

J. PETERSON.
THROTTLE.

APPLICATION FILED NOV. 18, 1909.

965,322.

Patented July 26, 1910.

FIG. 1

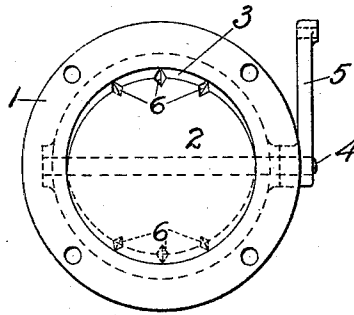


FIG. 2

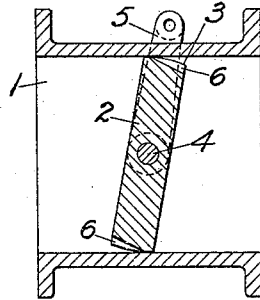
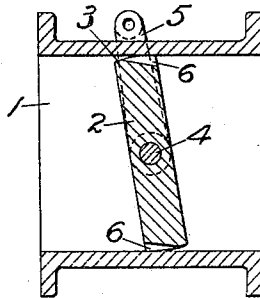


FIG. 3



ATTEST

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THROTTLE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JONATHAN PETERSON, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented a new and useful Throttle, of which the following is a specification.

This invention relates to an improvement in throttles, particularly to that type used in connection with gasoline motors.

Certain types of throttles heretofore used consisted of a casing and an oscillating or "butterfly" valve cooperating with the casing to vary the quantity of fluid passed through the casing. The valve was usually operated by connections leading to a point distant from the motor. When such a device is used in connection with a motor car or automobile and it is desired to bring the car to a temporary stop, it is customary to disconnect the motor from the driving mechanism by throwing out the gears, but to keep the motor running under very low power. When a car is running down grade and no driving power is required, it is customary to throttle the motor to a speed below that developed by the momentum of the car, thus causing the motor to act as a retarding device under elastic and otherwise more perfect control than when the motor is disconnected and the brakes applied.

In practice, it has been found that the thin butterfly valves are not as sensitive, or capable of fine adjustment, as they should be to enable the driver to keep the motor running without wasting power. This is due to the fact that when such a valve is opened, its entire effective edge at once leaves the walls of the casing in which it is mounted, and thus makes a wider opening than is necessary or desirable. Only a very small quantity of fluid or mixture is required to keep the motor running when it is doing no work. It is desirable therefore, from the standpoint of economical operation, that no more mixture than that absolutely necessary be passed by the valve to the motor. It is desirable also that this be accomplished by a movement of the valve no less than the movement heretofore required to open a butterfly valve somewhat wider, because it is difficult to control a very small movement of the valve, owing to the lost motion in the necessary connections between the valve and the distant operating element.

It is one of the objects of this invention

therefore to provide a valve or throttle that will permit a very small quantity of mixture to pass, and which may be readily controlled.

Another object is to provide a device practically impossible to get out of adjustment, and in which a slight wear of the contacting surfaces will not affect the efficiency of the device.

Still another object is to provide a device of this character that is simple, economical and inexpensive.

With these and other objects not specifically mentioned in view, the invention consists in certain constructions and combinations which will be hereinafter fully described and then specifically pointed out in the claims hereunto appended.

In the accompanying drawings which form a part of this specification and in which like characters of reference indicate the same parts, Figure 1 is an end view of a device constructed in accordance with the invention, Fig. 2 is a sectional view of the structure shown in Fig. 1, and Fig. 3 is a view similar to that shown in Fig. 2 but with certain parts in a different position.

In carrying the invention into effect, there is provided a casing through which the fluid or mixture to be controlled passes. This casing may vary within wide limits.

In the device selected to illustrate the invention, 1 indicates a casing, circular in form. Mounted within this casing is an oscillatory valve 2 in the form of the middle segment of a ball, although it is to be understood that in certain constructions a valve differing somewhat from that shown may be employed. The valve 2 has an edge 3 which is arranged to engage the casing. The valve is fixed upon a shaft 4 mounted in the walls of the casing and projecting beyond said walls on one side. To the projecting end is fixed an arm 5 to which connections may be made to any convenient point from which it is desired to operate the valve.

The structure thus far described will operate in the same way as the old style butterfly valves. It is desirable however that the valve be capable of being opened very slightly without an excessively limited movement of the arm 5 and its connections, for reasons hereinbefore pointed out. With this end in view, the edge of the valve is provided with an inclined notch 6 extend-

ing part way across the edge. In certain constructions, when a very small quantity of mixture is required to run a very small motor, one notch will be sufficient. In other constructions, when a larger motor is to be controlled, a relatively large quantity of mixture must be passed by the throttle. In these constructions, the edge of the valve is provided with a series of inclined notches, and in some cases with a plurality of oppositely positioned series of inclined notches, as shown in the device selected to illustrate the invention.

By an inspection of the drawings, it will be readily understood that when the valve lies in the position shown in Fig. 2, the passage is completely closed, while when it lies in the position shown in Fig. 3 the notches are open but the remaining part of the edge of the valve is still in contact with the inner wall of the casing. It will be seen therefore that a considerable movement of the arm 5 must take place before the edge of the valve leaves the wall of the casing, a condition not found in the ordinary butterfly valve which begins to leave the wall of the casing as soon as any movement of the arm occurs. Thus it is seen that by a use of the notches a fine adjustment of the passage through the throttle can be made without a fine adjustment of the operating connections.

Changes and variations may be made in the structure by means of which the invention is carried into effect. The invention therefore is not to be restricted to the precise details of the structure shown and described.

What is claimed is:

1. In a throttle, the combination with a circular casing, of an oscillatory valve in the form of the middle segment of a ball the edge of which engages the casing, said edge

being provided with an inclined notch extending part way across the edge, substantially as described.

2. In a throttle, the combination with a circular casing, of an oscillatory valve in the form of the middle segment of a ball the edge of which engages the casing, said edge being provided with a series of inclined notches extending part way across the edge, substantially as described.

3. In a throttle, the combination with a circular casing, of an oscillatory valve in the form of the middle segment of a ball the edge of which engages the casing, said edge being provided with two oppositely positioned series of inclined notches extending part way across the edge, substantially as described.

4. In a throttle, the combination with a casing, of an oscillatory valve normally closing the bore of the casing in a plane at right angles to its axis and having an edge of substantial thickness partially cut away, whereby a slight oscillating movement of the valve produces a small opening between the valve and casing only where the edge of the valve is cut away.

5. In a throttle, the combination with a casing, of an oscillatory valve normally closing the bore of the casing in a plane at right angle to its axis and having an edge of substantial thickness partially cut away at opposite points, whereby a slight oscillating movement of the valve produces a small opening between the valve and casing only where the edge is cut away.

In testimony whereof, I have signed my name to this specification in the presence of two subscribing witnesses.

JONATHAN PETERSON.

Witnesses:

G. P. STACY,

R. J. BAYLAN.