DIRECTIONS—No. 1 and Special Wagons

No. 1 Pipe on rear for filling Water Tank.
No. 2 Boiler Filler Plug under Safety Valve.
No. 3 Gasoline Tank—shut off valve.
No. 4 Pump By-Pass Valve.
No. 5 Generator Valve (center).
No. 6 Boiler Burner Side Valve.
No. 7 Boiler Burner Side Valve.
No. 8 Throttle Valve.
No. 9 Whistle Valve.
No. 10 Oil Cup on steam connection.
No. 11 Torch Valve.
No. 12 Roaster Valve.
No. 13 Popper Valve.
No. 14 Button for Starting Roasting Cylinder.
No. 16 Bent wire for holding Popper Lever up.
No. 17 Wire Knob on Popper Lever.
No. 18 Air Shut-off Valve.
No. 19 Boiler Shut-off Valve.
No. 20 Oil Separator Drain Plug.

The first thing to do after you have uncrated the machine is to examine it carefully, and see that no parts have been broken or damaged in transit. See that the steam gauge is either packed in the roasting cylinder or in place back of the engine. Should machine be damaged in any way report same to us immediately, sending an acknowledgment of said injury signed by the agent of the transportation company, along with your freight or express expense bill. See that agent endorses it on your expense bill. Procure the assistance of a few friends and place the machine on its wheels.

TO FIRST FILL BOILER.—Open throttle valve No. 8 about one turn, remove cap in oil cup No. 10 so as to let the air escape from boiler while pouring in water. Next remove plug No. 2 from casting that protrudes under safety valve, on rear, and insert funnel; fill boiler about one-half full of the cleanest and best water to be had; rain water is preferable. When the gauge glass shows the boiler about one-half full remove funnel and replace plug, screwing it down tight. Close throttle and replace cap on oil cup. The reason we do not equip the water gauge with shut off stems is that our experience has proven it best to leave them off, owing to meddlesome persons closing the valve unbeknown to the operator, thus rendering it impossible for him to determine the correct water level, which formerly has resulted in the burning out of boilers. Few persons would incur the risk of scalding their hands endeavoring to close a gauge cock should a water glass break, even though they were provided.

TO FILL WATER TANK.—Fill the water tank at pipe No. 1 at rear of machine, about three-quarters full with the cleanest and best water obtainable, using rain water if procurable. It is best to strain water to prevent clogging up check valves, etc. You should only fill your boiler as explained above when you first receive your machine, always leaving enough water in the boiler when closing down at night to start up with again the next day; except when the machine is left in a freezing temperature during cold weather.

TO FILL GASOLINE TANK.—Close valve No. 3 immediately in front of the gasoline tank by turning to the right (all valves close the same way). Remove cap of gasoline tank and fill nearly full with the very best gasoline obtainable, 72 or 76 test if you can possibly buy this grade. Most every case of trouble is directly traceable to poor gasoline, as it will stop up burners and give you trouble. Each and every machine is thoroughly tested in our factory prior to shipment with a good grade of gasoline and known to work right. You will find it to your advantage to take extra pains in the purchase of your gasoline and we recommend buying it by the barrel. Use separate measures and funnels for gasoline, and never use them for anything else, as a few drops of kerosene, water or other liquid will cause you annoyance. After filling gasoline tank be sure to screw cap back on again and never under any circumstances attempt to fill your gasoline tank with fire burning at any burner in the machine or in the vicinity. Gasoline gas is heavier than air and the vapor will ignite at a distance of several feet, so be absolutely positive there is no fire either in or about the machine, when you go to fill the tank.

Air pressure on your gasoline tank should not exceed 12 pounds; approximately 8 pounds is sufficient. After pumping air on tank always **close valve No. 18,** for should the gasoline vapor come in contact with the rubber seat of air valve it would soon render same useless. Gasoline has a tendency to deteriorate the rubber washer on valve stem, which would cause a loss of air pressure.

Schrader universal valve stems can be procured at most any bicycle repair shop or garage, being of standard size.

EXAMINE FOR LEAKS.—Sometimes during shipment joints will become loosened or broken, and it is best to examine all gasoline connections and valves carefully to see that same are O. K. Examine burner valves Nos. 5, 6, 7, 11, 12 and 13; make sure all these valves are closed, which you can determine by unscrewing the valve to the left, say one turn, then turning to the right as far as it will go without straining. Now open valve No. 3 and examine the various pipes and fittings carefully (not with a match). If a leak should be found, disconnect, soap threads thoroughly with ordinary laundry soap (softened) and screw up tight again. If after a careful inspection all joints and connections are found tight you are ready to light fire under boiler.

TO START GENERATOR.—Open valve No. 5 slowly and fill the iron drip cup nearly full with gasoline; then close No. 5. Once more examine various connections and valves connected with the gasoline supply, being positive there are no leaks. You will proceed to touch a light to the gasoline in the drip cup (keep your face back). When gasoline in drip cup has burned out, open No. 5 again slowly and let it burn a minute or so before you open valves Nos. 6 and 7, which are the main burners under the boiler. See that they light under the boiler, and DO NOT LET THEM BURN AT THE TIPS where the gas enters the burner; if you do, it will form a soot that will stop up your burners and prevent you from securing the full benefit of your fire. To prevent burning at tip close valve and then re-open. You will find a sharp pointed wire in the roasting cylinder for cleaning the small holes in burner tips, which sometimes become stopped up, but be extremely careful when using same not to enlarge the hole in tip, which would result in a yellow smoky flame with little heat. The blaze should be blue, which produces an intense heat. Wood alcohol can be used in drip cup for heating generator No. 5 if preferred. **Generator No. 5 must be burning at all times when operating machine.**

STEAMING UP AND OILING.—While steam is raising as indicated by steam gauge, proceed to oil the engine and various other running parts. Oil the cylinder of engine by removing cap No. 10 in oil cup (throttle closed) and filling it with a good heavy lubricating oil; turn flywheel of engine towards roasting cylinder a few times, which will suck the oil down into the cylinder; refill cup and replace cap; after while you can let the oil which remains in the cup down into the cylinder by loosening cap a little, but don't unscrew all the way off. Oil the cylinder and other running parts frequently while machine is new, so as to take the stiffness out and prevent heating or cutting of wearing surfaces. DO NOT RUN ENGINE TOO FAST, as it will only shorten its life and use more gasoline than is necessary. Regulate the speed of the engine by throttle valve No. 8 and burners under boiler. For economy, only generate what steam you actually need; 20 to 25 pounds should be ample after you have had your machine in operation for a while, and the chances are that you will not need but about 15.

If machine is equipped with sight feed lubricator, oil according to separate lubricator directions.

STARTING ENGINE.—When the steam gauge registers 20 or 25 pounds open throttle valve No. 8 slowly, turning the flywheel of engine to the left (towards roasting cylinder) and gradually work the water out of the cylinder. After starting engine, throttle to desired speed.

POPPING CORN.—See special directions sent herewith. Follow them to the letter. Use creamery butter exclusively and prepare it as instructed, although you might experiment as to the percentage of lard to be used. Some of our customers prefer half creamery butter and half best leaf lard, claiming the lard has a tendency to make the corn more crisp and pop out larger. BE VERY CAREFUL AND DO NOT RUN CORN POPPER TOO FAST, as it will throw the corn to the outer edge of the pan and perhaps out into the case; besides, it will not pop as well. See that the corn covers the entire surface of the pan with the blades in motion. Hand out samples freely at first, as people are hard to convince that the corn is actually buttered and salted unless they taste it for themselves. They are accustomed to the antiquated method of pouring the butter on afterwards, but will not be slow in demonstrating their approval of the "NEW METHOD" if you carry out our directions.

Take particular pains to see that the belt which drives the popper is NOT crossed, as it would turn the stirrer blades in the wrong direction and prevent the successful operation of the popper. The stirrer blades must revolve forward with **knife edge down.** Before placing popper pan on fire, see that none of the corn has lodged in the slot of the center casting, as it would prevent stirrer rod properly seating, and it would keep jumping out. Never strike popper pan on anything while hot, and never leave it on the fire unless stirrer blades are in motion. If fire under popper pan burns a yellow flame after machine has been in use for some time, it would indicate a poor grade of gasoline; but is sometimes caused by the tip in burner valve No. 13 being too large (through picking); send for new tip in this case when hole becomes enlarged.

Clean Stirrer Casting Daily by turning spun cap to match slots with lugs—remove cap and clean. Also frequently remove screw in center, thus detaching blades. These parts Must be kept clean and free of accumulations under the cap, for sanitary reasons.

ROASTING PEANUTS.—First raise sliding lid of roasting cylinder, take the lid lifter and remove roasting cylinder lid by engaging lifter in the slot and pushing towards back of machine until the sliding lock is free. Fill about three-fourths full of peanuts. See that machine stands as near level as possible. Replace lid and be extremely careful to get it properly and securely fastened. Do not fill cylinder so full of peanuts that they will not mix or rattle. Pull down sliding lid and push in on knob No. 14, which will start cylinder. ALWAYS START CYLINDER BEFORE LIGHTING FIRE. After starting cylinder, open valve No. 12 about two turns and light burner under roasting cylinder, which should burn a nice blue flame. To post yourself on the progress of the roasting peanuts, take out a peanut or two occasionally by means of the tester, which enters the cylinder at the front end. When the kernel begins to turn a little yellow turn out the fire, but let the cylinder continue revolving; watch them closely, as they will continue to roast with their own heat, and when the kernel is a light orange shade, disconnect roasting cylinder by pulling out knob No. 14. Remove lid of cylinder and turn cylinder forward and peanuts will slide into the peanut pan; spread out as much as possible, so they may cool and not continue roasting with their own heat. You will understand all that is necessary when you wish to dump peanuts is to turn the cylinder forward after removing the lid, and the peanuts will fall down into the peanut pan.

Peanuts should roast in about 30 to 35 minutes. If at any time the fire under roasting cylinder should not burn well, raise the sliding lid on back directly over said cylinder, to give the fire more ventilation. In case the fire under roasting cylinder can not be made to roast evenly, place a few of the rivets which you will find in a small envelope in roasting cylinder, in **every other** hole on the side where the fire is too strong; only use as many brads as may be required to even up your fire. Do not shut any part of the fire off entirely, or your peanuts at that point will remain raw.

If fire under roasting cylinder should burn a yellow smoky flame, it would indicate as a rule that the hole in the tip of valve No. 12 was too large: remedy as per instructions elsewhere. Blaze should be blue. Never start fire under cylinder with the cylinder standing still, or you are liable to crack the glass end.

TORCH.—Keep valve No. 11 closed when torch on engine bed is not in use. When you wish to light this torch, open No. 11 and light the torch, the same as you would any gasoline torch. You will note that you must first draw a small amount of gasoline in the drip cup of torch and generate same.

TO BLOW WHISTLE.—Open valve No. 9. If steam leaks from whistle, tap on pipe leading to same to make valve settle in place. Dirt may get under the valve seat and cause it to leak. Regulate tone of whistle by screwing bell up or down. If it does not blow well, take apart and clean.

SAFETY VALVE.—Read the red tag attached to safey valve and keep it for future reference. UNDER NO CIRCUMSTANCES ARE YOU TO CARRY TO EXCEED 50 POUNDS STEAM PRESSURE ON BOILER. Care must be taken to blow off safety valve occasionally—keep it in good working order, and once each week take the valve apart and clean it as explained on the red tag attached to same. Do not neglect this, as it is very important and must not be neglected, except at your own risk.

PUMP.—The pump on this machine runs continuously, and the amount of water forced into the boiler is regulated by BY-PASS VALVE NO. 4, which is located on top of water tank check valve.

When the valve stem of No. 4 is screwed "**Down**" **far as it will go,** all the water being pumped, is forced into the boiler; but when valve stem is

"**Raised,**" part or "**All**" of water returns to the water tank, according to **how much** the valve stem is raised or turned.

With practice the operator will learn to adjust By-Pass Valve No. 4 so as to keep practically a uniform water level in boiler all the time.

As a rule, we find valve stem in No. 4 should be raised off the seat about one-sixteenth turn. Generally when pump is working there is a sort of clicking sound in check valves, and the feed water pipe leading to boiler is about the same temperature as supply water in water tank, which should be kept well filled with clean water, rain water preferred.

Refer to and retain for future reference special instruction sheet regarding By Pass No. 4.

GOVERNORS.—The governors on your engine are so designed that when it should become necessary to repack the packing gland or valve stem, that you can do so without disturbing the adjustment or setting of the valve. Proceed as follows:—

Grasp the upper part of the governor casting into which the balls are secured, and turn same towards the flywheel (being a left hand thread); at the same time hold the driving pinion so as to prevent the gear from turning, and you will find that the upper part of the governor will separate immediately below the bead; unscrew all the way off, and by lifting the balls up you can entirely remove the upper part of the casting, which will permit of your repacking the packing gland. Use the small wrench which comes for this purpose and screw the packing gland back down tight. When assembling the governor, lift the balls up as high as they will go and slip them on the stem, and have the tips of the balls properly engaged in the swivel or stem; screw down tight again.

PUMP TROUBLES.—Are generally caused by some foreign substance beneath the check valves, and the first remedy to try is to loosen the cap on valve next to water tank and tap on same, so as to allow the grit or whatever may be in there to pass on. If this does not overcome the trouble, remove the cap entirely and clear the check and valve seat, exercising care not to scratch either. Then again, speeding up the engine might assist you, or perhaps the packing gland on top of pump is too loose or needs oiling or repacking. If the above does not overcome the trouble, stop the pump; close shut off valve No. 19 next to boiler; remove checks in check valves; replace caps; open valve No. 19 slightly so as to blow steam down into the check valves and into the water tank; after doing this a few moments, close shut off valve No. 19 and replace balls in check valves; being careful to replace each ball in the valve from which it was taken—**open valve No. 19** again, and your pump should work. If your supply water is too hot you may experience trouble in pumping it; add cold water. Don't attempt to start pump if it is frozen; thaw it out.

BURNER TROUBLES.—Any time burners do not work well, it is generally on account of poor gasoline, dirt, sediment or scale in the burner tips or pipes. If you can not pick it out with the sharp pointed wire before mentioned, turn out all fire about the MACHINE AND VICINITY and remove needle valves Nos. 5, 6 and 7, but one at a time, letting a little gasoline run through, as that will wash the dirt, etc., out. Before replacing the needles take a small piece of soft wood and sharpen the end same as you would a pencil; run the sharp end up into the valves, revolving it between your fingers, thus cleaning the small hole in the tip without danger of enlarging it. Then rub ordinary laundry soap on the threads of the needles and screw them back again, the same as you found them; being careful not to push any of the packing in stuffing box into the valve; it is best to unscrew the packing box off with the needle, so there is no danger of the packing getting up inside the valve. Repeat this operation for the roaster and popper valves if necessary. Before lighting burners again, be careful to see that any gasoline which may have spilled on the sheet iron or inside of machine has evaporated. If burners puff or pulsate, close main gasoline shut off valve No. 3 entirely, then reopen one-quarter turn. Poor gasoline or a low grade can not be made to burn satisfactorily with a standard machine, without continual trouble. We advise straining gasoline through chamois skin to remove water, dirt or other foreign matter.

TO FILL GLASS CYLINDER.—The toy glass cylinder should be filled with raw peanuts, and it is advisable to place a piece of paper at each end, thus preventing the nickel plated heads from discoloring the peanuts.

COLD WEATHER HINTS.—When you are forced to leave machine in a freezing temperature, **remove the steam gauge,** drain water from boiler, water tank, steam connections, etc.; also remove caps of check valves and drain the

water from checks and pump. If through neglect pipes should freeze, thaw them out before you attempt to run machine. If machine is equipped with lubricator, do not forget to drain condensing bowl of lubricator in cold weather.

IMPORTANT SPECIAL NOTICE.

If upon receipt of machine, you should find any part defective, or experience difficulty in operating, don't call a machinist or experienced mechanic to your assistance. First, re-read your directions carefully and see if anything given therein covers the case in hand. If not, write us immediately, explaining, and we will promptly advise you how to proceed. In no case will we be responsible or liable where outside assistance is accepted, for through ignorance of the machine and its construction, they do more harm than good. Follow instructions carefully YOURSELF and you will experience no trouble in successfully operating your machine.

WE TAKE NO RISK WHATEVER WHERE EXPERIENCED MACHINISTS ARE EMPLOYED, and will not honor any claims for repairs or services unless previously ordered by ourselves.

We build our machines as near perfect as expert workmanship and the best of materials can make them, and will gladly replace any defective part which indicates defective material or workmanship, within a reasonable time.

Generator burner No. 5 must be kept burning at all times when you are operating machine.

DO NOT RUN THE POPPER TOO FAST, as it throws the corn to the outer edge of the pan, which should not be.

ON YOUR MACHINE BE POSITIVE THAT THE LEATHER BELT WHICH DRIVES THE POPPER IS NOT CROSSED, SO AS TO DRIVE THE BLADES IN THE PROPER DIRECTION. **BLADES MUST REVOLVE FORWARD WITH KNIFE EDGE DOWN.** It is of great importance to yourself that you prepare your butter and popcorn as we direct.

Do not neglect cleaning your machine each and every day. People will not patronize you unless your machine and self present an inviting and cleanly appearance.

Whenever you open an iron union, be sure and see that the rubber gasket is put back in place.

Take up any lost motion or wear promptly.

Keep nuts on water gauge stay rods tight, so as to prevent gauge castings from spreading and breaking glass.

The heat generated by No. 5 is not sufficient in itself, as a rule, for operating the machine. If valve No. 5 is shut off, and you attempt to burn the other burners about the machine, you will soon get raw gasoline. No. 5 converts the liquid gasoline into a vapor. You will understand that **No. 5 is not sufficient for raising steam**; you must turn on valves Nos. 6 and 7 as well.

In some altitudes, the popping qualities of popcorn are improved by dampening the corn somewhat.

When the boxes on drive arm wear, take up the wear by filing off the face of the boxes somewhat until you get a snug fit, or if you are adverse to filing the boxes you can insert a thin strip of copper to act as a bushing.

If the cross head becomes worn, you can take up the wear by disconnecting the drive-arm, removing the cross head pin and turning the cross head a little so as to enable you to remove the brass shoe and insert a thin piece of paper under it.

Do not close burner valves too tight, or you will have trouble in opening them when they cool off. After putting out fires and closing main gasoline valve supply No. 3, open the valves slightly before they cool off, and then close just so they will touch seat. Before firing up again, however, be sure and close valves tight.

Do not attempt to loosen burner joints while castings are hot. Wait until they get cool, and tap lightly around the joints with a hammer and you can then unscrew the parts easily.

You can separate water from gasoline by pouring it through a piece of chamois skin, and can prove the grade of your gasoline by using a hydrometer.

Do not allow accumulation of oil in water tank; clean it out occasionally by removing Oil Separator Drain Plug No. 20.

Keep the popper burner in line with the stirrer rod; if it should get out of line, loosen the set screw in elbow at rear of case, and line it up so that the stirrer rod drops into the stirring casting freely; then tighten set screw.

Remove any accumulation of soot.

Clean your machine thoroughly each day.

Whenever chain stretches enough you can easily remove a link; reversing the chain also takes it up somewhat. Tighten chain driving roasting cylinder by means of the friction roller for that purpose. Tighten chain for driving pump and popper by means of the movable strap which holds the stud on which the pump sprocket revolves.

It is advisable to clean boiler occasionally by dissolving about one-quarter pound of sal soda in a pail of water and syphoning or pouring it direct into the boiler. Let it boil with about 5 pounds of steam for about one hour; then raise steam pressure slightly; shut off fire and open both of the blow off cocks and blow off boiler until dry. Close cocks and throttle and the vacuum created will suck water into boiler from water tank.

When the boiler fills with water over night, it is caused by the vacuum caused by the condensation of steam in the boiler after shutting down. To stop, open throttle valve and remove screw in oil cup No. 10, thus admitting air to boiler and preventing the vacuum. In extreme cases of pump failure this method can be resorted to for filling boiler, by first turning out fire and blowing off all steam.

Never start a fire under boiler without ample water in same.

Never let water get too low in boiler for fear of melting solder on one end of same, and in case of an accident of this kind send to us for the special solder we use for this purpose, as ordinary solder will not stand.

If your water connections freeze in winter, thaw them out before starting pump. Drain water tank by means of the small valve in bottom at rear.

Do not pop corn with a dry pan; if you want plain corn without any butter or salt, use a little lard to act as a lubricant. Do not strike the popper pan on anything while hot. If the revolving lid of popper pan sticks, clean out the threads on the inside of the center casting thoroughly; this should be done frequently.

Whenever lighting any of the burners about the machine, keep your face back.

Be extremely careful not to have any fire about when you are filling gasoline tank or working with gasoline in an exposed position.

Do not use sewing machine oil on bearings, as it gums them up; use a good grade of machine oil.

Remember that common laundry soap (softened) rubbed on threads of needles or pipes where gasoline connections are made is the best thing to prevent their leaking.

If burners do not work right when you receive your machine, it is either through dirt in burners or poor gasoline. We always test each and every machine thoroughly before shipment, but sometimes the action of gasoline in the pipes loosens up a fine scale afterwards. In no case do we ship a machine unless it works as it ought to in every respect.

SEE THAT THE PARTY OF WHOM YOU PURCHASE YOUR GASOLINE DOES NOT DRAW KEROSENE OR OIL IN THE SAME MEASURE, as a few drops of kerosene will cause you all kinds of trouble.

All fires should burn a nice blue blaze.

Never let burn at needle points where gas enters iron pipe burners.

Do not permit engineers or others to fool with your engine or its adjustments. Pay no attention to their dictations and you will fare much better.

BEAR IN MIND THAT YOUR GENERATOR NO. 5 MUST BE BURNING AT ALL TIMES when you wish to burn any of the other burners, as it converts the liquid gasoline into a gas and imparts pressure for forcing said gas to the various parts of machine.

All repairs must have your name and address on them and come prepaid to avoid delay, and the engine number given to prevent errors.

Write us fully of any trouble you might encounter and we will promptly advise you how to proceed to overcome it.

If you should wish to unscrew any of the burner castings or joints, tap lightly about joint, so as to loosen threads and prevent breakage.

SUGGESTIONS LEADING TO POSSIBLE IMPROVEMENTS INVITED.

GET OUR PRICES ON POPCORN AND PEANUTS.

FINAL.

Under NO circumstances are you to carry over 50 pounds steam pressure on boiler.

Keep safety valve in good working order and set same to blow off at 35 pounds.