J. E. WHITACRE.

CARBURETER.

APPLICATION FILED JAN. 23, 1909.

1,022,451.

Patented Apr. 9, 1912.

5 SHEETS—SHEET 1.

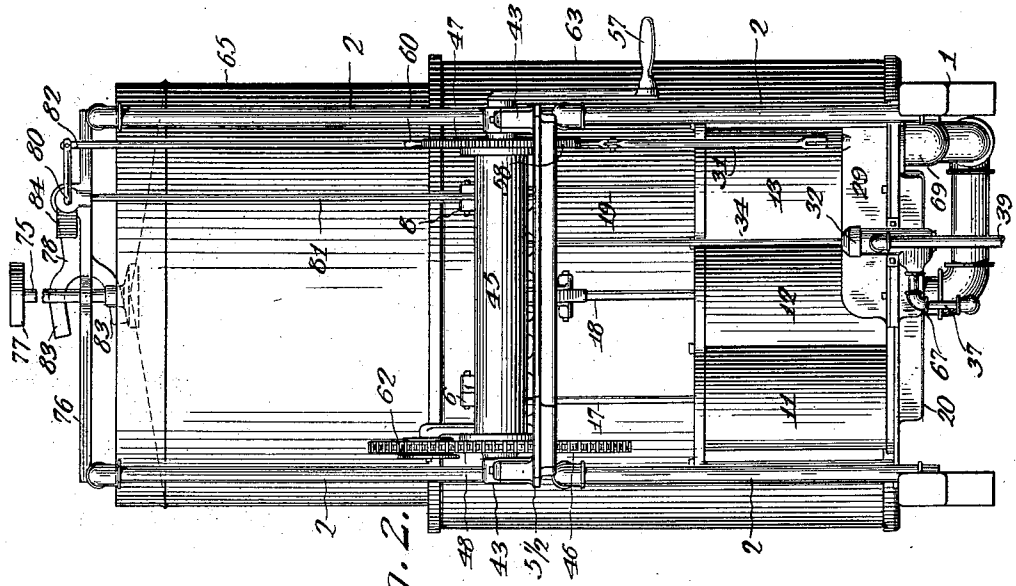

Fig. 2.

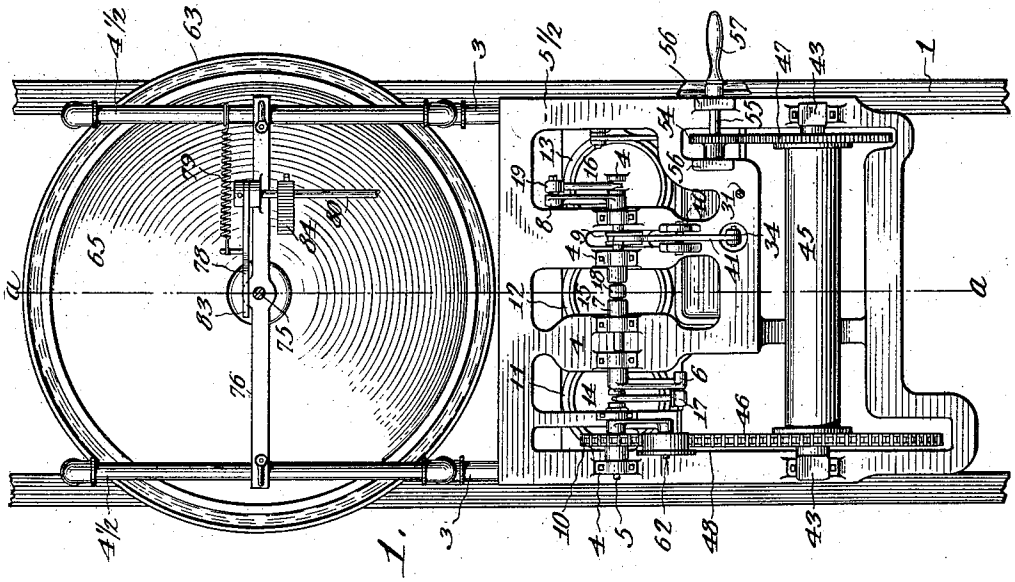

Fig. 1.

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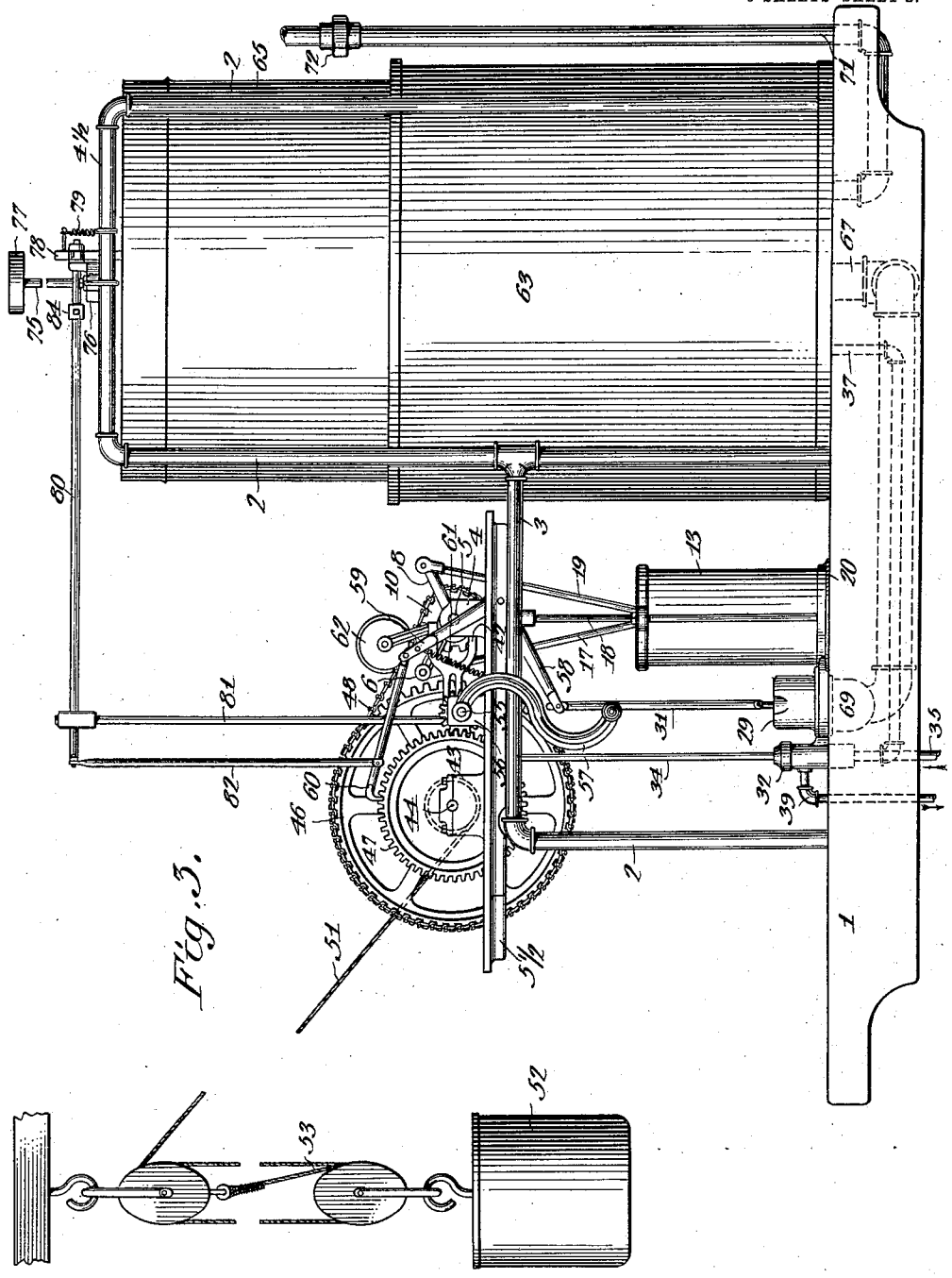

Fig. 3.

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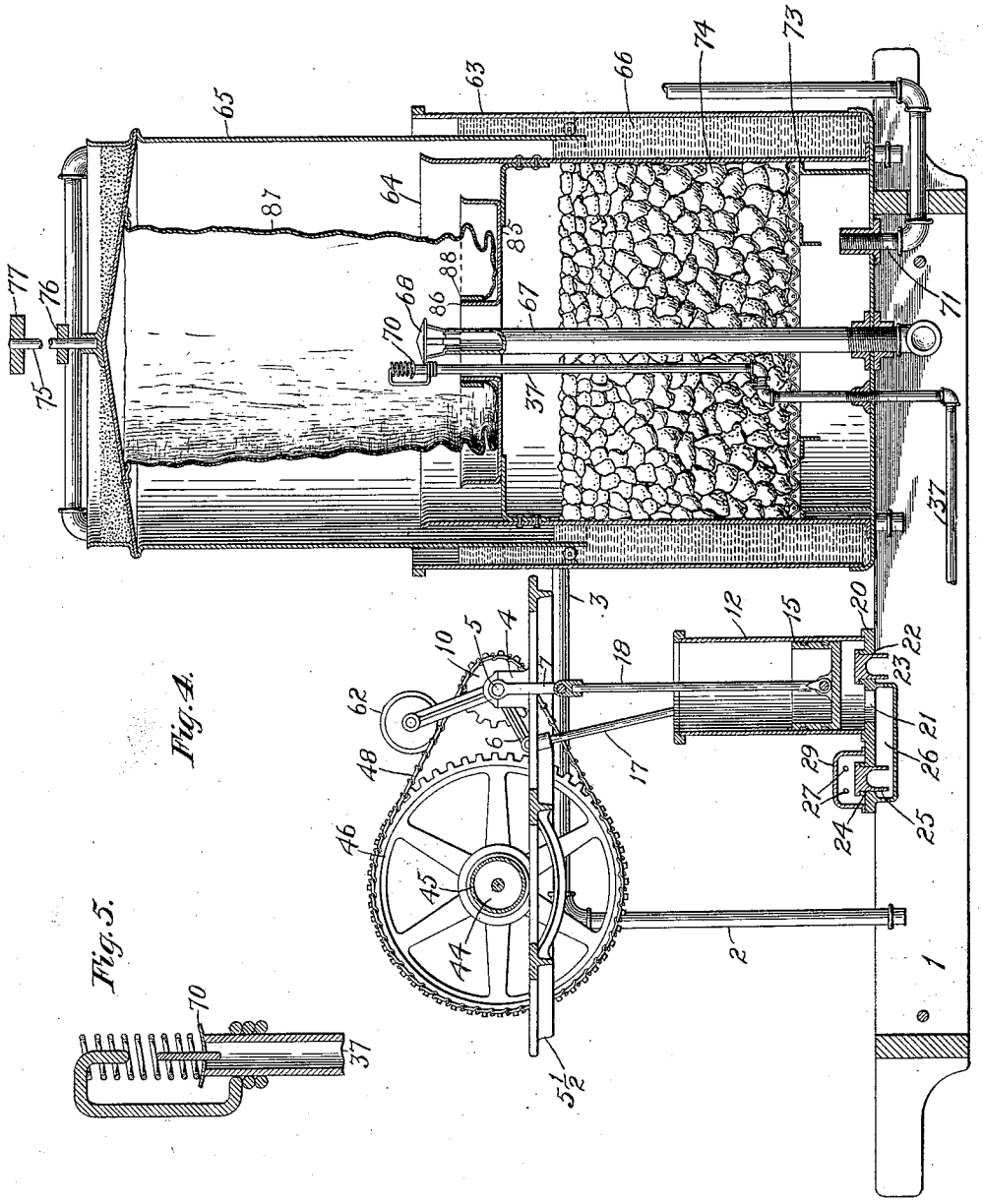

Fig. 4.

Fig. 5.

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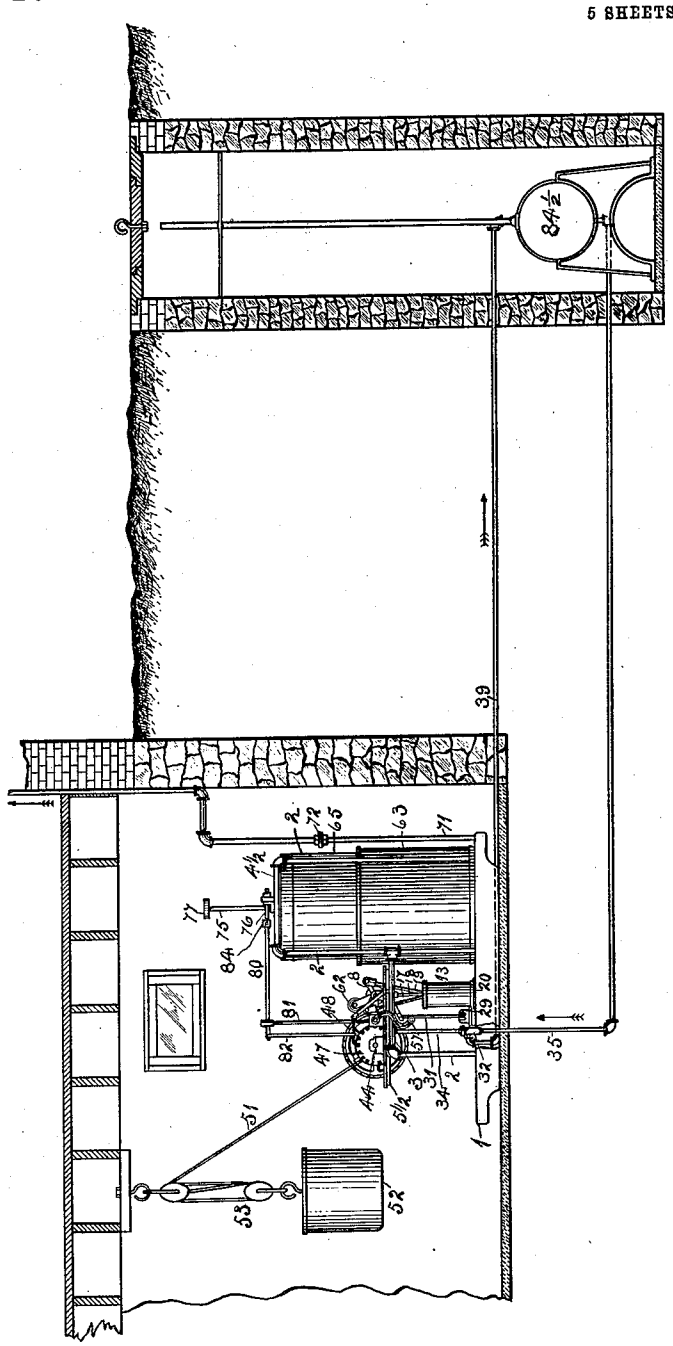
5 SHEETS—SHEET 4.

Fig. 6.



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5 SHEETS—SHEET 5.

Fig. 10.

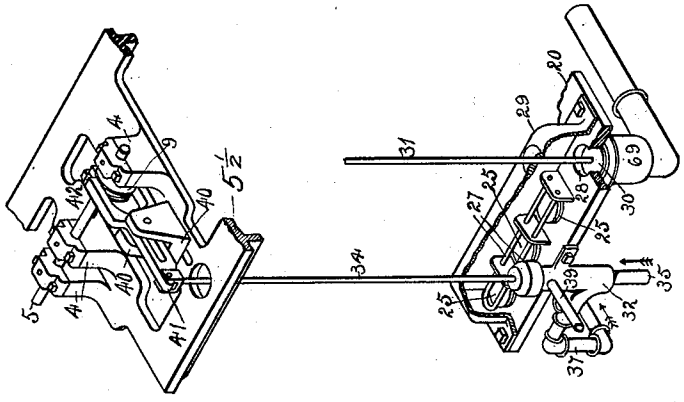


Fig. 9.

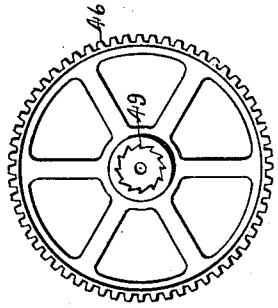


Fig. 12.

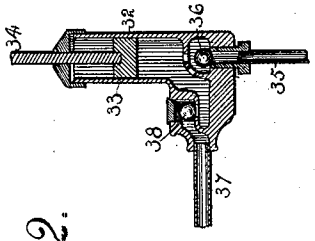


Fig. 13.

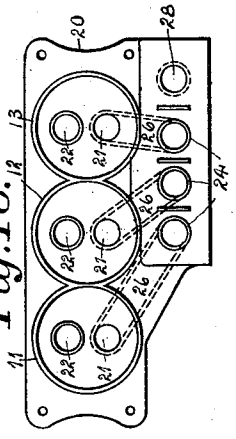


Fig. 8.

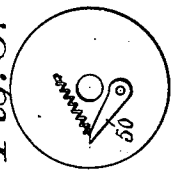


Fig. 15.

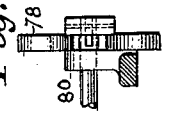


Fig. 7.

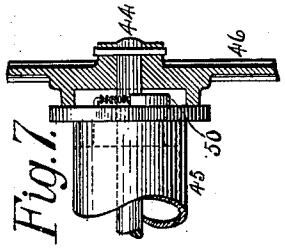


Fig. 11.

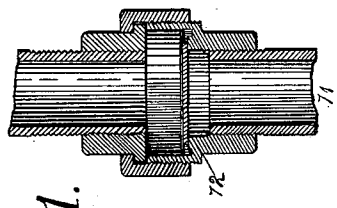
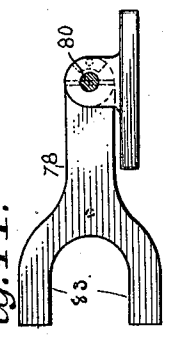


Fig. 14.



Witnesses:

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UNITED STATES PATENT OFFICE.

JAMES E. WHITACRE, OF ROCKFORD, ILLINOIS.

CARBURETER.

1,022,451. Specification of Letters Patent. Patented Apr. 9, 1912.

Application filed January 23, 1909. Serial No. 473,927.

To all whom it may concern:

Be it known that I, JAMES E. WHITACRE, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

The object of this invention is to construct a machine for making carbureted air from gasolene, for lighting, cooking and heating purposes.

In the accompanying drawings, Figure 1 is a plan view. Fig. 2 is an end elevation. Fig. 3 is a side elevation. Fig. 4 is a vertical lengthwise section on dotted line *a a* Fig. 1. Fig. 5 is a section of the upper end of the gasolene inlet pipe. Fig. 6 is an elevation of the complete apparatus. Figs. 7, 8 and 9 are details of the large sprocket wheel with ratchet and dog connection with the drum shaft. Fig. 10 is an isometrical representation of the mechanism for operating the gasolene pump. Fig. 11 is a vertical section of the check valve located in the main supply pipe. Fig. 12 is a vertical section of the gasolene pump. Fig. 13 is a plan view of the cylinders of the air pumps and the check valve therefor. Figs. 14 and 15 are details of the trip for the stopping and starting movements of the mechanism.

The main supporting frame comprises the base 1, uprights 2, lower horizontal sections 3 and upper horizontal sections 4½. A platform 5½ is supported by the lower horizontal sections 3 and is provided with bearings 4 for the shaft 5 which is formed with three cranks 6, 7 and 8, and an eccentric 9. To one end of this shaft 5 is secured a sprocket wheel 10. On the base 1 are located three cylinders 11, 12 and 13, and are located beneath the shaft 5. The cylinders are each provided with a piston 14, 15 and 16 respectively, and piston rods 17, 18 and 19 each connect a piston with its respective crank.

Fig. 13 shows a plan view of the cylinders and of the valve arrangement for supplying air to the carbureter. The bases 20 of the cylinders are each formed with two openings 21 and 22, the opening 22 is provided with a check valve 23. The base 20 extends laterally beyond the cylinders and is provided with three openings 24, each being provided with a check valve 25. The three openings 22 connect with the three openings 24 by the passage-ways 26. Over the three check valves 25 are located two rods 27 which serve to limit the upward movements of the check valves. An opening 28 is formed through the base 20 adjacent the check valves 25, and a cover 29 is located over this opening and over the check valves 25. A valve 30 is located beneath the opening 28 and from it extends upward a rod 31.

A gasolene pump comprises a cylinder 32 which is secured to the base 20, and within which is located a piston 33, from which extends a rod 34. An intake pipe 35 connects with the lower end of the cylinder, and a check valve 36 is located adjacent to the upper end of this intake pipe.

A discharge pipe 37 is provided with a check valve 38. An overflow pipe 39 is connected near the upper end of the cylinder, and above the highest position of the piston in order that any gasolene passing the piston will return to the tank by this overflow pipe.

The platform 5½ supports a slidable bracket having two uprising ears 40 between which is located a rocking bar 41 having its forked end 42 embracing the eccentric 9. This bar is pivoted between the ears 40 and to its projecting end is pivoted the rod 34 connected with the piston of the gasolene pump. The rotations of the eccentric will rock the bar 41 which will reciprocate the piston of the gasolene pump.

From the platform 5½ rise two bearings 43 which support a shaft 44, and on this shaft is secured a drum 45, at one end thereof is located a sprocket wheel 46, and to the other end of this drum is secured a spur gear 47. A chain 48 connects the sprocket wheels 46 and 10. The sprocket wheel 46 has a connection with the shaft 44 through the internal saw-toothed ratchet 49 and the dog 50. A cable 51 is wound upon the drum, and a weight 52 has a connection with the other end of a cable, and if necessary may be suspended by the tackle 53. A spur pinion 54 is secured to a shaft 55 mounted in bearings 56 rising from the platform 5½, and to one end of this shaft 55 is secured a crank 57 by which the pinion is rotated. The spur pinion 54 meshes with the spur gear 47, and by means of the crank 57 the drum can be rotated to wind the cable 51 upon it.

A bell crank is pivoted to the platform, and the arm 58 thereof is pivotally connected to the upper end of the rod 31 connected to the valve 30. To the other arm

59 of this bell crank is pivoted a dog 60, the free end of which engages the teeth of the spur gear 47, as shown at Fig. 3. A spring 61 has one end connected to the arm 59 of the bell crank, and its other end is connected to the platform 5½. When the dog 60 is in engagement with the spur gear 47 the force exerted by the weight upon the spur gear through the drum will be to rock the bell crank, thereby drawing up on the rod 31 and seating the valve 30 against the underface of the base 20 around the opening 28, and at the same time the rotation of the drum is stopped by the dog.

When the dog is raised free of the spur gear 47, the spring 61 will rock the bell crank, thereby forcing the valve open, at the same time liberating the drum 45 to be rotated by the force exerted by the weight. The rotation of the drum will cause the shaft 5 to be rotated thereby, the chain 48 connecting the sprocket wheels 10 and 46 which will reciprocate the three pistons for the three air pumps, also the piston for the gasolene pump, and when the dog 60 engages the spur gear 47 the pistons will be held at rest. A belt tightener 62 is employed in connection with the chain 48.

An oil reservoir comprises the outer shell 63 and inner shell 64 between which oil 66 is placed. A carbureted air receptacle 65 has an open lower end, and a closed upper end. The lower open end is placed in the space occupied by the oil 66. Weight may be placed on top of the carbureted air receptacle to increase its weight and consequently give added pressure to the carbureted air. An air supply pipe 67 extends within the center of the inner shell 64 of the oil reservoir, and has its upper end open over which is placed a deflecting plate 68. The air supply pipe has its other end 69 located around the valve 30, and in communication with the opening 28 which is closed by the valve 30.

The gasolene discharge pipe 37 extends from the gasolene pump 32 alongside the air pipe 67 and has its upper open end provided with a spring actuated valve 70. The carbureted air delivering pipe 71 has one end communicating with the lower end of the center space of the oil reservoir, and from thence it leads to the main in the building. A check valve 72 is located in the main 71 and prevents the backward flow of carbureted air.

Some distance from the bottom of the oil reservoir and within the carbureted air space is supported a partition 73 which supports charcoal or coke 74 through which the carbureted air passes which will remove any impurities from the carbureted air.

From the upper closed end of the carbureted air reservoir extends a rod 75 which is guided in a cross-bar 76 supported by the horizontal bars 4½ of the main frame. To the upper end of the rod 75 is secured an enlarged end 77. To the cross-bar 76 is pivoted a fork 78, and a spring 79 has one end connected to the main frame and its other end connected to the fork. This fork is connected to a rock shaft 80 supported at one end by the cross-bar, and at its other end by a rod 81 extending from the platform 5½. The other end of this rock shaft 80 is in crank form and has a connection by the rod 82 with the dog 60. The arms 83 of this fork are located between the top of the carbureted air reservoir and the enlarged head 77 of the rod 75. The functions of this forked lever are to throw in and move out the dog 60 in its engagement with the spur gear 47 for while the drum 45 is rotating, air and gasolene are being forced into the carbureted air receptacle above the charcoal 74, and when the drum is held against rotation, carbureted air is not being manufactured, and that within the receptacle may be drawn off for use.

When the carbureted air receptacle rises to a certain height it will contact with the forked lever 78 and trip it, thereby causing the dog 60 to engage the spur gear 47 and stop the rotation of the drum, and the action of the air and gasolene pumps. When the carbureted air receptacle has descended to a given point by reason of the consumption of carbureted air, the headed end 77 of the rod 75 will contact with the forked lever 78 and turn it and cause the dog to be raised free of the spur gear 47 thereby liberating the drum and setting the air and gasolene pumps into action when carbureted air will be manufactured until the carbureted air receptacle reaches a height to again trip the forked lever and stop the operative parts. The gasolene intake pipe 35 connects with the gasolene reservoir 84½ placed within the ground, and the overflow pipe 39 connects with the upper portion of this gasolene reservoir.

By the employment of air and gasolene pumps a given quantity of gasolene is forced into the carbureting chamber at each reciprocation of the piston which is also true of the air pumps, therefore at each revolution of the shaft 5 the same quantity of gasolene and air is forced into the mixing chamber. By moving the bracket 40 toward or from the eccentric 9 along the slot located beneath the bracket the stroke of the piston 33 in the gasolene cylinder will be varied to pump more or less gasolene at each stroke, and as the quantity of air pumped is constant, the richness of the mixture can be varied to suit the grade of gasolene used. By the employment of oil as a sealing medium in place of water no moisture is admitted to the carbureting chamber other than passed in with the air

which is not enough to interfere with the perfect working of the apparatus.

The weight 84 secured to the rock shaft 80 serves to counterbalance the weight of the rod 82 and the dog 60 connected therewith in order that the dog may be easily moved by the carbureted air receptacle acting on the fork.

Within the inner shell 64 is supported a pan 85 having a central opening with an upwardly extending edge 86. A fabric tube 87 has its lower end connected to the edge 86 by the ring 88, and its upper end is connected to the underface of the top of the carbureted air receptacle 65. As the gasolene is delivered from the spring actuated valve 70 it will strike the fabric tube and be held thereby until vaporized by the incoming air. Should the tube become over saturated it will run into the pan 85, and when the carbureted air receptacle descends, the tube will settle into the pan and gather the gasolene which will be taken up with the tube when the carbureted air receptacle again rises.

I claim as my invention.

1. In a carbureter, the combination of a carbureting chamber, a pump supplying air to the carbureting chamber, a pump supplying gasolene to the carbureting chamber, valves for the pumps and a supplemental valve for the air supplying mechanism.

2. In a carbureter, the combination of a carbureting chamber, a pump supplying air to the chamber, a pump supplying gasolene to the chamber, a supplemental valve for the air supply positively held closed while the air pump is not in action.

3. In a carbureter, the combination of a carbureting chamber, a pump supplying air to the chamber, a pump supplying gasolene to the chamber, a supplemental valve for the air supply, and means operated by the closed end of the chamber for releasing and stopping the action of the pumps and for opening and closing the supplemental valve.

4. In a carbureter, the combination of a carbureting chamber, a pump supplying air to the chamber, a pump supplying gasolene to the chamber, a supplemental valve for the air supply, a dog and connections between the chamber and dog for allowing the dog to stop the actions of the pumps and close the valve when the chamber has reached a predetermined upward position.

5. In a carbureter, the combination of a carbureting chamber, a pump supplying air to the chamber, a pump supplying gasolene to the chamber, a supplemental valve for the air supply, a dog holding the pumps inactive and connections for releasing the dog when the chamber has reached a predetermined downward position.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

JAMES E. WHITACRE.

Witnesses:
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E. D. E. N. BEHEL.