C. H. PIERSON.

CARBURETING-MACHINE

No. 193,034. Patented July 10, 1877.

fig. 1.

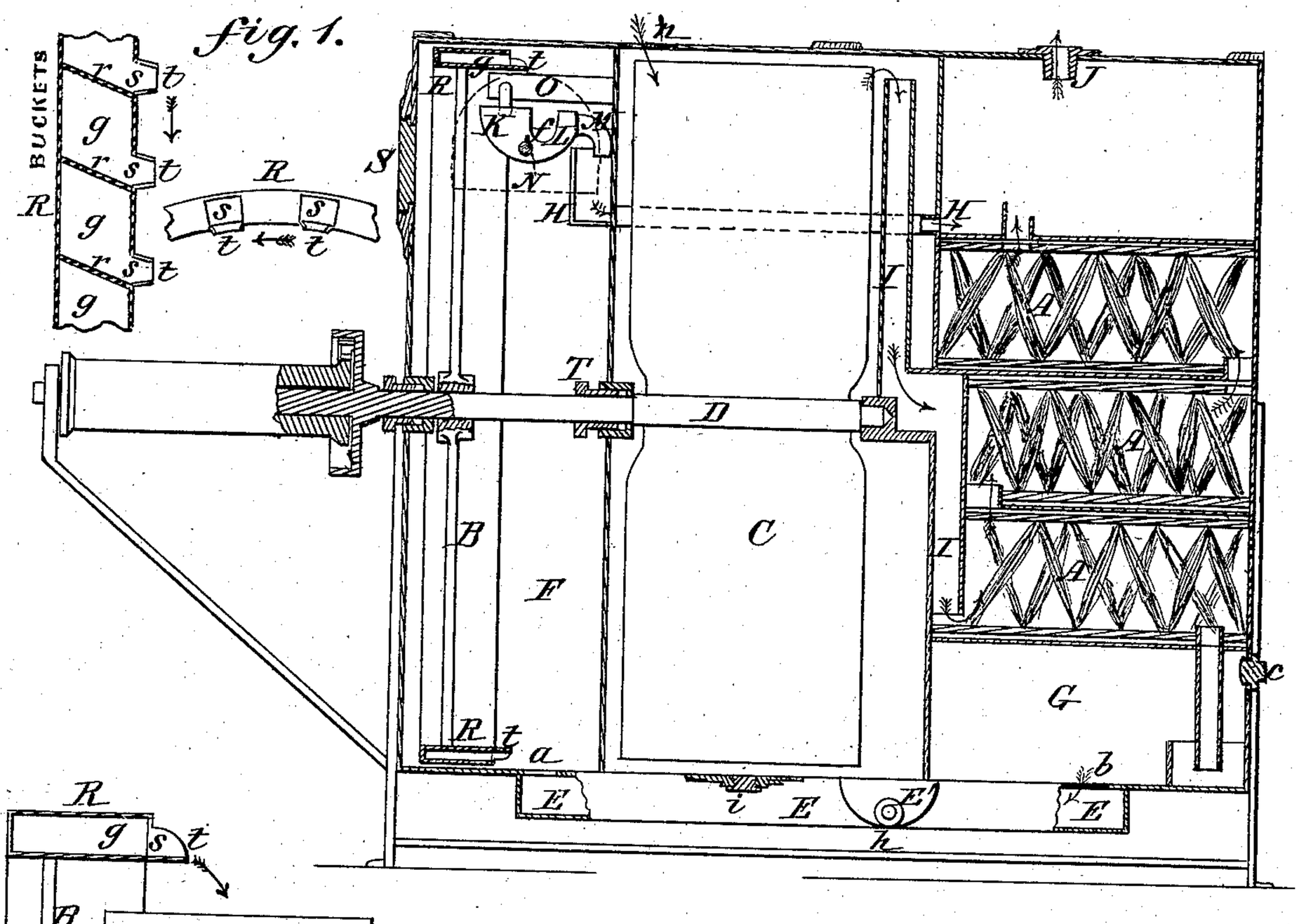

fig. 2.

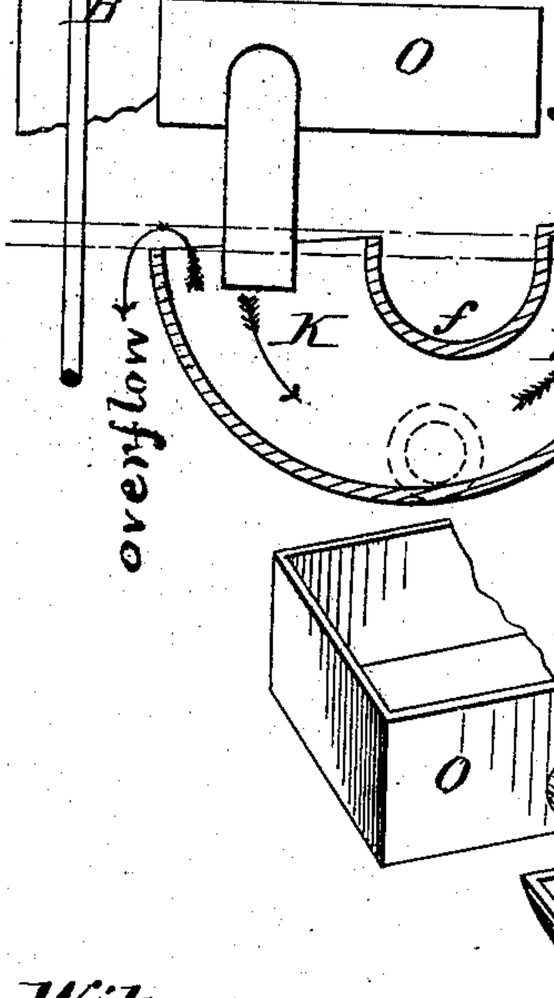

fig. 3.

fig. 4.

Witnesses:

Wm. H. Wagner.

Floyd Norris.

C. H. Pierson
by his Attys
Johnson & Johnson

UNITED STATES PATENT OFFICE.

CHARLES H. PIERSON, OF JANESVILLE, WISCONSIN, ASSIGNOR OF ONE-THIRD HIS RIGHT TO SPENCER E. PHILLIPS AND WILLIAM PUFFER, OF SAME PLACE.

IMPROVEMENT IN CARBURETING-MACHINES.

Specification forming part of Letters Patent No. **193,034**, dated July 10, 1877; application filed May 9, 1877.

To all whom it may concern:

Be it known that I, CHARLES H. PIERSON, of Janesville, in the county of Rock and State of Wisconsin, have invented certain new and useful Improvements in Carbureting-Machines, which improvements are fully set forth in the following specification and accompanying drawings.

The carbureting of atmospheric air for the production of illuminating-gas is the object of my invention.

In such machines gasoline is used as the carbureting agent, and it is important that the feed of the gasoline should be controllable and regular, according to the number of burners required, and the desired richness of the gas, giving the proper supply without unnecessary waste of the oil fed to the carbureting surfaces. To this end I have devised an adjustable feed device adapted to receive the oil from a revolving feed-wheel, and deliver it to the evaporating surfaces. The feed device proper consists of a cup, having a receiving and discharging end, and a sunken or bent-in top between these points, and mounted upon a rod supported in the casing, and having a pointer, which, in connection with a register-index, serves to regulate and determine the feed of the oil. By turning the pointer the position of the cup will be changed to increase or diminish the feed of the oil, while the surplus will overflow at the receiving end of the cup, so that the exact quantity required can be regulated by a cup device adapted for a graduated adjustment.

The feed-wheel is arranged at the front end of the machine, and with the air-propeller is carried by a shaft extending only partly through the machine. The feed-wheel is a ring-chamber, divided into buckets, which fill, as the wheel revolves through the oil, at the bottom, and discharge into a tray in the upper part of the machine.

The machine is constructed and adapted with all the necessary requirements for use; but it is only deemed necessary to particularize those devices to which my invention relates.

Referring to the drawings, Figure 1 represents a vertical longitudinal section of a machine embracing my invention; Figs. 2 and 3, sectional views, showing the adjustable feed device enlarged, and in different positions; Fig. 4, a view, in perspective, of the adjustable feed device, its index attachments, and showing the manner in which the oil is received into and discharged from the feed device.

The machine has the usual appliances suitable for a complete carbureter. The absorbing and evaporating surfaces A are arranged at one end of the inclosing-case, the feed-wheel B at the other, and the air-wheel C within an intermediate compartment, so that the operating-shaft D extends only through the feed and air wheel chambers, and carries the feed-wheel at the front end of the machine. A bottom duct, E, connects the two end chambers F and G through openings *a* and *b*, so that the oil has the same level in both chambers, being supplied through an end opening, *c*, and gaged in the usual manner. The feed-wheel revolves through the oil in the chamber F, and takes up and delivers the oil into a fixed tray, from which it passes into the feed device, and thence, by means of a duct, H, to the upper shelf of the carbureting-chamber, while the air from the wheel C is driven into the lower shelf of said chamber through a pipe, I, and, passing therefrom upward through the several shelves in contact with the oil-absorbent, is converted into illuminating-gas in a manner well understood, and passes off through the gas-supply pipe J at the top. The arrows indicate the direction of the air and gasoline. Now, to give the best results the gasoline should be fed to the carbureting-chamber according to the requirements of the burners, and this feed must therefore be under control.

The feed device proper consists of a cup having an open receiving end, K, from which extends a curved discharge end, L, with an outlet-pipe, M. This feed device is fixed to and carried upon the inner end of a horizontal rod, N, secured in bearings in the casing, and

extending outside thereof, at which end it is provided with a pointer, *d*, and finger-grasp *e*, by which to turn the cup device to raise or lower its discharging end.

A fixed tray, O, is arranged to receive the oil from the feed-wheel and deliver it into the open end K of the cup, and the duct H terminates in a cup end to receive the oil from the feed-cup and convey it into the carbureting-chamber. The feed-cup is mounted, so as to be nearly or quite balanced, and its discharge and receiving ends must be above the lowest point of the curved part *f*, so that whatever adjustment may be given to the cup it will have a feed at one end and an overflow of the surplus oil at the other by reason of the peculiar action of the sunken part *f* of the upper side of the cup. This is illustrated in Fig. 2, where the dotted horizontal lines P indicate the discharge and overflow from the cup, and the manner of adjusting it to vary the feed.

By turning the cup to bring down its discharge end the feed will be increased, and by raising such end the feed will be diminished, but in either case the overflow of the surplus will be free. An index face or dial, Q, is set on the case for the finger or pointer *d*, to indicate the degree the cup has been turned and the amount of feed therefrom.

For this purpose the index or dial may be graduated for the number of burners.

The feed-wheel is formed by a ring-chamber, R, supported by arms upon the driving-shaft, and it is divided into buckets *g*, which fill with oil as they pass through it and discharge it into the tray O as they revolve over it in the upper portion of the case.

The buckets are formed in the ring-chamber by oblique divisions *r*, with openings *s* at the inner side of the ring, each opening being provided with chute *t*, so that while the buckets readily fill in passing through the oil, the chutes direct the oil out into the tray as they pass over it. The ring-bucket chamber R is more simple, less expensive, and more effective than single buckets, and the adjustment of the feed device gives a regulated supply, although the buckets may feed more than is required.

The feed and air wheels are driven by weight devices in the usual manner. The bottom duct E has a branch, E′, provided with a plug, *h*, through which to draw off gasoline whenever it may be desired to do so.

A plug, *i*, in the bottom of the case serves to draw off water which may accumulate in the air-wheel chamber.

A man-hole, *s*, in the front end of the machine gives access to the inner stuffing-box T of the driving-shaft. The air-wheel may be of any suitable construction, and the casing has openings *n*, through which the air is supplied to the wheel.

I claim—

1. In an air-carbureting machine, a feed-cup device, receiving the gasoline from the feed-wheel, pivoted, and constructed with opposite receiving and discharging ends, substantially of the form shown, and adapted to feed an ascertained quantity at its discharging end to the carbureting-chamber, and to overflow the surplus at its receiving end, substantially a set forth.

2. The combination, with the feed-wheel B and the fixed tray O, of a horizontally-pivoted feed-cup device, discharging an ascertained quantity of gasoline, as set forth, and the carbureting-chamber duct H, substantially as herein set forth.

3. The horizontally-pivoted feed-cup device, its carrying-rod N, the pointer *d*, finger-grasp *e*, and the dial Q, combined for use as set forth.

4. The horizontally-pivoted feed-cup device, provided with the top depression or sink *f*, between the receiving and discharging ends, as and for the purpose set forth.

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

CHARLES H. PIERSON.

Witnesses:

J. B. DOE, Jr.,

CHESTER BAILEY.