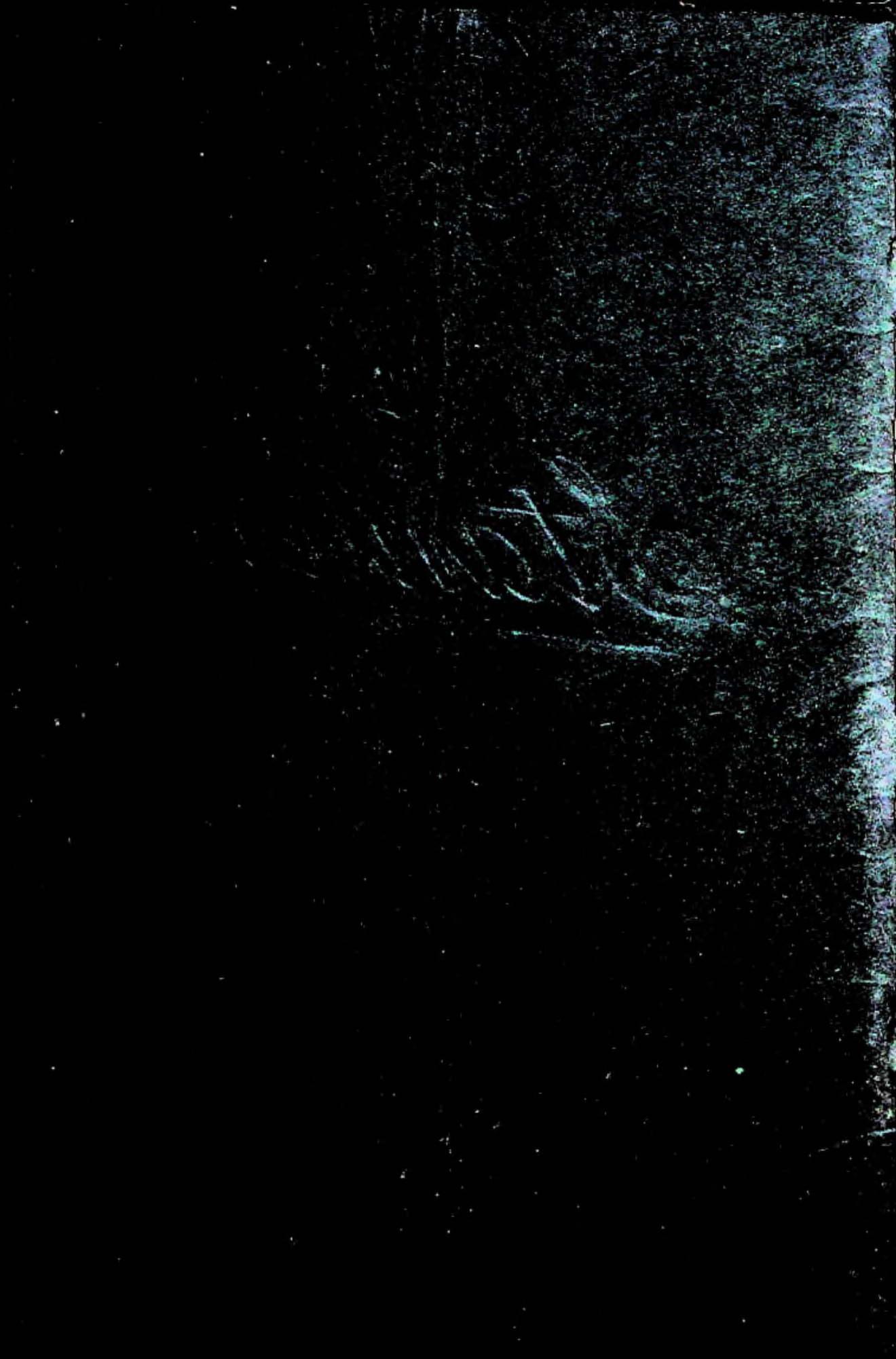

Stanley



Stanley Steam Cars

WITH 1909, we begin our twelfth year of automobile manufacturing. As in the past, our aim continues to be to give the purchaser the best possible automobile value for his money. For speed, efficiency, and durability, our cars cannot be duplicated in any other make, at double our prices.

The reader will find in the subsequent pages of this catalogue, mention of some of the new features in our 1909 cars.

Stanley Motor Carriage Company

Newton, Mass.

Model M Large Touring Car

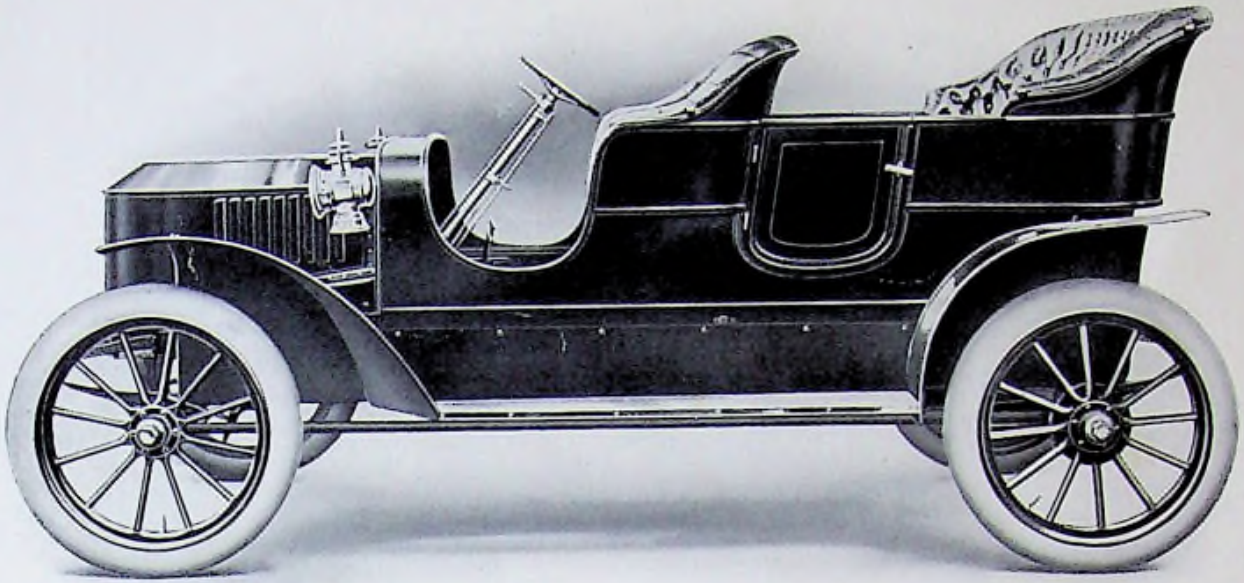
We offer, in addition to our Model U 20 horse-power touring car, a larger and more powerful touring car, the Model M. This car is equipped with a 26-inch boiler, with a steaming capacity 50 per cent greater than the 23-inch; and with a 4½ x 6½ inch engine, the same engine as that in "The Fastest Car in the World" and the same as that in the Model Z, our nine-passenger Mountain Wagon.

We believe this car is capable of doing a mile in 40 seconds with five passengers aboard, and of sustaining a speed of 70 miles an hour as long as the road will allow it; and that it is the most powerful stock touring car ever built in the world.

It is not intended primarily as a speed car, however, but as an exceptionally high-powered touring car, for all sorts of conditions and all kinds of roads, which the owner himself can drive and care for, and which he can handle in any kind of going—city streets at slow speed, boulevards at top speed, or in mountainous or sandy country—without "shifting gears," stalling, or overheating, and with a peace of mind and freedom from worry unknown to the driver of a gasolene car of equal power.

As in all Stanley Cars, there are no moving parts under the hood. There are no chains, no fly-wheel, no driving shaft. The engine is geared direct to the differential on the rear axle—there is no "transmission." The engine is a simple, slide-valve double-acting engine of two cylinders—giving the same number of impulses to the revolution as an eight-cylinder gasolene engine. Aside from the running gear, there are in this car about one third the moving parts as in any conventional gasolene car of high efficiency.

The original cost of this car is $2,000. The cost of upkeep is proportionately small. The tire cost, usually a burdensome item on a high-powered car, is amazingly small on this car, as on any Stanley. The 36 x 4 inch tires are guaranteed by their makers under a car weighing 3,300 pounds. The Model M weighs about 2,250 pounds—a margin of over half a ton. They are guaranteed for 3,500 miles—the average on the Model M would be about 7,000 or 8,000 miles. Furthermore, being so heavily tired, the liability to puncture is greatly reduced, and the unexpected blow-out is practically unknown.



MODEL M LARGE TOURING CAR

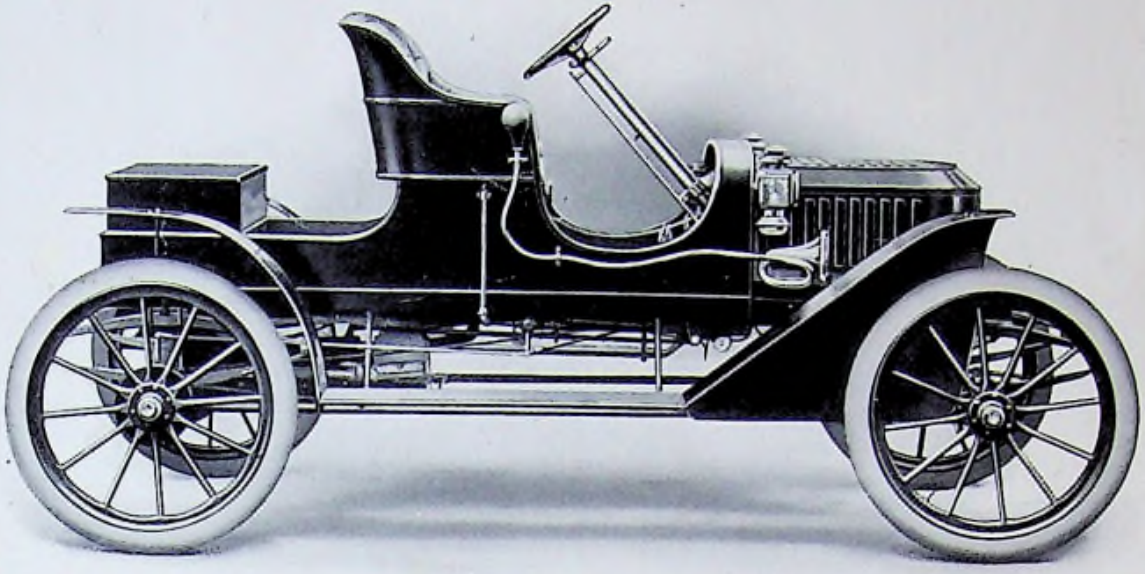
Price, net cash, F. O. B. Newton - $2,000

Model M Large Touring Car

Specifications

Large Touring Car, seating five.
26-inch boiler and burner in front under hood.
4½ x 6½ inch engine, geared direct to differential on rear axle and running in oil bath.
30 horse-power.
Divided front seat.
Throttle and by-pass lever sub-imposed on steering wheel.
36 x 4 inch tires.
Wheel base, 114 inches; track, 54 inches.
Full mud guards and aprons.
Full elliptical springs.
Internal expanding and external contracting brakes on hubs.
Gasolene capacity (tank at extreme rear), 150 to 200 miles (18 gallons).
Water capacity (tank under front seat), 40 to 50 miles (36 gallons).
Oil side, gauge and tail lamps; and horn.
Robe rail and foot-rest.
Pressed steel tool-box, 22½ inches long.
Small Prest-O-Lite tank (12 x 4) with acetylene torch for lighting pilot.
Ironed for top.
Cape top, mohair or pantasote, $100.00 additional.
Price net cash, F. O. B. Newton.

$2,000



MODEL E2 RUNABOUT

Price net cash, without rear seat, F. O. B. Newton, $850

Model E2 Runabout

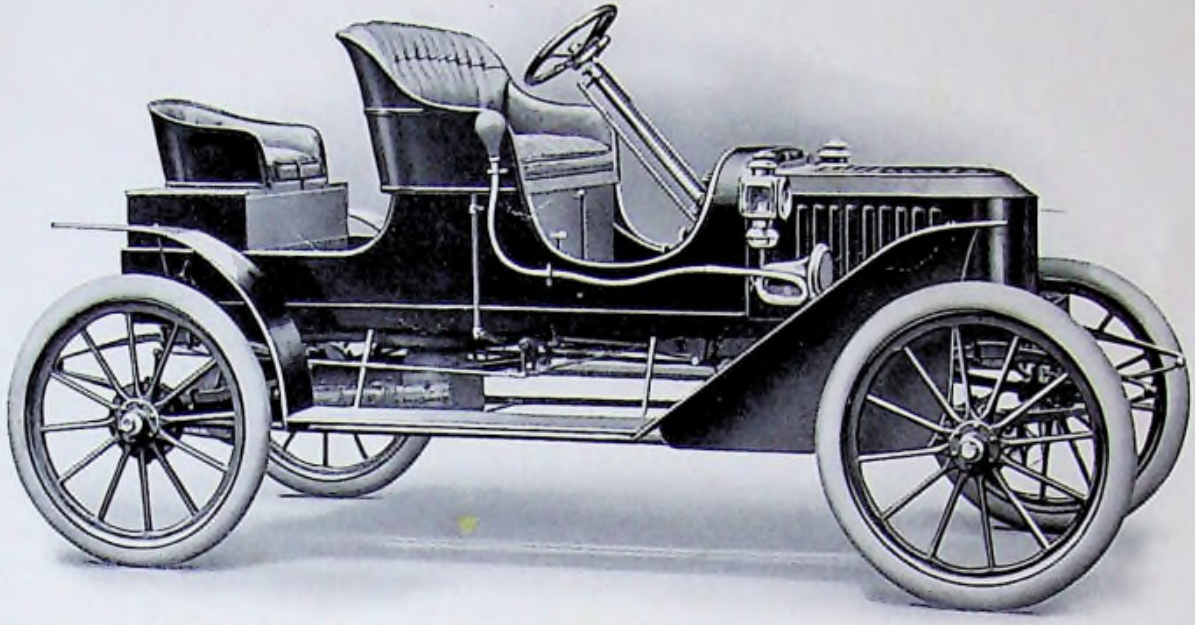
Our Model E2 car is designed as an improved type of the Model EX which has, since it was first built in 1905, been so efficient and popular. The same power plant is used as in the Model EX—that is, 18-inch boiler and 3 x 4 engine. The running gear, also, is the same, except that the wheel base is one hundred inches instead of ninety. The car is furnished with an artillery box at the rear, upon which may be placed a rumble seat with folding back, at $25.00 extra, or a flat rear seat with folding back like the EX rear seat, for $20.00 extra.

It is, perhaps, the best value we have ever offered the public—as for mere speed, there is, we believe, no gasolene car in the world listing at less than $2,500 which can beat it on the road; and it has the same famous ability to dash up a hill which is common to all Stanley cars. It is, however, as a car of all around serviceability, for all kinds of work, on all kinds of roads, that we offer the Model E2. For city use—for running around town on business—for the family man, who drives only Sundays and evenings—for a lady to drive—for those who live in the country, and want a smart, light car, sure of taking them "there and back" in any condition of roads or weather—and as a touring car for two people, it is equally satisfactory. The original cost is low; and the cost of up-keep is even lower proportionately. The ordinary driver can get 10 to 12 miles out of a gallon of gasolene—the flexibility of steam and the large tires and the long wheel base reduce the tire cost to the minimum—it is so easily handled that nine tenths of all we have made are cared for by the owners—and it is so sturdily built that replacements of parts amount to practically nothing.

While the Model E2 is intended primarily as a runabout, yet it has such power that with four adults in it it will go faster than most people care to ride; nor will it ever falter at a hill.

The car weighs about 1,325 pounds. It sets closer to the ground than the EX, although the clearance is not affected. The extra 10 inches in the wheel base, combined with a better distribution of weight between the axles, makes the car ride even more comfortably than the famous EX.

It is, we believe, the only car in the world selling for less than $1,000 with 100 inch wheel base, or with 34 inch wheels.



MODEL E2 RUNABOUT

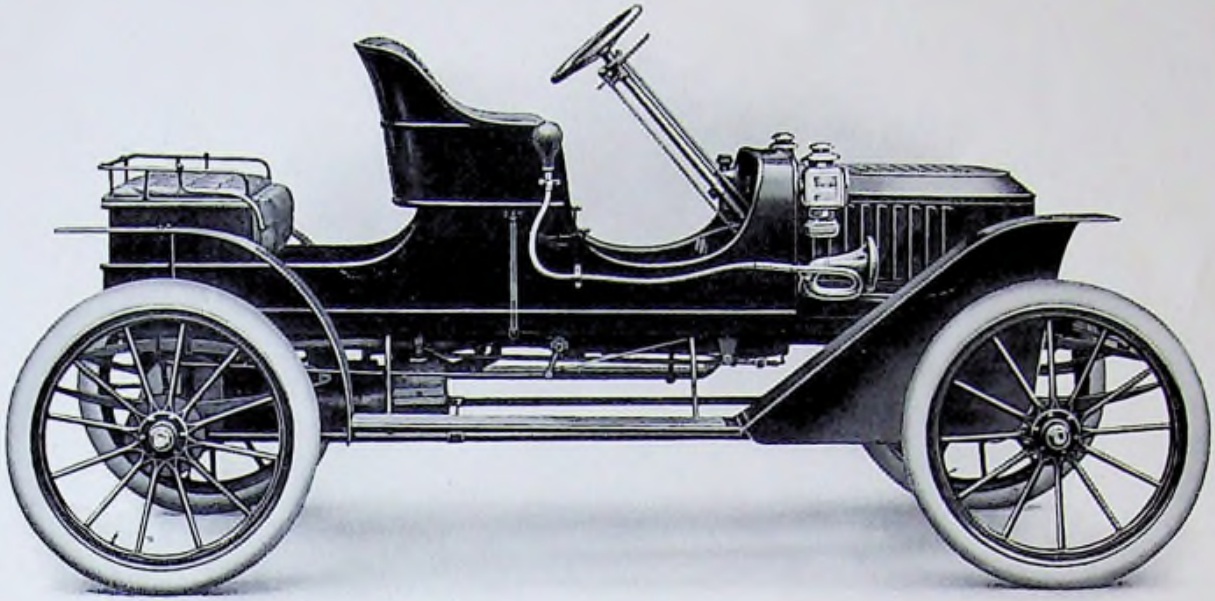
Showing Rumble Seat on Rear. Price with Rumble seat, $875

Model E2 Runabout

Specifications

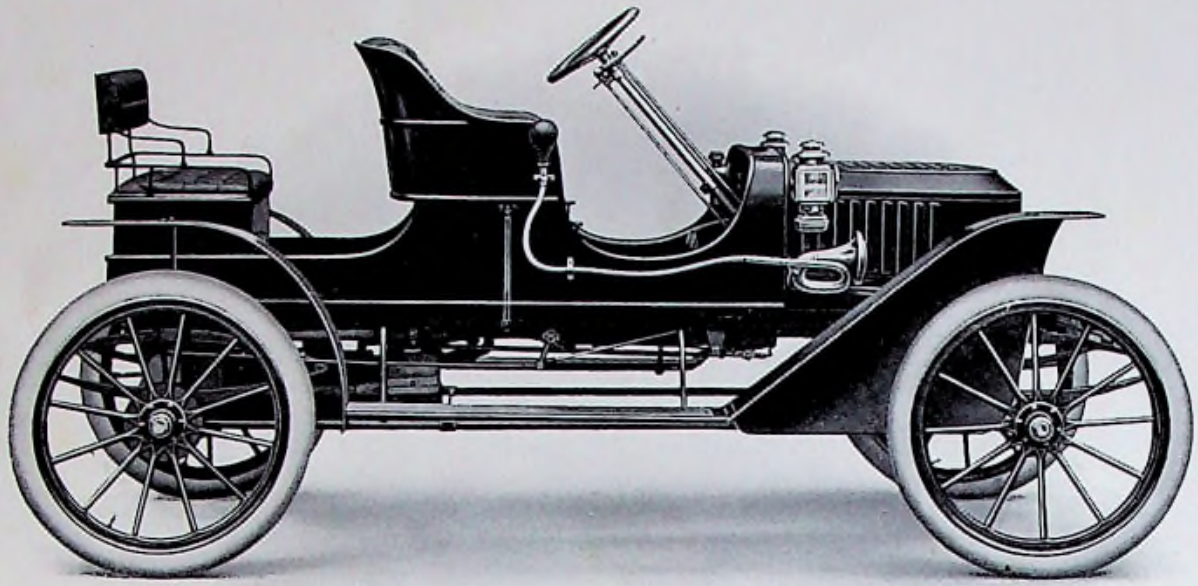
Runabout, seating two.
18-inch boiler and burner in front, under hood.
3 x 4 inch engine, geared direct to the differential on the axle, running in oil bath.
10 horse-power.
Throttle and by-pass lever sub-imposed on steering wheel.
30 x 3 or 34 x 3 inch tires.
Wheel base, 100 inches; track, 54 inches.
Full elliptical springs.
Internal expanding and external contracting brakes on hubs.
Gasolene capacity (tank at extreme rear), 150 to 200 miles (15 gallons).
Water capacity (tank under seat), 40 to 50 miles (26 gallons).
Side oil, tail and gauge lamps; and horn.
Pressed steel tool-box.
Prest-O-Lite tank (12 x 4) with acetylene torch for lighting pilot.
Plain artillery box in rear, on which may be placed any style of seat.
Price net cash, without rear seat, F. O. B. Newton.

$850



MODEL E2 RUNABOUT

Showing Flat Rear Seat Closed. Price with flat rear seat, $870



MODEL E2 RUNABOUT

Showing Flat Rear Seat Open. Price with flat rear seat, $870

Model R Roadster

The Model R roadster is a smart high powered car, for two to four people. The price includes a choice of rear seats—a single rumble; a double rumble; a duplicate of the front divided seats; or a full undivided two-passenger seat. With no rear seat the car shows a neat plain artillery box.

This roadster is on the same 20 horse-power plant as the Model U touring car. It is quite the same car except as to body and tires. The tires are 36 x 3½ inches all around.

The speed of this car is all that anyone can require in a road car. It is intended for those who wish to hit up a speed of 60 to 70 miles an hour on a good safe road, and still be able to run through city streets without danger of overheating or "stalling."

There is no changing of gears—speed from a creeping pace to a mile a minute or more can be had by simply opening or closing the throttle sub-imposed on the steering wheel.

The Model R is valuable also to those who live in hilly districts and find that the average gasolene car at twice or three times the price, will falter on the hills and fail in the emergencies where a little reserve is required. There are many such people, who, with a Model R would be relieved of all that anxiety they are now subject to.

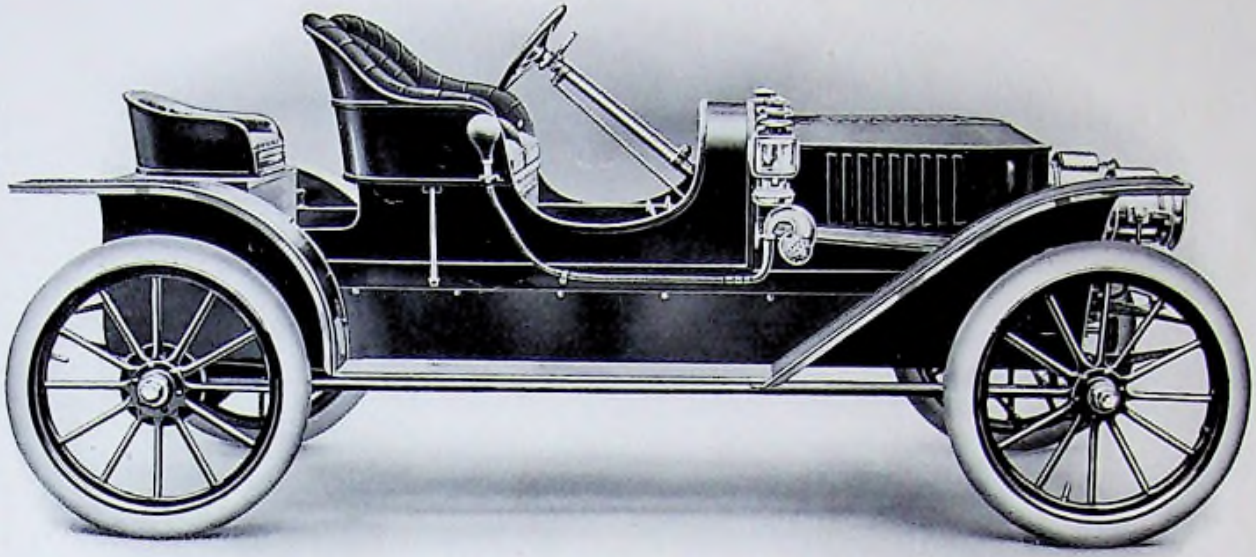
The tire cost, usually so heavy on high-powered runabouts, is surprisingly small on Stanley roadsters.

Model R Roadster

Specifications

Model R roadster, seating two to four.
23-inch boiler and burner in front under hood.
4 x 5 inch engine, running in oil bath.
20 horse-power.
Throttle and by-pass levers subimposed on steering wheel.
Tires, 36 x 3½ inch all around.
Wheel base, 112 inches.
Track, 56 inches.
Pressed steel mud guards and aprons.
Full elliptical springs.
Internal expanding and external contracting brakes on hubs.
Gasolene capacity (tank at extreme rear), 125 to 175 miles (16 gallons).
Water capacity (tank under front seat), 40 to 50 miles (30 gallons).
Oil side, gauge and tail lamps.
Pressed steel tool-box.
Prest-O-Lite tank (12 x 4 inches) with acetylene torch for lighting pilot.
Ironed for top.
Divided front seat.
Rear seat, no extra charge; choice of single rumble with folding back; double rumble with folding backs; duplicate of front seats; or full (undivided) rear seat.
Cape top, mohair or pantasote for front seat only, $60 additional; for both seats, $90 additional.
Price, net cash, F. O. B. Newton.

$1,350



MODEL R ROADSTER

Price, net cash, F. O. B. Newton, $1,350

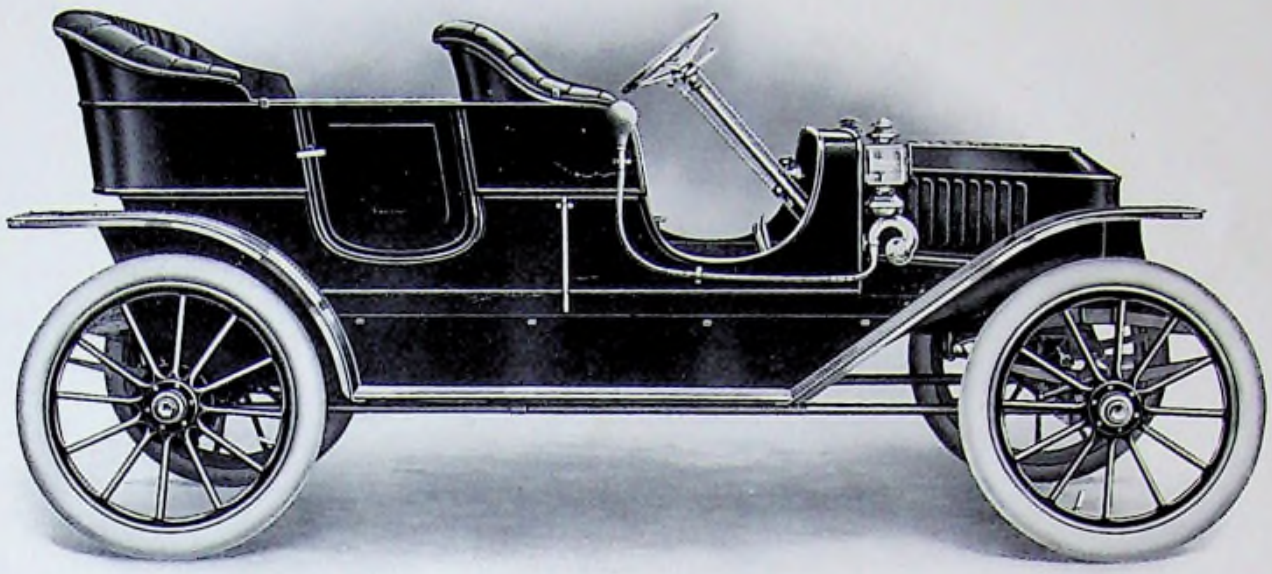
Model U Touring Car

Our Model U car, which we now announce to be ready for delivery in June or July, is equipped with our new 4 x 5 inch engine, which, because of the greater expansion will be found more economical than our 3⅝ x 5 inch engine. While it is of about the same horse-power as our 3⅝ x 5 engine, it is built heavier and stronger, all the rods and bearings being much stouter. The engine is equipped with an oil-tight dust-proof case, the rear members of which are of aluminum. The engine, differential, and rear axle thus run in an oil bath. The Model U will have two sets of brakes, the external contracting and the internal expanding, acting on the hub drums; and all brakes will be lined with raybestos. The power plant consists of the boiler and burner, in front under the hood, with no moving parts; the pumps, two for water, one for gasolene, one for cylinder oil, all actuated by three moving parts (exclusive of balls); the engine, thirteen moving parts, and the differential, four moving parts, and the two driving shafts of the rear axle. There are also two automatic valves, one controlling the gasolene by-pass, the other controlling the burner, each with one moving part. Thus there are but twenty-four moving parts, exclusive of balls, in the whole Stanley power plant; and none of these parts require hand lubrication.

The Model U will be equipped with 36 x 4 inch tires; and is, we believe, the only car in America listing at less than $2,500 with tires of this size. The car weighs about 2,000 pounds. The tire manufacturers guarantee their tires of this size under a car weighing 3,300 pounds — a wider factor of safety than any other car.

Each Model U will be equipped with a 12 x 4 Prest-O-Lite tank connected with acetylene torch for lightning the pilot-light. Also a metal tool box 22½ inches long; a robe rail and foot-rest in the tonneau; a pair of oil side lamps, an oil tail lamp, and an oil gauge lamp. The mudguards will be of pressed steel, with aprons between mudguards and body, and between running boards and body.

The wheel base will be 112 inches, the track will be 56 inches. The steering wheel will be 17 inches in diameter.



MODEL U 20 HORSE-POWER TOURING CAR, SEATING FIVE

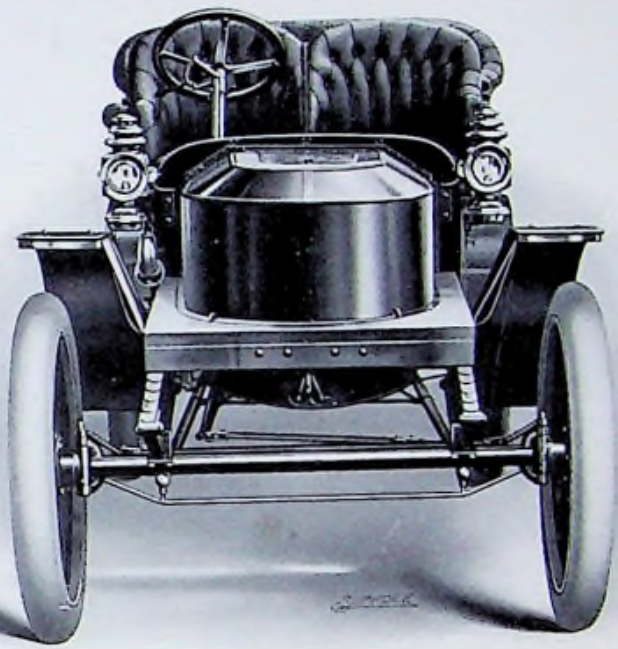
Price, net cash, F. O. B. Newton, $1,500

Model U Touring Car

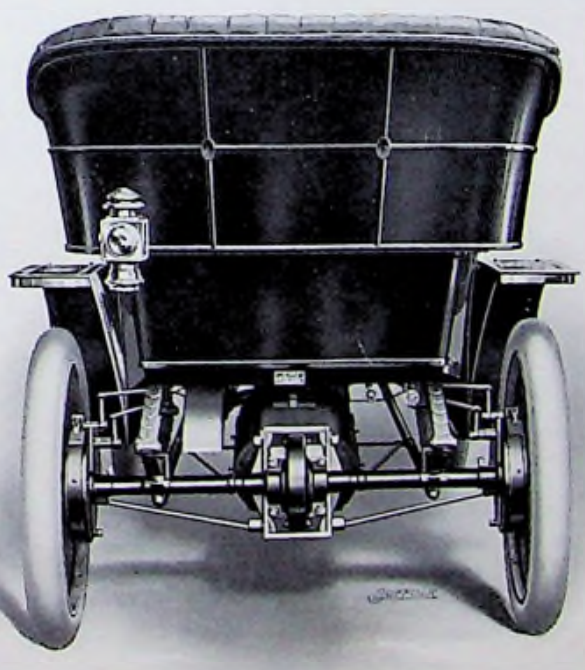
Specifications

Model U touring car, seating five.
23-inch boiler and burner in front under hood.
4 x 5 inch engine, running in oil bath.
20 horse-power.
Throttle and by-pass levers sub-imposed on steering wheel.
Tires, 36 x 4 inch all around.
Wheel base, 112 inches.
Track, 56 inches.
Pressed steel mud guards and aprons.
Full elliptical springs.
Internal expanding and external contracting brakes on hubs.
Gasolene capacity (tank at extreme rear), 125 to 175 miles (16 gallons).
Water capacity (tank under front seat), 40 to 50 miles (36 gallons).
Oil side, gauge and tail lamps.
Robe rail and foot-rest.
Pressed steel tool-box.
Prest-O-Lite tank (12 x 4) with acetylene torch for lighting pilot.
Ironed for top.
Cape top, mohair or pantasote, $93 additional.
Price net cash, F. O. B. Newton.

$1,500



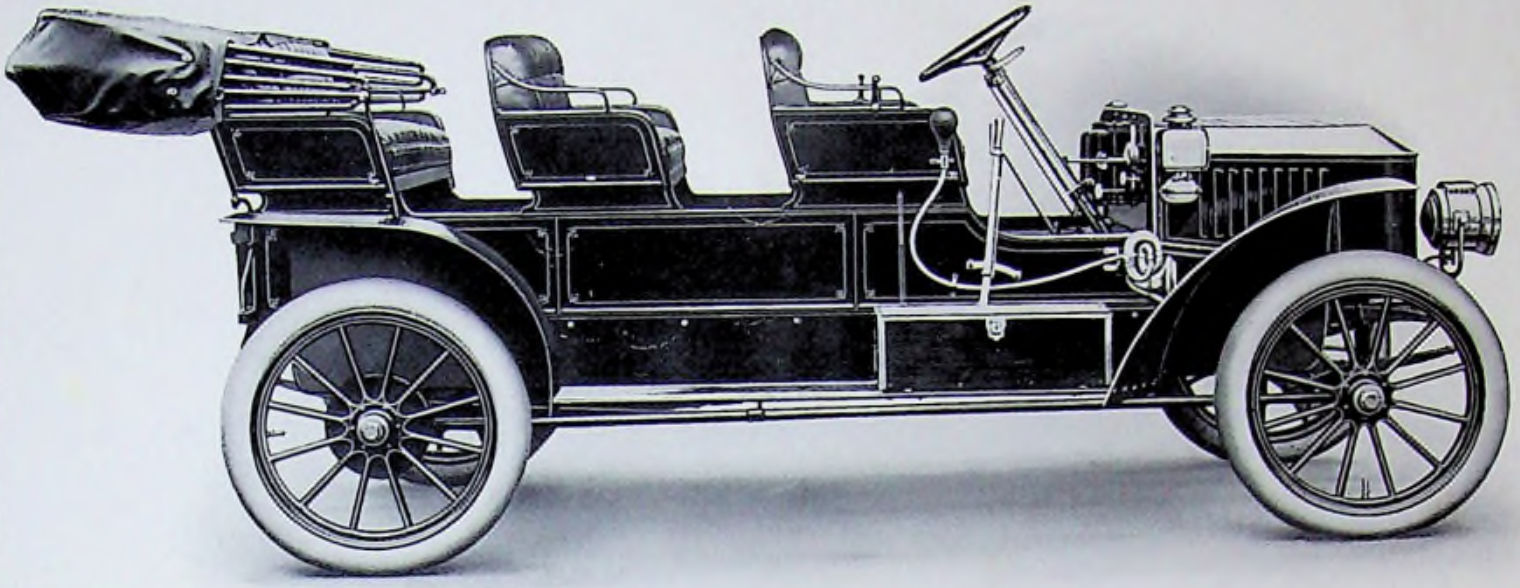
MODEL U, FRONT VIEW



MODEL U, REAR VIEW

Model Z Mountain Wagon

Our Model Z car is called a mountain wagon, because it is designed for stage line passenger and baggage work at resorts. It is equipped with our regular 30 horse-power plant; that is, 26-inch boiler and 4½ x 6½ inch engine. Each of the three seats will hold three people, making the whole a commodious, fast and powerful nine-passenger car. It is possessed of the usual Stanley ability on hills and bad roads. The two rear seats may be handily removed, thus making the car a roomy and efficient express or baggage wagon. It will be found an ideal car for passengers and supplies at a gentleman's country estate, remote from the railroad. We are planning to build these cars regularly for the market from now on, in limited quantities.



MODEL Z MOUNTAIN WAGON, SEATING NINE

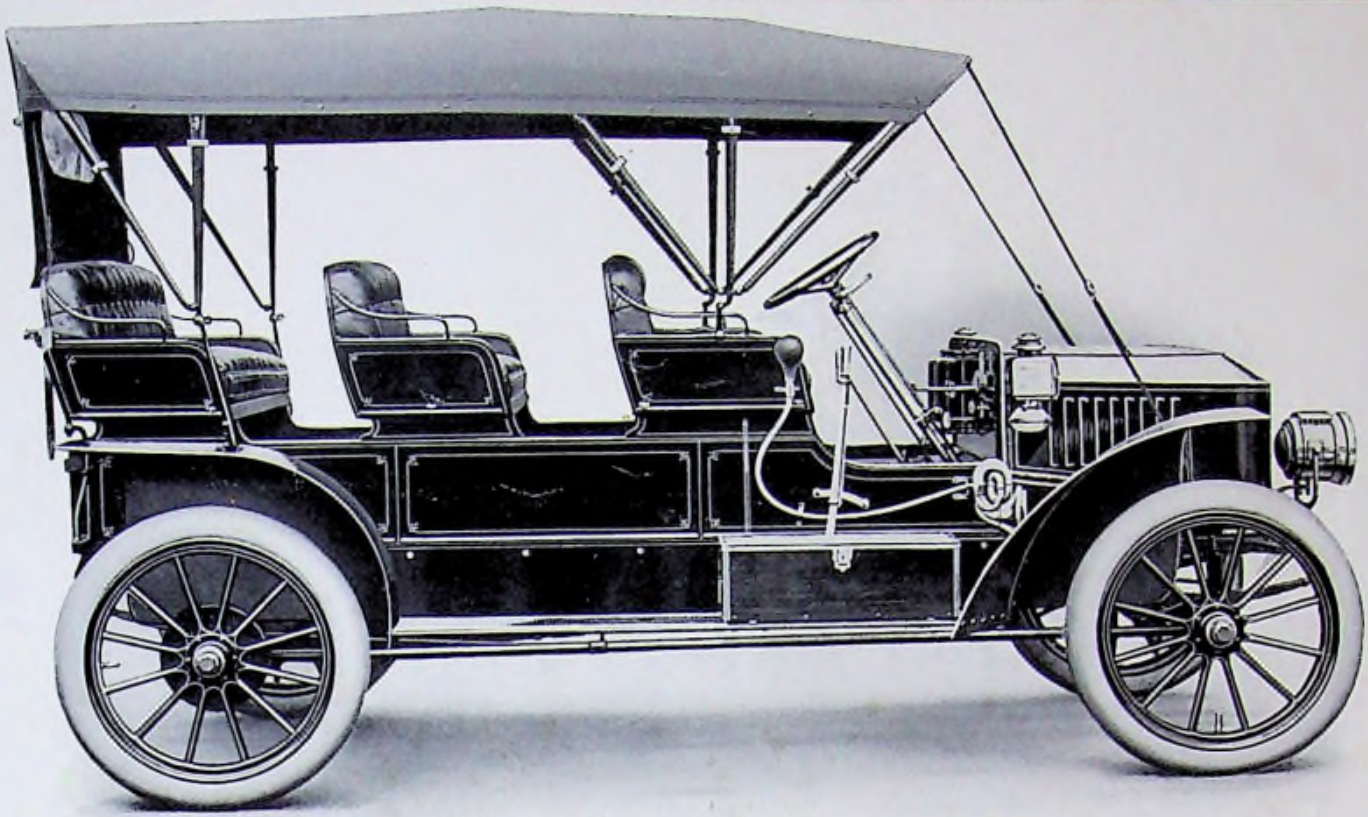
Price, net cash, F. O. B. Newton, $2,000

Model Z Mountain Wagon

Specifications

Model Z mountain wagon, seating nine.
26-inch boiler and burner in front under hood.
4½ x 6½ inch engine.
30 horse-power.
Throttle and by-pass levers subimposed on steering wheel.
Tires, 36 x 4 inch all around.
Wheel base, 118 inches.
Track, 54 inches.
Full elliptical springs.
Internal expanding and external contracting brakes.
Gasolene capacity, 100 to 150 miles.
Water capacity, 30 to 40 miles.
Oil side, gauge and tail lamps.
Pressed steel tool-box.
Prest-O-Lite (12 x 4 inches) with acetylene torch for lighting pilot.
Five-bow pantasote cape top.
Price, net cash, F.O.B. Newton.

$2,000

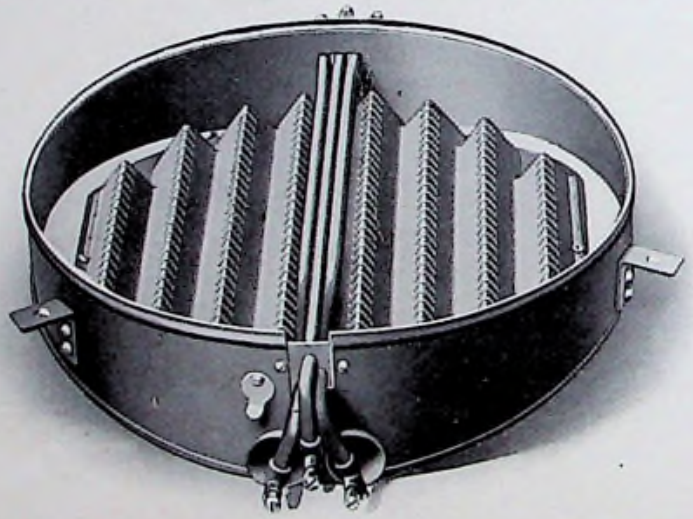


MODEL Z MOUNTAIN WAGON. With Top Open

Stanley Burner

(Patented)

The Stanley burner consists of a corrugated casting, with a series of slots at the apex of each corrugation; the vaporizer; and the mixing tubes. The gasolene becomes thoroughly vaporized in passing through the tubes of the vaporizer, which are exposed to the flame of the burner. It issues at high velocity from the nozzles and passes into the mixing tubes, drawing in with it the amount of air necessary for perfect combustion. It then enters the chamber below the casting and passes up through the slots, where it burns as in a bunsen burner with a clear blue flame. The pilot light acts similarly, but it has a very small independent casting. The pilot light, burning directly under the vaporizer, keeps it hot while the main burner is not burning, and will relight the main burner after it has been shut off by either the automatic or the hand valve.



Stanley burner, showing vaporizer and mixing tubes, a slotted cast-iron plate, completely encased. In effect a huge bunsen burner, giving perfect combustion.

The burner is so constructed that it secures perfect combustion and intense heat, and is entirely encased, there being no air inlet except the mixing tube; consequently it is not affected by air currents.

The pilot light is not shut off by the automatic, but burns continuously after being lighted until shut off by the hand valve, and is just strong enough to hold the steam pressure. The car can be left standing for several hours with the main burner turned off and still have steam enough to run.

The pressure on the fuel in the auxiliary tank which supplies this burner is maintained automatically when the machine is running, and since there is but little gasolene under pressure, it takes but a short time to pump up the pressure by hand before starting. This makes the system a very safe one, as compared with machines where the entire gasolene supply is under pressure.

Stanley Boiler

The Stanley boiler is of the fire tube type. The lower head is part of the pressed steel shell. The shell is wound with piano wire. The tubes are 33/64 inch outside diameter. The tubes are expanded into the heads by means of a taper expander. All tubes are

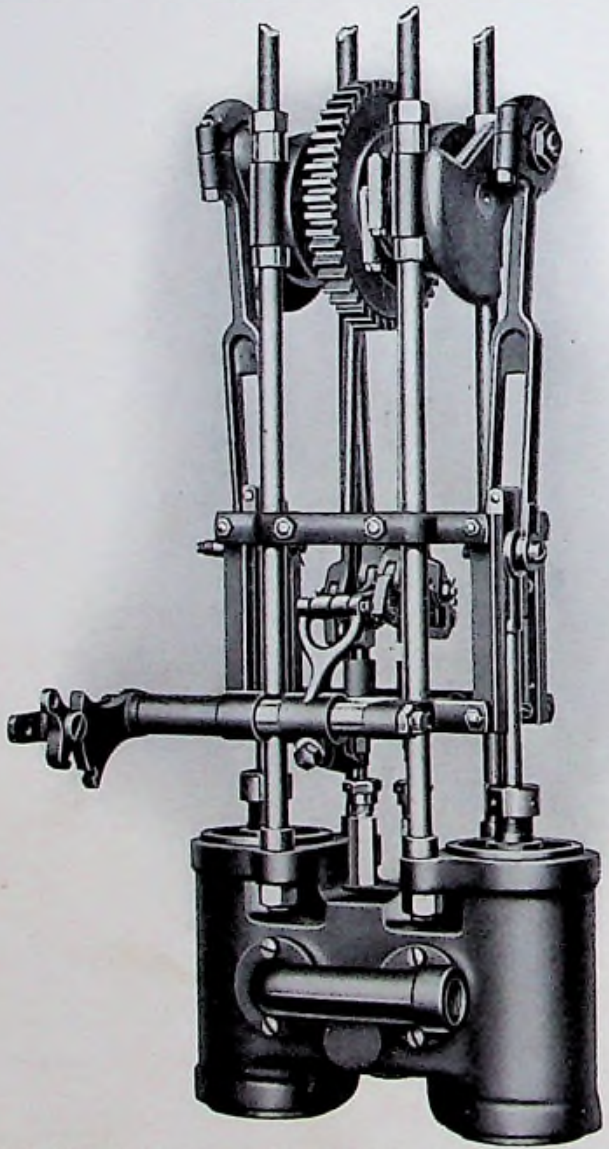
Stanley boiler; of steel. The shell and lower head are of one piece, of pressed steel. The bands indicated in the cut are of thin brass, to hold in place the half inch sheet asbestos insulation.

14 inches long, excepting those in the 26-inch boilers which are 16 inches long. In the 18-inch boilers there are 469 tubes with 66 square feet of heating surface. In the 23-inch boilers there are 751 tubes with 104 square feet of heating surface. In the 26-inch boilers there are 999 tubes with 158 square feet of heating surface.

Stanley Engine

(Patented)

The engine used in the Stanley Steam Car is of our own design and manufacture and is patented. It is two cylinder, double acting,

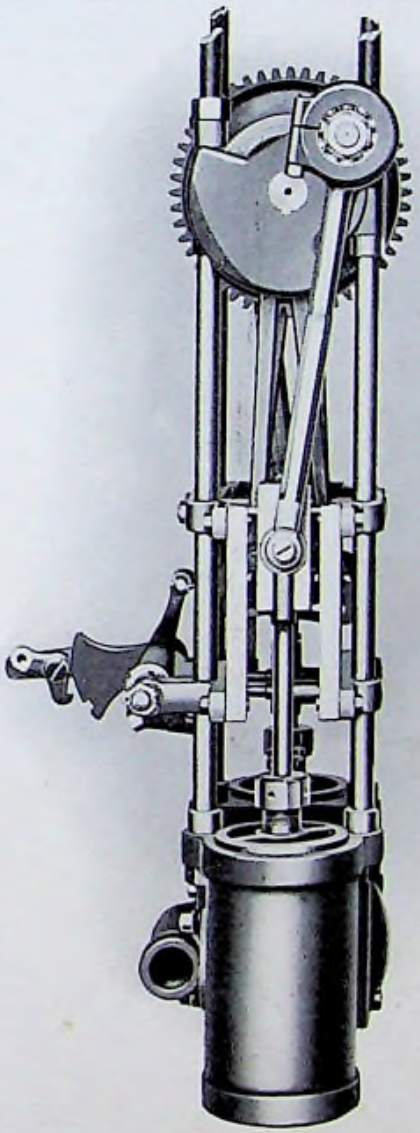


View of Stanley engine, obliquely from above. Showing main-bearing; excentrics; link motion; and "hooking-up" device. There are but thirteen moving parts (exclusive of balls) in the Stanley engine.

of the locomotive type, with plain slide valves and link motion reverse.

This engine is more completely a ball-bearing engine than any

other engine in use in an automobile. Even the crossheads run on balls. This particular feature has been in use by us more than nine years and is one of the greatest improvements ever made in automobile engines. The use of balls in the crossheads does away entirely with the loss of power from sliding friction.

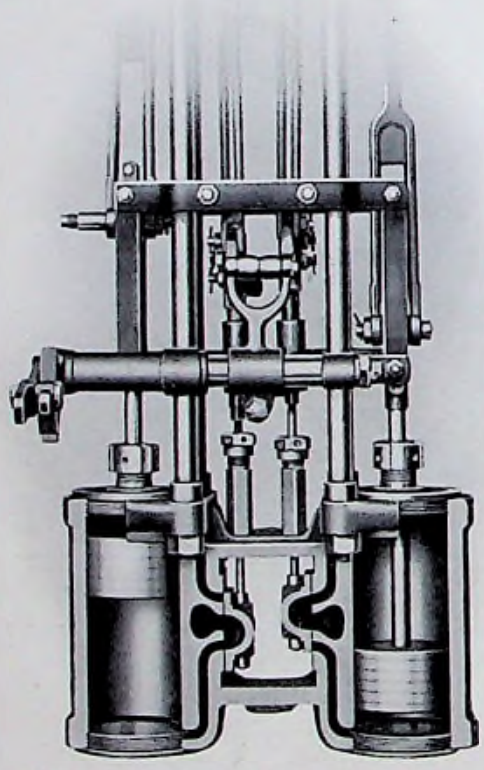


Side view of Stanley engine, showing ball-bearing crosshead, connecting-rod and bearing, with counterbalance; steam chest cover; and exhaust outlet. The Stanley engine is more completely a ball-bearing engine than any other engine used in an automobile.

The engine is placed horizontally in such a position that the steel gear on the crank shaft of the engine engages the main gear of the differential, thus forming a direct power transmission. The front end of the engine is suspended from the body of the car,

and partakes of its up and down motion. The rear end of the engine is connected radially to the rear axle, thus keeping the gears always perfectly adjusted.

The Stanley engine consists of only thirteen moving parts exclusive of balls. Being of the double acting type, each piston gets an impulse at each end of the cylinder. Thus this two cylinder engine, with only thirteen moving parts, gets as many impulses per revolution as the conventional gasolene engine would get if it had



View of part of Stanley engine with cylinders cut away, to show piston and valve motion. The Stanley engine is a simple engine, double acting (four impulses to the revolution), with slide valves and link motion reverse.

eight cylinders. As a result of this condition, the Stanley engine makes fewer revolutions per mile and, therefore, fewer per minute at a given speed. For instance, a Model U car, with 36-inch rear wheels and geared 43 to 60 makes 560 revolutions per mile as to its rear wheels and 780 revolutions per mile as to its engine. Thus, at 30 miles an hour the engine will make only 390 revolutions per minute.

The engine, driving gear, and differential are enclosed in an oil-tight and dust-proof case and run in an oil bath.

Cylinder Lubrication

All our cars are equipped with a mechanical cylinder oiler which delivers a definite quantity of oil to the steam chest each mile the vehicle is run. Just as much oil goes in the last mile of the run as the first. This mechanism is very simple and reliable.

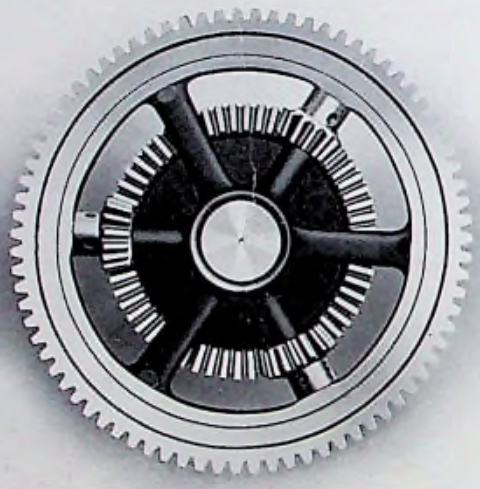
Stanley Differential

(*Patented*)

Stanley driving gear, which meshes into the main gear on the main bearing of the engine, while the bevel pinions mesh into the bevel gears on the driving shafts. The only "transmission" in the Stanley Car. Only four moving parts.

The Stanley differential consists of a spur gear and three bevel pinions, thus making only four moving parts. The spur gear meshes directly with the main gear of the engine; and the pinions

mesh with the bevel gears affixed to the inner ends of the driving shafts of the rear axle, on the outer ends of which are a round taper and a square section on to which are forced the rear wheels. This is in fact a bevel gear differential, and is what has always been used on Stanley Cars. It constitutes the most direct delivery of power from engine to rear wheels of any automobile in the world; and this differential is all the "transmission" there is in a Stanley Car.



Detail showing Stanley differential and driving gear. The main driving gear with its three bevel pinions, and one driving shaft with its bevel gear, are shown.

Superheated Steam

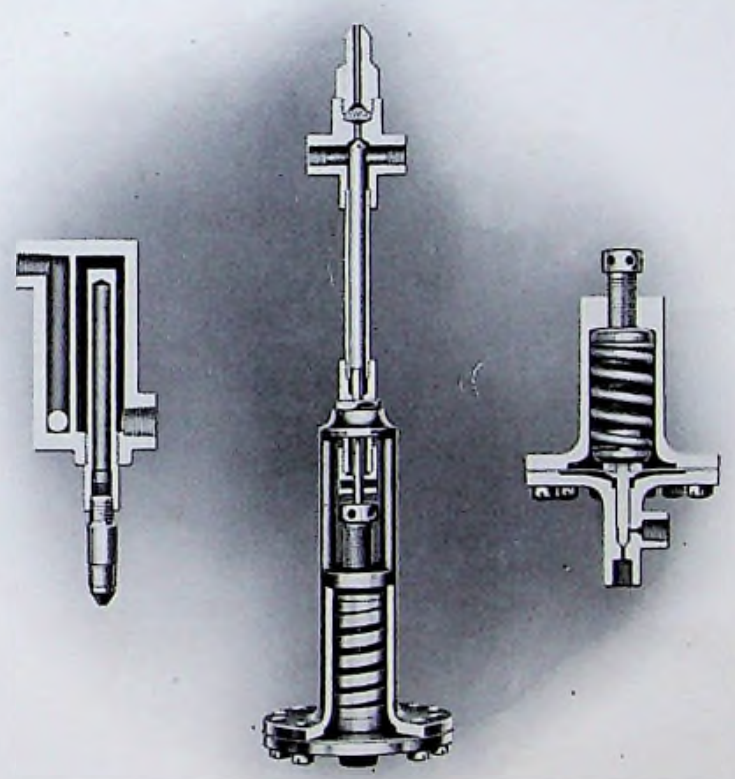
(*Patented*)

The use of superheated steam is desirable in two ways. First, it saves water. While water practically costs nothing, it has to be carried, and this adds to the total load. Second, it saves fuel. This costs money. By our patented system of superheating we completely avoid one of the dangers attending the use of superheated steam, viz., overheating and consequent burning of the cylinder oil, thus injuring valves, cylinders, and pistons. Our system, while securing a high degree of superheat, renders it impossible to overheat.

Water Indicator

(Patented)

The new Stanley Cars are equipped with the new Stanley water indicator, a patented device of unique design, practically indestructible and absolutely certain in its operation. There are no



Stanley water indicator, a simple and perfectly reliable device with no moving part.

Stanley steam automatic, cut away to show interior. The play of the valve stem is only about $\frac{1}{16}$ of an inch.

Stanley gasolene automatic, cut away. Valve stem play of about $\frac{1}{16}$ of an inch.

moving parts or working joints, consequently nothing to wear out or need repair. It shows the level of the water in the boiler by means of a water glass on the dasher. The liquid in the glass which rises or falls to indicate the water level, is cold and under no pressure, and the top of the glass tube is open. It contains two important elements — reliability and durability.

Automatics

The steam automatic valve is for the purpose of automatically controlling the flow of gasolene to the main burner. It consists of (1) a diaphragm so connected that it is exposed at the bottom to the boiler pressure; and having a valve stem in contact with its upper side; and (2) a spring in contact with the lower end of the valve stem, which spring holds the valve stem off its seat and in contact with the diaphragm until the boiler pressure forces the spring to yield, whereupon the valve stem seats itself. The automatic is provided with an adjusting screw by means of which the tension on the spring can be varied, so as to make it operate at any desired boiler pressure.

The gasolene automatic relief valve is for the purpose of allowing the surplus gasolene (which must be pumped while running, in order to insure constant pressure on the fuel) to return to the supply tank. The valve stem is attached to the lower side of the diaphragm, and the spring in this case holds the valve stem on its seat until the pressure on the fuel overcomes the tension on the spring and opens the valve. This automatic is also provided with an adjusting screw.

Fusible Plug

(Patented)

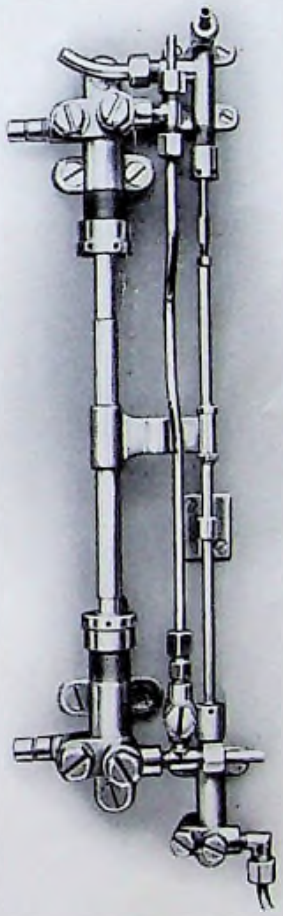
About the only objection to a fire tube boiler is the liability of being "burned out." While such an accident is attended with no danger, it is a nuisance, as it means that the boiler cannot be used again until it is repaired.

Accidents of this kind are avoided by the use of our fusible plug. When the water in the boiler gets too low, the plug melts out and warns the driver, who at once shuts off the fire, and the boiler is protected.

This plug is so situated that it can be quickly removed and a new one put in its place, and after pumping water into the boiler the fire may be relighted and in a few minutes the vehicle is under way again.

Pumps

The pumping system includes two water pumps, one gasolene pump, and one cylinder oil pump, which are so aligned that the four plungers form one (built up) part. This plunger



Stanley pumps, showing how the four plungers form one moving part. The two large pumps are for water, one or both of which may be by-passed by the lever on the steering wheel.

part is actuated from the engine by two other parts, so that in the whole pumping system there are but three moving parts, exclusive of balls. The pumps move constantly while the engine moves, and not independently of the engine. There are also a hand gasolene pump and a hand water pump.

Tires

Stanley cars have always been particularly famous for their quality of easy riding. The full elliptical springs; and the wooden frames, which absorb a great part of the vibration; and the absence of a pounding, jarring and vertical motor, all contribute to make this quality. But the large sizes of tires do most of all. There is probably no car in the world so heavily over-tired as the Stanley. We give herewith a table which shows at a glance the wide margin of tire safety in Stanley cars.

Model	Tire equipment	Weight of car about	Tires guaranteed by their makers under cars weighing
E2	34 x 3 in.	1,325 lbs.	1,800 lbs.
U	36 x 4 ,,	2,100 ,,	3,300 ,,
R	36 x 3½ ,,	1,900 ,,	2,900 ,,
M	36 x 4 ,,	2,250 ,,	3,300 ,,
K	36 x 3½ ,,	2,150 ,,	2,900 ,,

This wide margin of tire safety not only makes the car ride more easily, but, what is perhaps more important, it cuts the tire cost down materially. Furthermore, it is not the large tire alone that makes the Stanley so easy on tires. The absence of a "clutch" avoids the sudden jumping of the car and the grinding and cutting of the rear tires. The gentle expansion of the steam in the engine cylinders permits the car to start from a standing position without shock, "like a yacht leaving its moorings." Again, the steering gear not being of the so-called irreversible type, the front wheels do not force themselves irresistibly over sharp obstacles, thus causing "stone-bruises" and blow-outs, but deflect easily and slightly, proceeding along the line of least resistance.

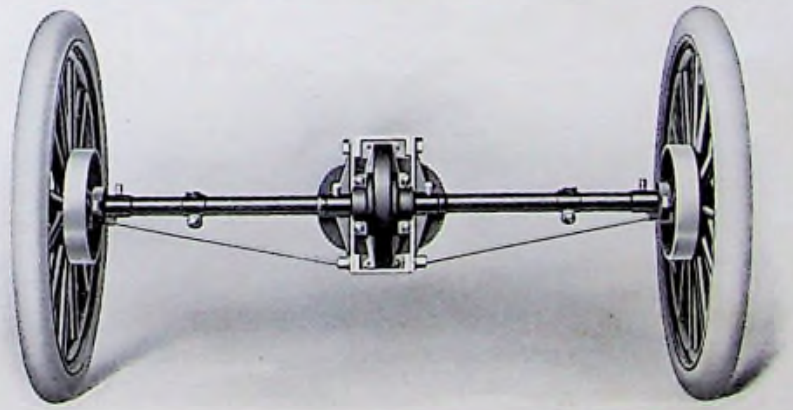
Tire up-keep on Stanley cars is undoubtedly lower than on any other cars. The tire manufacturers guarantee their goods for 3,500 miles, on an adjustment basis. Drivers of gasolene cars who have found their tire bills burdensome will be interested in the statement that out of 60 Stanley cars, or 240 tires shipped within one year into the territory of a certain tire branch manager, only two tires were presented to the branch for claims or adjustment.

Axles

The Stanley axles are of straight heavy steel tubing trussed in so skilful a manner that they have the maximum strength with the minimum weight. The front axle is so constructed in relation to the

Detail of front axle, showing trussing, steering mechanism and rods; and complete protection afforded the steering gear by the axle itself. Only six moving parts in this steering gear.

steering mechanism, that the latter is completely protected by the former and no part of the steering mechanism projects below the axle. Thus no obstruction in the road can reach the steering rods unless the axle itself is first demolished.

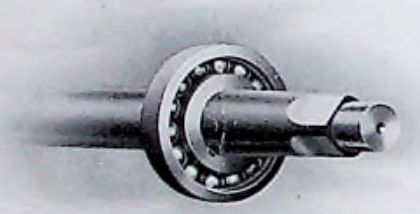


Detail of rear axle showing trussing and oil-tight casing of differential. The large elliptical case is the rear member of the oil-tight engine case.

Furthermore, the lowest points of clearance in the Stanley car are the axles themselves. There are no flywheels or other parts in the body of the car projecting so low as the axle lines. Hence, that

danger of bringing a low-hung mechanical part into contact with a high point in the road while both front and rear wheels are on lower ground is entirely lacking in Stanley cars. These points of construction, usually given little attention by manufacturers, are among the many features that make the Stanley the safest car on the road. The clearances on Stanley cars are as follows:

Model	Front axle	Rear axle	Lowest point between axles
E2	11 in.	8¼ in.	14 in.
U	13½ ,,	10¼ ,,	15 ,,
R	13½ ,,	11¼ ,,	15 ,,
M	13½ ,,	10¼ ,,	15 ,,
K	13½ ,,	10¾ ,,	15½ ,,
Z	13½ ,,	10¾ ,,	15½ ,,



Wheel-end of rear axle showing ball-bearing; and squared and tapered sections.

The front axle and spindle are provided with oil cups. The rear axle is lubricated automatically from the engine case.

The wheel end of the rear axle driving shaft is made with a round tapered section and a squared section. The wheel is forced in to this driving shaft and is held there by a nut with cotter pin.

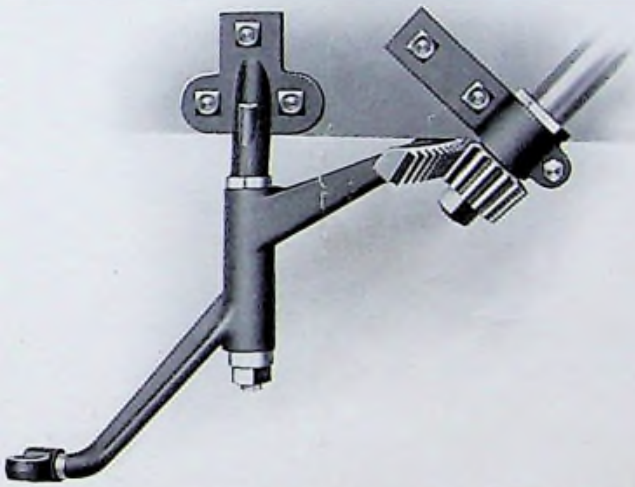
Brakes

The controlling brakes are of the internal expanding type, located on the hubs, protected from dust, and controlled by a pedal in position under the right foot. The emergency brakes are external contracting, also on the hubs, and controlled in the models R, U and Z by a hand lever — in the other models by a foot pedal. All brakes are lined with raybestos.

The reverse mechanism may also be used as a brake without injury, as when the engine is reversed, the compression of air in the steam chest will act against the forward force of the rear wheels and check it.

Steering Gear and Mechanism

The Stanley steering gear is of the sector and pinion pattern, and is not of the so-called irreversible type. A pinion at the lower end of the steering post engages the teeth of a sector gear whose bracket is mounted to the frame of the car. The connection between the long arm of the sector gear forging and the spindle levers is completed by only two steering rods.



Detail of pinion, affixed to end of steering post, and sector gear. The hexigon nut just above steering-post bracket permits of plenty of adjustment. The long arm of sector casting connects with steering rods. (See cut of front axle on page 33.)

Thus there are but six moving parts in the Stanley steering mechanism — the pinion and post (forming one built-up part): the sector gear forging, the two rods, and the two spindle levers. The whole steering mechanism is completely protected by the front axle, as shown in the cut on page 33.

Springs

All Stanley cars are equipped with full elliptical springs of the best tempered stock and each size fitted carefully for the weight of car and passengers it carries. No other type of spring adapts itself to both minimum and maximum passenger load, and to both boulevards and rough roads, as does the full elliptical spring.

Steering Wheel and "Control"

Aside from brake and reverse pedals, the entire Stanley control is in the throttle, subimposed on steering wheel and operated by

Steering wheel, with hands, showing how the throttle-lever is lightly gripped in the fingers without removing the hand from the wheel.

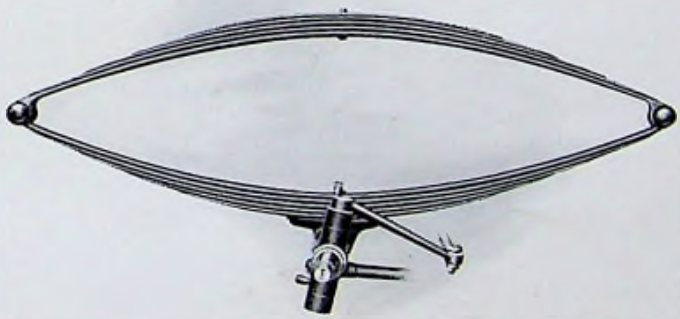
the right hand. The illustration shows how easily the driver may manipulate the throttle by the index and middle fingers, while still

Steering wheel, showing the single throttle in the Stanley system of control locked by its locking screw; and the by-pass lever.

retaining his grip on the wheel. There are no other throttles, and no change-speed levers. The speed of the car is governed entirely by

the amount of steam admitted into the engine, and this amount is determined by the position of one throttle. The entire range of the throttle lever is only a few inches, and in an ordinary day's run, a play of a couple of inches between extremes is all that is required. Stanley control shows up to its best advantage in the two extremes of automobiling—hard mountainous roads and crowded city streets. No unexpected hill or quagmire can "stall" the motor—and no sudden stop or sudden start in city traffic forces the operator to "change speeds." The whole range of conditions is covered by the simple single throttle.

The reverse pedal is in position under the left foot. The brake pedals are in position under the right foot. Ordinarily, these act as foot rests for the operator. The brakes are all on the hubs and all are lined with raybestos. The reverse gear may also be used as a brake. All these features make the Stanley control the simplest and the Stanley car the safest on the road.



Front spring and spindle construction, showing how the spindle is set at an angle, to assist in easy steering.

Front Axle Forks

The front axle forks which carry the front wheel spindle are set at an angle as shown in the illustration of fork and spring above. The point of contact of the wheel on the ground is back of an imaginary line continuing the angle of the fork to the ground. This is the principle of the front fork of a bicycle, and it gives the same effect in steering. It tends to keep the front wheel in line with the rear wheels, and to make the car go straight ahead. Thus the effort of steering is reduced. This construction is particularly advantageous in muddy and sandy roads.

The Importance of Cylinder Oils

It is costly practice to experiment with cylinder oils. The damage is done within the engine before making itself known to the operator. Observation over a period of many years in our own repair shop has shown us that much of the cylinder, valve and piston trouble, some of which is so mysterious and unaccountable to the driver, is caused by the use of inferior or unsuitable oils.

The question of lubrication is one of vital importance to the economical operation of any car, and it is to the mutual interest of Stanley owners and ourselves that the oil best adapted to meet the requirements existing in Stanley cars should be used at all times. After giving this matter much care and attention, we adopted, and have used exclusively for some years, the Harris Superheat Steam Cylinder Oil, furnished by the A. W. Harris Oil Company, Providence, R.I., and would urge each Stanley owner to have this oil on hand at all times, and always to run his car with this oil, feeling confident that thus the best results will be obtained.

Location of Parts

In all our cars the boiler and burner are under the hood in front. The mixing tube, blow-off valve, fusible plug, and safety valve are at the very front, and in the most accessible places. The water tank is under the front seat and the gasolene tank is at the extreme rear of the car. The brake levers are both in position for the right foot, and the reverse lever for the left foot. The throttle valve and by-pass levers are sub-imposed on the steering wheel. The burner valves, water indicator, and gauges are on the dashboard. The cylinder oil tank and water and gasolene pumps are under the front foot board.

Minor Features

All our cars are equipped with wheel-steering apparatus, and all with artillery wheels; and the selling price includes two side lamps, a tail lamp, and a gauge lamp, a full equipment of tools, and a large serpentine horn. All Models are equipped with full elliptical springs, strong enough to do their work properly, and resilient enough to insure most comfortable riding. The cars have a clearance sufficient to reduce the dust nuisance to practically nothing. We supply a syphon with each car, making it possible to fill the water tank by suction without the use of hose or bucket.

The Barta Press, Boston