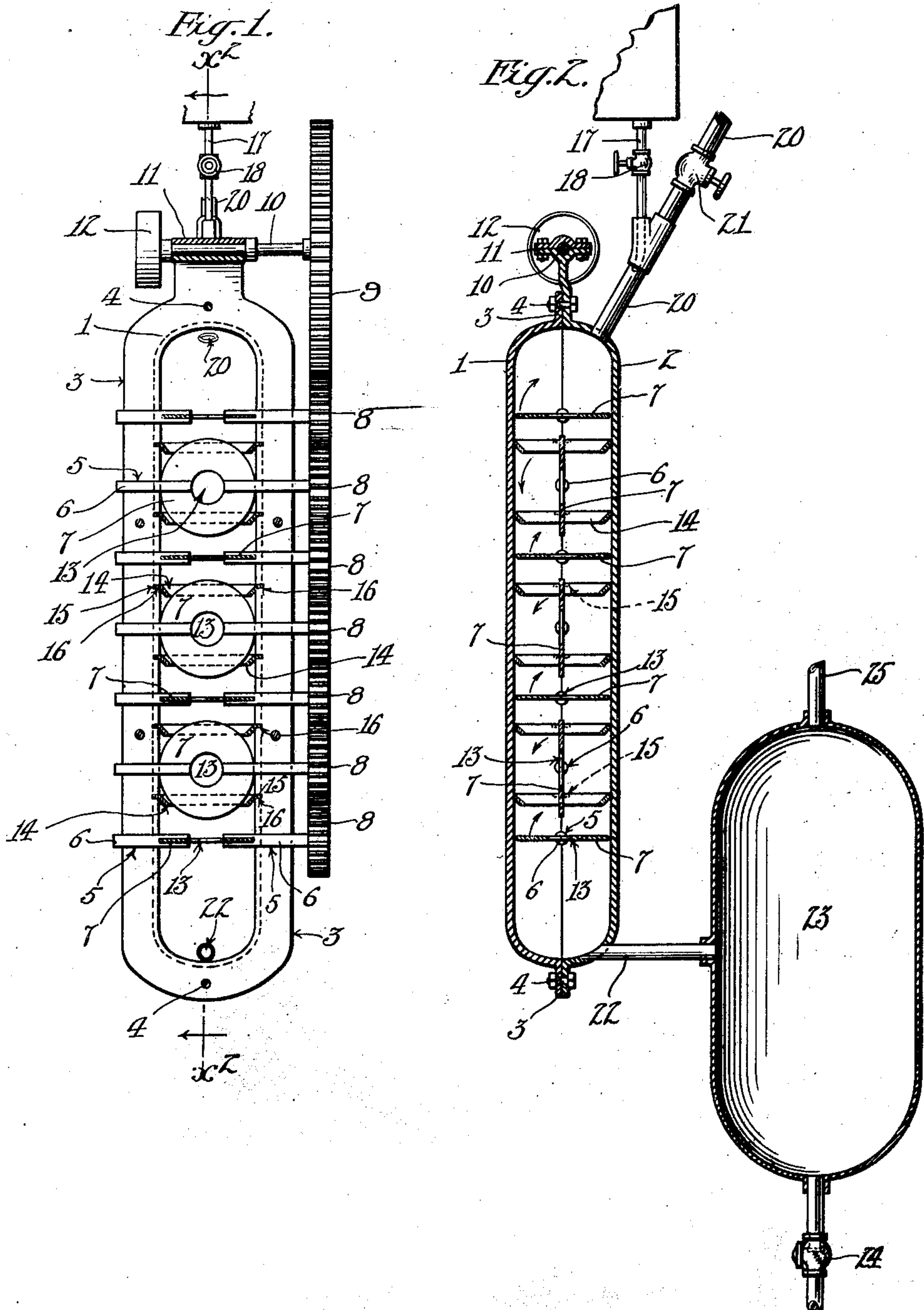


No. 896,422.

PATENTED AUG. 18, 1908.

F. A. SYLVA.  
CARBURETING AND OIL SEPARATING APPARATUS.

APPLICATION FILED APR. 3, 1907.



Witnesses:  
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his Attorneys



# UNITED STATES PATENT OFFICE.

FRANK A. SYLVA, OF LOS ANGELES, CALIFORNIA.

## CARBURETING AND OIL-SEPARATING APPARATUS.

No. 896,422.

Specification of Letters Patent.

Patented Aug. 18, 1908.

Application filed April 3, 1907. Serial No. 366,231.

*To all whom it may concern:*

Be it known that I, FRANK A. SYLVA, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented a new and useful Carbureting and Oil-Separating Apparatus, of which the following is a specification.

This invention relates to an apparatus for separating the lighter from the heavier constituents of oils and for mixing such lighter constituents with air for the production of explosive or combustible gases.

The main object of the invention is to provide an apparatus for this purpose which will be efficient and economical in operation and simple in construction.

The accompanying drawings illustrate the invention.

Figure 1 is a vertical sectional view of one form of the apparatus. Fig. 2 is a vertical sectional view on line  $x^2-x^2$  Fig. 1.

The apparatus comprises a vertical casing or shell, made in two halves or cylindrical segments 1, 2, provided with webs 3 whereby they may be attached together by bolts 4, said webs being provided with semicircular grooves or recesses 5 so that when said members 1, 2 are fastened together they form a series of bearings adapted to receive the shafts 6 of beaters 7. Said beaters consist of disks or plates extending respectively in the planes of their shafts having their shafts 6 attached thereto and extending therefrom in diametrical positions so that the beaters revolve on axes extending transversely of the casing. The shafts or axes are arranged at different levels or at different longitudinal positions in the casing, so that the beaters act on the oil and air successively in the passage of the oil and air through the casing. The shafts 6 carry, externally of the casing, driving gears 8 which mesh together in a continuous series, and one of said gears 8 meshing with a driving gear 9 carried by a shaft 10 mounted in a bearing 11 at the top of casing member 2 and driven by suitable means such as a driving pulley 12 to impart to all of the shafts 6 and the beaters 7 carried thereby a continuous rotary movement. The beaters 7 are arranged in a continuous series longitudinally of the casing, and in order to economize space and to produce more effective action thereof, it is desirable to bring the beaters so close together that their paths of

movement overlap, the beaters being disposed in different angular positions so that such overlapping will not cause conflict; for example, alternate beaters are arranged in parallel planes and the adjacent or intervening beaters in other parallel planes. Each beater 7 has a central opening 13.

Deflector means are provided on the inside of the casing intermediate the beaters for continually directing oil from the walls of the casing inwardly so that it will pass on to the next beater. Such deflector consists of rings 14, each ring having diametrically opposite lugs 15 adapted to engage in pockets 16 formed in the respective casing members 1, 2 at the joint thereof.

17 designates an oil supply source or tank connected through valve 18 and pipe 19 with an air inlet pipe 20 provided with a valve 21 and communicating into the upper part of the tubular casing. At the other or lower end of the casing is connected an outlet pipe 22 leading to a settling or separating chamber 23, provided at its lower portion with a downwardly opening check valve 24 and an outlet 25 leading from its upper portion to any suitable suctional means, such as an intake of a gas engine.

In the operation of the apparatus the oil and air is admitted through the inlet pipe 20, the oil being, if necessary, suitably heated before it passes to the apparatus. The oil drops onto the uppermost beater 7, and by the rotative movement thereof is thrown against the wall of the casing, and in this operation it is largely broken up, causing it to be more fully exposed to the current of air passing downwardly through the casing. Such oil as strikes the side of the casing will run onto the deflector 14 next below the beater and will thereby be deflected inwardly so as to fall onto one or more of the following beaters. The several beaters act successively on the oil in a similar manner and the air is drawn continuously past the several beaters so as to withdraw from the oil thus broken up substantially all the more volatile constituents. The central opening 13 in each beater enables a free passage for the air to be always maintained, irrespective of the position of the beaters, and even when the beaters are turned at right angles to the casing, and extend close to the walls thereof throughout their circumference. The oil, air and mixture pass



together through the outlet pipe 22 to the settling chamber 23 wherein the heavier or unvolatilized constituents settle, allowing the air to pass through the outlet 25, carrying with it all of the volatile constituents of the oil. The check valve 24 opens from time to time under the weight of the accumulated oil residuum to allow the latter to pass off.

10 What I claim is:—

1. A carbureting and oil separating apparatus comprising a vertical casing, a plurality of shafts mounted transversely therein at different levels; beaters on said shafts, 15 each beater formed as a plate extending in the plane of the shaft, and means for rotating said shafts, said casing having means for admitting oil and air at the upper end, and having an outlet at its lower portion.

20 2. A carbureting and oil separating apparatus, comprising a vertical casing, a plurality of shafts mounted transversely therein at different levels, beaters on said shafts, each formed as a plate extending in the 25 plane of the shaft, and having a central opening, and means for rotating said shafts, said casing having means for admitting oil

and air at the upper end and having an outlet at its lower end.

3. A carbureting and oil separating apparatus, comprising a vertical casing, a plurality of shafts mounted transversely therein at different levels, beaters on said shafts, each formed as a plate extending in the plane of the shaft, deflectors between the beaters extending inwardly from the walls of the casing, and means for rotating said shafts, said casing having means for admitting oil and air at its upper end and having an outlet at its lower end. 40

4. A carbureting and oil separating apparatus comprising a casing formed of two semicylindrical members, having bearings formed at the joint thereof, a series of shafts mounted in said bearings and beaters carried 45 by said shafts.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 23rd day of June, 1906.

FRANK A. SYLVA.

In presence of—

FRANK L. A. GRAHAM,  
ARTHUR P. KNIGHT.