

The Automobile Speaks

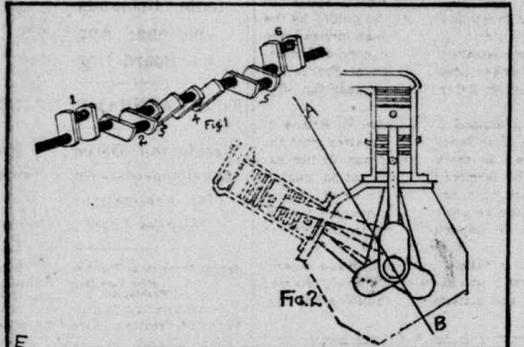
It tells you what it is, what it requires and it asks to be treated fairly.

By Frederick C. Guerrlich

No. 5.
I TOLD you in a previous article that my designers made my engine of four cylinders in order to overcome the vibration which results when but one cylinder is used, or, in other words, to give smoother running. If a greater number of cylinders, as six, eight or twelve be used, an even smoother running will be obtained.

You will remember my saying that no matter how many cylinders my engine may be equipped with it could and usually would be a "four cycle" engine; that is, in each cylinder the mixture of gasoline and air will be sucked in on one stroke, compressed on the next, then be ignited and so explode, giving the power stroke, and then on the last stroke be exhausted or pushed out.

Now, no matter how many cylinders my engine may have, all of them will have to fire while the first goes through the above four strokes or cycle. As four strokes require two revolutions of the crankshaft (each being one-half of a revolution), the crankshaft of a six cylinder engine, in order to have the power strokes equal periods apart, must be designed so that the cranks are set two-sixths or one-third of a circle apart, or expressing this in degrees, one-third of 360 degrees or 120 degrees apart, there being 360 degrees in a circle. Thus the crankshaft of a six cylinder engine will be as shown in the illustration.



In order to have the centre of the combined weight of the two pistons which move together at the middle of the engine so as to prevent the rocking chair vibration referred to in the last talk, the Nos. 1 and 6, the 2 and 5 and the 3 and 4 pistons will have to move together.

Because of the above arrangement of the crank arms only two firing orders are found on the six cylinder engines, though others are possible. These are either 1, 5, 3, 6, 2, 4 or 1, 4, 2, 6, 3, 5. The former is most often used. This means that three of the cylinders whose crank arms are 120 degrees from one another, in the direction of rotation, will fire in the first revolution, the other three firing in the second revolution, the order of the second set being such that the cylinder whose crank arm is parallel to those of the first revolution fire in the same order as they. Thus 6 is parallel to 1, 2 to 5 and 4 to 3. So we have 1, 5, 3, first revolution, 6, 2, 4 for the second.

By noting that the added numbers of the parallel crank arms always make seven it will help you to remember this.

EIGHT CYLINDER ENGINE.
The eight cylinder engine is really two four cylinder engines set side by side on a common crank case and the cylinders tipped so as to be 90 degrees to each other. In this way the connecting rods can all be connected to a single crankshaft and the explosion or power strokes of one side come 90 degrees or a quarter of a revolution later than the other. The latter is required, as the eight cylinders must fire in two revolutions, or four must fire in one, or one in every quarter revolution.

The firing order of each of the two sets of four cylinders will be the same as for a four cylinder engine; namely, 1, 2, 4, 3 or 1, 3, 4, 2, but for balance the one side might be said to be one revolution later than the other, the rear of one side firing after the front of the other. Thus if No. 1 left side fires first No. 4 right side will fire next instead of No. 1 right side. Then No. 2 left side will fire, then 3, then 4 left, then 1 right, 3 left and finally 2 right side.

TWELVE CYLINDER ENGINE.
As the eight cylinder engine is really two four cylinder engines set side by side so the twelve is really two six cylinder engines set side by side. The cylinder blocks, however, are set at 60 degrees or one-sixth of a circle apart, as in this case six cylinders must fire in one revolution or one in a sixth of a revolution.

The firing order usually is No. 1 left side, No. 6, right side, 5 left, 2 right 3 left, 4 right, 6 left, 1 right, 2 left, 5 right, 4 left, 3 right.

MANY CHANGES IN NEW YORK AUTO LAW

County Clerks Will Assume Handling of Auto Plates July 1.

While measures proposing an increase in automobile registration fees for next year and the Statewide licensing of all operators went down to defeat during the closing hours of the Legislature, the passage of the administration bill, which now must be regarded as good as signed, will bring about some of the most radical changes in handling the motor vehicle since the bureau was first organized.

The new features include the distribution of automobile plates by county clerks, except in Albany county and New York, where the present bureaus are to be retained. All other bureaus, including Buffalo, Rochester, Binghamton and other places, will be closed the last of June and the duties transferred to the county clerks. In all probability, however, this year's plates will be distributed from Albany and New York, the county clerks handling out the 1922 plates from next November on.

The power of suspension and revocation is to be extended to Magistrates of first, second and third class cities, as well as county judges, the restoration of a license to be in the hands of the new Tax Commission, which will supervise the automobile bureau from July 1 on.

The changing of New York State's automobile year from February to January, makes it coincide with the calendar year, in so far as automobile registration is concerned. Chauffeurs and operators are to be licensed next January for a six months period, at the end of which they will be required to take out another license for a full year period.

The power of revocation and suspension of licenses will hereafter include motorcycles.

The administrative bill passed outlines the duties of the person who will shortly be named by the Tax Commission to supervise the motor vehicle bureau, which is taken from the Secretary of State's office the last of June.

While many of the details in connection with the handling of the bureau are still to be settled, it is expected that distribution of plates will get under way as early as November, and that a scheme which originated with Secretary of State Lyons in using armories in New York city during the rush season as distributing centers as an aid in avoiding congestion, will be continued.

Under the provisions of the law, as embodied in the administration bill, the county clerks will receive 10 cents for every set of plates which they hand out. It is figured that this will take care of any extra help that may be required when the rush is on.

Among the bills which were defeated during the closing hours of the session, during in committee, was one which proposed a fifty-fifty division of registration fees between the State and counties, in place of the seventy-five-twenty-five division that now prevails; a bill requiring all garage proprietors to keep a record of incoming and outgoing cars; a bill requiring all cars to be equipped

with a signalling device; the Trahan bond bill; the bill which would require the names of all owners of taxicabs and omnibuses to appear on the vehicles; the Sitt auto compensation bill; the Brady bill, relating to defacing the numbers on storage batteries; the extending of the division of registration fees to include citizens any one regulating speed through hamlets; another bill intending to break up speed traps by providing that all fines collected for violation of local motor vehicle ordinance, as well as State, should go to the State; the bill which made it a misdemeanor to use State cars for other than official purposes.

Gov. Miller signed on Wednesday night Assemblyman T. C. Moore's bill which makes it a misdemeanor to use any seal, coat of arms, sign, lettering or insignia of the United States or New York State on any privately owned automobile. The law becomes effective at once.

On the same day the Governor also signed the Duke bill, relative to the negligent operation of motor vehicles. This also becomes effective at once. This bill, perhaps better known as the Cobb bill, provides that any one who "operates or drives, or directs, or knowingly or willfully permits any one subject to his commands, to operate or drive any vehicle of any kind in a culpably negligent manner, whereby another suffers bodily injury," is guilty of third degree assault.

As soon as the Governor has acted on the motor vehicle bills which are included in the thirty day measures now in his hands, Secretary of State Lyons will issue the usual motor vehicle law book, which will contain all the new provisions. This book will be available for general distribution along about June 1.

PARIS SHOW BANS U. S. CARS.

N. A. C. C. Now Confering With Show Management.

Application blanks for the Paris Automobile Show recently received in this country bar American cars from participating on the same terms as other major countries.

The National Automobile Chamber of Commerce feels that this is a step backward in international relations, especially as the American automobile industry has been petitioning Congress to reduce the present tariff on all imported cars from 45 to 30 per cent.

S. A. Miles, show manager for the N. A. C. C., is now in Europe and will take up the question of this discrimination with the French automobile authorities. The clause in the application blanks referred to which strikes at American exhibitors without specifically naming them reads as follows:

"Manufacturers belonging to allied nations are admitted on the same terms as French firms provided they have taken part in three previous Paris shows and on condition that their previous import duties were not more than 15 per cent. ad valorem."

Under such a rule American firms do not have the same choice for space as British, Belgian and Italian manufacturers, because our pre-war duty was the same as at present.

Officials say that little objection could be raised to a rule which required all exhibitors to have taken part in at least three previous shows, although no such rule is enforced at the American exhibitions, to which foreign cars have always been welcomed. The question has been raised whether the matter of duty properly comes under the show conditions, especially when such limitation may prevent a fair presentation of American products, many of which have been sold abroad for years.

AUTO ASSO. ISSUES USED CAR GUIDE

Weekly Publication Devoted to Reconditioned Car Field.

An official "Used Car Buyers' Guide" has been issued by the Automobile Dealers Association of New York, composed of leading new car distributors. This publication is an innovation in the automobile industry. It will be edited by Henry Caldwell and will be sold at 10 cents a copy.

New car distributors in the early part of the industry found themselves unwillingly in the used car business. They were compelled to take used cars in trade for new ones and at first attempted to dispose of these so-called "exchange" models to used car dealers. In the natural course of development the "exchange" car became an important factor in the business of the new car distributor. He now finds it undesirable to allow these exchange cars to drift back into service in poor condition. He has decided that it is good business for him to assume the responsibility of market-

ing the used car in good condition and under his guarantee.

The guarantee of the new car distributors associated in this movement is in every sense as reliable as the guarantee of an automobile manufacturer. They are automobile merchants, doing business on a large scale. Their investments are heavy and they are financed by the leading bankers—just the same as the automobile makers they represent. Ninety per cent. of the used cars come to them in trade. These machines are properly appraised by their experts before they are taken in exchange for new cars; reasonable allowances are made for them and expert mechanics look them over before they are offered for resale.

Many of them do not need complete overhauling, others must be practically rebuilt. When they are of the same make as the distributor handles new they are invariably reconditioned, because these distributors do not wish any car which they represent to go back into service in bad shape. So far as the buyer of a used car is concerned it is always desirable to purchase a used car, either "as it is turned in by its former owner" or reconditioned, from the recognized, official distributor of that given make. Not only does the

buyer then receive the guarantee of this distributor but he is, in addition, entitled to all of the service and attention which accompanies a new car sold by the distributor of that make.

The Official Dealers' Used Car Guide" will contain a list of only the cars which these new car distributors can stand back of. It will not, by any means, be a complete list of all the used cars they have for sale, but rather a list of selected cars, which will enable the prospective buyer to save a vast amount of time in making selections and a great deal of future annoyance.

The guide will be published every Saturday and will contain a selected listing of reconditioned models, properly priced and carefully classified and indexed. The guide will be obtainable in New York at elevated an subway, railway and hotel news stands or from the Automobile Dealers Association, 1848 Broadway.

Magneto Failure.
A common cause of poor magneto action is dirt on the interrupter points. When the points are suspected of being dirty a few drops of kerosene will remedy the trouble and restore the parts to good working order.

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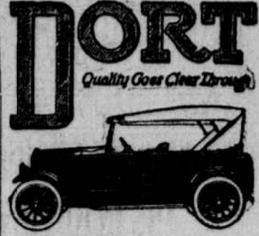
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It is with a sense of unrestrained and justifiable pride that we draw your attention to the new Dort body.

It is, without reservation or qualification, a jewel, no less, of body building art and it is mounted upon the stalwart Dort chassis that has behind it a long and remarkable record for durability and travel-thrift.

PRICES

Touring Car	\$1215
Roadster	1215
Four-seater Sedan	1995
Four-seater Coupe	1865

F. O. B. Plant
Wire wheels and spare tire extra

Dort Motor Car Co., Inc.
New York Branch:
Broadway at 58th Street
Phone Circle 5466
Dort Motor Car Company
Hightstown, N. J.

Official
USED CAR BUYERS' GUIDE
Issued By The Automobile Dealers' Association of New York

JUST off the Press. Consult it before shopping. Will save you time, money and annoyance.

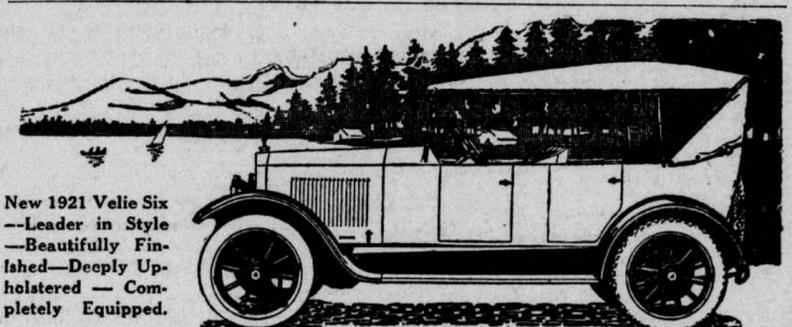
A reliable list of selected used and re-conditioned cars offered by the leading new car distributors of New York City.

Published every Saturday. For Sale at Ward & Gow, News Stands of Elevated and Subway Railroads and the Tyson Co. Hotel Stands.

Also by Application or Mail, Post Free from The Automobile Editor of the Herald.

THE AUTOMOBILE DEALERS' ASSOCIATION
Of New York
1845 BROADWAY
Price, 10 Cents Each Copy

MINERVA CARS
TWO MODELS
20 H. P. Four Cylinders 30 H. P. Six Cylinders
MINERVA AUTOMOBILES, Inc.
135 West 72d St. Tel. Col. 5539



How the Velie 48 Saves You \$1090

Here is an absolutely true and faithful comparison of all makes of motor cars using one or more of the principal units in Velie Model 48. These figures cover all cars from the lowest to the highest price. The price of each maker's touring car models, as published in Automobile Trade Journal for April, or Motor World for March 30, serves as the basis for the totals.

21 Motor Car manufacturers use Continental 7-R Red Seal Motor. The average price of all these cars is \$2084. You get it in the Velie for \$1885.	15 Cars have Bijur Starting and Lighting Equipment. Their average price is \$3178. You get in it the Velie for \$1885.
26 Car Builders use Timken Axles. The average price of cars so equipped is \$3229. You get them in the Velie for \$1885.	The average price of cars using McCord Radiator is \$2965. You get it in the Velie for \$1885.
28 Cars use the Gemmer Steering Gear. Their average list price is \$3366. You get it in the Velie for \$1885.	The average price of cars using Arvac Joints is \$3032. You get them in the Velie for \$1885.

NOW, from these figures we find that the average cost of a car having all these high grade units would be \$2975.60.

BUT to cap the climax, we find there is no other car on the market, except the VELIE giving all of these superior features. Just think that over. No other automobile matches Velie values regardless of price.

FINALLY, from this comparison we find that Velie 48 is \$1090.60 under the average of other car prices—values considered—and in addition you have Borg & Beck clutch, Atwater-Kent ignition, and a dozen other features equally good included at the low price of \$1885. See this remarkable car today.

There are eight 1921 models: Five-passenger Touring, Seven-passenger Touring, Sedan, Roadster and Speedster in this "48" series, and Five-passenger Touring, Sedan and Roadster in the smaller Velie "34" series.

Easy Payment Plan, If Desired
Garland Automobile Company
1888 Broadway, at 62d Street, New York. Tel. Col. 5596

- Brooklyn Branch, 2402 Concourse.
- BROOKLYN, N. Y. Kunkel Auto Co., 1378 Bedford Ave.
- YONKERS, N. Y. Automobile Sales Co., 57 So. D'way.
- PEEKSKILL, N. Y. Wm. H. Ash, 415 Washington Ave.
- NEWBURGH, N. Y. Hudson Garage, 9 Johnston St.
- Hudson, N. Y. H. J. Bloomer, 405 Diamond St.
- POUGHKEEPSIE, N. Y. S. L. Davis & Son, Arlington.
- CATSKILL, N. Y. Greene Co. Motor Co., Main & Church.
- SCHENECTADY, N. Y. F. V. Becker, 28 Washburn Ave.
- SARATOGA SPRINGS, N. Y. Congress Garage, 18 Congress St.
- VALLEY COTTAGE, N. Y. E. S. Anderson, Main St.
- NEW HAVEN, N. Y. Geo. P. Wells, 31 Exchange St.
- Albany Branch, 348 Broadway.
- FREEPORT, L. I. Herbert G. Edwards, 13 W. Merrick Rd.
- QUEEN, N. Y. W. L. & J. T. Gallister, Jericho Turnpike.
- MINEOLA, L. I. Kennedy & Sons, 113 Corner St.
- KINGSTON, N. Y. Kruger Garage, Inc., Maple Ave.
- ROSELAND, N. Y. Murray's Second St. Garage, 856 Second St.
- HUNTINGTON STATION, L. I. Fox Bros. Garage, Inc.
- LITTLE NECK, L. I. L. Van Nostrand, Broadway.
- ENGLISHTOWN, N. J. Cliffside Motor Sales Co., 24 East.
- HACKENSACK, N. J. Linden Garage Corp., 62 Linden Ave.
- NEW BRUNSWICK, N. J. De Angelis Bros., 23 French St.
- Long Island City Branch, 90 6th Ave.
- NEWARK, N. J. J. W. Mason & Sons, 1005 Broad St.
- PATERSON, N. J. De Young & Grillmeier, 173 B'way.
- TRENTON, N. J. Robbins' Garage, 909 So. Broad St.
- UNION HILL, N. J. Walvo's Auto Ser. Co., 130 Third St.
- WASHINGTON, N. J. Warren Co. Over. Sales Co., 75 E. Washington St.
- WATERBURY, CONN. Waterbury Motor Co., 15 Jefferson St.
- DEBBY, CONN. Walter C. Gilbert, 92 Factory St.
- TORRINGTON, CONN. James & Searles, 7 Winstead Road.
- BETHEL, CONN. Bethel Garage Co., 103 Centre St.
- BRIDGEPORT, CONN. Irving E. Mansfield Co., 360 Fairfield Ave.
- NEW HAVEN, CONN. Allied Motor Co., 224 George St.

ORPHAN CHILDREN TO BE GIVEN OUTING
Orphans Automobile Day Association will entertain this year as in the past some 4,000 orphan children from forty institutions of this city on Thursday, June 15. Preparations for the outing have begun with headquarters established at the clubrooms of the Automobile Dealers Association, 1845 Broadway.

As usual, the custom of calling on automobile dealers, private owners and the general public for cars and trucks for the day, also for cash donations has begun.

This year the children regardless of color or creed will be taken to Starlight Amusement Park, 177th street and Bronx River, where the management of the park has kindly arranged with all the amusements, band concerts, etc., for the day.

The children will be given a luncheon and returned to their institutions by 5 o'clock. Cash and car entry blanks can be obtained from the office of the association, 1845 Broadway.

NEW LIST GIVES LENSES APPROVED BY N. Y. STATE
A new list giving the names of all lenses thus far approved in New York State, together with headlight requirements, has been issued the past week by Secretary of State John J. Lyons. These lists are for general distribution and may be obtained from automobile bureaus or at the Secretary of State's office.

New York State automobilists are being given a wide range from which to make their selection of a legal lens. The list contains a total of ninety-two lenses and light controlling devices running all the way from caps fitting over bulbs to visor-like affairs.

In order that automobilists may be able to more easily comprehend just what is permissible in the way of a headlight Secretary Lyons is furnishing a line drawing with these lists. This makes the list far more advantageous to the ordinary motorist than any previously issued, some of which were so clogged with technical phraseology that the motorist was unable to understand it. Supplies of the newest lists have been sent to branch offices and clubs.

Stewart MOTOR TRUCKS
8 YEAR OLD STEWARTS STILL HARD AT WORK

OWNERS express their approval of Stewart performance by adding one Stewart after another to their fleets.

Eight-year-old Stewarts are still hard at work, daily earning praise and profits.

Moderate first cost quality assuring long life; low operating cost makes the Stewart one of the world's fastest selling trucks. No needless weight or unnecessary parts: a strong, simple truck, simple to operate, economical on gasoline, oil and tires.

Capacities: 1/2, 1, 1 1/2, 2, 2 1/2 and 3 1/2 tons.

Herrman Motor Truck Co., Inc.
607-615 West 57th St., N. Y. Circle 5399

Brooklyn Sales and Service
RUTH and MATHEWS, 1046-8 Atlantic Ave.
Telephone Prospect 1040.

Just What Is Easy Driving?

THE answers to this question will vary according to the experience of individual drivers. In general it will be agreed that easy driving requires

Easy, convenient gear shifting.
Quick pick-up without knocking.
Confidence in the power and flexibility of the car.

The Standard Eight gives you these features in an unusual degree.

Then the accelerator is a foot-size pedal, like an organ pedal, which gives an easy rest to your foot and steady control over rough roadways.

The Standard Eight has a double ignition system—high-tension magneto and battery which can be used in combination or independently. This means smooth running under all conditions and safety in emergency.

The Standard Steel Car Company of Pittsburgh built this car with an idea of permanence which involves not only construction but performance. The Standard Eight, therefore, is a good car to buy—it is built to endure.

Touring Car, \$3400 Sport, \$3400 Roadster, \$3400 Chassis, \$3150
Festive Sedan, \$5000 Sedan, \$4800 Sedanette, \$4500 Coupé, \$4500
Always prices p. a. h. Dealer, Pa.

STANDARD EIGHT A POWERFUL CAR.

STANDARD STEEL CAR COMPANY

Sales and Showrooms: Main Office & Service Stations
Broadway at 64th St. Queensborough Plaza
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Columbus 4648

Brooklyn Branch: 1127 Atlantic Avenue

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White Plains, N. Y.

HEUBLEIN GARAGE CO.
Hartford, Conn.

BRADFORD & LOMAS, INC.
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FORSYTH & DAVIS MOTOR CO.
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