

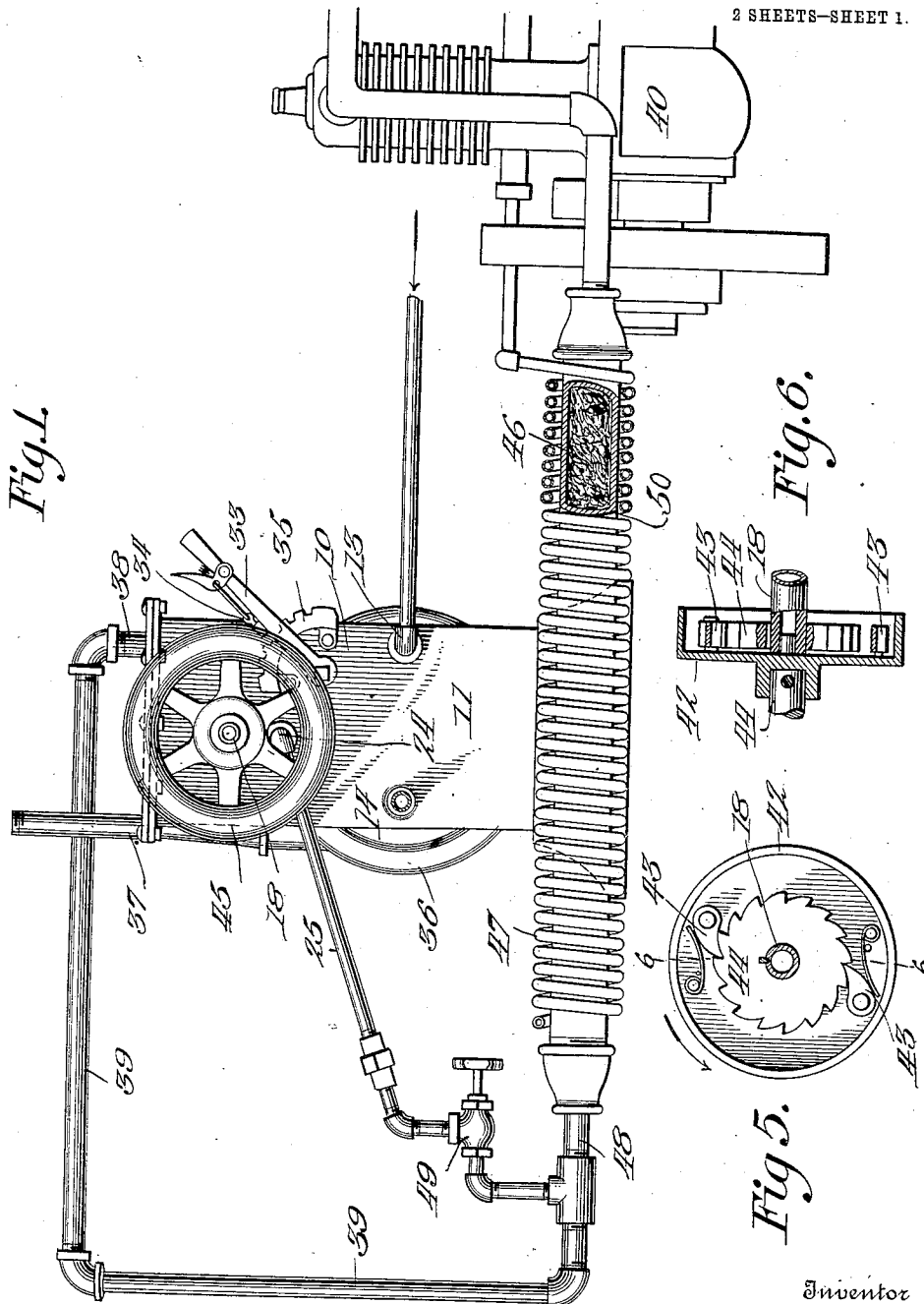
A. A. STEWARD.
FEEDER FOR CARBURETERS.

APPLICATION FILED MAY 28, 1910. RENEWED APR. 3, 1912.

1,042,835.

Patented Oct. 29, 1912.

2 SHEETS—SHEET 1.



Witnesses

Phil E. Briggs
Alfred T. Page

By

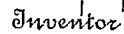
Inventor
Alden A. Steward.

E. B. Stocking
Attorney

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2 SHEETS—SHEET 2.



Phil E. Barnes
Alfred T. Gage.

By

E. B. Stocking
Attor.

Attorney

UNITED STATES PATENT OFFICE.

ALDEN AARON STEWARD, OF RUTLAND, VERMONT.

FEEDER FOR CARBURETERS.

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Specification of Letters Patent.

Patented Oct. 29, 1912.

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To all whom it may concern:

Be it known that I, ALDEN A. STEWARD, a citizen of the United States, residing at Rutland, county of Rutland, State of Vermont, have invented certain new and useful Improvements in Feeders for Carbureters, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to a feeder for carbureters and particularly to means for regulating the delivery of the liquid to be carbureted.

The invention has for an object to provide a novel and improved construction of conducting means for delivering liquid to be carbureted and for regulating the quantity of liquid to be carried by the buckets comprising these means.

20 A further object of the invention is to provide a novel structure for actuating the delivery means comprising a motor propelled by the air, drawn by the suction of an engine through a vaporizer into which the liquid to be vaporized is discharged from the delivery means.

Other and further objects and advantages of the invention will be hereinafter set forth and the novel features thereof defined by 30 the appended claims.

In the drawings—Figure 1 is an elevation showing the invention applied to an engine; Fig. 2 is a central vertical section through the regulator chamber; Fig. 3 is a vertical section at a right angle to Fig. 2; Fig. 4 is an elevation of the regulator contacts; Fig. 5 is a vertical section on line 5—5 of Fig. 1; and Fig. 6 is a similar section on line 6—6 of Fig. 5.

40 Like numerals of reference refer to like parts in the several figures of the drawing.

The numeral 10 designates the casing of the regulator which may be of any desired size or configuration, the lower portion 11 of which comprises a tank to contain the liquid 12 to be vaporized. This tank is here shown as integral with the regulator chamber 10 but it may be independent thereof. In the form of tank shown, the casing is provided with an inlet opening 13 and an overflow opening 14 suitably connected to supply and maintain a fixed level of liquid in the tank. The tank is also provided with a carrier wheel 15 pivotally mounted in 55 bearings 16 in the opposite side walls there-

of. The regulator chamber 10 is provided at opposite sides with bearings 17 in which a driving shaft 18 is mounted. This shaft has secured thereon a sprocket or other driving wheel 19 adapted to cooperate with the conveying chain 20 which is provided with a series of delivering buckets 21 adapted to travel through the liquid in the tank and discharge at the upper portion of the driving wheel 19. This chain and buckets 60 may be of any desired character and are preferably located on opposite sides of the chain 20 as shown in Fig. 2. This arrangement permits the buckets to deliver the liquid carried thereby into receptacles or weirs 22 disposed at opposite sides of the driving wheel 19 at the lower portion thereof and connected by a pipe 23. These receptacles are suitably inclined to deliver the liquid at the outlet 24 from the casing from 75 which it may be conducted by a pipe 25 to a vaporizer or any other desired point.

The regulator comprises means for tipping or tilting the buckets 21 at different degrees in order to discharge more or less of the liquid therefrom and a desirable form thereof comprises the oscillating lever arm 26 pivotally mounted at 27 and carrying at each end contacting devices 28 to engage the chain and buckets and move the same in opposite directions at different points to tip the buckets. A desirable form of these contacting devices comprises a shaft 29 secured to the arm 26 and having thereon a series of spaced turned disks 30 to engage the chain 90 and at opposite sides thereof a series of disks 31 to engage the buckets, these disks being spaced by means of collars as shown at 32. This construction reduces the frictional contact between the parts and secures an accurate travel of the chain and buckets under the resistance imparted by the contact means. The shaft 27 may be held in any of its adjusted positions by means of a lever 33 provided with the usual latch 34 cooperating 100 with a sector 35 mounted upon the casing.

The driving shaft for the delivery chain may be actuated in any desired manner, a preferred form thereof being the use of a motor 36 through which air may be drawn 105 by the suction of the engine. This motor may comprise a fluid meter such as a gas meter. The air or other fluid enters this meter through the pipe 37 and is discharged therefrom at 38, from which a pipe 39 ex- 110

tends into communication with an engine of any desired type such as indicated at 40. The driven shaft 41 from this motor means has secured thereto a drum 42 which is provided with one or more spring actuated pawls 43 as shown in Figs. 5 and 6. The shaft 18 has keyed thereon a ratchet wheel 44 and is also provided with a hand wheel 45 at its opposite end so as to continue its rotation when the suction of the engine is intermittent and at such times as it is not sufficient to drive the shaft 41 at a regular speed. Under such conditions, the ratchet wheel travels freely beneath the pawls and the driving movement is continued. As soon as the motor shaft is driven at a greater speed, the pawls engage the ratchet and continue the driving of the bucket chain.

For the purpose of vaporizing the liquid delivered through the pipe 25 and mixing air therewith, a vaporizer 50 is provided which may be filled with any suitable absorbent material 46 and heated in any desired way, for instance by a coil 47 from the engine exhaust. The liquid from the pipe 25 is delivered to the feed pipe 48 of the vaporizer through a valved connection 49 by which the feed of liquid may be controlled, while the air is fed to the pipe 48 from the pipe 39.

In the operation of the invention, the suction from the engine cylinder draws the air through the meter or other motor which actuates the chain pumping mechanism and delivers the liquid through the connections described to the vaporizing chamber where it is mixed with the air discharged from the meter. The amount of this liquid to be delivered is regulated by the contact means which engage and tip the buckets so as to discharge more or less liquid therefrom. It will be seen that when these regulating means are in substantially a horizontal plane, the buckets will travel in a straight line and deliver their full capacity, while the movement of the regulator toward the buckets deflects the travel of the chain and tips them to the desired degree to discharge more or less of their contents into the tank beneath. The structure of this regulator is such as to produce the minimum of friction for the proper actuating of the buckets while the driving connections maintain a continuous rotation of the drive wheels during the intervals between the suction action of an engine. It will be observed that this action produces both the feed of air and liquid to be vaporized and comprises the driving means for that purpose.

While the invention has been described in connection with an engine, it may be applied for any other desired purpose and the regulator used with other connections than those here shown. The structure of this regulator may also be varied, it being

only essential that a contact device tip the bucket out of a straight path of travel so as to discharge more or less of its contents.

The invention presents a simple, efficient and economically constructed regulator for carbureters, particularly adapted for automatic operation in connection with an engine of the internal combustion type.

The hand wheel upon the shaft of the driving wheel and the connection between this shaft and the motor shaft allows the pump to be started by the hand in order to prime the engine and feed it until the suction therefrom produces a sufficient flow of air through the motor to actuate the driving shaft. At this time, the pawls upon the motor shaft engage the ratchet of the driving shaft and continue the feed of fluid to the vaporizer. Other means may be used for starting the regulator.

Having described my invention and set forth its merits what I claim and desire to secure by Letters Patent is—

1. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, and manually adjustable means for tipping said buckets before they reach said receptacle.

2. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, and a pivoted lever mounted to tip said buckets before they reach said receptacle.

3. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, and a pivoted lever having a circular contact face to tip said buckets before they reach said receptacle.

4. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, and a pivoted lever extended in opposite directions from its pivot to engage opposite sides of said carrier.

5. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, a pivoted lever having a contact face to engage said carrier to tip said buckets, a retaining lever upon the shaft of said pivoted lever and provided with a latch, and a fixed sector coöperating with said latch.

6. In a feeder for carbureters, an elevating carrier provided with buckets, a receptacle to receive liquid discharged from said buckets, a pivoted regulating lever, a shaft extended laterally therefrom, and a series of separated disks mounted upon said shaft to engage and deflect said carrier.

7. In a feeder for carbureters, an elevating carrier provided with buckets, a recep-

tacle to receive liquid discharged from said buckets, a pivoted regulating lever, a shaft extended laterally therefrom, and a series of separated disks of different diameters
5 mounted upon said shaft to engage said carrier and buckets to deflect the same.

8. In a feeder for carbureters, an elevating carrier, provided with buckets, a receptacle to receive liquid discharged from said
10 buckets, a pivoted lever extended in opposite directions from its pivot, shafts carried by the ends of said lever, and separated disks of different diameters mounted upon said shafts and disposed at opposite sides of said
15 carrier.

9. In a feeder for carbureters, an elevating carrier comprising a chain provided at its opposite sides with a series of buckets, a drive wheel for said chain, a receptacle disposed to receive the contents discharged from said buckets at the upper end of said
20 carrier, and manually adjustable means for partially discharging the contents of said buckets intermediate the ends of said carrier.

25 10. In a feeder for carbureters, an elevating carrier comprising a chain provided with a series of buckets, a drive wheel for said chain, a receptacle disposed at the op-

posite sides of said drive wheel beneath the axis thereof to receive the liquid discharged
30 from said buckets, and pivoted manually adjustable means for partially discharging the contents of said buckets intermediate the ends of said carrier.

11. In a feeder for carbureters, a driving
35 shaft at the upper portion of said casing provided with a sprocket wheel, a chain carrier mounted upon said wheel and provided with buckets, a regulating lever having a contact face to deflect said buckets be-
40 neath said wheel, and a discharge receptacle disposed beneath the axis of said wheel.

12. In a feeder for carbureters, an elevating carrier provided with buckets adapted to discharge at the upper end of their travel,
45 and pivoted manually adjustable members mounted to engage the opposite sides of said buckets for discharging a portion of the contents of said buckets before they reach the
50 point of final discharge.

In testimony whereof I affix my signature in presence of two witnesses.

ALDEN AARON STEWARD.

Witnesses:

B. L. STAFFORD,

GEORGE E. LAWRENCE.