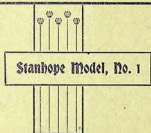


The "Locomobile"



How to Operate

MANUFACTURED BY

The "Locomobile" Co.

OF AMERICA

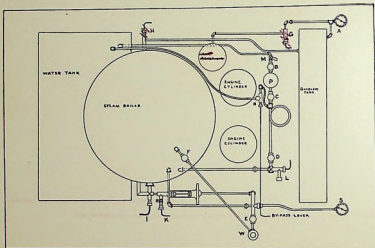
11 BROADWAY

NEW YORK CITY

COPYRIGHTED, 1899, BY

THE *Locomobile* COMPANY OF AMERICA

The *“Locomobile”*



GENERAL PLAN OF THE *“Locomobile”*

P.—Water Pump

S.—Steam Gauge

A.—Air Gauge

W.—Water-Glass

B, C, D, E, F.—Check Valves

N.—By-pass Valve

M.—Water Valve

G, H, I, K, L, etc.—Needle Valves

The gasoline, forced out of the supply tank by the compressed air, passes through the pipe to the ~~first needle valve, “H,” which, being opened about two turns, admits gasoline at the~~ bottom of a boiler flue. The gasoline then crosses in a pipe on the top of the

boiler and goes down another flue on the right-hand side of the carriage and is stopped by needle valves "K" and "L." Needle valve "K" is used to regulate the flow of gasoline through the auxiliary vaporizing burner or torch when the carriage is, so to speak, "cold." The needle valve "L" is used to admit the vapor to the fire-box, or to cut it off from the same, when the carriage is in operation. When there is steam pressure in the boiler, there is sufficient heat to vaporize the gasoline. The auxiliary vaporizer is used to vaporize gasoline until steam has been produced in the boiler.

The water leaves the tank in a rubber pipe, and may be cut off by a cock, "M," before the check valve in front of the pump is reached. There are three check valves, "B," "C" and "D," between the water tank and the boiler, and they all work in the same direction.

There are two more check valves, "E" and "F," which prevent water and steam from escaping when the water-glass is broken.

~~The needle valve "G" is used to retain the pressure in the air tank when the gasoline tank is refilled.~~ There is a ^{globe}~~needle~~ valve (not shown) at the blow-off. To blow off the boiler, first turn off the fire and then open this needle valve until it is wide open and steam is escaping with a loud noise.

To avoid confusing the drawing, the throttle valve and safety valve are not shown.

DIRECTIONS FOR OPERATING THE

Locomobile

1st. Fill the boiler

This may be done in two ways, either by attaching a hose to the blow-off valve "L" (for which purpose a coupling is furnished with each carriage), or by first filling the water tank ~~and in time~~ *using the hand pump.* ~~the boiler will fill by gravity.~~ Always open the safety valve to allow the air from the boiler to escape while filling. The boiler has sufficient water when it shows about half way up in the glass.

2d. Fill the fuel tank

~~Before filling the tank, see that both the gasoline valve "H"~~
~~and the gas valve "I," leading to the burner, are closed. After~~
~~doing this,~~ Take off the cap and fill the tank with a funnel. This
being done, screw the cap firmly down ~~to prevent the air from leak-~~
~~ing out.~~ Open valve "~~G~~" one turn, then pump up the air pressure
at "A" to ~~thirty-five~~ ^{forty} pounds, using the brass pump lever.

3d. Start the fire

~~First open the gasoline valve "H."~~ Then, after heating the
nozzle and a portion of the detachable burner sizzling hot, screw it
in tightly at the opening "R," so that the long tube projects into
the fire-box and the nozzle points into the gas tube beside the nozzle
of the regular burner. Now hold a lighted match in the fire-box

through the opening made for that purpose and carefully open the valve which supplies this burner. When the gasoline reaches the part of the burner which has been heated, it will be vaporized and, passing into the fire chamber, will be lighted by the match. The flame should be blue and smokeless from the start, and will be so in all cases, if the burner has been properly heated and the gasoline turned on not too quickly.

After the water is heated to the boiling point and the steam pressure raised to twenty pounds or more, slightly open the valve "I" to the main burner, close the valve "K" to the detachable burner, remove the burner and close the door. The main burner valve can then be carefully opened and the door leading into the fire-box closed. If allowed to stand, the steam pressure will soon run up to about one hundred and ~~fifty~~^{sixty} pounds, at which point the automatic valve will shut down the fire. While steam is rising, occasionally pump a few strokes on the gasoline pump to keep up the pressure.

4th. Oil the bearings

While getting up steam, which generally takes from three to five minutes, see that the cylinder cup is well filled with cylinder oil, and the slides, pump, connections, eccentrics, main journals, and crank pins are well oiled. To oil the cylinders, ~~close~~ ^{close} ~~up~~ the ~~needle~~ valves and remove the cap on the oil cup, fill the cup with cylinder oil and replace the cap. ~~Give the needle valve one eighth of a turn and allow it to remain open while running.~~ To save oil the ~~valve~~ may be closed when the carriage is not running.

oiler

oiler

(Open the drip valve, allow the water to run off, then close drip.)

5th. Before starting

Make sure that the water tank is filled. Open the by-pass valve "N." This will allow any air that has accumulated in the pump to escape into the water tank. This should be done to prevent the

Important.

pump from becoming air-bound. The carriage is now ready to start. Always start slowly, as by so doing the water which has probably come into the cylinders and steam chest will have ample time to get out through the exhaust.

Scorching the Boiler

The boiler may be scorched in three ways: first, by firing up the carriage when there is no water in the boiler; second, by allowing the boiler to become empty when on the road; third, by blowing off the boiler without first putting out the fire. All these three ways of scorching the boiler are possible and result from carelessness on the part of the operator. It is not safe to operate the carriage when all the water is out of the water-glass. Though the glass itself be empty, at the same time there may be a few inches of

water in the boiler. There is not a sufficient quantity of water, however, to climb a hill. In this case, the boiler will be tilted backwards and the front part of the boiler will contain no water and consequently will be scorched. When the boiler has been scorched or "burnt out," it will leak when cold. The leak will depend on the degree to which the boiler has been heated. It must then be removed and repaired. Any boiler-maker can re-expand the tubes and make the boiler tight.

Special Topics.

When the fire burns back

The fire may at times burn back, exactly as the Bunsen flame will sometimes act, and give a yellow flame. Consequently improper combustion results. The action of the flame burning back heats the burner red hot, and deposits soot in the boiler and on the burner. This burning back is accompanied with a roaring noise together with a drop in steam pressure. This should warn the operator, who, on hearing the noise and noticing the drop in the steam pressure, should get out of the carriage, turn off the

This never happened with the burner.

fire, and wait a few minutes for the burner to cool. Then the fire may be lighted and the carriage started again. This occurrence is rare, and is caused by the wind at the back of the carriage blowing the flame down.

Care of the boiler

The boiler should be blown off frequently, to prevent foreign substances from being deposited in it. In districts where the only water to be obtained contains calcium, iron, phosphorus, or other harmful salts, the rate of incrustation will be very rapid. The use of such water should be avoided and rain water only should be used. It is not necessary to blow off the boiler every time it is used, but a good rule is to blow it off when the carriage has been run ~~forty or fifty~~ miles. If the water contains

much sediment, it should be filtered before filling the water tank. (This also applies to the gasoline supply.)

Chain

It is very important to keep the chain tight, and it should be inspected often. If it is loose, it is apt to come off and break. The chain may be tightened by adjusting by the strut underneath the carriage between the back axle and the engine. The chain may be broken by starting the carriage too suddenly when there is water in the cylinders.

Water-glass

The water-glass on the right-hand side of the carriage indicates the height of water in the boiler. When the water has gone out of

the glass it does not mean that the boiler is empty, but signifies that it is not a safe condition under which to run the carriage. In case the water-glass breaks, there will be no flow of water, because there are two check valves, one at the bottom and one at the top, to prevent this. To replace the glass, first turn out the fire and blow off the boiler, then unscrew the connections at top and bottom, remove the packing and washers and insert the new glass, taking care to pack it properly, then fire up the carriage. In case the glass leaks, as it may do when the packing is new, the leaking may be stopped by screwing up the top and bottom connections a little. It does no harm to have the glass leak a little when cool, as when the glass becomes hot it will expand and become tight. If screwed too tight, however, the glass may crack when heated. The packing consists of two short pieces of rubber tubing, which in time will become carbonized and there will be no leaking. It is advisable to have an extra water-glass always on hand.

When the pump will not work properly.

The pump may fail to do its work for two reasons: first, the pump itself may be out of order; second, one or more of the check valves between the water tank and the boiler may get out of order. First, in case the pump gets out of order, it may be repaired by any machinist, as it is a simple plunger pump; second, the check valve nearest to the water tank may be examined when the steam pressure is on, by unscrewing the cap and removing any foreign substances that may have gotten under the seat of the valve. The others may be similarly examined. The middle check valve may be examined while the steam pressure is on, the check valve nearest to the boiler must not be examined until the steam pressure has gone down. In case it is impossible to locate the trouble, or remove it, even if it be discovered, it is always an easy matter to get home with the carriage, even if some distance has to be travelled.

← by having
a bit of dirt
in it.

Use the hand pump.

~~To do this proceed as follows: — Operate the carriage until the water barely shows in the glass, then put out the fire and run until the steam pressure is used up and the carriage stops. Open the safety valve and let off almost all the steam, then close the valve. In about fifteen minutes the boiler will fill, and the carriage may be fired up and operated until the boiler is empty and the steam pressure used up as before. The question of water supply is a vital one, and the operator should consult his water-glass often.~~

The following tools and supplies should be carried in the

"Locomobile"

Monkey wrench (small size).	Stillson's wrench (for screwing pipes)
Screw-driver.	A few links of chain.
Extra water-glass and packing.	Torch or detachable vaporizer.
Hand pump.	Cylinder oil.
Machine oil.	Cotton waste.

All provided.

When the carriage has been standing some time with the fire turned off, the gasoline vapor in the piping outside the boiler will be condensed by the outside air. Before lighting the fire, open the needle valve "K" and allow this condensed gasoline to escape. When the vapor appears, close the valve, and then light the fire by putting a lighted match in the fire-box door and slowly turning on the needle valve "I."

Should the main gasoline atomizer get clogged, it may be cleaned out as follows: Take a piece of fine wire and bend part of it back on itself. Take the long end in the hand and endeavor to remove the impurities with the short hook. By opening the valve "I" the pressure of the gasoline and air will help to dislodge the particles of dirt.

Never has
clogged on
this

A decided drop in steam pressure indicates one of three things: 1st. *The gasoline supply is exhausted.* ~~If this be the case, the air pressure will drop also. There is no way of gauging the exact amount of gasoline in the tank, but the operator always should know approximately the amount and be governed thereby.~~ 2d. The boiler is empty. 3d. The fire is out, or the fire is burning back.

Final Caution

When anything happens, PUT OUT YOUR FIRE IMMEDIATELY, then you may investigate your difficulty at your leisure.

