No. 842,429. PATENTED JAN. 29, 1907.

A. B. SCHUYLER.

CARBURETER FOR EXPLOSION ENGINES.

APPLICATION FILED AUG. 2, 1905.

FIG. 1.

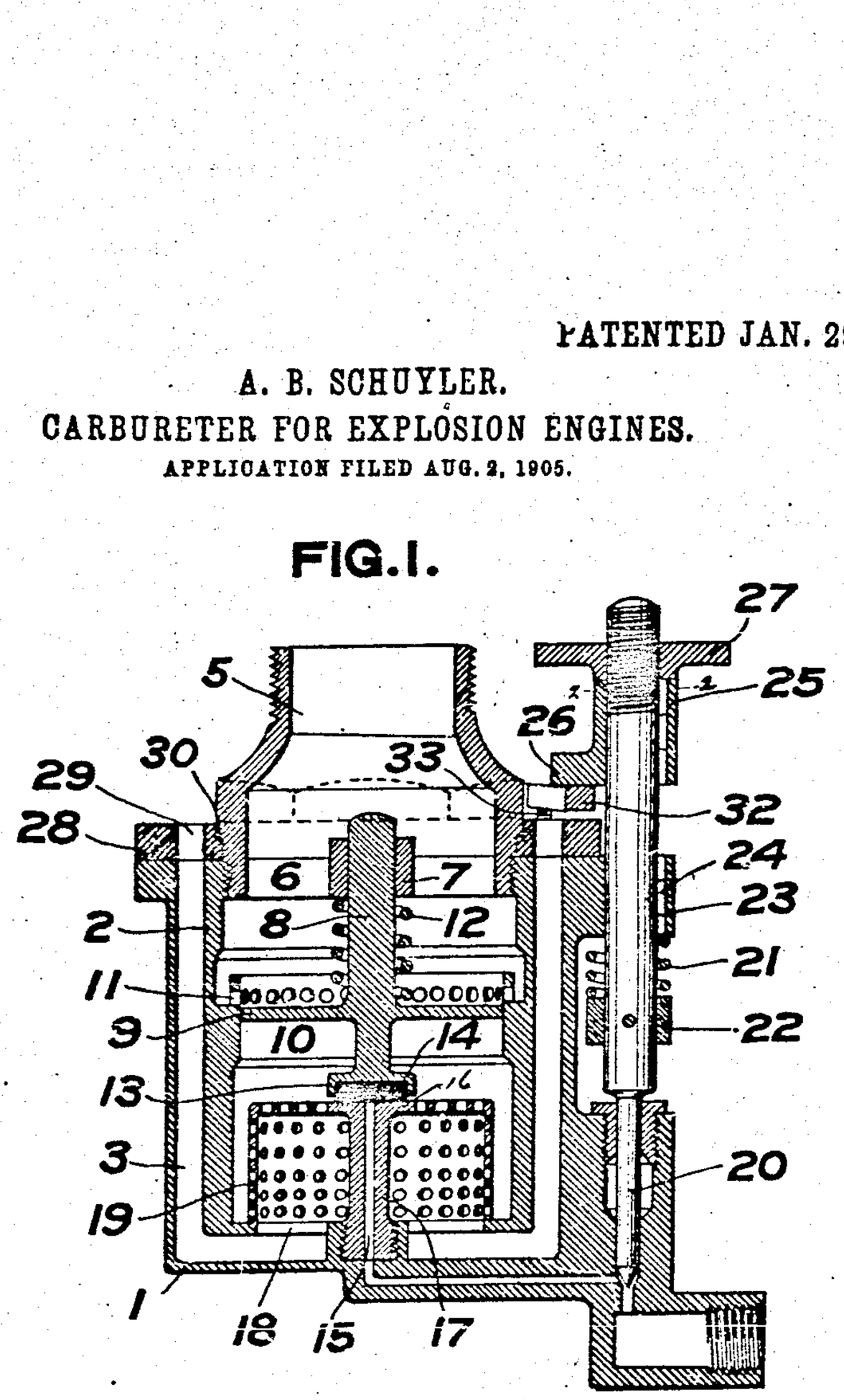


FIG. 2.

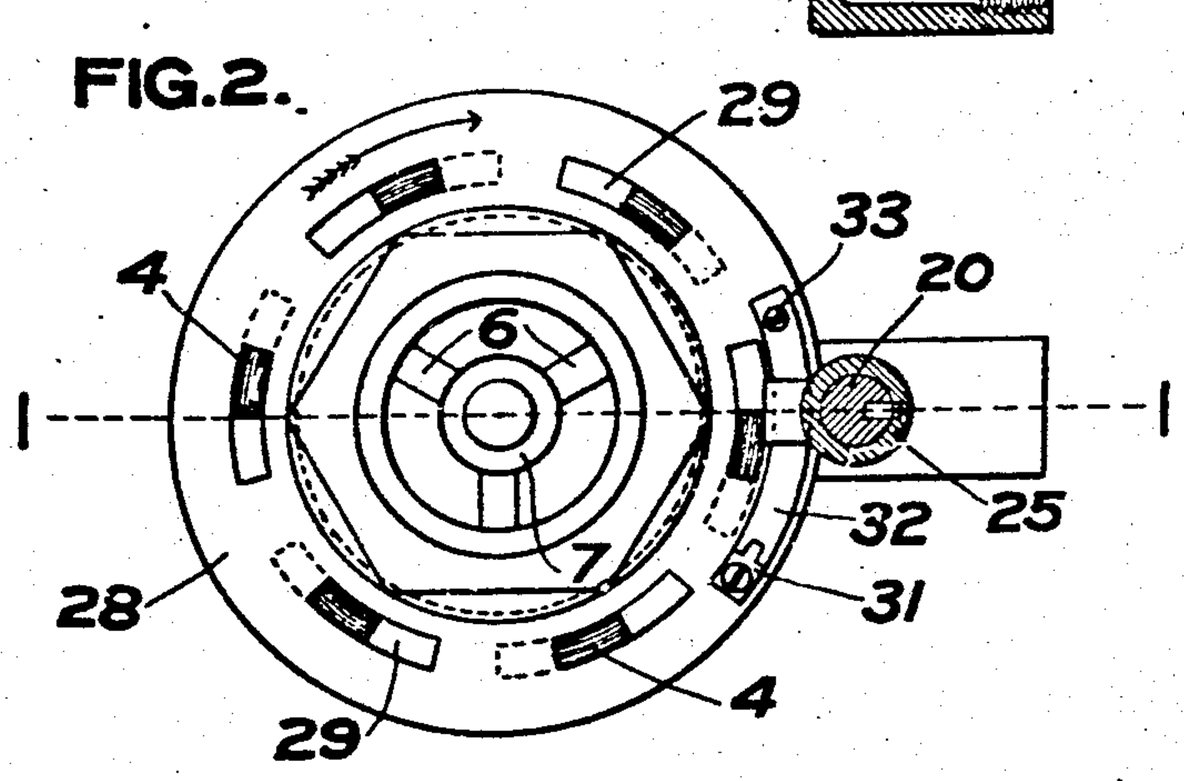
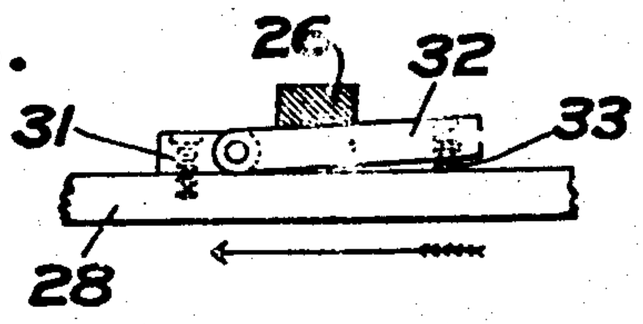


FIG. 3.



WITNESSES:

L. Thorn

E. W. Carroll.

INVENTOR:

Albert B. Schuyler

by Osgood & Davis

his Attys

UNITED STATES PATENT OFFICE.

ALBERT B. SCHUYLER, OF ROCHESTER, NEW YORK.

CARBURETER FOR EXPLOSION-ENGINES.

No. 842,429. Specification of Letters Patent. Patented Jan. 29, 1907.

Application filed August 2, 1905. Serial No. 272,394.

To all whom it may concern:

Be it known that I, ALBERT B. SCHUYLER, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Carbureters for Explosion-Engines, of which the following is a specification.

This invention relates to carbureters for explosion-engines and like purposes.

In the drawings, Figure 1 is a central vertical section on the line 1 1 of Fig. 2 through a carbureter embodying this invention. Fig. 2 is a top plan view of the greater part of said device and a horizontal section through the collar 25, and Fig. 3 is an elevation of the adjustable cam.

The carbureter has an outside casing 1, inclosing an inner casing 2. The space 3 between the two casings is employed as an air-inlet space, and vertical ribs 4, Fig. 2, at intervals connect the inner casing 2 and the outer casing 1. To the upper end of the inner casing 2 is attached the connection 5 for attachment to the inlet of an explosion-engine, and this connection may embody a supporting-rib 6 and a guide 7 for the stem 8 of the air-inlet valve 9. The said inlet-valve slides in a cylindrical casing 10, having near its upper end a ring of ports 11. A spring 12, pressing, preferably, at one end against the guide 7 and at the other against the piston or valve 9, tends to keep said valve depressed below the series of ports 11. Depending from the valve 9 is the cup 13 preferably containing the pad 14, of suitable material, such as leather. This pad normally closes the upper end of the oil-inlet 15 by striking upon the top of a plate 16, supported on a stem 17, through which said oil-inlet runs. If oil is upon the top of the plate 16 and the pad 14 strikes the plate suddenly, the oil will be splashed or spattered outward from the neighborhood of the orifice and will strike upon the inner walls of the casing 2. In order to increase the exposure of the oil to the current of incoming air, the bottom of the casing 2 has a circular orifice 18, from which extends the cage or perforated diaphragm 19 to the edges of the plate 16, so that any oil running off the plate 16 or splashed therefrom will pass upon the cage and will be more or less distributed over its surface, so that the incoming air comes in contact with much more of the oil than heretofore has been known, and therefore the evaporation of the oil and its mixture with the air will be the more rapid and certain. The particular form of cage herein shown is bell-shaped, with its top formed by the plate 16, which is perforated beyond the pad 14, as is also its depending cylindrical portion. The oil-inlet 15 is controlled by a needle-valve stem 20, normally pressed downward to cut off the inlet of oil by means of a spring 21 acting upon a collar 22 on the stem of said needle-valve, which stem has also a guide 23 upon the casing of the carbureter and which is prevented from turning by means of a key 24, resting in a key-slot in said stem. Upon the upper end of the stem is a collar 25, having a lug 26 thereon, extending inward over the carbureter-body. A set-screw 27 upon the upper threaded end of the stem 20 determines the height of the lug 26.

Upon the top of the casings 1 and 2 is the disk 28, having perforations 29, adapted to register with the air-openings between the ribs 4. The said disk 28 is rotatable by grasping the edge of the disk, and the openings 29 are so far apart that when turned to one position the air-openings between the two casings are closed, and when in another position the said air-openings are completely uncovered, and in intermediate positions the said air-openings are covered to greater or less extent. The disk is held in position by a shoulder 30 upon the top 5 of the carbureter. Upon the rotary disk 28 is a block 31, screwed rigidly to said disk, to which is hinged the curved bar 32, having a screw 33 passing through the same and bearing upon the upper face of said disk 28. By adjusting the screw 33 the bar 32 may be raised to different angles with reference to the face of said disk 28. The lug 26, carried by the valve-stem 20, is adapted to make contact with the bar 32. By this arrangement as the disk 28 is turned to adjust the supply of air to the carbureter through the air-channels 3 the same movement also through the bar 32, lug 26, and valve-stem 20 controls the inlet of oil to the carbureter.

The operation of the device is as follows: As the suction occurs in the explosion-engine cylinder that suction will raise the valve-disk 9 until said valve-disk passes to a point above the ports 11. In this position air will be drawn by the movement of the piston of the engine down through the orifices or air-ports 29, down through the channels 3, and upward through the inner carbureter-body.

At the same time oil will flow inward through the inlet 15 and upon the plate 16. As soon as the suction stops the spring 12 immediately causes the valve-disk 9 and its appendages to descend rapidly, and the pad 14, striking upon the upper face of the plate 16 and upon the hydrocarbon thereon, turns said hydrocarbon off the plate and into the surrounding space, spattering it upon the inner walls of the casing 2 and upon the outer surface of the cage 19. When the next suction occurs, the air passing into the interior of the cage and upward through it will cause very rapid evaporation of the widely-distributed and effusive hydrocarbon, which mixed with air will pass upward through the ports 11 and on into the cylinder.

What I claim is—

1. In a carbureter, the combination with the casing having an air-inlet discharging into its bottom, and an outlet an oil-supply extending up into said inlet, a foraminated cage extending from the upper end of the oil-supply across the air-inlet; the central portion of the cage around the oil-supply being imperforate, a spring-depressed suction-valve controlling the space above said cage to the outlet and provided on its under side with a valve of greater diameter than the oil-discharge opening to strike the oil on the imperforate top portion of the cage and splash it over the perforated portions.

2. The combination of a carbureter-casing, a spring-actuated valve therein adapted to be automatically opened by suction through said casing and having a supplementary valve thereon, an oil-inlet adapted to be closed by said supplementary valve and terminating in a plate, a perforated diaphragm extending across the air-inlet and to the edges of said plate, the said supplementary valve being of such area as to strike an extended imperforate surface on said plate to close the oil-inlet and also to distribute oil from said plate over said diaphragm.

3. The combination of a carbureter-casing, a cylindrical valve-seat therein, a ring of ports around the same, a valve-disk adapted to move in said seat from one side of said ports to the other side thereof, a spring normally tending to prevent passage of air through said ports by moving said disk to one of its positions, an oil-inlet in said casing, a perforated diaphragm covering the air-inlet to said casing, and means for distributing oil from the oil-inlet over said diaphragm.

4. The combination of a carbureter-casing, an air-inlet thereto, an oil-inlet, a perforated diaphragm in said casing, means for distributing oil from the oil-inlet over said diaphragm, a vertically-movable valve controlling said oil-inlet, a rotary horizontal valve controlling said air-inlet, a vertically-adjustable bar hinged to said air-inlet valve and adapted to be set at different angles thereto, and means projecting laterally from said oil-inlet valve over said bar, whereby the air-inlet and the oil-inlet may be simultaneously controlled by movement of said air-inlet valve.

5. The combination with the cylindrical carbureter-casing having an outlet to the engine in its upper portion an air-inlet and an oil-inlet in the lower portion, a spring-depressed suction-valve controlling the passage through the cylinder and provided on its lower side with a fixed stem having a disk-valve controlling the oil-discharge opening, a plate around the opening from which the oil is splashed by said disk-valve, and a foraminated extension of said plate receiving the oil splashed from said plate and exposing it to the entering air.

6. A carbureter comprising a casing having inner and outer walls, air-inlets extending down from the top of the casing between the two walls, to a bottom air-inlet, a horizontally-turning ring-valve on top of the casing and controlling said air-inlets, an oil-supply pipe extending up into the bottom of the casing and having a bell-shaped foraminated cage extending from its upper end and inclosing the bottom air-inlet, a spring-depressed suction-valve controlling the space above the cage and having a depending valve-stem to close the oil-passage and simultaneously splash the oil on the cage, a spring-pressed oil-controlling valve and means for actuating the valve from the air-valve.

7. A carbureter comprising a casing having inner and outer walls, air-inlets extending down from the top of the casing, between its two walls, to a bottom inlet, a bell-shaped cage over said bottom air-inlet, an oil-pipe discharging centrally on top of said cage and having a passage leading to one side of the casing, a rotary ring-valve on top of the casing and controlling the air-inlets, a vertical rod mounted in bearings on the side of the casing and having a needle-valve on its lower end closing the oil-passage, a spring pressing the rod down, a projection on the upper end of the rod overhanging the air-valve; a cam on the air-valve to engage said projection and lift the needle-valve, a spring-depressed suction-valve in the inner casing provided with a valve on its lower side controlling the oil-discharge opening.

ALBERT B. SCHUYLER.

Witnesses:
L. THON,
D. GURNEE.