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PATENTED NOV. 27, 1906.

F. A. HEATH.
CARBURETER.

APPLICATION FILED AUG. 23, 1905.

Fig. 1.

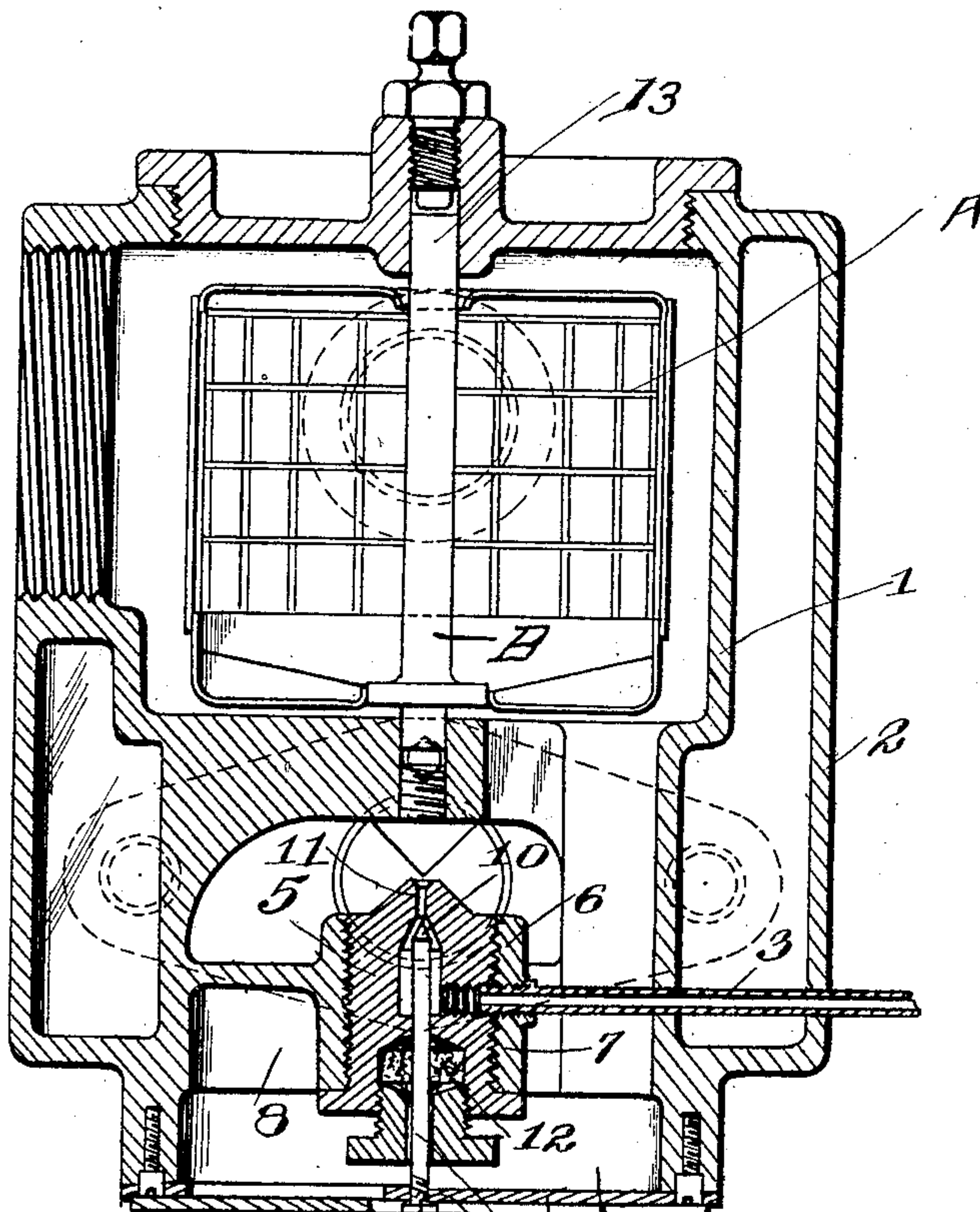


Fig. 2

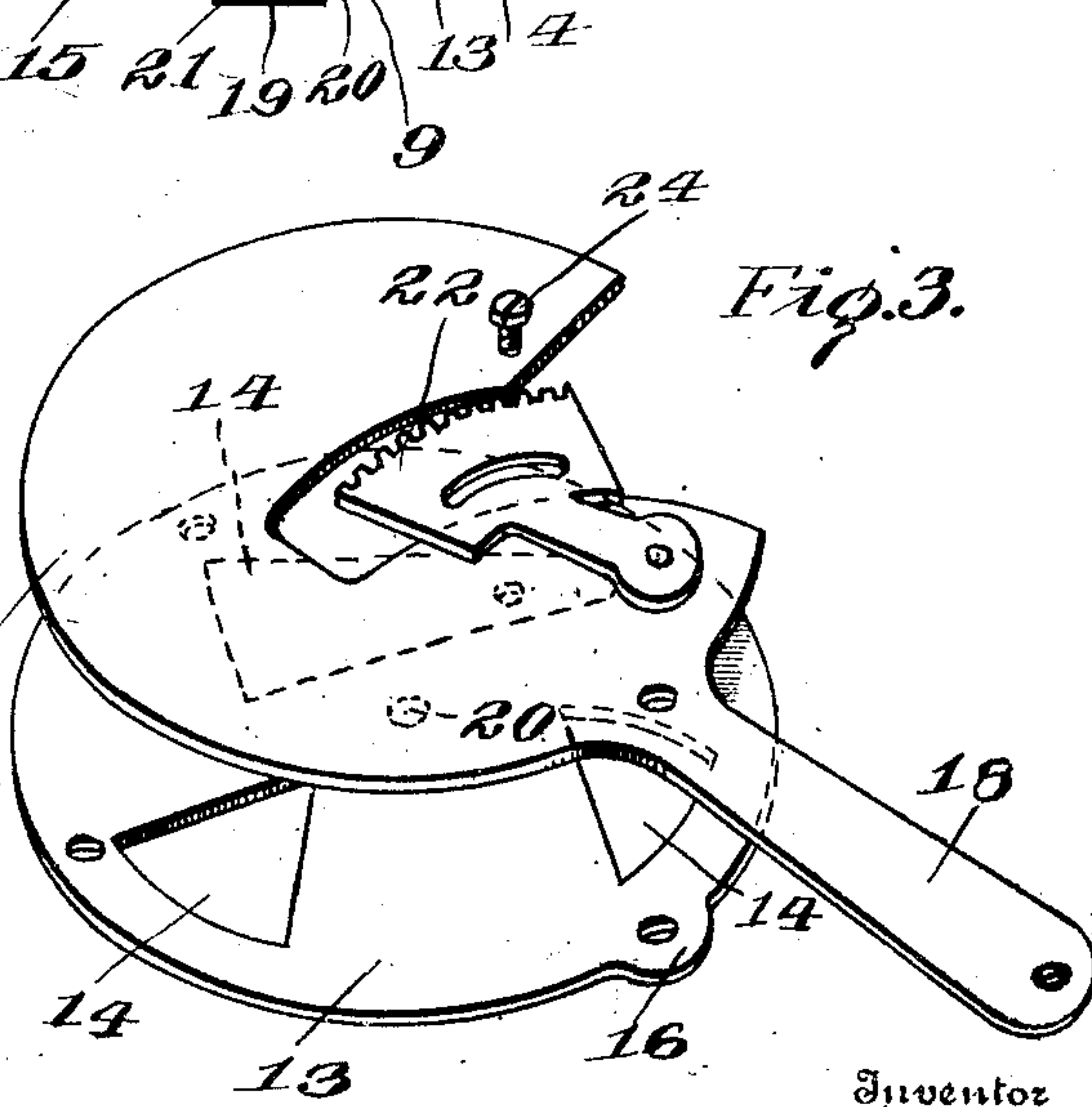
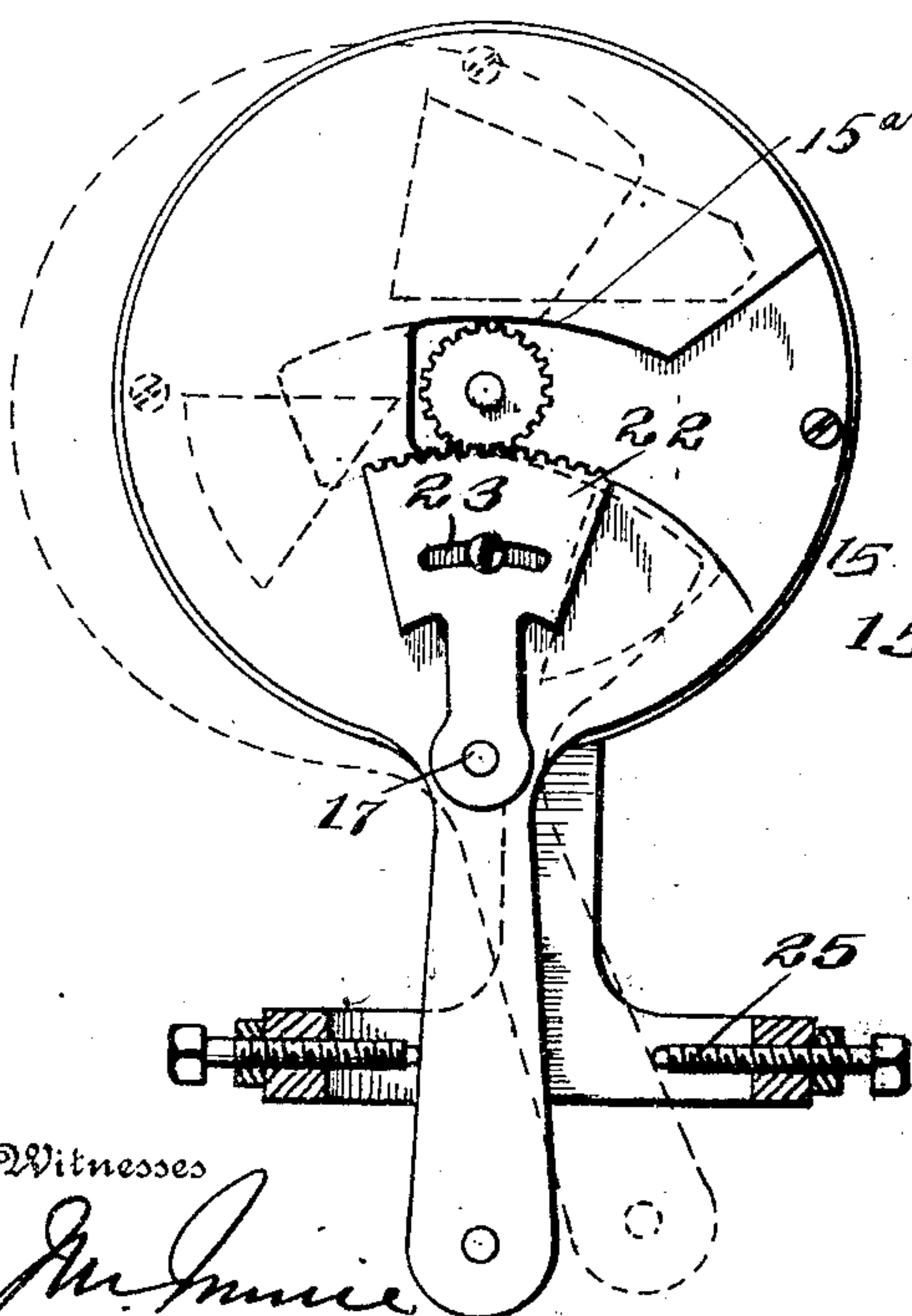


Fig. 3.

Witnesses

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CARBURETER.

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Specification of Letters Patent.

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Application filed August 23, 1906. Serial No. 275,475.

To all whom it may concern:

Be it known that I, FORREST A. HEATH, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Carbureters, of which the following is a specification.

This invention embodies improvements in carbureters of the type particularly designed for use on explosive-engines, but applicable in various other ways, the invention residing particularly in the special means employed for controlling the admission of air and hydrocarbon to the carbureter, and the detail features of construction and advantages thereof will be pointed out more clearly as the description proceeds.

For a full description of the invention and the merits thereof and also to acquire a knowledge of the details of construction of the means for effecting the result reference is to be had to the following description and accompanying drawings, in which—

Figure 1 is a vertical sectional view of a carbureter, showing the practical embodiment of the invention. Fig. 2 is a bottom plan view showing more clearly the mounting of the air-valve and its operative connection with the hydrocarbon-valve. Fig. 3 is a perspective view of the air-valve, the valve-plate adjacent thereto, and the segment by which the air-valve is operatively connected with the hydrocarbon-valve.

Corresponding and like parts are referred to in the following description and indicated in all the views of the drawings by the same reference characters.

The general construction of the carbureter does not form a part of this invention and will therefore not be minutely described.

The customary mixing-chamber casing 1 is utilized and is surrounded, preferably, by a jacket or shell, through which a heating medium may pass, a hydrocarbon passage or inlet 3, leading into the casing 1 and an air passage or inlet 4 being provided at the bottom of said casing in the construction illustrated. Arranged in the mixing-chamber is a suitable mixer A, which preferably comprises a rotatable cage carried by shaft B, said cage or mixer A being operated by any suitable means to facilitate commingling of the elements of the gaseous mixture in a manner which will be readily apparent. The hydrocarbon-inlet 3 leads to a bushing 5, externally threaded, as shown at 6, so as to be screwed

into an internally-threaded hollow boss 7, forming the center of a spider 8 in the casing 1. The bushing 5 has a stem 9 mounted therein, and the upper end of this stem 9 is reduced to a point to form the valve 10, which is adapted to close and open an opening 11 in the bushing, which forms a continuation of the hydrocarbon-inlet 3. A stuffing-box 12 is located in the lower portion of the bushing 5, and the stem 9 passes there-through, said stuffing-box preventing passage of the hydrocarbon other than through the inlet-opening 11, which leads to the mixing-chamber of the casing 1.

The means in the casing 1 and utilized for securing a thorough admixture or commingling of the air and hydrocarbon may be of any suitable type conducive to obtaining the best results, said means not being described for this reason.

The air-inlet 4 in the casing 1 is normally closed by means of a valve-plate 13, provided with a plurality of inlet-openings 14, said valve-plate being secured to the casing 1 in any substantial way.

An air-valve is indicated at 15 and comprises a disk-like body in close contact with the plate 13 and adapted to close and open the openings 14 thereof in an evident manner. The plate 13 is formed with an apertured lug 16 at its peripheral portion, and a pivot 17 pivotally connects the valve 15 with the plate 13, the pivot passing through the opening in the lug 16. The valve 15 is adapted to be operated by an arm or lever 18, projecting therefrom adjacent to its pivotal support, and this lever 18 is connected by a rod or the like with a suitable operating-lever arranged adjacent the seat of the vehicle on which the invention is being used.

The valve 15 is formed with an arcuate slot 15^a in the body portion thereof, which slot as the valve is actuated will register with the ports in the valve-plate 13, and thereby open said ports. The arcuate formation of the slot 15^a is necessary, as the same not only coacts with the ports of the plate 13, but permits free movement of the valve 15, though the stem of the hydrocarbon-valve 9 projects below said valve 15.

The valve 15 is connected with the valve 10 for operation of the latter. The stem 9 of the valve 10 is threaded at its lower portion, as shown at 19, the threaded portion 19 being screwed into an opening 20 in the central portion of the plate 13. The stem 9 is thus adjust-

ably mounted on the plate 13, and its lower extremity carries a small pinion 21 beneath the plate 13, the teeth of the pinion 21 being in mesh with the teeth of a segment-plate 22, pivoted at one end by means of the pivot 17, which forms the pivotal means for the valve 15. The plate 22 is provided with a transverse slot 23, formed on the arc of a circle generated from the pivot 17, and this slot 23 receives a small set-screw 24, threaded into the valve 15, and adapted to hold the segment-plate in an adjustable position. The arm or lever 18 may be limited in its movement to open the valve to the maximum by means of an adjustable stop 25 or the like.

The operation and advantages of the invention are as follows: As the arm or lever 18 is actuated to open the valve 15 the segment-plate 22, carried by the valve 15, is moved therewith, and as this plate is connected with the pinion on the stem 9 the stem 9 will be simultaneously rotated on movement of the air-valve 15, thereby actuating the hydrocarbon-valve 10. The moving of the lever 18 will thus simultaneously open or close the air and hydrocarbon inlets of the carbureter, and as the hydrocarbon-valve 10 is connected with the valve 15, as hereinbefore described, the proportionate movement of the two valves may be regulated definitely to secure a proportionate desired admixture of the hydrocarbon and air admitted to the carbureter. Further, the valve 15 constitutes a throttle for the engine, and it is adapted to actuate the valve 10 and cut off the supply of hydrocarbon and air in a manner which will be obvious. The provision of the adjustable plate 22 admits of variation in the proportion of air and hydrocarbon mixed by adjustment of said plate as to its connection with the valve 10; but such adjustment having once been secured the desired proportion of the ingredients mixed will be absolutely maintained in the operation of the carbureter, allowing the production of a homogeneous mixture of fixedly correct proportions, which insures perfect combustion at all points of the throttle, removing the liability of the spark-points to become carbonized from burning hydrocarbon and eliminating the smoke and smell from this source, reducing the amount of hydrocarbon necessary

for the production of a given horse-power to a minimum not secured heretofore and permitting the operation of engines of the explosive type by a single lever or member under extreme variations of speed and power.

Having thus described the invention, what is claimed as new is—

1. A carbureter comprising a mixing-chamber, air and hydrocarbon valves therefor, a pinion connected with the hydrocarbon-valve, a pivoted segment movable with the air-valve and having teeth in mesh with the teeth of the pinion aforesaid, and means intermediate of the ends of the segment for adjusting the same with reference to the air-valve, for the purpose specified.

2. A carbureter comprising a mixing-chamber, an air-valve pivoted thereto, a hydrocarbon-valve embodying a longitudinally-movable stem passing through the air-valve, a pinion applied to the stem of the hydrocarbon-valve, a segment pivoted at one end to and coaxially with the pivot of the air-valve and having teeth in mesh with those of the pinion aforesaid, and a fastening arranged intermediate of the ends of the segment aforesaid to admit of adjustment of the position of the segment in the manner specified.

3. A carbureter comprising a mixing-chamber provided with air and hydrocarbon inlets, a hydrocarbon-inlet valve, an air-inlet valve, a pinion operably connected with the hydrocarbon-valve, and a segment-plate carried by the air-valve and meshing with the pinion aforesaid to operatively connect the hydrocarbon and air valves for simultaneous actuation.

4. A carbureter comprising a mixing-chamber provided with air and hydrocarbon inlets, a hydrocarbon-inlet valve, an air-inlet valve, a pinion operably connected with the hydrocarbon-valve, and a segment-plate adjustably mounted on the air-valve and meshing with the pinion aforesaid to operatively connect the hydrocarbon and air valves for simultaneous actuation.

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

FORREST A. HEATH. [L. S.]

Witnesses:

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