Declared Improved.

CHANGE IS VAST ONE

No Other Part of Internal Combustion Engine Has Undergone Such Revolution in Years.

Not least among the factors that contribute to the relative efficiency of the modern motor car, as compared with its predecessors of a few years ago, is the present day design of manifolds. The efficiency of the manifold has much to do with the carburetion efficiency, and this in turn largely determines the power, economy, etc. of the engine. No other part of the internal combustion engine has undergone quite such revolutionary changes within the last few years as the manifolds, especially the inlet.

Two considerations have forced manifold design on the attention of the engineers. One has been the insistent demand of the motoring public, ever since there has been such a thing, for economy of operation as regards fuel, and secondly the declining quality of the gasoline that we have been getting.

In the days of highly volatile fuel that exploded with encouragement of any kind one could afford to use long exposed manifolds, because the snappy gas of that time had little tendency to condense on its way to the cylinders. The long manifolds of yesterday had certain merits, principally their lack of sharp curves, which would interrupt the flow of gas. But their length and exposed position would make them impossible with the present day grades of fuel.

Flow of Fuel Pictured.
Perhaps the average car owner does not know, or rather does not stop to think, just what process the fuel goes through before it reaches the combustion chamber. The fuel flows from the gasoline tank through a pipe into the carburetor, either directly or via a vacuum tank. The fuel enters the float bowl of the carburetor, where it is passed through a very small opening. The partial vacuum that is created in the cylinders by the movement of the piston draws the fuel into the combustion chamber. Now, if the fuel is very light and highly explosive, it flows into the combustion chamber without trouble. But when it is heavy it does not flow readily, its rate of flow decreasing as its weight increases. Every one knows that cold tends to thicken oil of any kind, gasoline as well as others. A fairly good grade of fuel may leave the carburetor pretty well volatilized, but striking a cold surface, as the metal of an exposed manifold, it will condense and pass on as a heavy little of it will reach the combustion chamber. This is the problem our engineers have endeavored to solve.

One of the first methods of improving the manifold was that of putting a jacket around the intake section at some position near the cylinders and passing a hot liquid, such as water or hot water around the manifold. Another method was tried a little later, that of bolting the manifold directly to the cylinder block so that the heated gas passage in the casing would supply heat enough to vaporize the fuel. This latter method is used to a great extent now.

Heating Gas Tried.
One school of designers tried the experiment of heating the fuel before it reached the carburetor. Still another group favored the idea of heating the gasoline right in the carburetor. Both these methods had certain disadvantages. The fact that if fuel is heated before it gets to the carburetor or even in that instrument it still has an excellent chance of condensing again on its way from the carburetor to the combustion chamber, unless additional means of keeping it warmed are provided. If this latter method is used, the whole operation after the gasoline has left the carburetor?

In a number of recent designs the inlets and exhaust manifolds have been placed in close juxtaposition, with the intention of having the heated gas in one inlet impart enough warmth to the former to keep the fuel thoroughly vaporized. In similar designs the inlet manifold is heated through the exhaust manifold at a single point. While these designs seem to give satisfaction, probably the most efficient method of handling the problem is found in the idea of incorporating the inlet manifold within the cylinder block, where it is practically surrounded by hot exhaust gases and is close to parts that ordinarily run hot.

Another idea that contributes to efficient carburetion is found in the fitting of the air pipe leading to the exhaust pipe with a movable shutter, whereby the engine is kept in the cold air, so as to obtain exactly the right conditions for maximum fuel efficiency.

Hot Spots on Manifold.
Last year there was a violent interruption of manifolds commonly called "hot spots." The name was accurately descriptive, for it signified a spot in the inlet manifold maintained at a high temperature so that the gas in passing over it is warmed and made highly volatile. It is a peculiar fact that vaporized fuel does not take the same course as liquid fuel. Gas or vaporized fuel, because of its higher kinetic values, tends to travel in a straight line until it strikes some obstruction. If this obstacle is part of the inlet system, the liquid particles remaining in the fuel will be vaporized without affecting the mixture by unduly enriching it.

It is a curious idiosyncrasy of gasoline fuel that while it is more efficient if it is warmed, the heat applied to it must not be too high. If the heat applied is too great it reduces the volumetric efficiency of the engine for the simple reason that heated air takes up less space than the cold air. This is why a shutter permitting the admission of cold air after the engine is running helps carburetion.

With present grades of fuel there is not much danger that too high a degree of heat will be reached. Especially in this so-called cold weather, it will be seen from all this that the problem of securing efficient carburetion is not the simplest matter in the world. There are many diverse factors entering into it and each must be given due consideration, but must not be allowed to overshadow the others. It is certain that there will be further developments along this line, for fuel is not going to improve. The average everyday car owner is highly interested in the solution of these problems, because on the solution rests the fuel economy of his vehicle, a matter which hits him directly in the pocketbook.

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MOTOR COURSE PLANNED UNIVERSITY AT SYRACUSE TO TEACH TRANSPORTATION.

Special Department at College Is
Endowed by H. H. Franklin,
of Franklin Company.

SYRACUSE, N. Y., Jan. 29.—Recognizing the importance of highway building problems caused by the tremendous increase in motor transportation, Syracuse university has created in the college business administration a department of transportation, in which much attention is being paid to motor transportation. This department has been endowed by H. H. Franklin, president of the H. H. Franklin Manufacturing company.

The course is being conducted by Dr. Charles L. Raper, professor of transportation. He is developing the course from the broadest business point of view as well as along lines of government aid and regulation. Problems of maintenance and depreciation, loading and speed, competition of the motor car and the horse-drawn vehicle, the street car and the steam railway are considered. Another phase taken up is the relation of the motor car to the building and maintenance of streets and highways.

The course has been worked out along practical lines. The student must know how to operate and care for a car before he is permitted to take the course. He must make a careful study of some practical problem of motor transportation in his own county.

Trouble Lamp Advised.
There should be a trouble lamp with a good length of wire as an integral part of the car. The most important aid a trouble lamp could give would be to light a wheel for tire changing. One with a

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