C. F. BROSTROM.

AIR TEMPERATURE REGULATOR FOR GAS ENGINES.

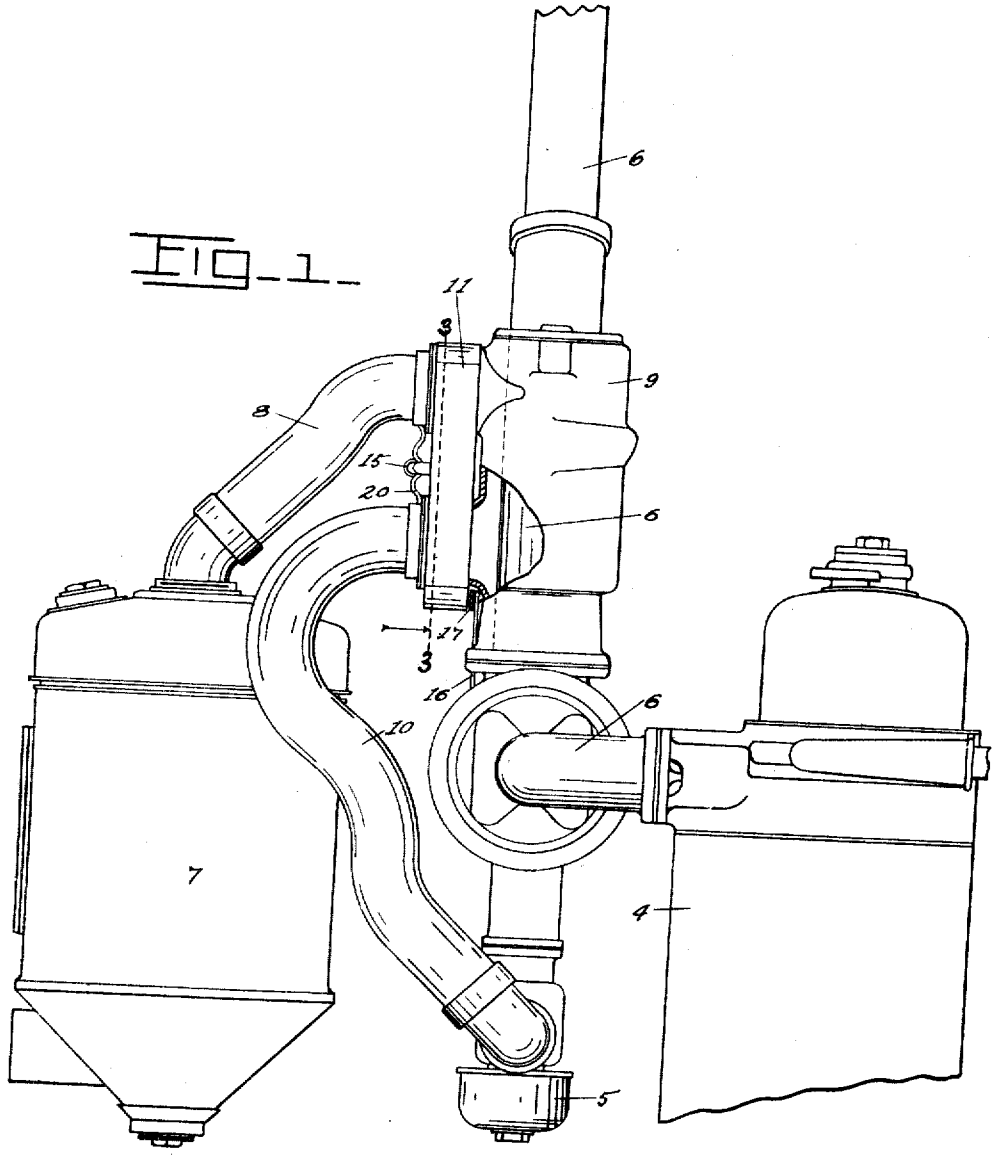
APPLICATION FILED MAR. 6, 1920.

1,344,615.

Patented June 29, 1920.

2 SHEETS—SHEET 1.

FIG. 1.



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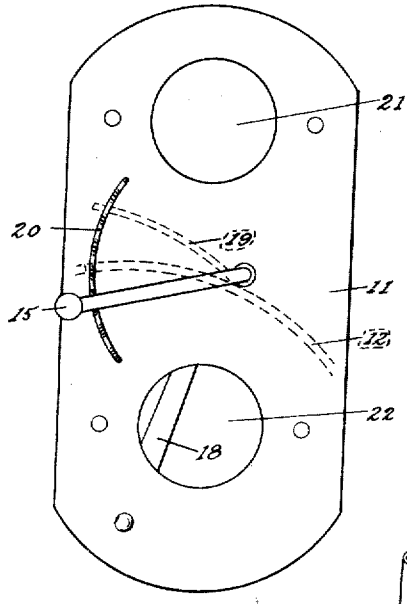


FIG. 2.

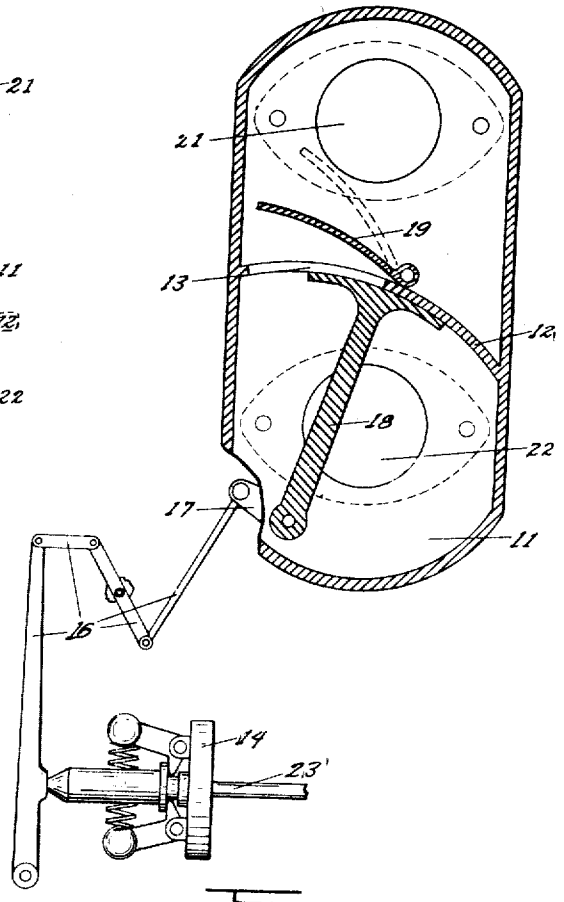


FIG. 3.

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UNITED STATES PATENT OFFICE.

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AIR-TEMPERATURE REGULATOR FOR GAS-ENGINES.

1,344,615. Specification of Letters Patent. Patented June 29, 1920.

Application filed March 6, 1920. Serial No. 363,743.

To all whom it may concern:

Be it known that I, CARL F. BROSTROM, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Air-Temperature Regulators for Gas-Engines, of which the following is a specification.

This invention relates to improvements in gas engines and the object is to provide a device for regulating the temperature of the air fed into the carbureter of the engine. The construction, application and operation of the device is clearly illustrated in the accompanying drawings, in which:

Figure 1 is an elevation of a gas engine equipped with my device, with parts broken away.

Fig. 2 is an enlarged view of my improved air regulator detached from the engine.

Fig. 3 is an enlarged sectional view of the regulator as seen on the line 3—3 in Fig. 1, and showing how it is connected to a governor.

Referring to the drawing by reference numerals, 4 designates a gas engine having a carbureter 5 and an exhaust pipe 6. In this particular type of engine it is customary to wash and heat the air passing into the carbureter, and this has been done heretofore by passing the air through a strainer 7, a tube 8, to a heater 9, which is merely a casing over a portion of the exhaust pipe 6, and thence by a tube 10 to the carbureter 5. It is found with this arrangement, however, that air passing into the carbureter often becomes overheated, due either to high atmospheric temperature or when the speed and power of the engine is being taxed; such overheating being often to such a degree as to cause preignition in the engine and burning out of the cylinder head. The only way that this difficulty has to any extent been overcome heretofore was to disconnect the flanges of the flexible tubes 8 and 10 from the heater 9 and connect such flanges together, thus passing the air directly from the strainer 7 to the carbureter 5. This change however has been unsatisfactory in that it required considerable time and also required an adjustment in the carbureter each time to compensate for the difference in conditions that this change brought about.

To overcome these obstacles I provide between the tubes 8 and 10 and the heater 9 an air regulating device consisting of a casing 11 having a curved transverse partition 12; said partition being provided with a port 13 adapted to be controlled automatically by a governor 14 and also by a hand lever 15. The governor 14 is the customary governor of the engine and by means of any suitable connection 16 is adapted to actuate the crank arm 17 of the pivotally mounted member 18 which slidably controls the opening in the port 13 according to the speed of the governor shaft 23. A second pivotally mounted port controlling member or lid 19 is fixed to and regulated by a hand-lever 15 which is held in any desired position by the notches of a curved wire bracket 20.

Under ordinary circumstances and especially in cold weather the air to the carbureter is preferably warmed, in which case the port 13 may be closed by the lid 19 thus causing the air from the strainer to pass from the tube 8 through the aperture 21, the heater 9, the aperture 22, the tube 10 and to the carbureter, in the same way as above described in the older forms.

In warm weather however the port lid 19 is raised to the degree found to be best under the circumstances; thus allowing a part of the current of air (such partial current varying according to the position of the member 18) to pass directly from the tube 8 to the tube 10 instead of all of it passing through the heater. It is thus obvious that the temperature of the air to the carbureter may be manually controlled by the lever 15. It is also found desirable to lower the temperature of the air fed into the carbureter when the engine is being worked hard and fast as when it is pulling a heavy load to prevent gasket burning and preignition as above mentioned. And for this purpose the governor 14 of the engine is connected to the port controlling member 18 so that the faster the governor shaft 23 revolves the wider will the port 13 open and consequently the air to the carbureter will be proportionately cooled.

The advantages, use and construction of this invention being thus shown and described, what I claim to be new and desire to protect by Letters Patent is:

1. In combination with a gas engine having a carbureter, an air heater and a speed governor; of a two chambered casing secured to said heater, means whereby air may pass from one chamber through said heater

and other chamber and to said carbureter, a port connecting said chambers, operative connection between said port and said speed governor.

2. In combination with a gas engine having a carbureter, an air heater and a speed governor; of a two chambered casing secured to said heater, means whereby air may pass from one chamber through said heater and other chamber and to said carbureter, a port connecting said chambers, operative connection between said port and said speed governor, manual means for adjusting the passage in said port as desired.

3. The device as claimed in claim 7, said last mentioned means consisting of a pivotally mounted valve wing adapted to close against said port and an adjusting lever extending from said wing to the outer side of said casing.

In testimony whereof I affix my signature.

CARL F. BROSTROM.