

Patented Dec. 12, 1922.

Inventor.
Walter Williams,
Katon, Cook, Morse & Grindle,
Attorneys.

UNITED STATES PATENT OFFICE.

WALTER WILLIAMS, OF PLYMOUTH, ENGLAND.

EXTRA-AIR VALVE FOR INTERNAL-COMBUSTION ENGINES.

Application filed November 2, 1921. Serial No. 512,392.

To all whom it may concern:

Be it known that I, WALTER WILLIAMS, a subject of the King of England, residing at Plymouth, Devonshire, England, have
 5 invented certain new and useful Improvements in Extra-Air Valves for Internal-Combustion Engines, of which the following is a specification.

This invention is for improvements in or
 10 relating to extra-air valves for internal combustion engines and has for its object to provide an improved form of the plate type of extra-air valve. This is a type of valve
 15 the form of a flat elongated plate having bolt-holes to receive the bolts whereby the carburetor is secured to the induction conduit and the plate is inserted between these two parts. Such body portions have been
 20 provided with various means for controlling the air admitted to the central opening of the plate by one or more air-inlets extending from the periphery of the plate to the throughway, and the present invention is for such an extra-air unit characterized by the provision of an annular channel surrounding the throughway and intersecting the said air-inlets, and a ring or
 25 part ring mounted to slide in the said annular channel having an opening to register with said air-inlets and an operating-arm which projects outwards from the edge of the plate.

In the accompanying drawings which
 35 illustrate one method of carrying out this invention—

Figure 1 is a face view of the valve with part in section to show the air-passages;

Figure 2 is an edge view of the valve;
 40 and

Figure 3 is a plan of a modified form of the movable member of the valve.

It will be seen that the body portion of the auxiliary air-valve unit takes the form
 45 of a flat elongated plate A having bolt-holes A¹ in the elongated ends to receive the bolts whereby the carburetor is secured to the induction conduit. The plate is provided on one face with an annular recess B surrounding the central throughway in
 50 which recess lies a part ring C having an operating-arm C¹ which projects through a side slot D in the plate, the said slot being disposed approximately midway between the two bolt-holes A¹.

In that portion of the periphery of the

plate opposite the slot D, air-inlet openings E are provided and the ring C is cut away at C² to provide an opening which can be brought to register with the holes E. That
 60 portion of the plate which lies within the ring C is also perforated at E¹ and it thus follows that when the ring C is in one extreme position as shown in full lines in Figure 1, all of the air-inlet openings E,
 65 E¹ are closed, but as the arm C¹ is moved over towards the right of the figure, the opening C² is brought to register with the air-inlets E, E¹ and thus air can be admitted to the central portion of the plate, which
 70 when in position constitutes part of the throughway of the induction conduit, and when the arm C¹ is in the position shown in chain line in Figure 1 all of the air-inlet openings E, E¹ are in free communication
 75 with the atmosphere and with the interior of the induction conduit.

For operating the ring C a Bowden wire F is employed, the outer casing of which is carried by a lug G which extends from one
 80 end of the washer A, and the inner wire is connected to a pin C³ on the arm C¹. A spring G¹ operates between the lug G and the arm C¹ to keep the arm C¹ in the position shown in the drawing when the Bowden
 85 wire is not pulled upon.

A complete ring may be substituted for the part-ring C, as shown in Figure 3. This ring H has in it an opening H¹ for registering with the air-inlet openings E, E¹ in the
 90 plate A, and it is split transversely at J where the arm K is provided. The split is extended along the arm, as shown at J¹, and the two split portions are connected together by a screw K¹ whereby they may be drawn
 95 towards one another to vary the diameter of the ring.

I claim:—

1. An extra-air unit comprising a flat plate for clamping between two sections of
 100 an induction-conduit, said plate having a throughway to register with the throughway of the said conduit, an annular channel in one face surrounding the throughway, an air-inlet opening extending from the edge of
 105 the plate to the throughway and traversed by the aforesaid channel, and a member curved to slide in said channel having an operating-arm extending through a slot in the edge of the plate at a point not trav-
 110 ersed by the air-inlet opening, the parts being so proportioned that the curved member

can be moved around in the channel by the arm to cover or uncover the air-inlet opening as required, substantially as set forth.

2. An extra-air unit comprising a flat plate for clamping between two sections of an induction-conduit, said plate having a throughway to register with the throughway of the said conduit, an annular channel in one face surrounding the throughway, an air-inlet opening extending from the edge of the plate to the throughway and traversed by the aforesaid channel, and a ring free to slide in said channel having an operating-arm extending through a slot in the edge of the plate at a point not traversed by the air-inlet opening, the said ring having an opening in it which can be brought to register with the air-inlet opening in the edge of the plate or out of register therewith as required, by means of the aforesaid operating-arm, substantially as set forth.

3. An extra-air unit comprising a flat plate for clamping between two sections of an induction-conduit, said plate having a

throughway to register with the throughway of the said conduit, an annular channel in one face surrounding the throughway, an air-inlet opening extending from the edge of the plate to the throughway and traversed by the aforesaid channel, a ring free to slide in said channel having an operating-arm extending through a slot in the edge of the plate at a point not traversed by the air-inlet opening, the said ring having an opening in it which can be brought to register with the air-inlet opening in the edge of the plate, or out of register therewith as required, by means of the aforesaid operating-arm, and further being split transversely opposite the operating-arm, said split being continued along the operating-arm and a screw which is accessible from outside the flat plate from which the arm projects and connects the split portions in such manner that they can be drawn together for adjusting the diameter of the ring, substantially as set forth.

WALTER WILLIAMS.