1914 original $250.00

Stanley

Stanley Steam Cars

Announcement for the Season of

1914

Our Seventeenth Year of Automobile Manufacturing

Stanley Motor Carriage Company
Newton, Mass.

Model 710, 20 H. P. Car
Five Passengers

Price, fully equipped, $1,800 F.O.B. Newton

Our Model 710, the successor to our highly successful Models 73 and 76, is a large, commodious, comfortable, five-passenger touring car, with our 20 horsepower plant. This plant consists of a 23 inch boiler and a 4 by 5 engine. The feed water heater adds to the efficiency of this power plant considerably, and our new burner, which takes gasoline or kerosene or any mixture of both, gives about 20 per cent more mileage than our former burner, and thus when kerosene is used reduces the cost of fuel more than one half.

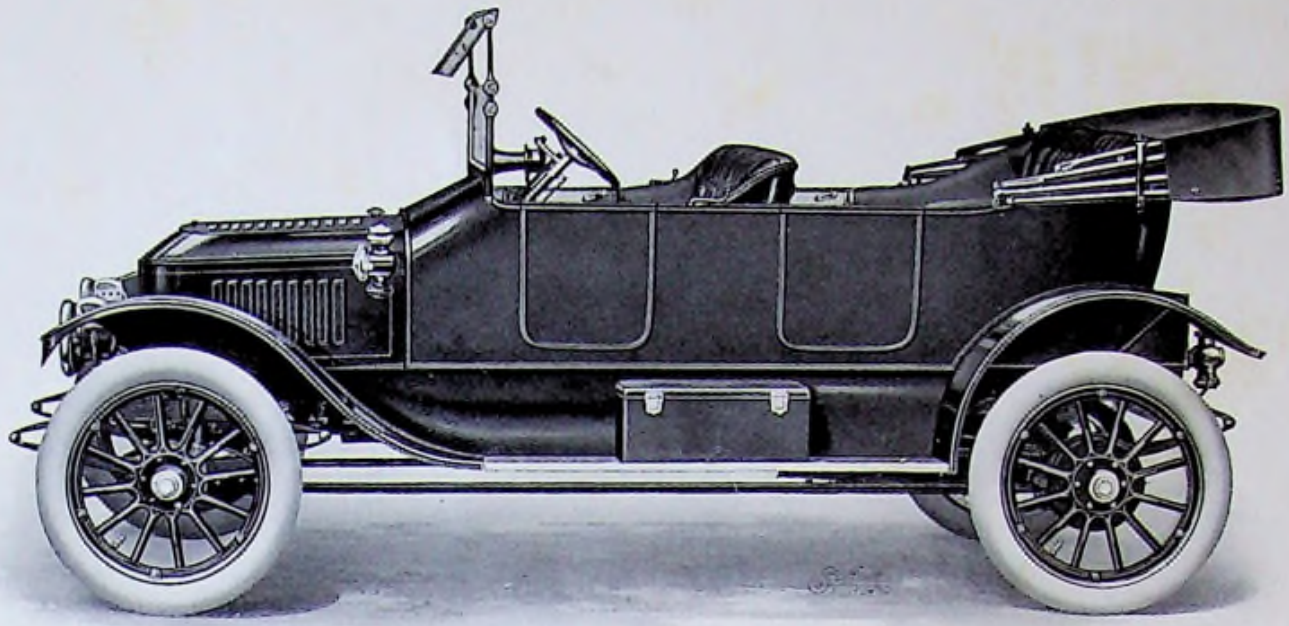
The Model 710 is built with detachable body. The sills, or frame, are of wood, which adds to the resiliency, and thus makes for a more comfortable ride. The body, as in all our pleasure cars, is of the flush side or torpedo type, and made of aluminum. Our bodies are not pressed, but are hand made, of the same materials, by the same workmen and in the same factory that makes bodies for some of the best $5,000 and $6,000 cars in America.

The equipment is of the same high quality that characterizes all our cars. It includes a four-bow mohair top, with quick-acting inside curtains and slip cover, and Bair top holders; a Troy two-piece rain-vision, clear-vision ventilating windshield, black with nickel mountings, and built into the cowl without brace rods; a 4 inch dial, 60 mile speedometer, a "Long" horn, a tool box and tools, including jack, pump, and tire outfit; robe rail, foot rest; and the lighting outfit consists of electric dashlight, combination oil and electric side and tail lights, electrically ignited gas headlights with Prest-O-Lite tank in black metal cover, and a Willard 6-80 storage battery in a box. The side and tail lamps are of a snug, rounded design. The finish of the light metal parts of the car is in black and nickel.

The running boards and also the front foot boards are covered with linoleum and bound with aluminum. The tonneau floor is covered with a carpet mat. The mud guards and splash curtains are of pressed steel.

The water tank, with outside filler, is at the rear, and holds 45 gallons. The fuel tanks hold 20 gallons.

The wheel base is 120 ins. The tread is 56 ins. The tires, on demountable rims, are 34 by 4½—an unusually large size on cars of this size. This extra half inch will, of course, give greatly increased tire mileage, which has always been particularly great on Stanley cars; and will give a much more comfortable ride and will reduce tire troubles. A spare rim is furnished, with bracket.



MODEL 710, 20 H. P. TOURING CAR, FIVE PASSENGERS

Price $1,800, F. O. B. Factory. Equipment includes top; windshield; speedometer; headlights and Prest-O-Lite tank; electric attachment for lighting gas headlights, electric gauge light, combination oil and electric side and tail lights; storage battery; "Long" horn; black and nickel finish. Wheel base, 120 ins.; tires 34 by 4½; demountable rims.

Price of Model 710, chassis including everything on the Model 710 except the body, top, windshield, robe rail, foot rest, and the electric parts of the lighting outfit, $1,425, F. O. B. Factory.

Model 710—Continued

The upholstery is designed primarily for comfort. The tonneau is large and roomy, with high protecting sides. All the cushions are tilted slightly so that the natural movement of the car helps to keep the passengers in the seats. A comfortable steering position has been especially in mind in designing the driver's seat.

The Model 710 with 34 inch wheels, and geared 40 to 60, makes 596 revolutions per mile as to the wheels, and 894 revolutions per mile as to the engine. Thus at 30 miles an hour the engine will make only 447 revolutions per minute.

The color of the body and of the wheel spokes is a dark, rich blue, called Russian blue, with fine gray striping. The running gear, except the wheel spokes, is black, without striping.

The price of the Model 710, fully equipped, is $1,800, F. O. B. Newton.

Model 712, 20 H.P. Roadster

Price, fully equipped, $1,750 F.O.B. Newton

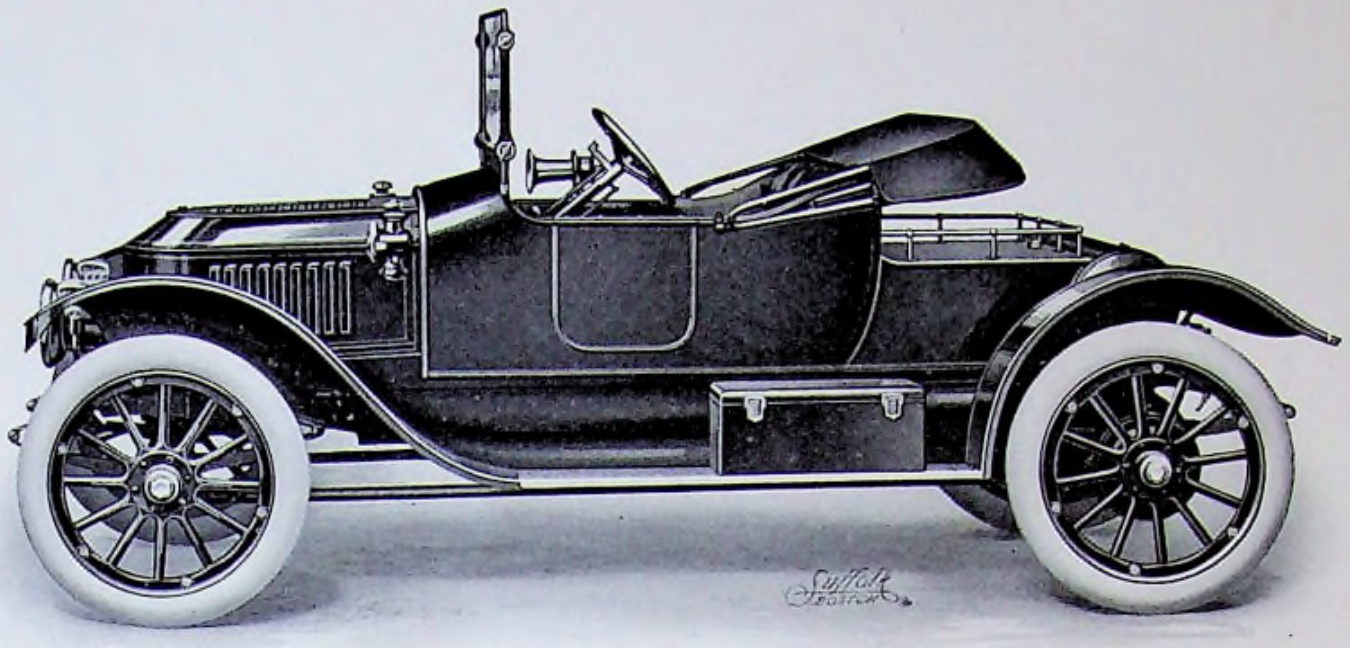
The Model 712, with handmade aluminum body and high-grade equipment throughout, is intended for those who want a strictly two-passenger car, smart and fashionable in appearance and finish, and with a little extra speed. The 20 horsepower plant is used, as in our Model 710, the 4 by 5 engine, and the 23 inch boiler with combination kerosene or gasoline burner.

The tires are 34 by 4½, on demountable rims, which on a car of this weight insure extreme mileage and great comfort. The full elliptical springs, common to all Stanleys, the position of the seats, midway between the axles, and the sitting position of the driver and passenger, all contribute to make this the most comfortable of cars, and especially so for a high-speed car.

The wheel base is 115 inches; the tread is 56 inches. The gearing is 51 to 57, considerably higher than the Model 710. The water tank holds 42 gallons; the fuel tanks 20 gallons. The pump assembly and the cylinder oil tank are located under the seat.

The equipment is the same as the Model 710, with the exception of such items as apply to a two-passenger car instead of a four.

The price of the Model 712, fully equipped, is $1,750, F. O. B. Newton.



MODEL 712, 20 H. P. ROADSTER, TWO PASSENGERS

Price $1,750, F. O. B. Factory. Equipment includes top; windshield; speedometer; headlights and Prest-O-Lite tank; electric attachment for lighting gas headlights, electric gauge light, combination oil and electric side and tail lights; storage battery; "Long" horn; black and nickel finish.

Wheel base, 115 inches; tires, 34 by 4½; demountable rims.

Model 607, 10 H. P. Four-Passenger Car

Price, fully equipped, $1,450 F. O. B. Newton

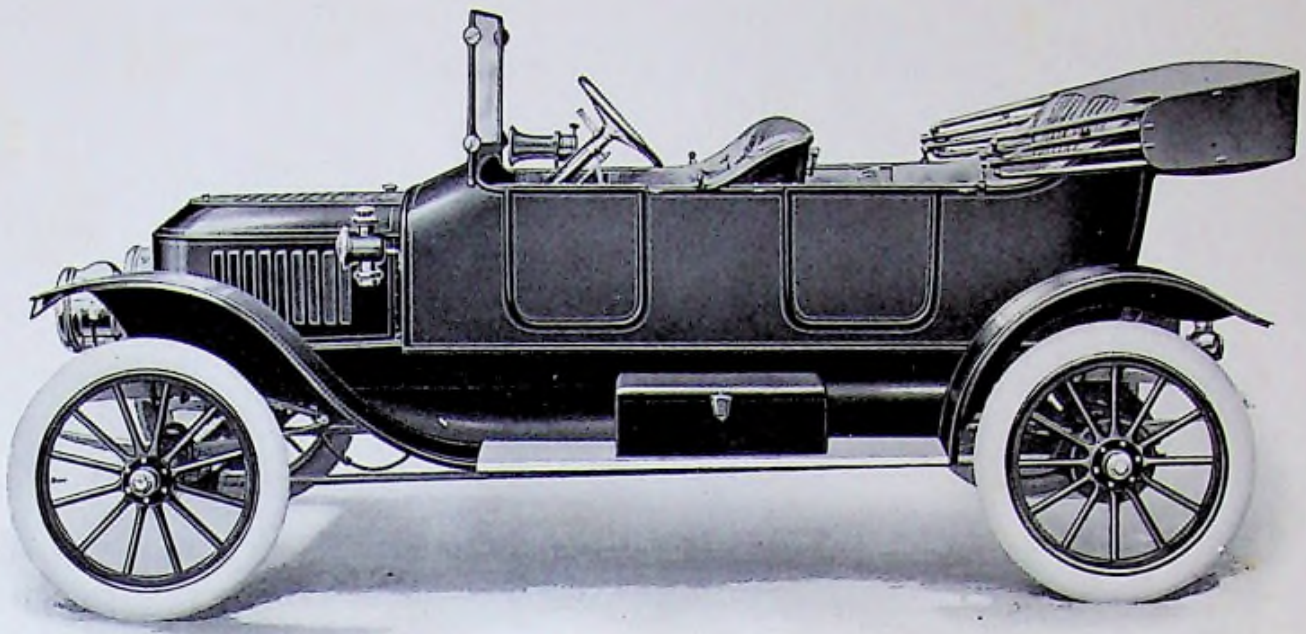
Our new 10 horsepower car for 1914 meets the demand for a car of smart, fashionable lines, roomy and comfortable, of superior finish and equipment, and with power enough to take its full complement of passengers anywhere and at any desirable speed.

The body is of aluminum and hand made. In all probability there is not another car in the world at less than twice the price (except our own other models) with such a superior body. The same high quality is evident throughout the equipment and finish. Cars listing at $2,500 to $3,000 rarely have better equipment.

The body is detachable. The sills, or frame, are of wood, thus adding to the resiliency or easy riding of the car. The running boards and also the front foot boards are covered with gray linoleum and bound with aluminum. The tonneau floor is covered with a carpet mat. The mud guards and splash curtains are of pressed steel.

The equipment is of the same high quality that characterizes all our cars. It includes a four-bow mohair top, with quick-acting inside curtains and slip cover, and Bair top holders; a Troy one-piece rain-vision, clear-vision ventilating windshield, black with nickel mountings, and built into the cowl without brace rods; a 4 inch dial, 60 mile speedometer; a "Long" horn; a tool box and tools, including jack, pump, and tire outfit; robe rail, foot rest; and the lighting outfit consists of electric dashlight, combination oil and electric side and tail lights, electrically ignited gas headlights, with Prest-O-Lite tank in black metal cover, and a Willard 6-80 storage battery in a box. The side and tail lamps are of a snug, rounded design.

Following the usual Stanley custom of supplying an over-tired car, this comparatively light and easy riding car is equipped with 32 by 4 tires, on quick detachable rims. The mileage which these tires yield is excessive, and tire troubles on the road are correspondingly reduced. And the extra air cushion in a tire of this size adds greatly to the easy riding. The wheel base is 112 inches, another unusual feature, and one which adds greatly to the comfort. The upholstery, with tilted and ventilated cushions, high protecting sides, high backs with deep padding, is another feature which contributes towards making this small car ride better than most big ones.



MODEL 607, 10 H. P., FOUR PASSENGERS

Price, $1,450, F. O B Factory. Equipment includes top; windshield; speedometer; headlights and Prest-O-Lite tank; electric attachment for lighting gas headlights, electric gauge light, combination oil and electric side and tail lights; storage battery; "Long" horn; black and nickel finish. Wheel base, 112 inches; tires 32 by 4; quick detachable rims.

Price of Model 607 chassis, including everything on the Model 607 except the body, top, windshield, robe rail, foot rest, and the electric parts of the lighting outfit, $1,175, F. O. B. Factory.

Model 607—Continued

The power plant of the Model 607 consists of our 3¼ by 4¼ engine, and a 20 inch boiler and our new combination kerosene or gasoline burner. The efficiency is increased appreciably by the addition of a feed water heater.

The water tank, with outside filler at the rear, holds 40 gallons. The fuel tanks hold 20 gallons.

A Model 607 with 32 inch wheels, and geared 30 to 56 makes 633 revolutions per mile as to its rear wheels, and 1,181 as to its engine. Thus, at 30 miles per hour the engine will make only 590 revolutions per minute.

The color of the body and of the wheel spokes is a dark, rich blue, called Russian blue, with fine gray striping. The running gear, except the wheel spokes, is black, without striping.

The price of the Model 607, fully equipped, is $1,450, F. O. B. Newton.

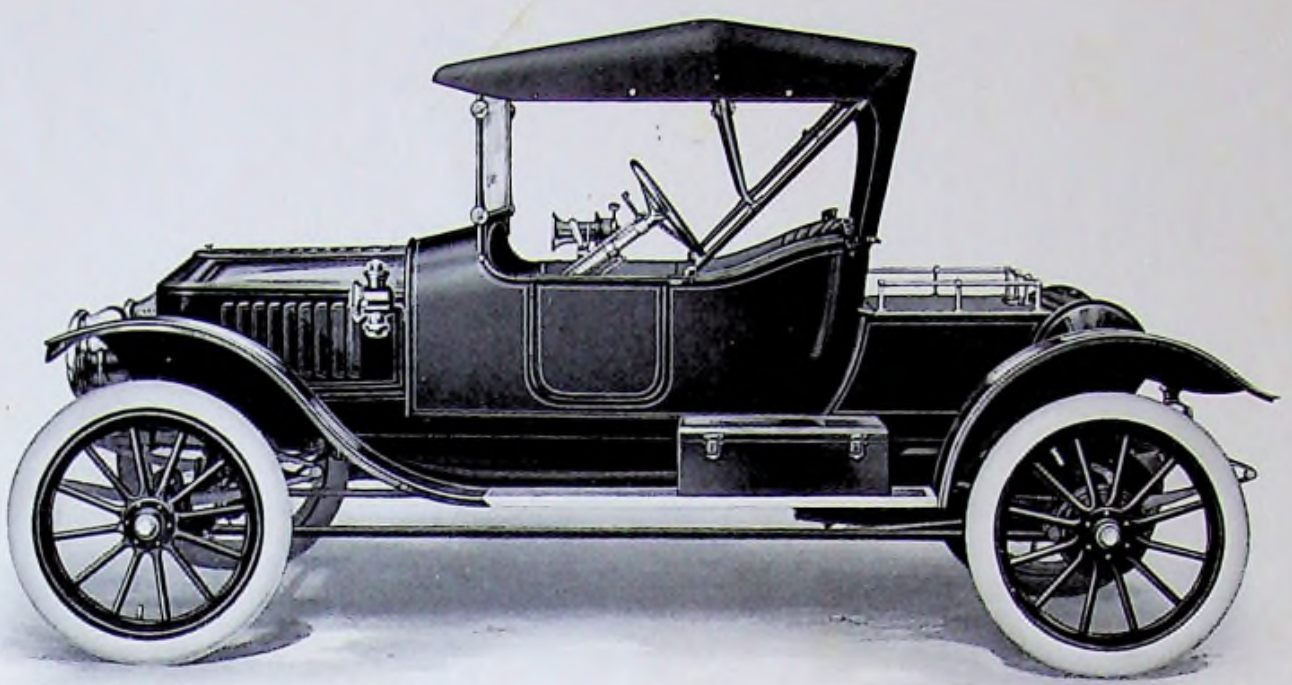
Model 606, 10 H. P. Roadster

Price, fully equipped, $1,350 F. O. B. Newton

Our Model 606 Roadster is built on the lines of the Model 712. It is a strictly two-passenger car, and has a wonderfully comfortable sitting position. In general detail it is like the Model 607, but it has 32 by 3½ tires, and the wheel base is 110 inches. The equipment is the same throughout, except in such items as pertain to a two-passenger car instead of a four.

The engine gear in the Model 606 is considerably higher than in the 607, and it is therefore considerably snappier and faster. The water tank holds 42 gallons, the fuel tank holds 20 gallons. As in the Model 712, the pump assembly and the cylinder oil tank are under the seat.

The price of the Model 606, fully equipped, is $1,350, F. O. B. Newton.



MODEL 606, 10 H. P. ROADSTER, TWO PASSENGERS

Price, $1,350, F. O. B. Factory. Equipment includes top; windshield; speedometer; headlights and Prest-O-Lite tank; electric attachment for lighting gas headlights, electric gauge light, combination oil and electric side and tail lights; storage battery; "Long" horn; black and nickel finish.

Wheel base, 110 inches; tires 32 by 3½; quick detachable rims.

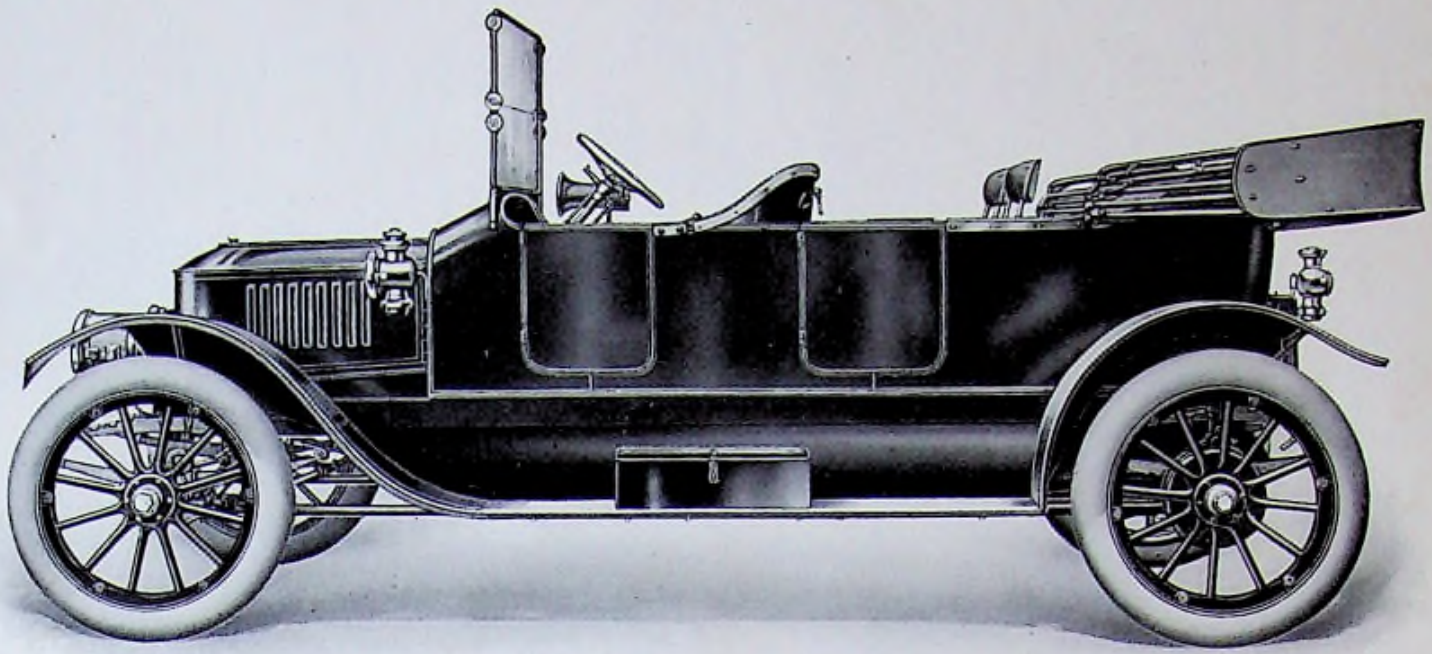
Model 811, 30 H. P. Touring Car
Seven Passengers
Price, fully equipped, $2,500 F.O.B. Newton

Many a man who owns a big, powerful, six-cylinder seven-passenger automobile would like to drive it himself, but is deterred from doing so by the great amount of physical strength required to shift the gears and pedal the clutch, and by the great amount of nervous energy required to be constantly on the alert to do these things at the very critical moment. Many a man who after a thorough trial would not feel competent or comfortable in driving his family out in a gas car has found a feeling of security and relief in driving a Stanley. Since the simple Stanley power plant, consisting of only twenty-four moving parts and controlled entirely by one simple throttle and without gear shift, electrical apparatus, etc., is part for part just the same in the large cars as in the small ones, therefore our large seven-passenger touring car, Model 811, is just as easy to drive as a runabout. The control is so simple that there is never the slightest danger of being caught in one of those predicaments which always present themselves suddenly in congested city driving or winding country roads, when only the utmost alertness of mind and dexterity of hand can extricate the driver and his family from trouble. While this Model 811 is a big, fashionable, distinguished-looking car, it is undoubtedly true that seventy-five per cent of them are driven by their owners without the assistance and without even the presence of hired chauffeurs.

This car is a 30 horsepower, seven-passenger touring car, and is built with a handmade aluminum body, detachable from the chassis. The sills, or frame, are of wood, thus adding greatly to the resiliency and easy riding of the car.

The power plant consists of a 26 inch boiler and our 4½ by 6½ engine. The feed water heater adds considerable efficiency. The burner, of course, is of the new combination type, burning either gasoline or kerosene. The mileage which this large, powerful car yields per gallon of fuel exceeds that of any of the big, powerful "sixes," and since kerosene is used as fuel, the cost is reduced to a minimum.

The wheel base is 134 inches; the tires are 36 by 4½, on demountable rims. An extra rim and bracket are furnished. The equipment is of a high standard. It includes five-bow mohair top, with quick-acting inside curtains and slip cover and Bair top holders; a complete set of slip covers for all the upholstery; a Troy two-piece rain-vision, clear-vision ventilating windshield, black with nickel mountings, and built into the cowl without brace rods; a 4 inch dial, 60 mile speedometer; a "Long" horn; a tool box and tools, including jack, pump, and tire outfit; robe rail, foot rest; and the lighting outfit consists of



MODEL 811, THIRTY H. P. TOURING CAR, SEVEN PASSENGERS

Price $2,500 F. O. B. Factory. Equipment includes five-bow top; full set of slip covers; windshield; speedometer; headlights and Prest-O-Lite tank; electric attachment for lighting gas headlights, electric gauge light; combination oil and electric side and tail lights; storage battery; "Long" horn; black and nickel finish. Wheel base, 134 inches; tires 36 by 4½, demountable rims. Price of Model 809 chassis, including everything on the Model 811, except the body, top, windshield, robe rail, foot rest, and the electric parts of the lighting outfit, $2,050, F. O. B. Factory.

Model 811—Continued

electric dashlight, combination oil and electric side and tail lights, electrically ignited gas headlights, with Prest-O-Lite tank in black metal cover, and a Willard 6–80 storage battery in a box. The side and tail lamps are of a snug, rounded design.

The water tank, with outside filler at the rear, holds 45 gallons. The fuel tank holds 20 gallons.

The Model 811 with 36 inch wheels and geared to make 560 revolutions per mile as to its rear wheels and 784 as to its engine. Thus at 30 miles per hour the engine will make only 392 revolutions per minute.

The color of the body and of the wheel spokes is the dark, rich Russian blue, and of the running gear, black.

This 30 horsepower seven-passenger car was first offered in response to a steady demand for a large and extremely powerful car. We adapted to this purpose the 30 horsepower plant which we had used so successfully in our twelve-passenger mountain wagon. The service those cars have been put to in mountain work in many parts of the country proved the power plant to be most remarkably sturdy and efficient. Adapting it to ordinary touring meant that it would not be driven to anywhere near its capacity, and therefore that it would have almost unlimited serviceability. The success of these cars, which are the most satisfactory we have ever built, has proven the judgment of ourselves as well as those customers of ours, in response to whose judgment the cars were first built.

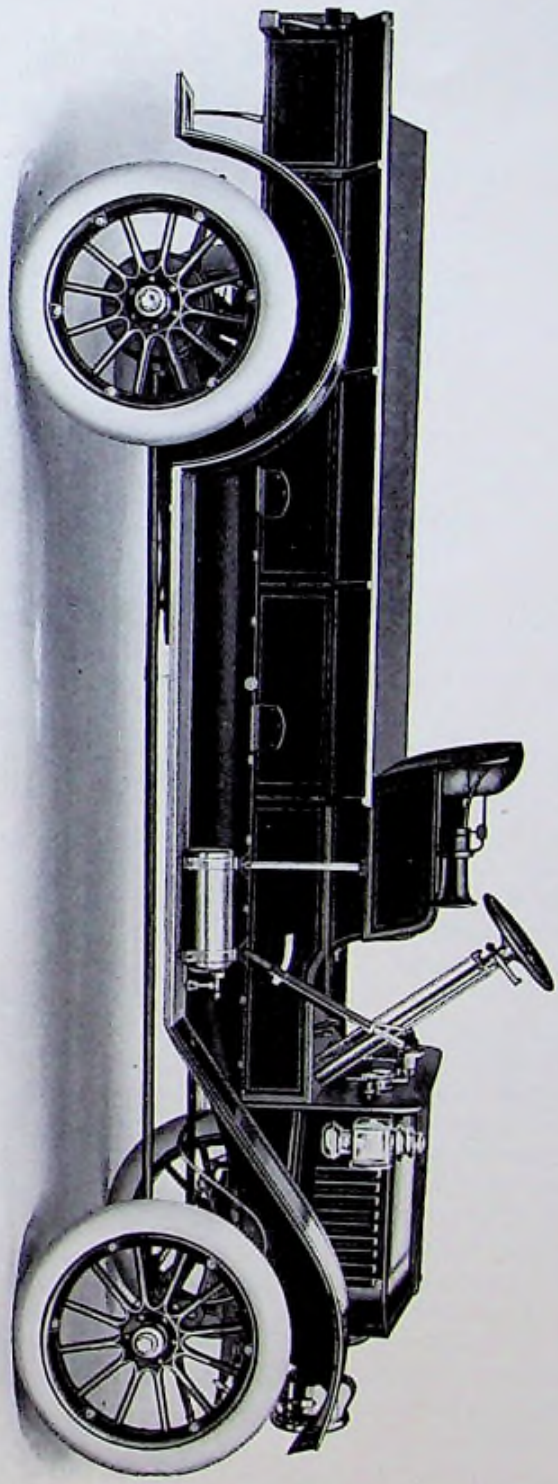
Model 812, 30 H. P. Express Wagon 2,500 lbs. Capacity

Price, fully equipped, $2,100 F.O.B. Newton

The Model 812 without the three rear seats and top can be highly recommended for an express or delivery wagon or light truck, up to a load of 2,500 pounds. The inside body dimensions are 44 by 104 inches. Detachable side boards are furnished. Any sort of upper body can be supplied.

This car running on large pneumatic tires with an extra long wheel base (136 inches) makes an extremely satisfactory car for express and delivery work and as an emergency wagon. It is also particularly well adapted for market gardeners who, on account of the absence of vibration, carry their soft produce, such as strawberries, to market without fear of injuring them.

We sell the Model 812 Express Wagon at $2,100, which price includes the same equipment as the Mountain Wagon, except the top, the three rear seats, and the windshield.



MODEL S12, EXPRESS WAGON. CAPACITY 2,500 POUNDS

Price, $2,100 F. O. B. Factory. Similar to Model S12 Mountain Wagon, but without three rear seats, top, and windshield.

Model 812, 30 H. P. Mountain Wagon Twelve Passengers

Price, with equipment, $2,300 F. O. B. Newton

Our mountain wagon was originally built in response to a demand for a commercial passenger car which would do the work on roads where gas cars of similar purpose had failed. The steady and growing demand for these mountain wagons compels us to manufacture them in larger quantities than ever before. The service has been uniformly successful, especially on hard, mountainous roads. In fact, the harder the service expected of them the better do they prove themselves in comparison with any other car made. No others have been built which can compete with them: First, because their reliability has proven so much greater and they don't leave their passengers on the road; second, because the passengers appreciate their easy riding, and this, of course, is especially true on long hauls where the Stanley passengers arrive fresh and cheerful, while the passengers in competing wagons, if any, are pretty sure to be thoroughly tired out and, third, because the expense of running them, especially as to tires, is so low as to leave the owners a good margin of profit.

The demand for this car is increasing year by year, and the service it is rendering in the most difficult routes is such that competition from gas cars in similar service is quite impossible. The tire mileage on these cars, as on all Stanley cars, is excessive, and the fuel expense, with kerosene as fuel, is reduced to the lowest possible point. While these items appeal, of course, to the private owner, they appeal much more strongly to the man who is using a car for profit. The expense per mile for gasoline and tires on many cars is enough to take all the profit out of the enterprise. And on these two items alone, the saving is so great on Stanley cars as to show the difference between success and failure.

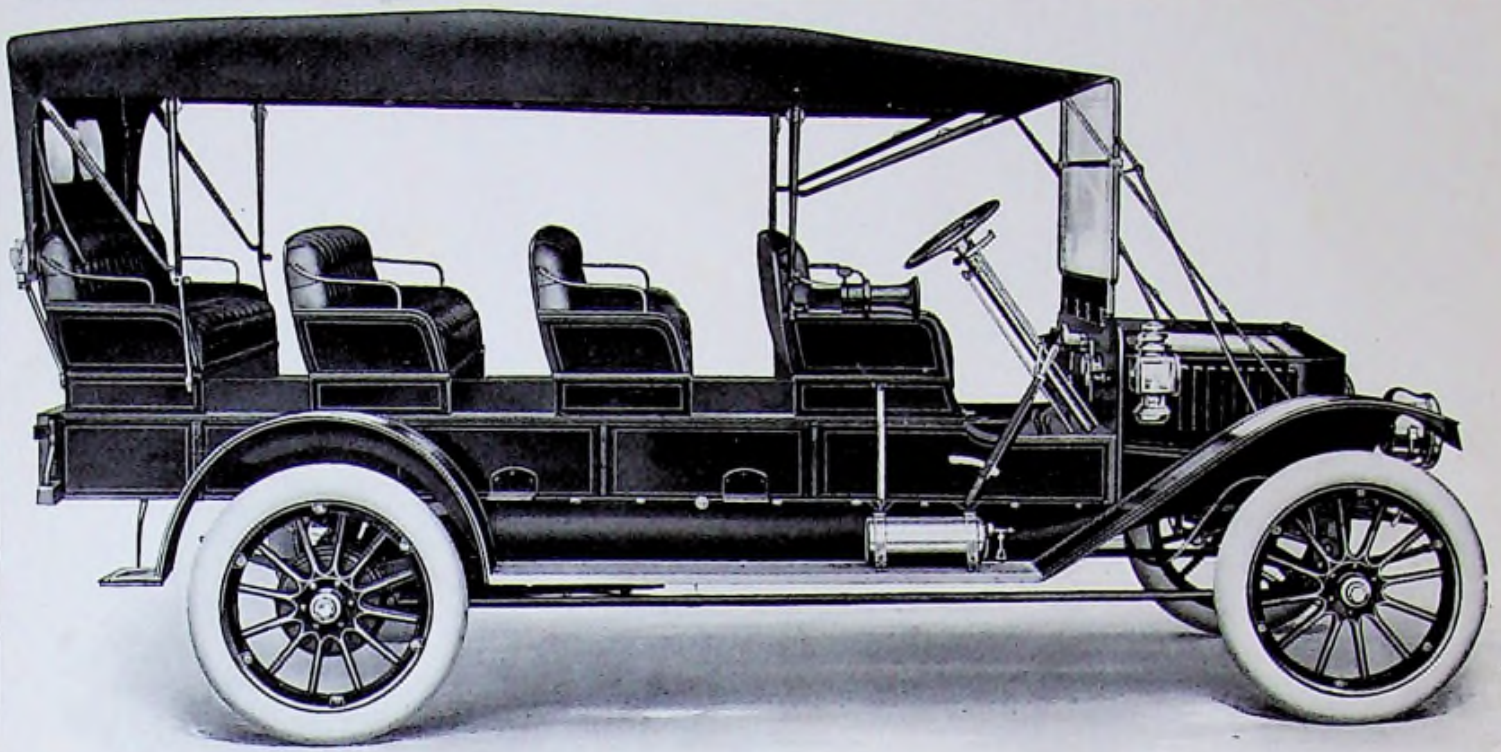
These cars have also proven to be very desirable for estate use. A number of owners of large country estates find them invaluable for carrying passengers, baggage, and supplies between the railroad stations or the market town and the estate.

There are four seats, each for three passengers. The three rear seats are removable, thus making a roomy baggage wagon with inside body dimensions of about 44 by 104 inches. Detachable side boards are furnished for use in baggage service.

The wheel base is 136 inches. The tires are 36 by 5 front and rear, on demountable rims.

A number of these cars are in service as truck and delivery wagons, and they can be highly recommended for this use, up to a load of 2,500 pounds.

The price, with equipment, is $2,300, F. O. B. Newton.



MODEL 812, 30 H. P. MOUNTAIN WAGON, TWELVE PASSENGERS

Price, $2,300, F. O. B. Factory. Equipment includes top; windshield; speedometer; headlights and Prest-O-Lite tank; "Long" horn; black and nickel finish.

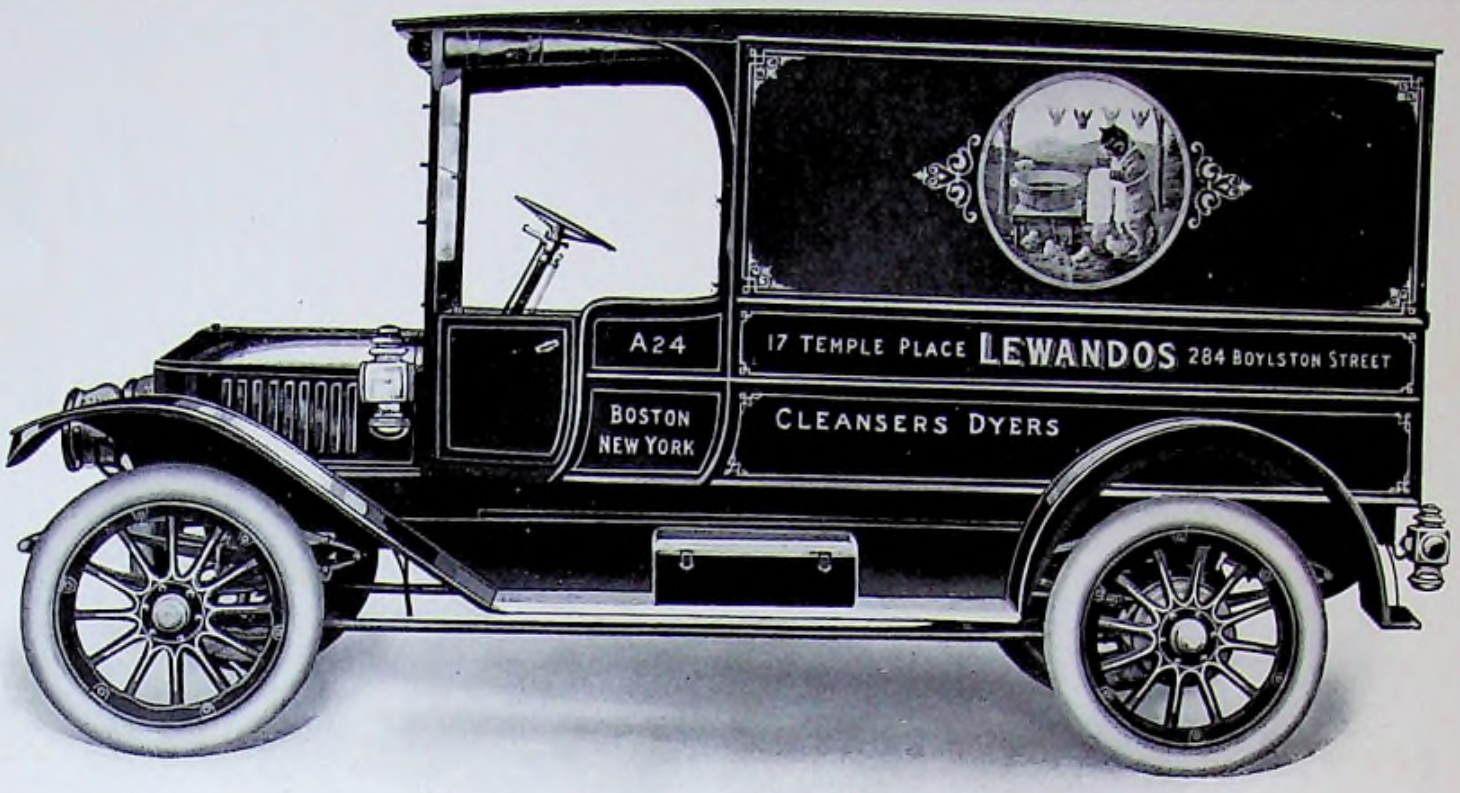
Wheel base, 136 inches, tires 36 by 5, front and rear; demountable rims.

Model 713, 20 H. P. Delivery Wagon 1,500 Pounds, 1914

Chassis Price, $1,425 F.O.B. Newton

The Model 713 20 horsepower light delivery wagon, with 1,500 pounds capacity, is built on what is practically our Model 710 chassis. The equipment includes everything on the Model 712, except the body, the top, the windshield, the robe rail, the foot rest, and the electric parts of the lighting outfit. The wheel base is 126 inches. The tires are 34 by 4½, on demountable rims. The simplicity of control in Stanley cars is particularly desirable in delivery work where from one hundred to four hundred stops per day must be made. There is no shifting of gears, no pedalling of the clutch, and no jerking of the car at the start. Not only is the car more efficient for such work than the conventional gas car, but the efficiency of the driver himself is increased, because the physical strength and nervous energy required for operating, especially with the enormous number of stops, is so greatly reduced. Here again, as in the case of the Model 812, the tire cost and the gasoline cost alone, to say nothing of the general upkeep cost for repairs, etc., are enough to make the difference between the profitable and unprofitable operation of a commercial vehicle.

The price of the chassis, as described above, is $1,425. Any type of upper body can be supplied. The price for full panel body will range from $300 to $600.



MODEL 713, 20 H. P. LIGHT DELIVERY WAGON, CAPACITY 1,500 POUNDS

Chassis price, $1,425, F. O. B. Factory. Price for panel body will range from $300 to $600. Equipment includes everything on the Model 710 except body, top, windshield, robe rail, foot rest, and the electric parts of the lighting outfit. Wheel base, 126 inches; tires 34 by 4½; demountable rims.

Specifications

General. The boiler and burner are in front under the hood, with no moving parts. The pumps, two for water, one for gasoline and one for cylinder oil, are all actuated by three moving parts. The engine has thirteen moving parts, the differential has four, and the driving shafts of the rear axle constitute two more. There are also two automatic valves, one controlling the gasoline by-pass, the other controlling the burner, each with one moving part. Thus there are but twenty-four moving parts, exclusive of rolls and balls, in the whole Stanley power plant.

Engine. In the ten horsepower cars, 3¼ by 4¼. In the twenties, 4 by 5. In the thirties, 4½ by 6½. Roller bearing throughout, including crossheads. Hooking up device as on all recent cars. Stuffing boxes accessible without removing main center case. The engine is equipped with an oil-tight, dustproof case, the rear members of which are of aluminum. The engine, differential and axle thus run in an oil bath.

Engine Gear Ratio. In the Model 607 the ratio is 30 to 56. In the Model 606 the ratio is 40 to 56. In the Models 710 and 713 the ratio is 40 to 60. In the Model 712 the ratio is 51 to 57. In the Model 811 the ratio is 50 to 70. In the Model 812 the ratio is 40 to 70.

Boiler. In the ten horsepower cars, 20 ins. in diameter. In the twenties, 23 ins. In the thirties, 26 ins. in diameter. Of regular Stanley type, lower head and shell pressed out of one piece of steel, top head welded in by oxyacetylene process. Superheaters heavy gauge steel tubing, heavily nickel plated. Extension water feed, feeding the water to the boiler below the water level.

Burner. Our new combination burner takes equally well gasoline or kerosene, or any mixture of the two in the main burner. It gives, under normal conditions, about 20 per cent more mileage than our former burner on either fuel; and since kerosene usually sells for about one half the price of gasoline the cost of fuel when using kerosene is reduced at least one half. The pilot light takes gasoline and is fed from a separate tank under low pressure. This tank holds about four gallons of gasoline, which is enough to supply the pilot without replenishing for about one hundred consecutive hours. It is supplied with a quantity gauge, as well as a pressure gauge.

Feed Water Heater. A feed water heater suspended from the sill and enclosed in the flue is heated by the exhaust steam and adds appreciably to the efficiency of the power plant. This also acts as a muffler.

Pumps. All four pumps are driven direct, without links or rachets, and all four are actuated by but three moving parts.

Specifications—Continued

Low Water Automatic. All our cars are equipped with a low water automatic gasoline shutoff, which automatically shuts off the main burner, when the water in the boiler gets as low as a point about two inches above the fusible plug level. This warns the driver that his water is getting low, and saves blowing a fusible plug.

Axles. All our axles are built of heavy straight round tubing, and all are skillfully reënforced with continuous trusses. All the front wheel bearings and all the inside rear axle bearings are Timken roller bearings. The outside rear axle bearings are parallel roller bearings.

Differential. Simple bevel gear type, with six pitch spur driving gear.

Brakes. Two sets on hubs — internal expanding and external contracting. Thermoid lined. Foot lever for the controlling brake, hand lever for the emergency brake.

Steering Gear. Of the pinion and sector type. Adjustable steel pinion at the end of the steering post meshed into steel sector gear. Enclosed in oil bath. Adjustable cone bearings in front wheel spindles. Oil cups on all other steering gear bearings including two on the sector gear stud. Front axle forks which carry the front wheel spindle are set at an angle to reduce the effort of steering — a practice always followed in Stanley Cars.

Bodies. All our pleasure car bodies are hand made and of aluminum. The Model 812 has a wooden body. The sills or frame in all the models are of the finest ash, and in the Models 607, 710, 811, the bodies are detachable from the chasses.

Lighting Equipment. The lighting equipment on all our pleasure cars includes a Prest-O-Lite tank and black metal cover for same; a Willard 6–80 storage battery in box; gas headlights with electrical ignitors; combination oil and electric side and tail lights; electric dashlight; and all controlled by a simple switch box located conveniently to the driver's right hand.

Steering Wheel. 16 in., subimposed upon which are the throttle and by-pass levers.

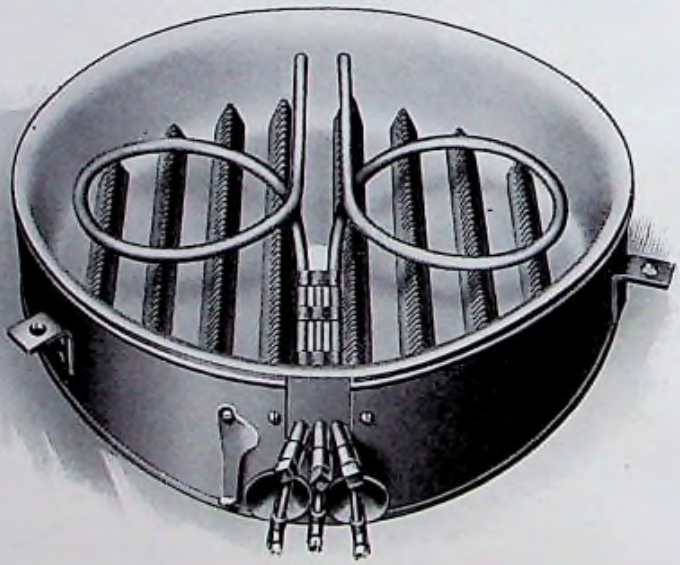
Springs. Full elliptical, front and rear, insuring easiest riding, and more adaptable to all kinds of road conditions than any other type.

Mudguards. Pressed steel mudguards, front and rear, with dropped extension at their outer edge. Front mudguards have integral aprons connected with the body. The rear guards are attached to the body, or have integral aprons extending 6 ins. below the mudguard.

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 gasoline or kerosene 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. In fact, it is common practice to leave the pilot burning over night.

The pressure on the fuel in the main burner pressure tank is maintained automatically when the car is running. The pilot light, which burns gasoline only, is fed from a separate pressure tank, holding about 3 gallons under about 40 pounds pressure, and will burn continuously for three to five days. When the car is left standing with the pilot burning, the pressure on the main burner pressure tank is not affected.

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 diameter. The tubes are expanded into the heads by means of a taper expander. In the 20 inch boilers there are

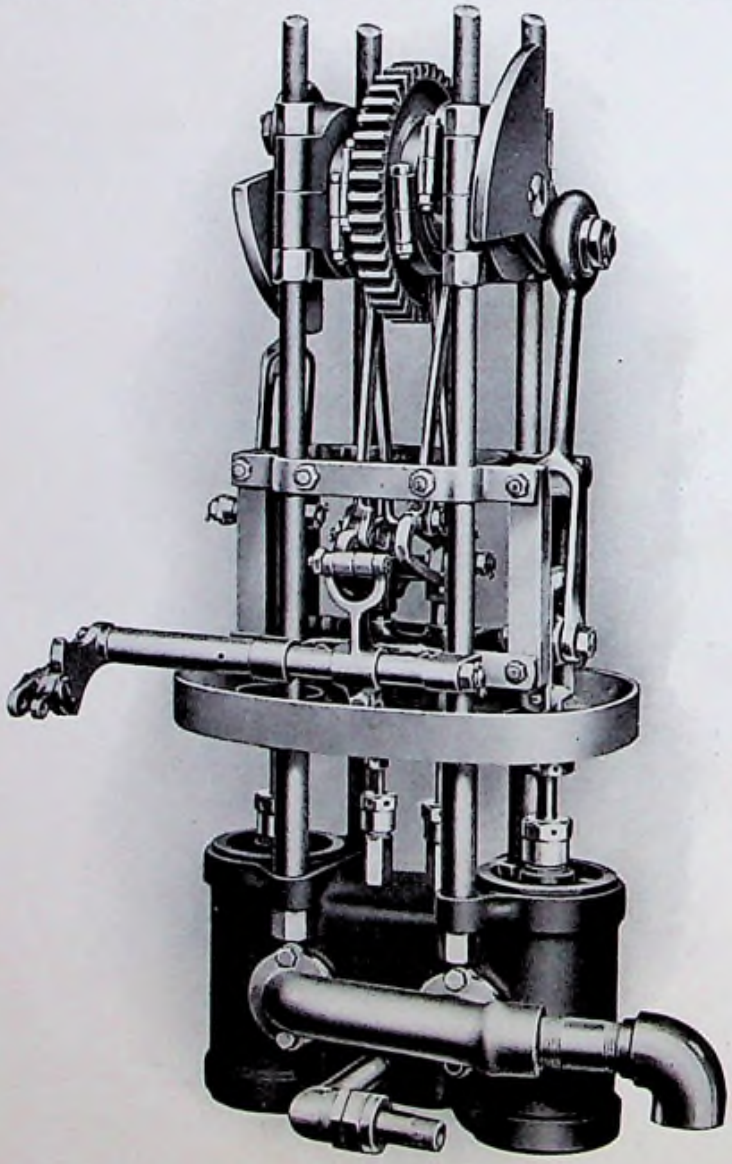
Stanley boiler. The shell and the lower head are of one piece, of pressed steel. The upper head, shell, and ring are welded together by the oxyacetylene process. The tubes are of copper, reënforced at each end with steel bushings. The bands indicated in the cut are of thin brass, to hold in place the half-inch sheet asbestos insulation

550 tubes, each 14 inches long, with 77 square feet of heating surface. In the 23 inch boilers there are 751 tubes, each 14 inches long, with 104 square feet of heating surface. In the 26 inch boiler there are 999 tubes, each 16 inches long, with 158 square feet of heating surface.

Stanley Engine

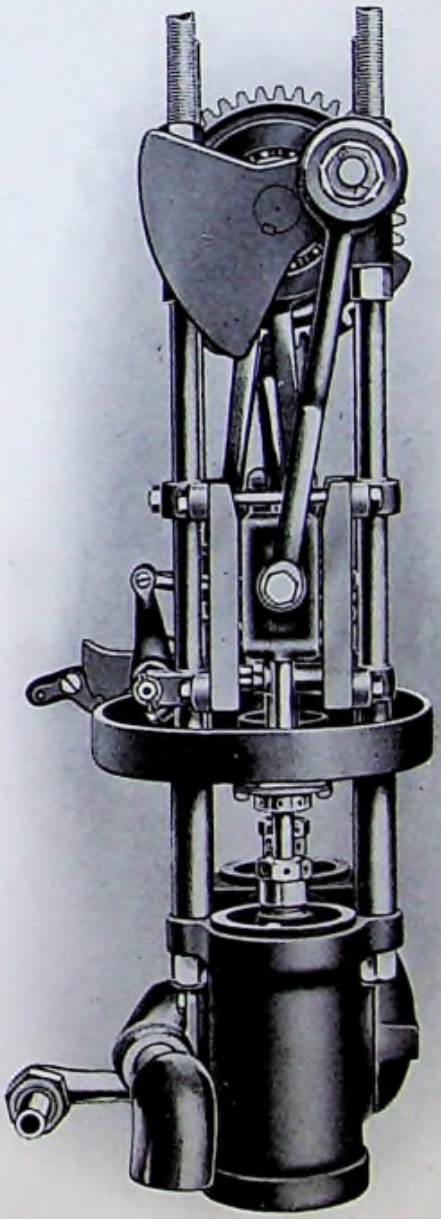
(*Patented*)

The engine used in the Stanley Steam Car is of our own design and manufacture and is patented. It is two cylinder, double acting, of the locomotive type, with plain slide valves and link motion reverse.



View of Stanley engine, obliquely from above. Showing main bearing, eccentrics, link motion, baffle-plate, "hooking-up" device. There are but thirteen moving parts (exclusive of rollers) in the Stanley engine

This engine is more completely a roller-bearing engine than any other engine in use in an automobile. Even the crossheads run on rollers. This particular feature has been in use by us more than

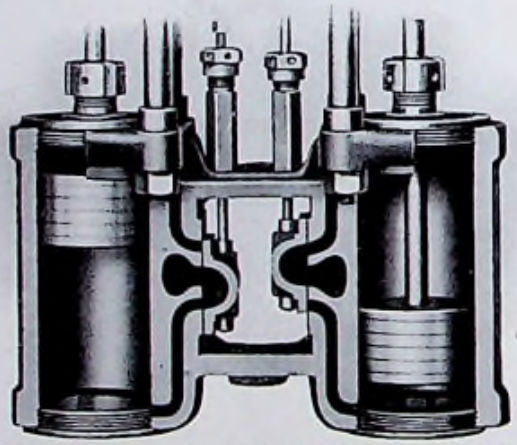


Side view of Stanley engine, showing roller-bearing crosshead, connecting-rod and bearing, with counterbalance, steam chest cover, and exhaust outlet. The Stanley engine is more completely a roller-bearing engine than any other engine used in an automobile

twelve years and is one of the greatest improvements ever made in automobile engines. The use of rollers in the crossheads does away entirely with the loss of power from sliding friction.

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 rollers. Being of the double-acting type, each piston gets an impulse at each end of the cylinder. Thus this two-cylinder engine,



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

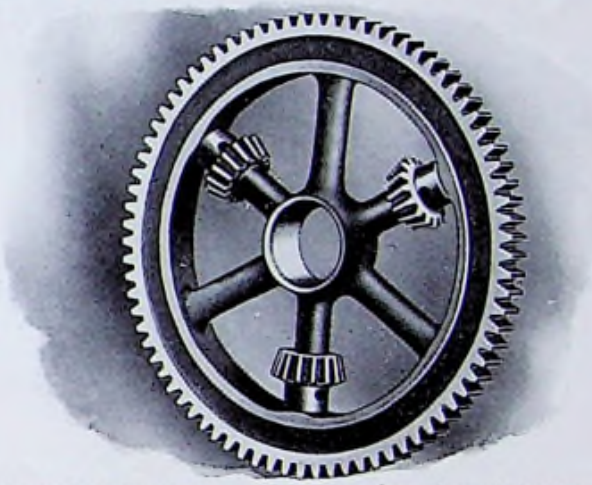
with only thirteen moving parts, gets as many impulses per revolution as the conventional gasoline engine would get if it had eight cylinders. As a result of this condition, the Stanley engine makes fewer revolutions per mile, and therefore fewer per minute at a given speed. For instance, a Model 710 car, with 34 inch rear wheels and geared 40 to 60, makes 596 revolutions per mile as to its rear wheels and 894 revolutions per mile as to its engine. Thus, at 30 miles an hour the engine will make only 447 revolutions per minute.

The engine, driving gear, and differential are enclosed in an oil-tight and dustproof 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. A sight-feed device on the dashboard shows whether or not the pump is pumping oil.

Stanley Differential



Stanley driving gear, which mesnes 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 gears of the engine; and the pinions mesh with the bevel gear 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.

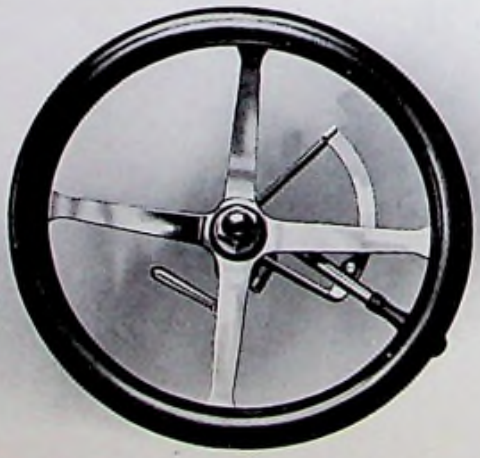
Detail showing Stanley differential and driving gear. The main driving gear, with its three beveled pinions, and one driving shaft with its bevel gear, are shown

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 the

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

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

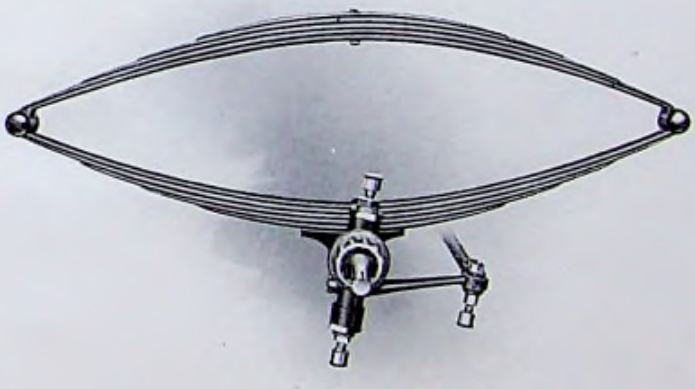


Steering wheel, showing the single throttle in the Stanley system of control locked by its locking screw; and the by-pass lever

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 controlling brake pedal is in position under right foot. Ordinarily these act as foot rests for the operator. 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.



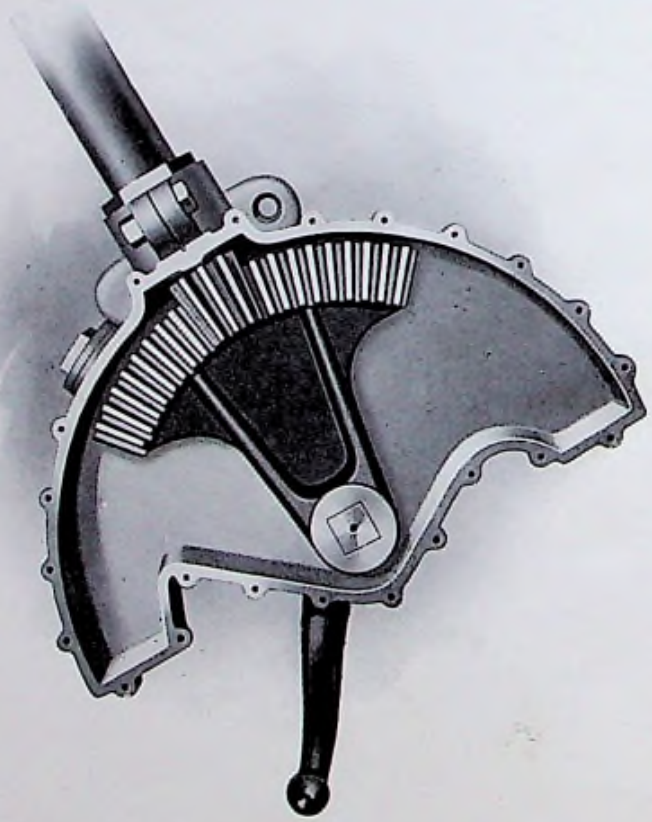
Front spring and spindle construction, showing how the spindle is set at an angle, to assist in easy steering

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.

Steering Gear 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 the end of steering post, and sector gear. The hexagon 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 30)

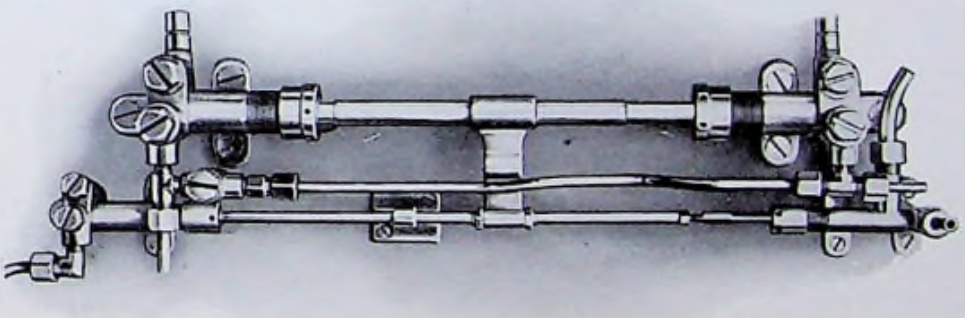
Thus there are but six moving parts in the Stanley steering mechanism — the pinion and post (forming one built-up part); the sector gear forging, the two rods, and the two spindle levers. The whole steering mechanism is completely protected by the front axle, as shown in the cut on page 30.

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.

Pumps

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



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

pumps move constantly while the engine moves and not independently of the engine. There are also a hand gasoline pump and a hand water pump.

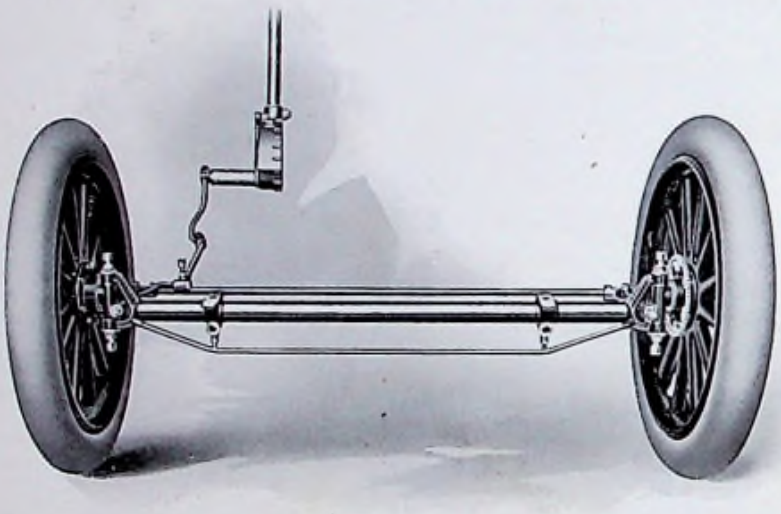
Superheated Steam

(*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 overheating and consequent burning of the cylinder oil. Our system, while securing a high degree of superheat, renders it impossible to overheat.

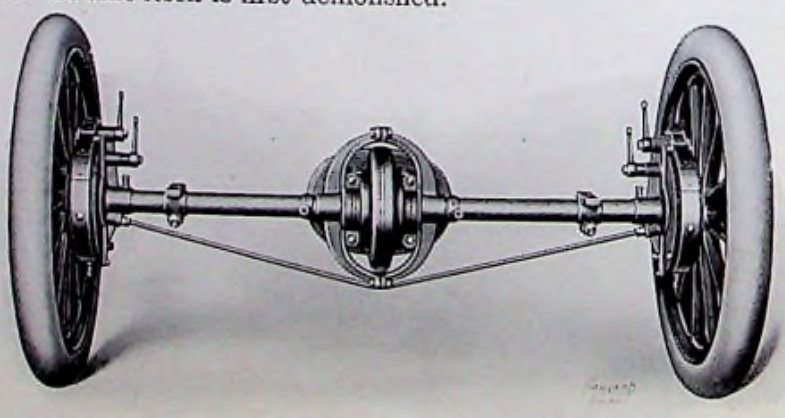
Axles

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



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. Timken roller bearings are used

the 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. Timken roller bearings for inside bearing, and parallel roller bearings for outside bearing

Furthermore, the lowest points of clearance in the Stanley car are the axles themselves. There are no fly wheels 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	Between
607	11 inches	9 inches	14 inches
710	12 "	10 "	15 "
811	12½ "	10½ "	15 "

Wheel-end of rear axle showing roller-bearing and squared and tapered sections

The front axle and spindles 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 by a hand lever. All brakes are lined with Thermoid.

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.

Fusible Plug

(*Patented*)

The burning of the boiler is 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.

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 the Oilzum High Pressure Superheated Steam Cylinder Oil manufactured by the White and Bagley Company, Worcester, Mass., and would urge each Stanley owner to have one of these oils on hand at all times, and always to run his car with it, 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 controlling brake lever is in position for the right foot, and the reverse lever for the left foot. The throttle valve and by-pass levers are subimposed on the steering wheel. The burner valves, water indicator, and gauges are on the dashboard. The cylinder oil tank and water and gasoline pumps are under the front footboard.

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