Stanley Motor Carriage Co.

STANLEY Book of Motor Cars

Newton, Massachusetts, U.S.A.

POWER

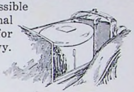
Correctly Generated
Correctly Controlled
Correctly Applied to the Rear Axle

Stanley
Motor Carriage
Company
Newton, Massachusetts

Stanley Seven-Passenger Touring Car

POWER

STANLEY power is generated by making steam from water in a boiler over a kerosene burner. This is a motionless process. That is, no moving parts are involved in it. It takes place apart from and independently of the engine. It makes possible the storing of power above the normal requirements for use when the call for power is unexpected or unusually heavy.

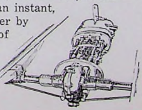


We believe this is the correct way to generate power for an automobile.

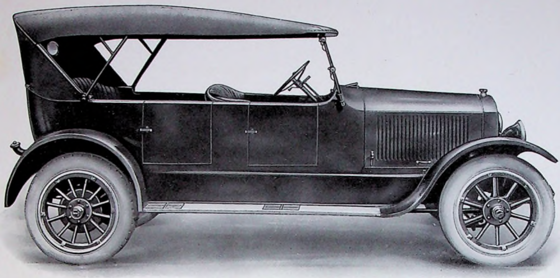
STANLEY power is controlled by throttle only. Since the power is generated in the boiler without depending on the movement of the engine, and is stored and ready for use, the engine doesn't have to be disconnected from the load either for starting or changing speed. Therefore no such devices as gear shift and clutch are necessary. The engine is permanently in mesh with the differential on the rear axle, and the throttle gives a value to achieve which otherwise would require an infinite number of gears which would change themselves without the driver's attention or even knowledge, and so as always to give the ratio best suited for the work at hand.

We believe this is the correct way to control power for an automobile.

STANLEY power is applied to the rear axle through a two-cylinder, double-acting, simple engine, whose crank shaft is geared permanently into the rear axle and is parallel to it. No explosion takes place in the cylinder, but the steam exerts an expansive force on the pistons and the engine delivers its power in a continuous flow, with a steady, uninterrupted torque on the crank shaft. The engine is instantaneously responsive to the change of steam admitted to it by the throttle. The entire range of power from zero, as when standing still, to the very maximum, can be applied to the rear axle, in an instant, without ever interrupting the flow of power by merely sweeping through the full motion of the throttle lever.



We believe this is the correct way to apply power to the rear axle of an automobile.



Stanley Seven-Passenger Touring Car

POWER — *Correctly generated*
— *Correctly controlled*
— *Correctly applied to the rear axle*

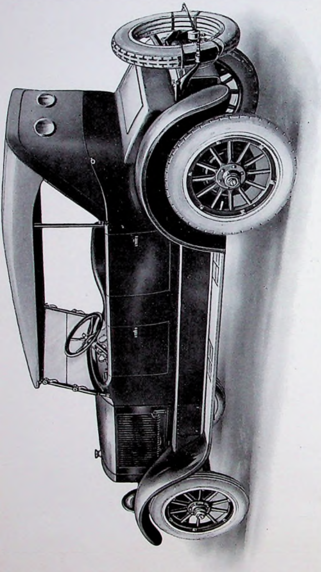
THESE sound principles not only result in greater reliability, but they yield to the owner of a Stanley car those features which motorists have been trying to get and manufacturers have been trying to give. We believe motorists would place emphasis on those features in the following order:

Flexibility
Hill Climbing Ability
Great Reserve Power
Rapid Acceleration
Ease of Application of Power
Smoothness
Low Cost of Operation (or Reliability)

We will concede that, as is generally claimed in automobile advertisements, flexibility is the greatest requirement in a motor car.

Flexibility

FLEXIBILITY means much, and its meaning may be put into various languages. In the old days, when road traffic was hauled entirely by horses, the term "horse-power" came to be accepted as the measure of power, and it is still so used. What does "horse-power" mean? It means the power required to raise 33,000 pounds one foot in one minute.



Stanley Five-Passenger Touring Car

The horse has great flexibility. A good draft horse, capable of exerting the above effort, and entitled, therefore, to a rating of 1 h.p., can exert a maximum tractive effort (or pull) of say 1,100 pounds on good footing. The same horse can maintain a pull of 120 pounds at say 3 miles an hour, his walking speed. Thus it is obvious that his starting torque is some 9½ times his running torque. He can start a load or handle it in the extreme conditions which 9 horses could not be expected to haul continuously, and he does this merely by reducing his speed and increasing his pull. In other words, he is capable of varying his tractive effort over a widely varying range in response to the demands of conditions. And this variation is accomplished naturally and easily, without change of mechanism, and always on high gear.

This example illustrates clearly the definition of flexibility; that is, *the ability to increase tractive effort or pull at the expense of speed, or speed at the expense of tractive effort.* The example indicates also that the extent to which any power plant possesses this flexibility is the measure of its suitability for automobile work.

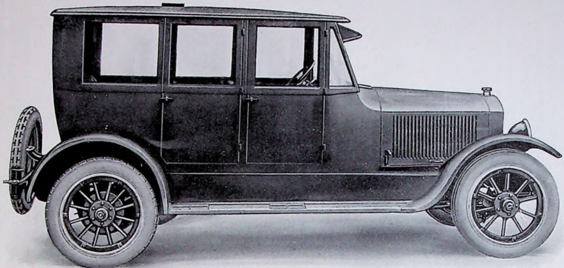
This greatest essential in an automobile power plant is possessed in fullest measure by the steam motor. The operator of the Stanley car can vary the power at will from zero to maximum, and he can do this whether the increased power is wanted for increased *speed* or increased *tractive effort* (or pull); and he can do it under any car speed or under any road conditions, and without stalling.

Translated into language of the road, this means that the operator of the Stanley is at liberty to run his car at minimum speed and to accelerate rapidly from that speed, without fear of misbehavior from his motor. Or, if he is proceeding at say 20 miles an hour and is suddenly confronted with sand or hill, he is not limited, as to power, by the car speed of the moment, but can apply the maximum power of his plant while maintaining the same car speed or an even lower speed.

Reserve Power

BY reserve power is meant the surplus of engine power beyond that required by normal road conditions, and available for hill climbing, acceleration or mastering heavy roads. It is the difference between the driving force utilized at any moment and that which *may* be utilized at such moment.

Any car may have any amount of power by using a power plant large enough to yield it. But an engine large enough for extreme demands or peak loads would be larger than necessary, and therefore inefficient under the light demands of good level roads.



Stanley Seven-Passenger Sedan

The problem is to provide the car with reserve power which may be called upon positively and instantly at the will of the operator and applied to the driving wheels without interruption of tractive effort and without changing the relation between car speed and engine speed, and to do this without putting in a power plant absurdly big.

When, in the meaning of the phrase "*reserve power*" we include the sense "*stored power*," we see that the Stanley solves the problem, for it possesses in the boiler an immense storage of energy that can be released at any time to meet any exceptional requirement, and gives it the ability to carry a tremendous overload. The amount of this stored energy in technical language amounts to 1,500,000 foot pounds. In road language it is enough to drive the car half a mile up a 5 per cent grade with burner extinguished, or to run it 2 or 3 miles at good speed over good level roads.

The building up of this great storage of power takes place in advance, in the non-moving boiler, and is a continuous process going on at a steady rate (until the desired amount is reached), completely independent of the speed of the engine. In other words, engine speed hasn't anything to do with the generation of power. Just as much power can be made and stored at the lowest speed as at the highest.

This feature of *storage of energy*, enabling the steam motor to take advantage of the diversity factor of the road, is not shared by any other type of motive power. Its effect on the consciousness of the operator and the occupants of the Stanley is to produce a feeling of complete security against any emergency, calling for power, that may arise. It means to them instantaneous power and positive response of the car, especially at lowest speeds. It means no possibility of "staggering" or stalling. It means the fastest pick-up. It means, in fact, the very things which experienced motorists have wanted most.

The steam storage in the Stanley boiler has been likened to a bank account. Having first deposited the money, the owner may check against it; and although the process is less direct than to spend the actual cash over the counter, it is safer, on the whole more convenient, and is preferred. The Stanley has, so to speak, a reserve of cash on deposit, ready to be drawn out as needed, and does not spend its revenue as soon as received and lead a precarious hand-to-mouth existence. When, for example, the Stanley descends a grade, the operator has the satisfaction of knowing that closing the throttle merely cuts off the steam, *not the fuel*, and the boiler is storing energy in anticipation of the next climb.

And he knows that the ability to draw on this "deposit" makes it unnecessary to speed the car and rush the next hill, which is always objectionable, often inconvenient, and sometimes dangerous.

It is rather a striking fact that the Stanley can climb a hill on energy put into it while descending another hill possibly several miles back along the road.

Stored power is the foundation of the Stanley's matchless performance. It is the foundation of the operator's comfortable feeling of mastery and security.

Hill Climbing Ability

THE superiority of the Stanley in hill climbing will be obvious from the foregoing. It is not that the Stanley can go up hill *faster* than any other car. Indeed, under certain conditions this is not so. Its superiority in hill climbing — a concomitant of its stored power — may even be said to lie in the fact that it can go up hill *more slowly* than any other car.

It is in hill climbing that it displays its *bona fide* flexibility — the ability to put upon the rear wheels instantaneously and positively, at any time and at any speed, the tractive effort or pull that may be demanded by the road condition. Combustion does not depend upon engine speed, and therefore does not decrease as speed decreases. Maximum torque is there, if required, even if the road condition has reduced car speed to the point of disappearance.

The operator does not need to rush the hills, but can approach and climb at as slow a speed as he may think advisable; the choice is wholly his, and not subject to the dictates of his engine.

Acceleration

ACCELERATION is not to be confused with speed. Acceleration is the ability of the car to attain its maximum speed from a lower speed or from rest. One car may have very ordinary maximum speed, and yet attain that maximum more rapidly than another with far greater maximum speed.

The instantaneous flight of the Stanley in response to the throttle is unmatchable in any other car. Stored power, built up in advance, and awaiting this demand, and applied to the rear wheels without interrupting the tractive effort, or changing the relation between car speed and engine speed, gives the operator the same gratifying sense of mastery in traffic which he encounters on hills or in hard going. It enables him to take advantage of every hole in the traffic, or to extricate himself from tight places with complete assurance.

Ease of Application of Power

STORED power — the stored energy in the Stanley boiler — gives something far beyond flexibility. True flexibility would, indeed, be most desirable even if it came at the expense of physical dexterity and mental alertness. It is vastly more desirable when it can be had with mere throttle control.

Stored power and the ease of application of that power, are what give the Stanley car flexibility, hill climbing ability and acceleration. Mere throttle control of Stanley power is what gives Stanley drivers the reputation of being the most polite drivers on the road. It is no effort, mental or physical, for the Stanley operator to slow down, or shoot ahead, at any instant, to give the other fellow, on foot or in motor, the right of way. The instinct to do this is not dulled. With the same ease he can apply the power to slip through the traffic, pull himself out of hard going, check his speed to nothing on the hills, and accelerate again. Ratifying the familiar protest that "a gear-shift is only a make-shift," he has the consciousness that the device should have no place in a motor car. His throttle alone gives him the same effect.

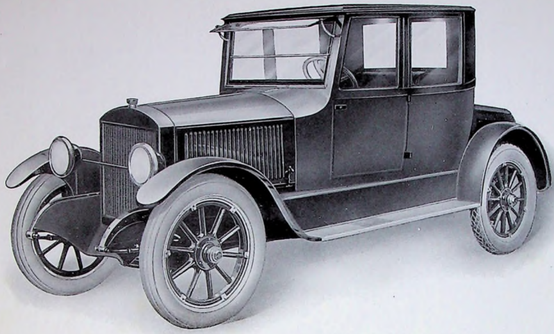
The throttle is really much more than the full equivalent of the gear box, as consideration of the following important differences will show:

1. There are no interruptions of the torque in going from one end of the range to the other.
2. The entire range can be swept through in an instant.
3. Negligible physical effort is involved in the control.
4. No mental anxiety, no bearing in mind the relation of car speed to engine speed, is involved. The relation between car speed and engine speed remains unaltered at all times.
5. The "speed" is not "selected" by the operator. He obtains the "speed" desired by placing his throttle unconsciously at the point best suited to do the work at hand.
6. More or less power can be applied at any speed, as conditions demand.

Smoothness

THE impulses which drive a Stanley engine are all derived from a common source, the boiler, and revolution after revolution are all exactly alike.

Consideration must also be given to the irreducible value of the gently applied expansive force of steam. This exerts a perfectly



Stanley Four-Passenger Coupé

smooth, continuous torque on the crank shaft — a torque which has no compression stroke to contend with.

Since there are no gears or clutch in the Stanley, the engine being constantly in mesh, it follows that there are no interruptions of this continuous flow of power.

These factors result in a smoothness of propulsion which is one of the most gratifying characteristics of the Stanley. It is particularly apparent at moderate speeds, and especially during heavy going.

At high speeds this smoothness is also very gratifying. The engine speed never varies in its relation to the car speed, and at 60 miles an hour the engine is running at only 901 revolutions a minute.

There can be no serious hope that any other form of power can be made to improve the smoothness of the Stanley.

Low Cost of Operation

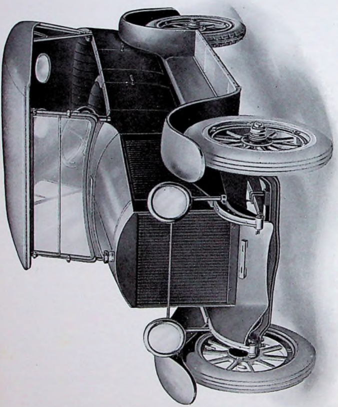
THE fixed expenses such as garages, insurance, etc., being relatively the same with any type of car, the variable items of expense are: (1) tires; (2) fuel; (3) chassis maintenance; (4) depreciation.

These are sound reasons why each of these four items should incur less expense on a Stanley.

Tires wear out less on a Stanley because there is no vibration when standing; because of the smoothness of the drive; because the operator has such minute control of the power and such ease of application of it that he can (and unconsciously does) use no more than just what is required; and because the rushing of stony hills and the "slamming" in of a clutch against a racing motor do not occur.

The driver soon finds that he can give himself a good ride over bad going, picking his way and easing over the bumps, and do it at no expense of physical or nervous hardship. Even if he is unmindful of his tires, the operator in favoring himself is unconsciously favoring them.

Fuel expense is less in spite of the fact that the steam engine is somewhat less efficient thermally under ideal conditions of constant speed and constant load. Such conditions are practically never met in motoring, and the theoretical disadvantage of the steam motor is turned, on the road, into an actual advantage. Steam gives the Stanley the privilege of carrying a power plant big enough to meet the average condition and to store a surplus of energy for instant application in moments of "peak" load.



Stanley Seven-Passenger Touring Car

The Stanley is not confined for its highest fuel efficiency to the maximum speed of the engine and the ideal condition, but can yield it at or near the average load carried by the power plant; that is, under the usual rather than the exceptional conditions.

Under average road conditions the fuel consumption will be about equal, with a slight advantage in favor of the Stanley. But since the Stanley consumes kerosene which costs about half the price of gasoline, the better efficiency per dollar is obvious. No fuel is wasted by an "idling" motor during the innumerable stops.

Kerosene can be bought and stored in bulk without increasing garage insurance, without putting in an underground tank, and without loss from evaporation.

Chassis maintenance will be less for the same sound reasons that give greater tire mileage. Cars are worn out less from use than from abuse. The temptation to abuse a Stanley car is remote. This is a result of stored power and the ease of application of that power. Stored power makes unnecessary the "idling" motor, which is not only wasteful of fuel, but wears itself out and has a steady effect on the life of the whole car.

Constructionally the Stanley assists in keeping the maintenance costs at a low point. There are only thirty-seven moving parts in the Stanley car complete, including the wheels, the steering gear and everything that moves. In the entire power plant there are twenty-four. In the engine only there are but fifteen. This means less friction, less wear, less lubrication, less chance for expense from neglected lubrication, and less expense in dissembling and reassembling when repairs or overhaul are made.

Given equally good materials and workmanship, it is obvious that Stanley construction lends itself to lower cost of maintenance and to greater reliability.

Depreciation is perhaps the biggest item of expense in the ordinary automobile. The character cars, those with high merit and prestige and individuality, depreciate least. These are the cars which have been made for years by the old manufacturers who have not changed their type so often as to lose public confidence. By these standards the Stanley has more character than any other. Hence Stanleys have a higher used car value. The man who wants one cannot get another kind "almost like it." His source of supply is limited. It is simply the operation of the law of supply and demand.

But, after all, the foundation of the high used car value of the Stanley is in the nature of its construction and its power. It is less subject to abuse. Therefore it retains its youthful power and control of power. It is this characteristic which keeps it from getting old. It is this that makes the demand for it whether new or used.

The Fuel Situation

THE difference in cost between gasoline and kerosene is far from the most important aspect of the fuel situation. Much more important is the quality of fuel available and the quantity.

The natural or "free" proportion of gasoline contained in petroleum varies from 2½ per cent to 20 per cent. To obtain gasoline in excess of these proportions requires expensive distilling and cracking processes, and while volume thus increases, quality deteriorates. The volatility of the fuel produced by these unnatural methods is quite low, and the difficulty is augmented by the aeroplane, which is coming to consume a vast amount of the highest grade of gasoline which must be set aside for it.

The problem confronting automotive engineers to-day is to keep the designs up — or down — to the varying standards of fuel, and they must do this with the consciousness that the design they put out to-day will not be satisfactory for next year's fuel.

Imagine a motor which will consume without alteration and with equal facility any fuel from high grade gasoline to low grade kerosene, or any mixture of them in any proportion, and do it with such results that the operator cannot tell what fuel he is using. That is the Stanley power plant. It is possible for three fundamental reasons: The fuel is burned not exploded; combustion takes place apart from and independently of the engine; vaporization takes place within the burner itself, from its own heat, and is not affected by weather.

As cars increase in number the need becomes obvious for better control, better flexibility, easier application of power. Low grade fuels in the Stanley burner do not lessen the responsiveness of the rear wheels to the touch of the throttle.

We believe that the solution of the fuel situation lies in adopting a power plant which consumes the fuel independently of engine speed; and which, in addition, gives the motorist all those characteristics which he has most desired. When this type of power plant is generally adopted, a motor fuel, taking all the product of petroleum down to the lowest kerosenes, will be used, and the fuel problem will become merely one of quantity.

THE THREE FUNCTIONS

WE have shown that in an automobile the three functions — generating power, controlling it, and applying it to the real axle — should be distinct and separate, each perfect in itself, and all three perfect and automatic in their coordination.

Let us now show, briefly, what means are employed to accomplish these functions in the Stanley car.

Power Correctly Generated

THE generation of Stanley power — steam — takes place in the boiler located under the hood in front. Heat is supplied by a kerosene burner sealed below the boiler. Water and kerosene are the agencies used to produce the steam.

THE WATER SYSTEM

THE boiler is of the fire-tube, water-level type, 23 inches in diameter and 14 inches high. It is shaped like a drum and stands on end. The vertical tubes are open at each end, each ½ inch in diameter. The heat passes through these open tubes and boils the water which surrounds them. The shell is wound with piano wire, to take the maximum stress with the minimum weight and size. The tubes themselves act as stay bolts. The tubes are welded into the lower head and expanded into the upper head.

The normal water content of the boiler when operating is half full, or about 8 gallons. It is the heat in this water — 60 pounds or more at nearly 500 degrees Fahrenheit—which provides the Stanley with a storage of power equal to 1,500,000 foot pounds.

The water is supplied to the boiler from a 20-gallon tank suspended from the frame under the driver's seat. Positive automatic controls and plain, positive plunger pumps maintain the water in the boiler at a constant level.

Whenever the water level falls to a certain point, the valves in the water supply line operate automatically and water from the tank is pumped into the boiler till the water rises to another fixed point, when the valves operate again and cut off the supply. This operation is going on constantly when the car is in motion and takes place without attention from the driver.

The water having been turned into steam, and done its work in the engine, is led to a radiator at the front of the car, where it is condensed and returned to the tank. This completes the water cycle.

One filling of the water tank is enough for about 200 miles of continuous driving.

THE FUEL SYSTEM

THE other agency used in the generation and storage of power is the fuel, which is kerosene. This is employed under the most advantageous conditions for automobile use.

Combustion takes place in the burner which is underneath the boiler, with no moving parts exposed.

Combustion is a complete process in itself. It is distinct from the control of the car. Its rate does not depend on engine speed. None of the energy generated is consumed in supporting it, nor lost when standing. All energy is stored for use.

Combustion and generation may be at maximum when consumption of power is at minimum, or zero. That is, the burner may be full on when the car is standing still. Combustion and generation may be at minimum, or zero, when the consumption of power is at maximum. That is, the car may be operated for 2 miles or more with burner extinguished.

The burner consists of three principal members: the casting or plate, with holes through which the fuel in gaseous form comes up from the mixing chamber below and burns with a clear blue flame; the mixing chamber, with two mixing tubes at the orifice where the fuel coming from the vaporizer nozzles induces the right amount of air in with it to make the proper gas for combustion; and the vaporizer, a tube which is exposed directly to the heat of the burner and through which the fuel passes for transformation from liquid to gaseous form. Thus it is seen to be the familiar Bunsen burner adapted to automobile use.

Much the same method of automatic control that handles the water governs the fuel supply, only in this case the boiler pressure, and not the water level, regulates the supply.

When the boiler pressure falls below a predetermined point, the valve in the fuel line opens itself, and kerosene is supplied to the main burner. Then, when the pressure has risen again to this fixed maximum, the valve closes itself. No more fuel passes till the steam stored in the boiler is reduced below the predetermined point. This action is positive and also takes place without the attention of the driver.

The efficiency of this method of fuel control for automobiles is apparent. It operates itself. Once the pressure reaches the control point, no more fuel can be consumed until some of the power already stored has been drawn upon. Contrawise, the pressure having been reduced, just the proper amount of fuel is supplied to restore it — no more, no less.

The quantity of fuel consumed is directly proportional to the power used. Therefore the main burner is in operation only part of the time. When coasting, during stops, and much of the time when running slowly it is entirely shut off.

A miniature burner, or pilot, which is going steadily and without depending on mechanical or electrical forces, is placed in the burner and completely enclosed. Its function is to start the main burner automatically, after the intervals when it has been shut off. It is going constantly whether the car is moving or standing. It may be permitted to go for weeks at a time.

The fuel is supplied to the burner by pressure. The 20-gallon tank in the rear, however, is not under pressure, as the fuel is automatically pumped as used into a one-quart pressure tank, which also acts as a reserve for emergency use, if the main tank should run empty, which is immediately indicated by a gauge on the dash. The pilot being very small operates at low pressure.

It is obvious that this method of deriving energy from fuel offers fewer complications, and imposes less responsibility on the driver than any other.

We believe that it is the correct way to generate power for an automobile.

Power Correctly Controlled

STANLEY control is centered in a single lever — the throttle. The function of the throttle is to admit steam from the boiler, where it is in storage, to the engine, where it does its work. Steam in passing through a throttle will increase the tractive effort if the throttle is wide open; or will increase the distance it will drive the car if it is but partly open. Thus a given quantity of steam can be used to give a large tractive effort for a short distance, or a small tractive effort for a long distance, or anything between these extremes.

It is because of this characteristic of steam that gear box and clutch are unnecessary in a Stanley car, the throttle being always placed unconsciously at the position which gives the engine just the right pressure to do the work desired.

The normal boiler pressure is 500 pounds. The pressure maintained in the engine at ordinary running is somewhat less than 200 pounds. The car will move nicely with 100 pounds. The 500 pounds boiler pressure is carried only because it increases the range of throttle control, permitting the tractive effort to be increased some sixfold above the 100-pound pressure by merely opening the throttle.

The size of boiler has no effect on the tractive effort, but changes the time over which any particular tractive effort can be maintained. Maximum attainable tractive effort can be reached with any size boiler.

The size of the Stanley boiler has been determined as a result of 23 years' experience of Stanley cars in the hands of all kinds of drivers in all sorts of conditions. It is large enough to provide stored power for extreme conditions without being too large for the usual running speeds.

When the throttle is opened by the operator, steam goes out of the boiler through the superheater (which is located below the boiler where it receives the maximum heat of the burner) and passes then to the engine. Aside from the steering wheel, the two brakes and the reverse there are no other control mechanisms on the car, and none would be desirable. Reverse is effected by reversing the motion of the slide valves in the engine by means of a pedal under the driver's left foot. When this is done the same throttle control governs the speed and power.

We believe this is the correct way to control power for an automobile.

Power Correctly Applied to the Rear Axle

THE Stanley engine is driven with a continuous steady push. With a given boiler pressure and throttle opening, the impulses on the piston heads are all exactly alike, revolution after revolution.

The engine has two cylinders which are double acting. That is, they take steam at each stroke in each direction. There are no scavenging strokes nor compression strokes — no idle stroke at all. These two cylinders give continuous torque to the crank shaft. A larger number of cylinders would be unnecessary—in fact, would be inconceivable — as the full torque is delivered with two.

The crank shaft is 8½ inches long and delivers its power from the middle by means of a plain spur gear between two closely associated bearings. The crank shaft is within 9 inches of the rear axle, is parallel to it, and the gear is meshed directly and permanently into the main gear of the rear axle differential. No means are provided for separating the engine from the rear axle—for disconnecting the power from the load. Such would be entirely superfluous, since the car can start itself without first starting the engine, and the characteristics of the steam throttle make gear reductions unnecessary.

It will be obvious that this form of power delivery, without bevel gears, jointed drive shafts, gear box or clutch reduces friction losses to practically nothing and permits the maximum power to get to the rear wheels.

The Stanley engine has the same number of revolutions per mile — 901 — no matter what speed or tractive effort it is developing. At 30 miles an hour, therefore, it is running 450 revolutions to the minute. At 3 miles an hour, no matter how hard the work, it is running 45 revolutions to the minute. It is always on "high gear," but it never is at high speed. Lubrication difficulties are, therefore, practically unknown.

The engine bearings are lubricated by an oil bath. The cylinders are lubricated by a mechanical oiler which delivers a definite amount of oil according to the distance run.

Stored steam, released by a throttle, giving a steady, powerful push continuously to the crank shaft, permanently in mesh with the differential, the engine responsive instantly to the touch of the throttle, with no means of stalling from overloading or unloading — we believe this is the correct way to apply power to the axle of an automobile.

The *generation of power* requires no attention on the part of the driver. It takes place independently of the consumption, or application, of power.

The consumption, or *application, of power* likewise takes place without the driver's attention.

The coordination between the two is complete, and the mind of the operator is not introduced.

It is only the *control of power* to which, aside from steering, the driver gives his attention and which comes within his consciousness.

This is old practice — almost the oldest practice in automotive engineering. It has been true since Stanley cars were first built in 1896.

It accounts in great measure for the fascination of operating the Stanley, for the comfort and security experienced by drivers and passengers alike. It accounts, in part, for the large number of customers who have driven Stanley cars for years — many of them for ten, fifteen and even twenty years.

It unquestionably accounts for the big universal and increasing interest and demand for the Stanley product throughout the country.

It is one of the foundation stones in the permanency of the Stanley Steam Car, which is now in its twenty-fourth year of manufacture.

SPECIFICATIONS

Body. Aluminum; stream line; front seat, 43 inches wide; rear seat, 48 inches wide in 7 passenger car; 46 inches wide in 5 passenger car. Outside door handles; inside door latches. Large pockets in each door; tool compartment in left front door. Leather robe strap. Broad foot rest and vanishing auxiliary seats in tonneau of 7 passenger car. Carpet in tonneau. Metal bound rubber-covered foot boards in front compartment. Corrugated rubber step mats.

Color. Body, hood and wheels, ~~regent green; gun metal gray; or cobalt blue.~~ Valentine's colors and varnishes used exclusively. Black mudguards.

Upholstery. Soft, black, semi-bright long grain leather, French fold, with curled hair. Wide, deep cushions, tilted for comfort.

Top. One man type, with permanent quarter curtains at rear. Locking to windshield. Black, gray lined. Cello plate glass windows in rear curtain. Door-opening side curtains.

Windshield. Slanting Troy design, ventilating and rain-vision.

Lights. Combined headlights and dimmers with separate bulbs; dash and tail lights; burner light. Current supplied by Remy generator with Weston ammeter and Willard Thread-Rubber battery.

Horn. Klaxon, under hood. Button at top of steering post.

Steering Gear. Warner, worm and gear type, with 18-inch steering wheel.

Wheel Base. 130 inches, with 56-inch tread.

Wheels. 34 x 4½ with Firestone demountable rims. Wire wheels $100 extra for set of five.

Tires. Goodyear or Goodrich cord. Groove tread front, non-skid rear. 34 x 4½ straight side.

Springs. Semi-elliptical front; full-elliptical rear.

Frame. Channel section pressed steel.

Front Axle. Timken standard equipment.

Rear Axle. Stanley design with Timken inside and S. K. F. outside bearings.

Brakes. On rear wheels with 14-inch drum and 2-inch face; expanding hand emergency brake; contracting pedal service brake.

Engine. Two cylinders, 4 x 5, slide valves, double acting; bolted to rear axle and geared direct to differential main gear.

Boiler. Standard Stanley fire-tube water-level type, welded construction, 23-inch diameter.

Burner. Standard Stanley drilled type. Burns either kerosene or gasoline or any mixture of the two.

Pilot. Initial heating, electrical from Willard battery, then supplied with fuel (gasoline) from miniature tank.

Fuel Tanks. At rear; 20 gallons capacity with gauges.

Water Tanks. Suspended under frame, 24 gallon capacity with gauge, giving mileage of 150 to 250 miles.

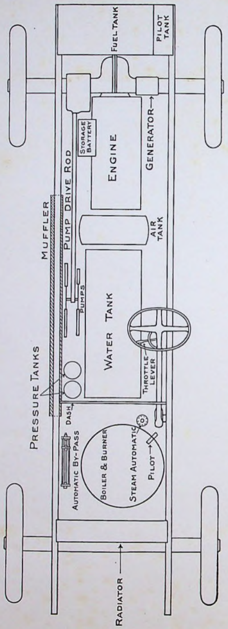
Pumps. Long stroke, plunger type, driven from rear axle.

Radiator. Tube and fin type; seamless tubing; flat front. Cast aluminum heads with detachable shell.

Air Tank. For supplying air pressure.

Lubrication. Entire differential and engine assembly enclosed, and run in oil bath. Cylinders lubricated by positive pump from 3-gallon cylinder oil tank under front seat.

Instrument Board. With steam gauge; duplex fuel gauge; oil sight feed; Van Sicklen speedometer with Elgin watch.


FUEL TANK
PILOT TANK
STORAGE BATTERY
PUMP DRIVE ROD
ENGINE
GENERATOR
MUFFLER
AIR TANK
PUMPS
WATER TANK
PRESSURE TANKS
THROTTLE LEVER
DASH
AUTOMATIC BY-PASS
BOILER & BURNER
STEAM AUTOMATIC
PILOT
RADIATOR

PRICES

of

STANLEY CARS

F. O. B. Newton, Massachusetts

War Tax Is in Addition
To Prices Named

Five-Passenger Touring Car .	$2600.00
Seven-Passenger Touring Car .	2600.00
Four-Passenger Coupé . . .	3775.00
Seven-Passenger Sedan . . .	3850.00
Chassis only	2275.00