



Arthur
Boss

MICHIGAN
AUTOMOBILES
1912

Confidence

BEFORE taking up the story of the "Michigan" car, we must know that we have the reader's implicit confidence.

For unless we do have that confidence, we are simply wasting time in asking you to read this book, our 1912 Catalog.

This is, indeed, a most unusual way of starting out to talk about automobiles, but our 30 years' experience has taught us that *confidence is the basis of every business transaction*.

If, after reading this page, you feel that we are not entitled to your confidence, please read no further.

We Ask You to Lay Aside All Prejudice

In writing the story of the "Michigan" car, we have simply set forth the facts in regard to its design and construction. We leave it to you to draw your own conclusions. We do not claim that we make the only good automobiles in the world. We have tried, in presenting the "Michigan" story, to lay aside all bias and all prejudice.

Now we ask you to do the same. If you have any set ideas or notions as to how automobiles should be made, please forget them for the time being—until you have turned the last page in this book.

Your Absolute Belief Requested

In reading advertisements or catalogs, many people discredit any unusual statements, because they feel that the advertiser, carried away by his own enthusiasm, wants to claim too much.

But we expect *every statement* in this book to be accepted at par—without discount. You will find none of the "gush" or "guff" with which the average catalog is saturated.

Why We Are Entitled to Your Confidence

You may ask "*Why* is the Michigan Buggy Company entitled to my confidence?"

Well, for very much the same reason that the United States Government is entitled to your confidence, and you accept National Bank Notes without questioning their security.

Any business organization with an established reputation is entitled to the confidence of the public—to your confidence.

The reputation of the Michigan Buggy Company is *established*.

Unlike most automobile companies of which one hears today, we are not a "fly-by-night" concern. For the last 30 years we have been right here. We will be here 30 years from today.

We are the largest manufacturers of pleasure vehicles in the world, turning out over 45,000 annually.

More people buy our carriages and more retail agents sell them than any other line of pleasure vehicles in existence.

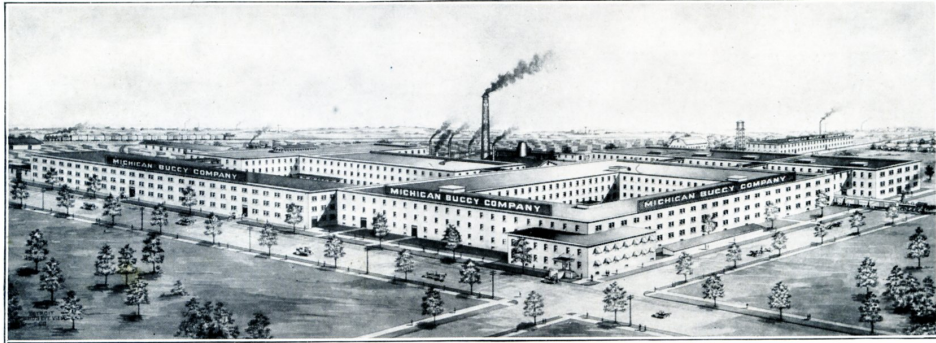
Our premier position among buyers of pleasure vehicles and retail distributors is in itself ample evidence that we are entitled to *your* confidence.

But as a further reason, we back our cars with the fairest, squarest guarantee ever put on an automobile.

Every "Michigan" car is guaranteed—not for one, two, or even five years. We simply say "if **AT ANY TIME** you are dissatisfied, go back to your local agent and he will make it right. If he does not, *we will*."

And this guarantee of the Michigan Buggy Company, backed by over a million dollars in capital and surplus, *means something*.

A Frank Business Talk



WE want to tell you why we entered the automobile field, and show how our action affects you personally.

In 1909, when we decided to manufacture motor cars, we had absolute confidence in our ability to build a good machine at a minimum factory expense. For 28 years we had met and solved manufacturing problems. *We knew how.*

For a long time previous to our entrance into the motor car business we had been watching the automobile situation. We had felt that the automobile was a logical evolution of the pleasure vehicle, and that sooner or later the time would come when it might be expedient for us to identify ourselves with the automobile industry.

But it seemed to us that the manufacturers, as a class, were trying to get rich too fast.

Every new business has its troubles, and the motor car business was no exception. Almost over night it grew from infancy to full size. It grew too fast. Companies were organized by the score. Almost anybody with a blue print of an automobile factory in his pocket could go out and get all the money he wanted.

But practically no thought was given to the selling end of the proposition.

Factories started up with plenty of the necessary wherewithal, but with no agents to dispose of the cars as they were built. Selling organizations had to be effected in a hurry.

So, in order to stir up enthusiasm and get the people to buying cars, the manufacturers started in and spent their money like drunken sailors.

The papers began to be full of Glidden tours and endurance runs. Automobile races became the fashion. No advertising or selling stunt was considered too expensive.

But all of this excitement cost somebody some cash. And when the manufacturers figured their cost they found that it took more money for overhead expense than it did to build the cars.

But the manufacturers didn't seem to care a whole lot. Because they were making so much money—and making it so fast—that \$500 or \$600, or even \$1,000 a car did not cut much figure. The big problem was to get rid of the cars, and get rid of them quick.

Everybody wanted to get rich in a minute. The manufacturer who made only 20 or 25% was considered a piker. The general idea was to make a young fortune on each sale. One concern that we know of declared a dividend of over 1,000% in a single season.

A Frank Business Talk—(Continued)

But about the "Michigan."

One day in September, 1909, we got together and went over this situation.

We dwelt on the Abuses that had crept into the automobile business. And it was finally suggested that we go into the manufacture of automobiles along economical lines.

It was proposed that we come out with a high class car and sell it at as low a price as we could and make our regular manufacturer's profit of about 8%. "Suppose we make only 8%," we said. "We can afford to do it, for we have our factory to maintain just the same, whether we build automobiles or not.

"We have the room to do the work. We have our office force established. And we have ten thousand agents *ready* to take any product of our factories. About the only thing we will have to do is to put in some automobile building machinery and get hold of good designers and engineers. And we know where to get the right men."

Well, the upshot of it was that we built 500 cars—to try out the plan.

Just as we had figured, we had no trouble in selling them. Our regular buggy agents took all the machines we could build, *and called for more!* It cost us not a penny to establish a *perfect selling organization* for "Michigan" automobiles.

Selling those first 500 cars proved to us these things:—

1st. That there was a big demand for a high class car at the right price.

2nd. That any one with a well equipped factory and a knowledge of manufacturing problems could build good cars.

3rd. That we could afford to sell automobiles on the same small margin of profit that we sell our other vehicles.

4th. That, in our ten thousand regular vehicle agents, we had a perfect selling organization *already established*, a market *already made* for our cars.

Having learned these facts, we were tempted a year ago to push our automobile business to the limit.

But we didn't.

We waited another year—until this season.

Less conservative manufacturers would have jumped right in a year ago. But before we put the reputation and name of the Michigan Buggy Company back of a lot of cars, we wanted to be sure that they were *just right*.

Last year we heard nothing but praise for the "Michigan." We could have sold five machines where we sold one. Some of our agents who could not get enough cars last season sharply criticised us for our ultra conservatism in refusing to go the limit.

But now, however, our case is proven. We know that we can build as good a car as Yankee brains ever designed.

We know that we can build it as economically as anybody.

We know that the installing of our automobile department has not only *not* increased the overhead expense of our factories, but that it has actually *decreased it over 2 1/3%*.

We know that by having ten thousand regular agents our selling expense is far less than that of any other automobile concern in the world.

And we know that in the long run our small-profit-per-sale idea is the right thing. Because the time is past when an automobile manufacturer can make a million dollars in twenty minutes and get away with it.

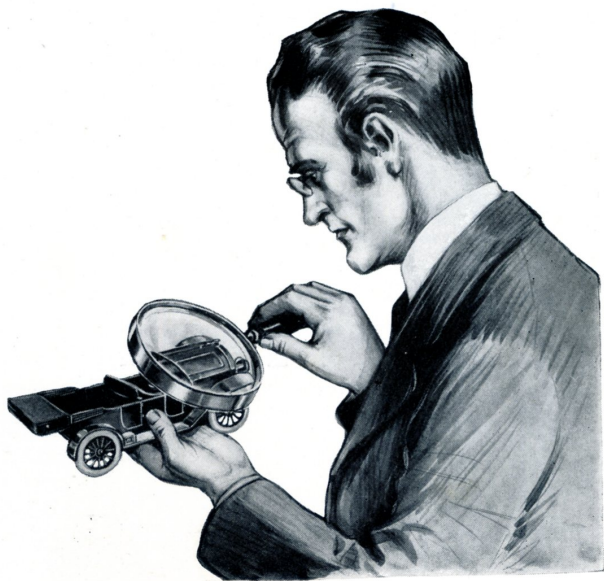
And *we* expect to be making cars twenty years from now—making normal cars to supply a normal demand.

Our output for the 1912 season will be eight times what it was a year ago. We are building 4,000 cars.

While there will undoubtedly be calls for two or three times this number, 4,000 are all that we can supply. Our factory facilities now will not permit of our making more than this number and giving each car the necessary attention. And we shall never slight any car that has the name "Michigan" on the radiator.

The MICHIGAN Through a Microscope

Some Facts and Figures
about Values in the
Mighty Michigan that
do not appear at first
glance, but that have
much to do with its Ap-
pearance and Efficiency



WE DO not believe that any man who contemplates the purchase of an automobile and is willing to pay up to \$2,000 can go through the Michigan factory and *not* buy a Michigan car.

Though this car costs but \$1,500 it has all the big features of cars costing twice as much. Some people may think this isn't possible, but it is possible. The reason—our great saving in selling cost.

We have had no "agency expense" whatever—we have spent hardly a penny to sell our product. We save in this way—actually—from \$300 to \$600 a car.

What This Saving Means

This saving enables us to use materials embodied only in the highest priced cars—the best of everything for each particular part.

For instance, the Michigan frame has in it the same pressed steel used in cars costing \$4,000. The Michigan frame is four inches deep and has a $3\frac{3}{4}$ inch flange. Several cars selling at the Michigan price have frames with flanges only $1\frac{1}{2}$ inches. Ours is over twice as wide. Ask some engineer what this means. Ask him why we should go to this extra expense if it were not worth while. We could save thousands of dollars a year if we put on the weaker frame. But you would not be so protected.

The Michigan Through a Microscope—(Continued)

The "Three-Bearing" Crank Shaft

And then, there's the Michigan motor.

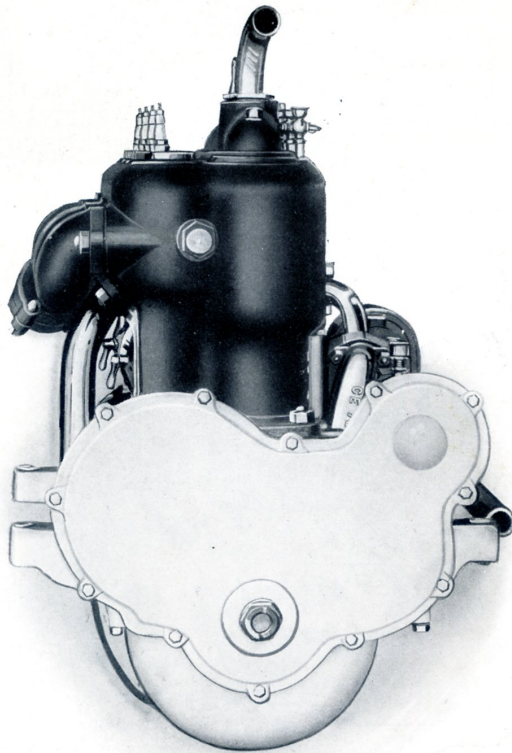
The four cylinders are cast *en bloc*, like the cylinders of the Fiat, Daimler, Hispano-Suiva, Martini, Darracq, Delahaye and ten or twelve other great foreign cars.

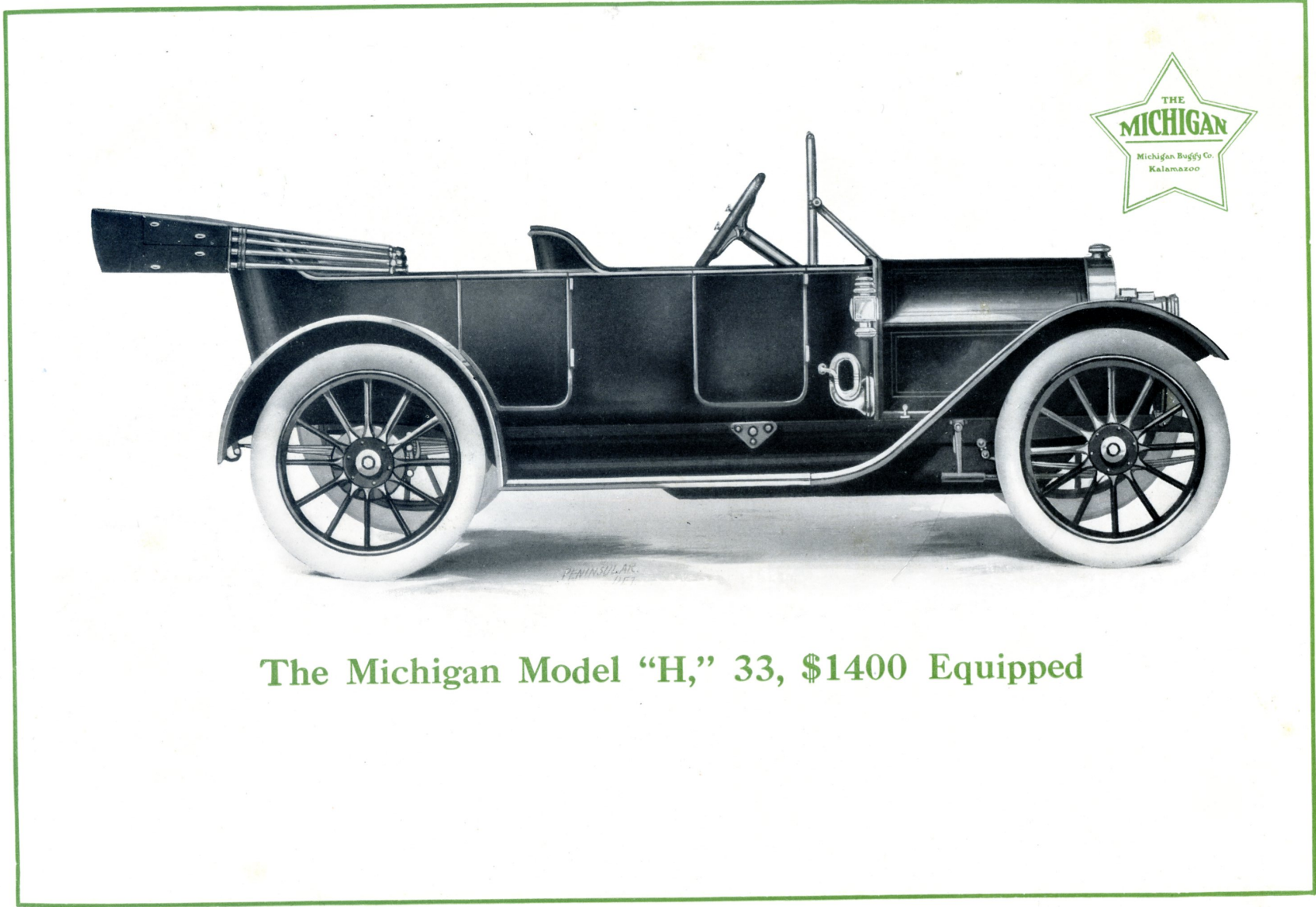
Most cars at the Michigan price have a "two-bearing" motor—one bearing at either end of the crank shaft. The power thrust of the two center cylinders bends many such shafts. And makers today would discard them on their heavier engines were they not tied up with expensive tools and patterns.

Other cars have "five-bearing" mo-

tors. One must appreciate, however, that when five bearings are used, it is impossible to get the necessary size and strength in the shaft. And it does not increase the bearing surface. A five-bearing motor also makes it impossible to use the *en bloc* system of cylinder casting.

But the Michigan motor has a *three-bearing* crank shaft. No thrust from the engine can possibly bend it. And in addition we use a $2\frac{1}{8}$ inch crank shaft, big enough for a car of almost twice the power. No motor of its size has greater bearing surface. It costs more to build, of course. But it saves the maker trouble, for it never gives trouble to the user. That's why we will pay this year \$32,000 extra just to give you this one feature.





The Michigan Model "H," 33, \$1400 Equipped

The Michigan Through a Microscope—(Continued)

Long Stroke Motor

In actual test the Michigan motor develops 42.8 h. p. The cylinders are $4\frac{1}{4} \times 5\frac{1}{4}$ inches, with extra large valves. The long stroke feature gives the engine greater pulling power at slow speeds and insures the utmost economy in the consumption of gasoline.

Reliably Self-Starting

We have tried out nearly every self-starter manufactured. The only one that our engineers found entirely practical we have approved for use on the "Michigan Forty."

Nothing complicated. Very light—weighs less than six pounds. Thoroughly dependable. We gave it thousands of tests under all sorts of conditions, and it proved itself absolutely efficient.

Some starters are very awkward in appearance. Nine out of ten do not do

the business they are there for—you work harder to get results than you do to crank the motor. Most all add so much to the weight of the car that it would be folly to even consider them.

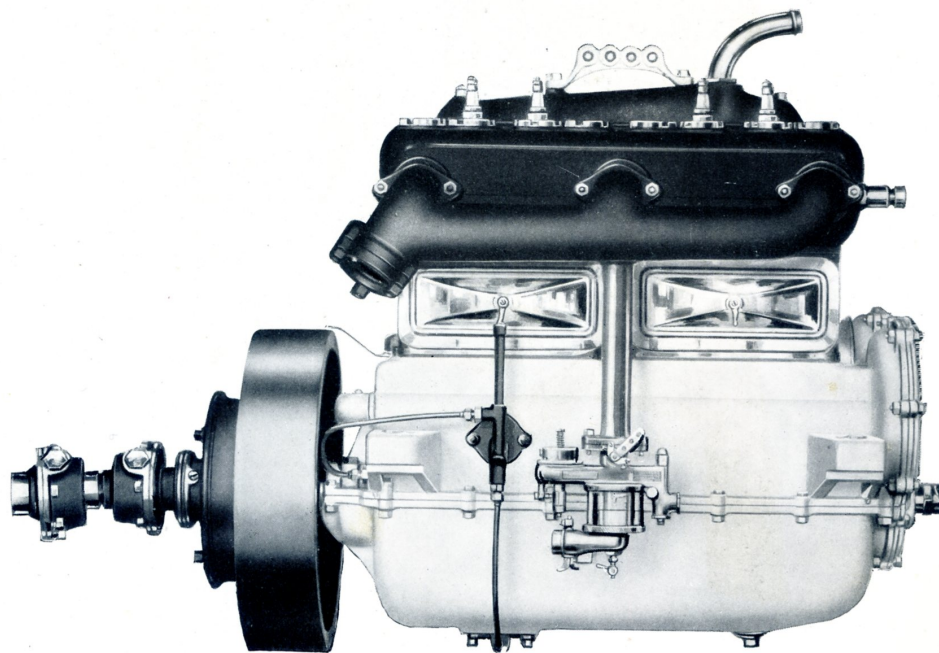
When you do find a self-starter that is light in weight, it generally possesses some feature that makes its use injurious to the motor.

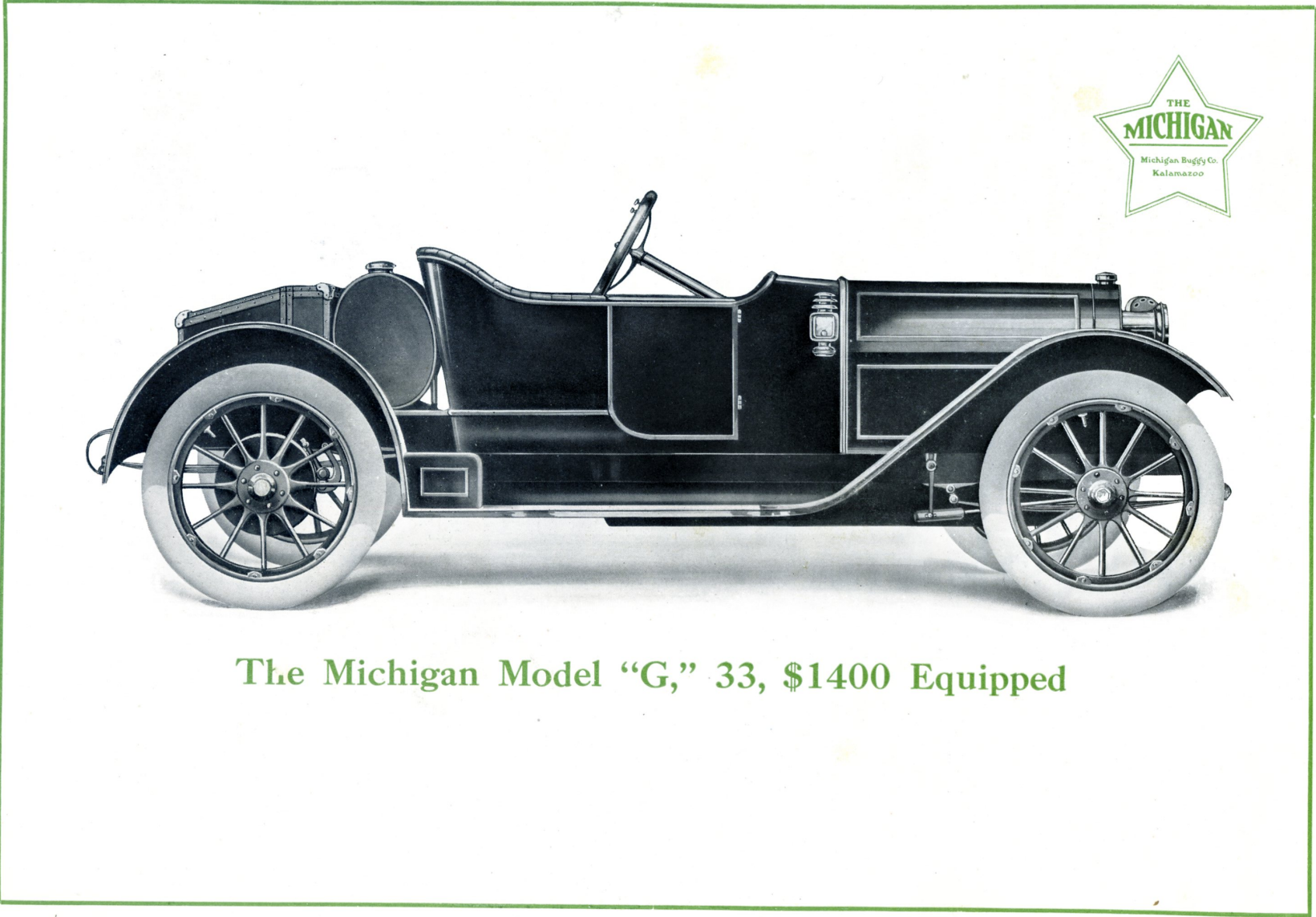
The "Michigan" has all of the advantages of the light-weight starters, with none of their faults. It is in a class by itself.

Nobody likes to crank a car. Next year every good car will be equipped with a self-starter. You get one on the "Michigan" *today!* The best one—*now!*

Ignition

Tests of all kinds were made before we finally decided on the Briggs magneto. Not only did we find the Briggs most efficient, but we felt that its strong





The Michigan Through a Microscope—(Continued)

guarantee gave the buyer real insurance against the usual magneto troubles and, therefore, more pleasure in driving.

If the ignition system is unsatisfactory, *no matter what the cause*, the magneto may be returned by express "collect," and it will be repaired or replaced without cost, and returned express "prepaid" within twenty-four hours.

Isn't this guarantee significant! Doesn't it assure you satisfaction! Isn't satisfaction what you want!

Safety in Steering

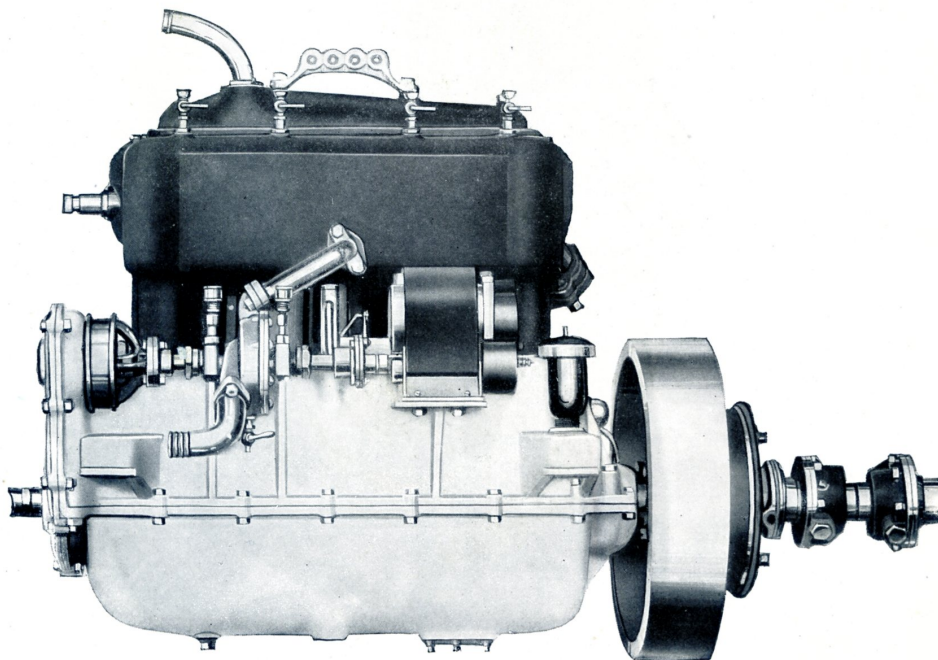
Before we decided to adopt the "Gemmer" Steering Gear and to pay \$5.50 more per gear than makers of other cars at the Michigan price, we feared that the extra expenditure would not be justified by results. For—outwardly—other gears looked practi-

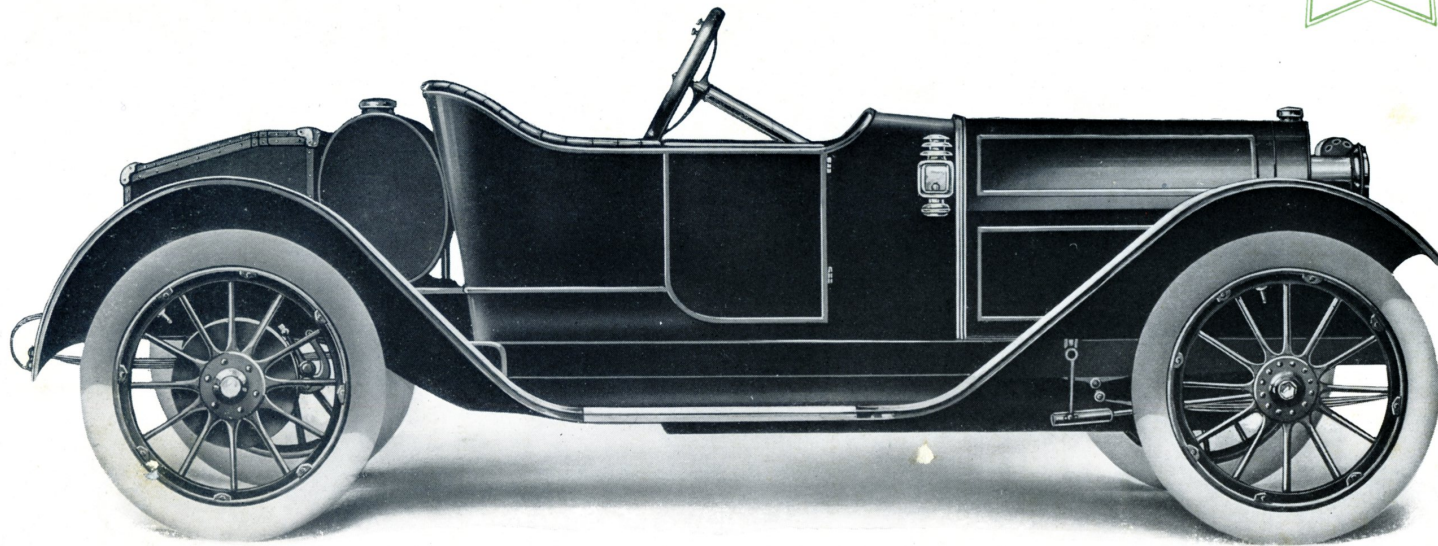
cally as good as the "Gemmer." However, our engineers put them all to the most severe tests. And the results left us no choice in selecting a steering gear for the Michigan car. They found not only much better material, but that these gears would run for thousands of miles without adjusting. And it makes the Michigan the most easily handled car at its price.

In the recent Sweepstakes race at Indianapolis over half of the contesting machines were equipped with "Gemmer" Steering Gears.

The Finest Clutch

There is always a good deal of argument regarding the merits of the different clutches. Some like the leather faced cone, others prefer the multiple disc. The Packard, the Stevens-Duryea, the Stearns and scores of other high priced cars have adopted the mul-





The Michigan "Forty," Model "M," \$1500

The Michigan Through a Microscope—(Continued)

tiple disc dry plate type. With them, we believe it the best. So we use a multiple disc dry plate clutch—thermoid against steel. It has 296 square inches of friction surface. It never grabs in starting, nor slips—under any circumstances. You can move the car an inch or a foot with perfect ease. And you get a clutch that will transmit a greater percentage of power on the rear axle than any other clutch in existence.

It costs over \$5.00 more per car to give you this clutch. The best of the cone clutches could be furnished at \$5.00 less. Thus we are putting into our cars this year for this extra feature alone, \$20,000 more than necessary

The “Michigan” clutch, because of its large friction surface, need not be so strongly sprung as the ordinary clutch—the pedal, therefore, works easier. You can throw the clutch out with less pressure from the foot.

The Michigan Oiling System

We use a self-contained overflow system. The oil pump is driven from a slow-going cam on the cam shaft. The oil is pumped direct on the three crank shaft bearings, then on the con-

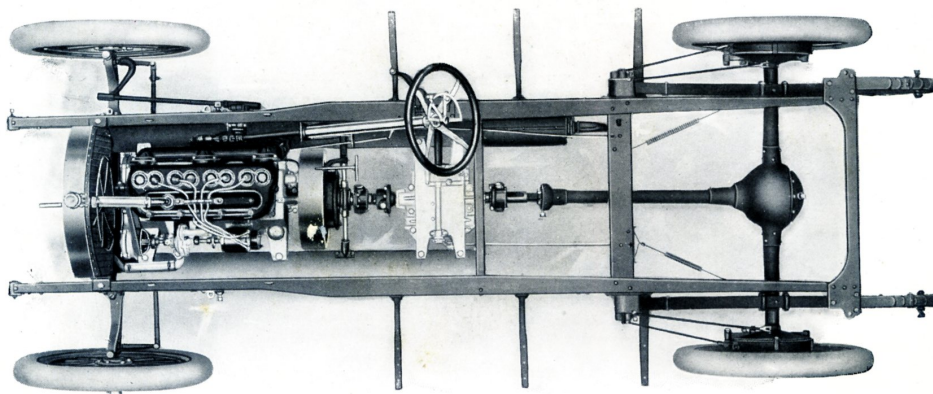
necting rod bearings and into the cylinders. No high priced car has a better system of oiling.

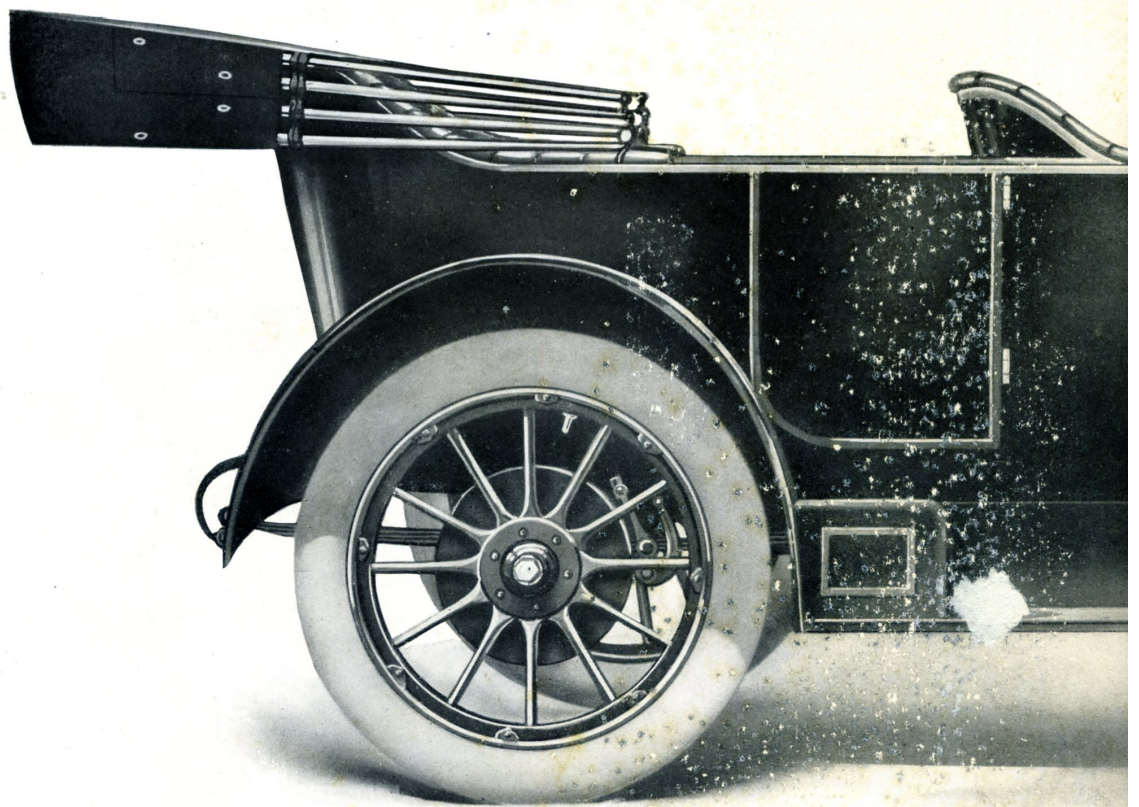
“60 H. P.” Transmission

The essentials of a perfect transmission are, of course, strength, silence and perfect alignment. No maker can produce such a transmission without spending money to do it. Our transmission costs \$63.00. We could buy common transmissions *all ready made* for as low as \$35.00.

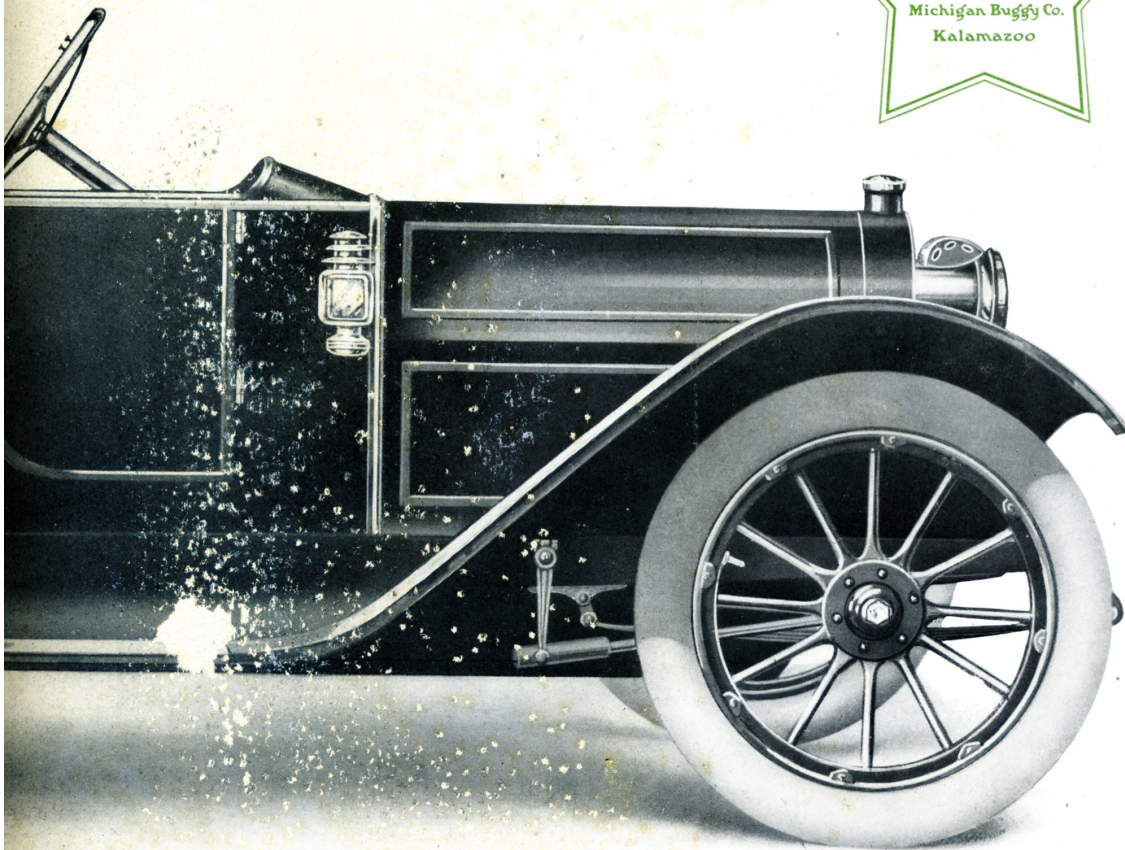
Our transmission is enclosed in an aluminum case and placed on the frame—not on the rear axle. The gears fit perfectly. And this, with the help of the aluminum sound-proof housing, makes every speed noiseless.

These gears are strong enough to take all the strain that could come from a sixty-horse power motor. Some makers think that this in a “40” is waste, pure and simple. But these makers are looking for profits first. We are looking for some ourselves. But first we are building our cars so they will stand unusual treatment. For we realize that all who drive them are not trained engineers.





The Mighty Michigan 6



ty"—Model "K"—\$1500

The Michigan Through a Microscope—(Continued)

Two Universal Joints

Two universal joints instead of, the usual, *one*. This relieves the transmission bearings of any undue strain, and insures *perfect alignment*.

Two Universal Joints are used in nearly all the high priced cars. One might be sufficient. But we know that two are better, and so we pay more to put them in. Nothing is skimped. Our idea of profit is not 25 to 50%. Our regular manufacturer's profit of 8¼% satisfies us.

Three-Quarter Floating Rear Axle

This type embodies all the advantages of both the semi-floating and full floating types without the disadvantages of either. Like the full floating type, the weight of the car is carried on the housing entirely. But unlike it, the drive shaft is bolted to the hub of the wheel through a mushroom end which absolutely prevents wear and a certain amount of "play" between the axle and wheel, where joined. A full-floating axle construction is subject to wear and loosening which causes rattling.

The driving axle and differential gears can easily be removed without removing the wheels. Accessibility is an all-important feature of all Michigan working parts.

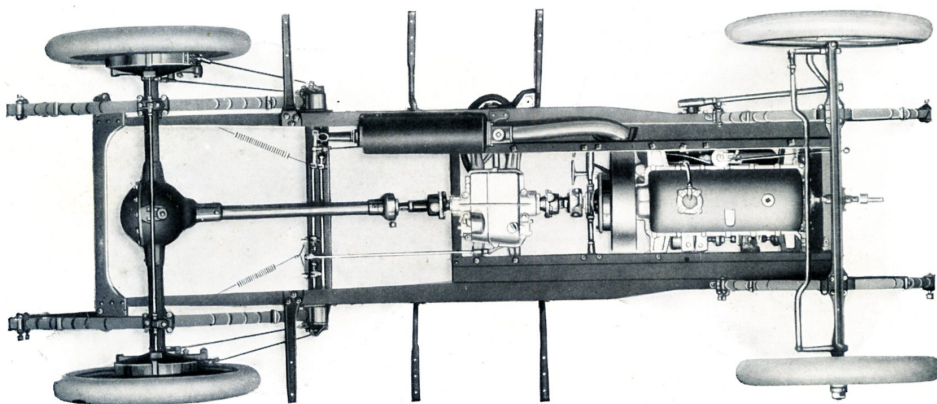
Brakes

The "Michigan" has unusually large braking surface—one square inch for every six pounds. Brake drums are 14 inches in diameter, 2 inches in width. Lined with raybestos, it is impossible to burn them out. With the four brakes, all acting on the rear axle, the car can be brought to an almost instant stop, no matter what the speed. And they *work*—always.

Shortsville Wheels

It is an old saying in the carriage world that "the wheel is the life of the vehicle." And when we entered the automobile field we probably appreciated more than the average automobile manufacturer the necessity of using the best wheels obtainable. Not only did we appreciate it, but we knew where to get them. And we did get the finest in America, the genuine "Shortsville" wheels.

Wheels are made in five grades—A,



The Michigan Through a Microscope—(Continued)



B, C, D, and E. We use "A" grade—the best. We could give our customers cheaper wheels and save \$20,000. But wheels such as these avoid all possibility of accidents. Just another "ounce of prevention" that you get in this great car.

The Michigan has demountable rims, of course.

Luxurious 50-inch Springs.

We use extra large easy riding springs. The rear springs are 50 inches long and 2 inches wide. The car rides over obstructions and road inequalities like a boat rides over waves. There is seldom a jolt.

This ease of riding is due also to the 116-inch wheel base, the large 4-inch tires and to the way the body is hung. Other cars with 48-inch springs must have an 8-inch longer wheel base to ride as easy as the Michigan.

There never was a car more comfortable. Michigan upholstery measures $8\frac{1}{4}$ inches in depth. One of the

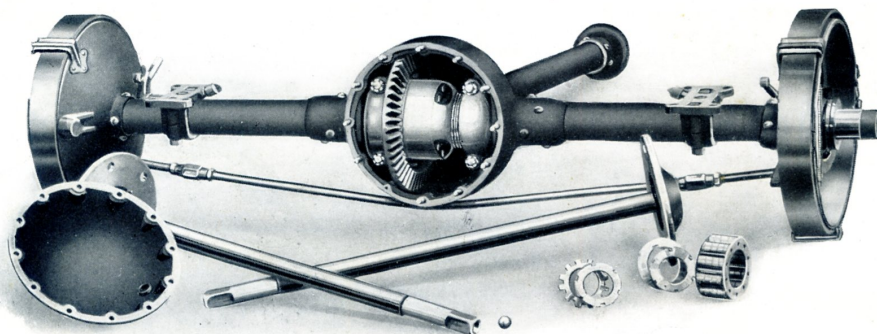
costliest cars in America makes a special point of advertising practically the same upholstery.

Body and Upholstering Second to None

We build a wood frame for our rolled steel bodies as strong as we'd build for a body of wood. We glue and screw the joints together instead of nailing them, so the body cannot be sprung permanently out of shape by any ordinary twists. Wherever strain comes on the frame, we use solid ash.

We cover this frame with a specially processed rolled steel. All the shaping of corners and all the curves are hand-hammered, just as good clothes are hand-tailored.

We paint these frames twice and paint the steel inside and out before the two are joined, so no rust will ever accumulate and go through to the outside of the body. Common metal bodies often rust so the paint cracks off. But no Michigan body ever will do



The Michigan Through a Microscope—(Continued)

it. This is an added cost, but it is for an added prevention. Common cars at the Michigan price do not provide it.

All this is done in our own factory. We make the entire body complete. Every process is where our body expert can see it, from beginning to end.

See What We Spend

We spend \$15 a car more for upholstery than the makers of common cars. For this one feature in 1912 we are expending \$60,000 more than others deem necessary.

We pay 25 cents a foot for the leather we use. We could buy common leather for 10 cents. Other cars that sell at even a higher price use leather that costs 15 cents.

The genuine curled hair that goes into our cushions costs from 40 to 50 cents a pound. We could buy common hair at 15 cents a pound, and no one could tell the difference—at first. But in just a few weeks the cushions would begin to sag down and become hard and uncomfortable. You've seen cars do this. You know how they look.

All This for Comfort

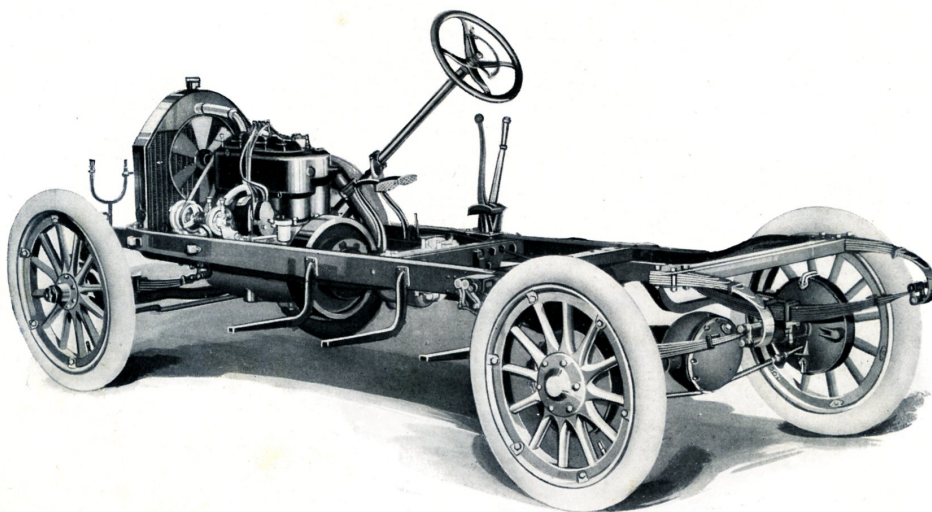
All the seat backs have a French roll underneath the upholstery which insures its permanence. This is done on other cars costing from \$3,000 up.

We use special springs in our cushions, 70 separate coils in each. The cushions are hand-sewed, *not tacked*. When you own a Michigan, you get upholstery that lasts for years.

By using imitation leather binding on the edges of the trimming, we could save \$2.25 a car, but the real leather strips give the body a touch of refinement that you seldom find in cars of the Michigan price.

Good tops have always been a specialty with us, so we make them ourselves. We spend \$1.45 per yard for the mohair. Common tops are made of *imitation* mohair costing 55 cents per yard.

We make each top to fit each individual car, and we make the side curtains separately, not in lots, so that each curtain fits the job for which it is intended. You can attach our curtains without the least effort—no pulling and hauling to get the holes over the buttons.



The Michigan Through a Microscope—(Continued)

Nickel Mountings No Extra Charge

Look at the 1912 models of the most expensive cars. You'll find very few mounted in brass. Takes too much time to keep all the lamps and other metal parts polished and cleaned.

On the other hand, look at the cheap cars. How are they mounted? Brass—always brass!

And that's the answer.

On most other cars costing near our price you must pay \$25 extra for these mountings. They cost \$45 extra on other cars. Still other makers charge \$60 extra for nickel mountings. But they are included on a Michigan "40" without charge.

The Stylish Car

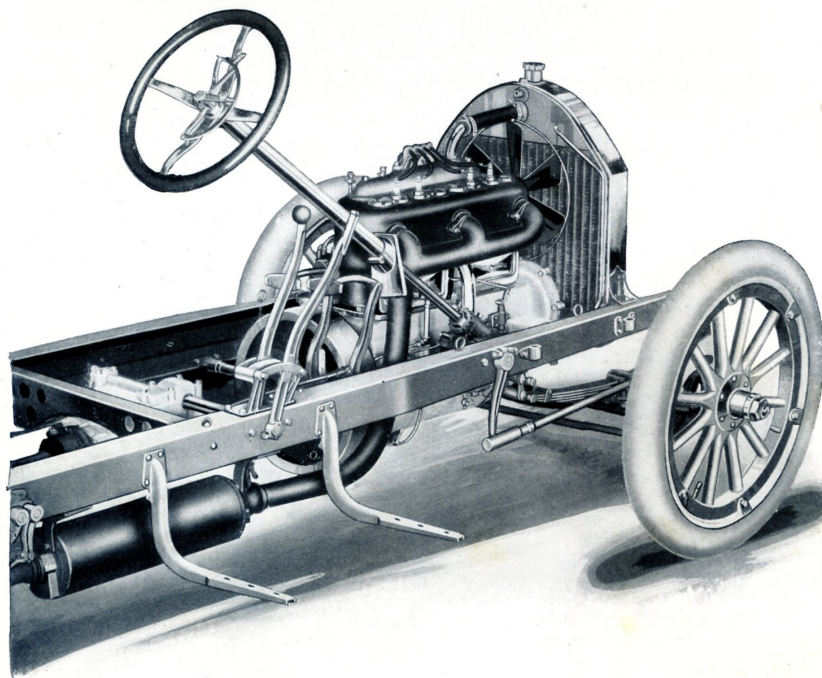
Every little refinement is carefully attended to. For instance, there are

no handles on the outside of the doors. All doors open and swing forward. The running board hangers are underneath the mud apron, out of sight. There are six instead of the usual four. The running board is additionally braced, so there will be no strain on the fenders.

Even the coil box and horn are placed under the hood with the motor, the sound of the horn coming out through the radiator. And every projection that interferes with a shipshape outward appearance is put inside or under cover.

The result is a car of perfect style—more beautiful than any car at anywhere near the Michigan price. There is nothing handsomer running on wheels than the Michigan "40."

The Michigan "40," fully equipped, weighs but 2700 pounds. This is due to our expensive but light and strong construction. It saves tire bills. This light weight and our large 4-inch tires



The Michigan Through a Microscope—(Continued)

make tire expense almost nil. One owner has driven a Michigan over 14,000 miles on one set of tires. Another has driven his car 9,000 miles, and the tires, he says, are almost as good as new.

In cutting down tire expense the Michigan "40" is lowering considerably the cost of motoring.

Our 30 Years

All these points are not apparent when you first see a Michigan "40." Many are under the surface. They might be skimped and you'd be none the wiser. But we'd be making cars that we didn't believe in ourselves.

But in all our 30 years of experience, we have never turned out anything that we were ashamed of. We wouldn't start now. This car is the best we can make. Whatever bears the name "Michigan" must be good, and the Michigan Buggy Company will stand back of it.

What "Under-the-Surface-Points" Mean

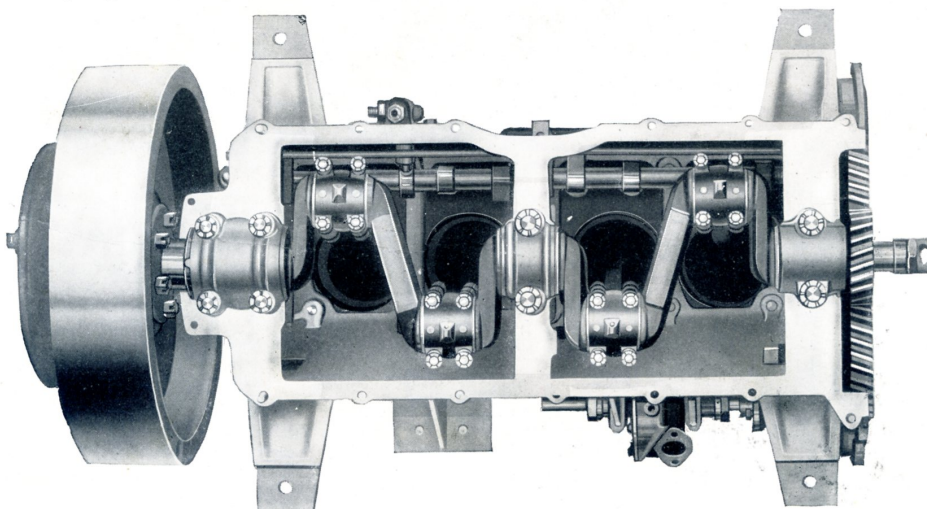
In buying a car, look to the points

that do not appear at first glance, for they always indicate the quality. If we pay more for leather and more for wheels, aren't we apt to pay more for steel? If we spend \$40,000 a year more on our bodies than others who make cars of equal price, aren't we probably spending more on our motor? If we are taking these pains to make the car ride easily, aren't we certainly doing as much to make the car quiet? If we pay over \$2 a car just to put on a few feet of good leather tape, aren't we likely grinding our gears and all moving parts to perfection?

We consider efficiency far more important than finish. The fact that our car is perfectly finished is the best indication of its mechanical perfection.

Inspected Twelve Times

Every Michigan is *inspected twelve times* before it is ready for shipment. The chassis alone is tested by three different men—first by one of the road testing crew, then by the head inspector of testing, and finally, just before the car is ready to ship, by the master tester.



The Michigan Crank-Case from underneath. Note the three bearings and the extra large bearing surface

The Michigan Through a Microscope—(Continued)

In so many inspections, there is no chance whatever of anything being overlooked.

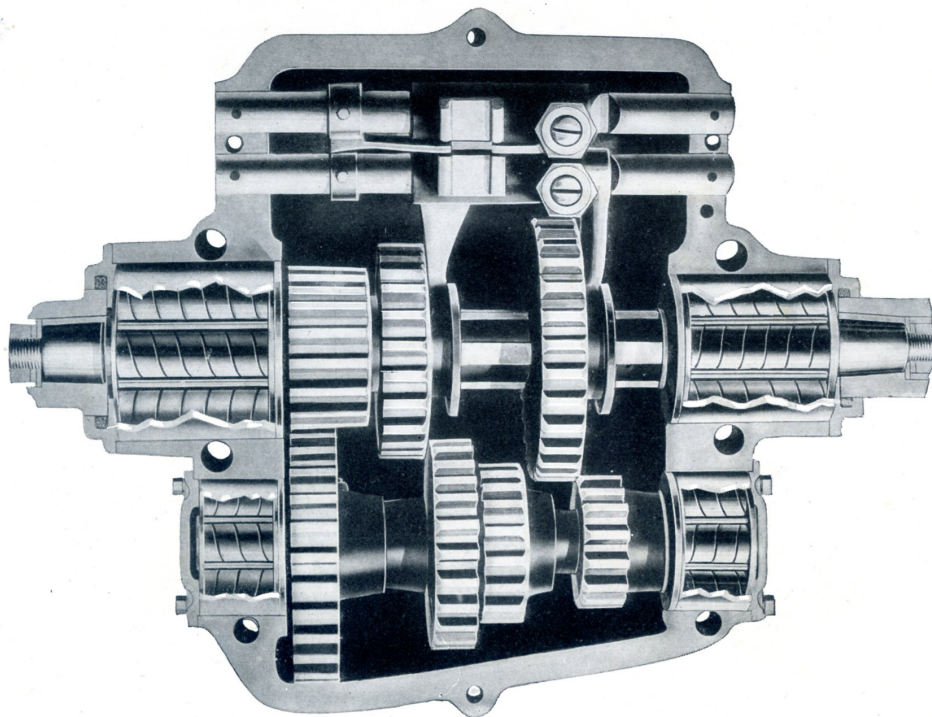
The Michigan car you get from your agent is in perfect order—ready to run and give years of service. You can depend upon it.

What Everyone Should Know About Motor Cars

People are often apt to buy motor cars because they are handsomely finished or especially upholstered. They do not consider machinery. That is a mistake, for no matter how good a car may look it is only as good as it performs. We have told you about the Michigan body. There is no better body on any car, regardless of price. But we deem this department of motor car building second to mechanical design and perfection of working parts.

You may not know what steel is the best to use or why a motor car seems to run well, but you can tell when it does run well. A demonstration discloses the fact that the car is quiet in operation, and this indicates good engineering. If the motor is noisy you know there is something wrong, for a well made motor is quiet.

It is the same in the case of the rear axle or other moving parts of the car. Judge the Michigan in demonstration, not only by its easy-riding qualities, its wonderful exterior finish and luxurious upholstery, but by its silent operation, its great hill-climbing ability, and its generally high grade of performance. We know that if you consider both finish and performance, you will buy a Michigan Car.



Open View of Michigan 60 H. P. Transmission

Specifications of Michigan "33" Cars, Models "H" and "G"

AXLE—Front	Single piece drop forging, I-beam section. Large annular ball bearings.	FRAME	Pressed steel, channel section.
AXLE—Rear	Three-quarter floating type, with $1\frac{3}{8}$ inch drive shafts. Hyatt High Duty roller bearings.	GEAR RATIO IGNITION	Standard $3\frac{1}{2}$ to 1. Dual. Briggs magneto and dry cells.
BRAKES	Service brakes (two), external contracting; emergency (two), internal expanding operating on large drums secured to hubs of rear wheels. 14 inch brake drums, 2 inches wide.	LUBRI-CATION	Constant level overflow system. Self-contained circulating type in which the oil is pumped directly to the main bearing, overflowing from thence into the oil pan into which connecting rods dip. The oil reservoir, which is located beneath the oil pan, is provided with an indicator which shows the level of the oil. The oil pump is bolted to the outside of the crank case in such a manner that it can be removed for inspection without removing any other parts of the motor.
BODY STYLES	Model "G"—2 Passenger Roadster. Model "H"—Torpedo Touring Car.	HORSE-POWER	33. Four cylinders, $4\frac{1}{16}$ -inch bore— $4\frac{1}{2}$ -inch stroke.
BEARINGS	Large ball bearings for front axle. Hyatt roller bearings in transmission and rear axle. Parson's White Brass and refined phosphor bronze for engine.	PRICES	Model "G," \$1,400. Model "H," \$1,400.
CAR-BURETOR	Stromberg single jet, float feed, automatic type—easily adjusted.	STEERING GEAR	Gemmer. 18 in. steering wheel, same as "K," page 23.
CLUTCH	Multiple disc.	TANK CAPACITY	15 gallons of gasoline (25 gallons on Model "G.") Six quarts of lubricating oil. Sight gauge, conveniently located, indicates when more oil is needed.
COLOR	Body, gear and wheels, black. Optional, battleship grey or cream wheels. All other colors extra.	TREAD	56 and 60 inch.
DRIVE	Transmission shaft through single universal joint to bevel gear. Pressed steel housing for propeller shaft acts as torsion rod.	TIRES	$34 \times 3\frac{1}{2}$ on quick detachable rims.
EQUIPMENT	On Model "H" includes Self-starter. Best grade Mohair top with Mohair envelope and side curtains complete. Windshield. Magneto, full lighting system, with three oil and two gas lamps, horn and complete set of tools. On Model "G" includes Self-starter, best grade Mohair top with top cover and side curtains complete; speedometer; zig-zag windshield; Prest-O-Lite Tank; Nickel Mountings, Magneto, full lighting system, with three oil and two gas lamps, horn and complete set of tools.	TRANSMISSION	Selective sliding gear type. Three speeds forward and reverse. Hyatt high duty roller bearings.
		UPHOL-STERING	Best M. B. black leather with high grade hair filling.
		VALVES	Nickel steel, large diameter, interchangeable.
		WATER CAPACITY WEIGHT	Five gallons. 2,300 lbs. actual.
		WHEELS	34 in. diameter, wood, artillery type, large hub flanges, heavy $1\frac{1}{2}$ in. spokes. Rear wheels spokes bolted to brake drums.
		WHEEL BASE	112 inches.

Price List of Extras on Michigan Motor Cars

TOPS

On Model "K"—

Highest grade guaranteed Mohair, complete with side curtains and top envelope, \$75.00.

Best heavy grained rubber, complete with side curtains and top envelope, \$60.00.

On Model "M"—

Highest grade guaranteed Mohair, complete with side curtains and top envelope, \$50.00.

Best heavy grained rubber, complete with side curtains and top envelope, \$40.00.

On Models "H" and "G"—

Our best grade Mohair top is included on these cars as regular equipment.

Workmanship and materials in all Michigan tops are the very best. We do not make cheap tops. Every one is thoroughly guaranteed.

LIGHTING SYSTEMS

Prest-O-Lite, on Models "K," "M" and "H," \$20.00.

Electric Lights with Storage complete, \$40.00.

Electric Auto-Light Company's Generator System of electric lights, \$125.00.

In cases where car is equipped with electric lights or carbide generator, the self-starter is operated from a small gas tank furnished for starting purposes only.

WIND-SHIELD

Zigzag Automatic, on Models "K" and "M," \$25.00. (On Models "H" and "G" this is included as regular equipment.)

SPEED-OMETER

\$20.00. (On Model "G" this is included as regular equipment.)

TIRE CHAINS

Models "K" and "M," \$8.00.
Models "H" and "G," \$7.00.

TIRE IRONS

For two extra tires, \$7.50.

TIRE COVERS

For two extra tires, \$15.00.

SPECIAL PAINTING

On Models "K" and "H," \$25.00.
On Models "M" and "G," \$15.00.

Specifications of Michigan "40" "K" and "M"

MOTOR

40+Horse Power, Brake Test. Four cylinders, cast en bloc. Four cycle. Bore $4\frac{1}{4}$ -inch—stroke $5\frac{1}{4}$ -inch. Three bearing crank shaft, with extra large bearings. 2-inch valves. Heads $3\frac{1}{2}$ -inch, nickel alloy steel, interchangeable and adjustable. All moving parts, except fan, enclosed. Motor is very simple, possessing none of the intricate wiring and contraptions which you see on other cars. Absolutely silent and dust proof throughout.

SELF-STARTER

We have tried out nearly every self-starter made.

The one self-starter that our engineers found entirely practical we have approved for use on the "Michigan Forty."

It is a *real* self-starter.

Nothing complicated. Very light—and thoroughly dependable. We gave it thousands of tests under all sorts of conditions, and it proved itself absolutely efficient.

And we do not charge for this equipment as an expensive extra. It all goes in free—with the car.

CARBURETOR

Stromberg, single jet, float-feed, Carburetor on right side of motor.

COOLING

Water circulated by gear driven centrifugal pump through extra large radiator. Fan mounted on ball bearings and adjustable.

IGNITION

Dual system. Briggs guaranteed magneto and dry cells. Coil box inside hood. Self-starting button and key-locked switch on dash. With the Briggs magneto every owner is guaranteed perfect ignition till the car itself goes to the scrap heap. If the ignition system is unsatisfactory, no matter what the cause, the magneto may be re-

turned by express "collect," and it will be repaired or replaced, without cost, and returned by express "prepaid" within twenty-four hours.

OILING SYSTEM

Self-contained circulating type in which the oil is pumped directly to the main bearing, overflowing from thence into the oil pan into which connecting rods dip. The oil reservoir, which is located beneath the oil pan, is provided with an indicator which shows the level of the oil. The oil pump is bolted to the outside of the crank case in such a manner that it can be removed for inspection, without removing any other parts of the motor.

CLUTCH

Multiple disc type, dry plate. Will not grab in starting, nor slip under any circumstances.

TRANSMISSION

Selective type, three speeds forward and reverse. Roller bearings. Extra heavy $\frac{7}{8}$ -inch face gears. Transmission case bolted on the frame, directly to rear of motor. This insures perfect alignment at all times.

DRIVE

Shaft drive. Double universal joint between clutch and transmission, insuring perfect alignment. Single universal joint between transmission and shaft. Shaft runs in extra heavy housing on Annular Ball Bearings.

AXLES

Front axle one-piece "I" beam. Nickel steel forging. 12-inch clearance. Rear axle three-quarter floating type with $1\frac{3}{8}$ -inch chrome nickel steel driving shafts. Bearings throughout Hyatt Roller, except side thrust of differential which is taken care of by ball thrust. The three-quarter floating type of rear axle possesses all the advantages of the full floating type and none of its disadvantages.

Specifications of Michigan "40" "K" and "M"—(Continued)

WHEELS 34-inch Artillery type. Extra large 1½-inch spokes. 12 spokes in both front and rear wheels. Demountable rims.

BRAKES Internal expanding and external contracting. Brake drums 14 inches in diameter. Service brake operated by foot pedal. Emergency brake by hand lever.

STEERING GEAR Gemmer irreversible Worm Gear type with hardened bearings. 18-inch steering wheel. Take-up arrangement for wear and back-lash.

FRAME Same pressed steel as used in \$4000 cars. Channel section offset in front. 3½-inch kick-up over rear axle, allowing practically straight line drive. ⅝-inch steel is used, 4 inches deep, 3¼-inch flange.

SPRINGS Exceptionally soft and easy riding. Front, semi-elliptic 37x 1¾ inches. Rear three-quarter elliptic, 50x2 inches. All spring suspensions lubricated by hard grease cups.

FENDERS Wide sheet steel with mud-apron attached.

CONTROL Spark and throttle levers on top of steering wheel; accelerator pedal; muffler cut-out.

GEAR RATIO 3½ to 1.

TIRES 34x4 inches. The "Michigan" car is over tired in proportion to its weight.

WHEEL BASE 116 inches.

TREAD 56 inches. For Southern trade, 60 inches.

MOUNTINGS White Nickel. Although these are the most expensive mountings they far surpass the brass or gun-metal mountings, not only in appearance but in serviceability. Much time is spent on brass trimmed cars in polishing lamps and other metal parts. Nickel mountings do not require polishing for

they do not tarnish. Anyone who has ever taken care of a car appreciates that in order to keep it looking clean and neat, he must spend about an hour a day polishing the brass. Nickel mountings do away with this entirely.

BODIES (Design)

Our experience in the carriage business enables us to outclass all other manufacturers in body building. Automobile manufacturers all over the country have come to us for ideas in designing bodies, for we have the most efficient corps of body draughtsmen in the country.

Note the beautiful finish and exquisite design of "Michigan" bodies. If you take pride in the appearance as well as the mechanical perfection of a car, the "Michigan" will appeal to you.

BODIES (Specifications)

Sheet metal on heavy wood frames. Extra large and roomy. Model "K" measurements:

Distance from dash to back of front seat.....52 inches
Distance from back of front seat to back of rear seat..50 inches
Width of back seat.....55 inches
Width of door entrance, 18 inches
Measurements of Hood:
Length39 inches
Height24 inches

UPHOL- STERING

Soft hand buffed leather over best quality curled hair on high grade coiled springs.

EQUIPMENT

Briggs guaranteed magneto. Self-starter. Full lighting system with three oil and two gas lamps, highest quality, extra large. Horn and complete set of tools. 4-inch tires. Demountable rims. Nickel trimmings. Body fitted with robe rail and foot rest.

PRICES

Model "K", five-passenger
Touring Car\$1500.00

Model "M", two-passenger
Flyer 1500.00

MICHIGAN CARS Are Guaranteed for Life

IT IS a notable fact that few manufacturers of automobiles today give their customers a *Tangible Guaranty*. Most of them make no Guaranty whatever.

Whether this condition is due to an oversight on the part of such manufacturers or that they are afraid of their cars, we leave it to you to decide.

There is absolutely no reason why buyers of automobiles should not be fully protected by the manufacturer, just as buyers of other merchandise are protected.

We should certainly feel that if we did not give you a Guaranty on the "Michigan" car, it would be a confession on our part that in some place the car was weak.

So we give each buyer our Personal Guaranty, in writing. This does not cover a few months or years. It is a *Life Guaranty*.

And, in these days of cheapening frauds, our Guaranty is a mighty valuable document.

Before a man puts up a thousand dollars or more for a car, he wants to know what he can expect.

He wants to know who is going to suffer in case some defect develops in his automobile. Must *he* foot the bill, or will the manufacturer protect him?

It's a pretty comfortable feeling to know that your car is *Guaranteed for Life*. Guaranteed by a firm with the capital and reputation of the Michigan Buggy Company. Guaranteed by a firm that you *know* will be here to stand back of it 30 years from now. The great bugbear, cost of up-keep, which so often prevents people from buying cars, becomes largely a *myth*.

Don't buy a car because it looks pretty, or on the strength of some irresponsible agent's talk. Talk is the one thing that you know is cheap.

Buy a car that has back of it a *Real Guaranty*.

Our Guaranty Here is the Guaranty we give each purchaser of a "Michigan"



Guarantee

Kalamazoo, Mich., _____ 191__

This certifies that _____ has purchased

from us a Michigan automobile the number of which is _____.

We do hereby warrant and guarantee this automobile from this date throughout its entire life. If any piece or part should break or prove defective, from any cause whatsoever, except from accident or carelessness, we agree to furnish such part free of charge. It is expressly understood that in case of breakage the owner of the car shall promptly notify the Michigan Buggy Company. This guaranty includes all equipment except *tires* and such other equipment as is guaranteed by the manufacturers.

MICHIGAN BUGGY COMPANY, Kalamazoo, Michigan

Michigan Buggy Company

Kalamazoo, Mich.