

M. H. RIX.,
AIR COOLED INTERNAL COMBUSTION ENGINE.
APPLICATION FILED JULY 31, 1916.

1,265,249.

Patented May 7, 1918.

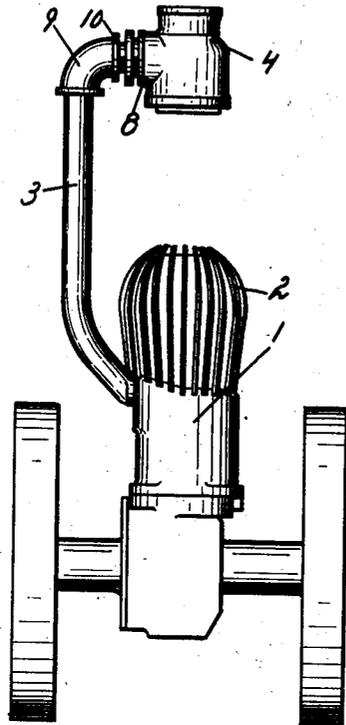


FIG. I.

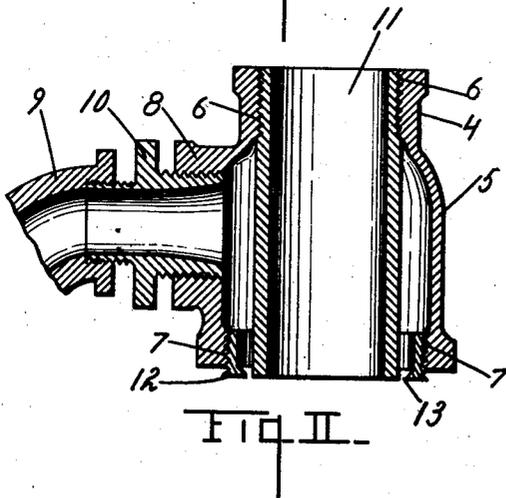


FIG. II.

WITNESSES:

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MILTON H. RIX, OF THREE RIVERS, MICHIGAN, ASSIGNOR TO SHEFFIELD CAR COMPANY, OF THREE RIVERS, MICHIGAN.

AIR-COOLED INTERNAL-COMBUSTION ENGINE.

1,265,249.

Specification of Letters Patent.

Patented May 7, 1918.

Application filed July 31, 1916. Serial No. 112,308.

To all whom it may concern:

Be it known that I, MILTON H. RIX, a citizen of the United States, residing at Three Rivers, county of St. Joseph, State of Michigan, have invented certain new and useful Improvements in Air-Cooled Internal-Combustion Engines, of which the following is a specification.

This invention relates to improvements in air cooled internal combustion engines.

The main objects of this invention are:

First, to provide an improved air cooled internal combustion engine.

Second, to provide an air cooled internal combustion engine in which the exhaust is utilized for producing a current of air directed against the cylinder.

Further objects, and objects relating to structural details, will definitely appear from the detailed description to follow.

I accomplish the objects of my invention by the devices and means described in the following specification. The invention is clearly defined and pointed out in the claims.

A structure which is a preferred embodiment of my invention is clearly illustrated in the accompanying drawing, forming a part of this specification, in which:

Figure I is an elevation of an internal combustion engine embodying the features of my invention, the structure shown being of the two cycle type.

Fig. II is an enlarged detail section through the ejector device.

In the drawing similar reference characters refer to similar parts in both views.

Referring to the drawing, the cylinder 1 is provided with longitudinal heat radiating fins 2, the fins being extended onto the head of the cylinder. The engine illustrated is a two cycle engine and is shown mainly in conventional form. A pipe 3 is connected to the exhaust of the cylinder and delivers to an ejector, designated generally by the numeral 4, which is disposed in a spaced relation to the head of the cylinder and in alinement therewith so as to deliver a current of air against the head of the cylinder and longitudinally of its radiating fins.

This ejector, in the structure illustrated, comprises a body member 5 open at both ends, the bore of the inner end being greater than that of the outer end. The body mem-

ber has internal threads at 6 and 7 and is also provided with an internally threaded nipple at 8 at one side to which the exhaust pipe 3 is connected by means of the elbow 9 and the coupling 10 so that the exhaust is delivered into the body member.

A tubular air passage member 11 is disposed within the member 5 and has external threads coacting with the threads 6 thereof. This forms an annular exhaust discharge chamber within the body member 5.

A nozzle member 12 is externally threaded to coact with the threads 7 of the body member and has an inwardly projecting lip 13 at its inner end coacting with the passage member 11 to form an annular discharge orifice surrounding the air passage 11, so that when the engine is running the exhaust being discharged through this orifice creates a current of air through the ejector, and also draws it from around the ejector, and discharges or delivers it against the cylinder so that the engine is very effectively cooled. While I prefer to use an ejector means for creating the current of air, other means for creating a current of air by discharging the exhaust toward the cylinder and in a spaced relation thereto are found to be quite effective.

My improved cooling means is simple and economical in its parts which are very readily and easily assembled and, as stated, the structure is effective for the purpose.

I have not illustrated or described various modifications in structural details or adaptations of my improvements to other types of engines or in other relations thereto which might be advisable or necessary under certain conditions, as I believe the disclosure made will enable those skilled in the art to which my invention relates to embody or adapt it as conditions may require.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. The combination with an internal combustion engine comprising a cylinder provided with longitudinally disposed heat radiating fins extending onto the head thereof, an exhaust pipe, and an ejector comprising a body member internally threaded at its ends, its inner end being of larger bore than its outer end, said member having a nipple at one side to which said exhaust

pipe is connected, a tubular air passage member of uniform diameter disposed in said body member and threaded into the outer end thereof, there being an annular exhaust delivery chamber around said passage member, and a nozzle member threaded into the inner end of said body member to embrace said air passage member and spaced from said air passage member to provide an annular delivery orifice at the end thereof, said ejector being disposed in alinement with and in spaced relation to the head of the cylinder so that air is delivered against the head of the cylinder and longitudinally of its said radiating fins.

2. The combination with an internal combustion engine comprising a cylinder, an exhaust pipe, and an ejector comprising a body member internally threaded at its ends, its inner end being of larger bore than its outer end, said member having a nipple at one side to which said exhaust pipe is connected, a tubular air passage member of uniform diameter disposed in said body member and threaded into the outer end thereof, there being an annular exhaust delivery chamber around said air passage member, and a nozzle member threaded into the inner end of said body member to embrace said air passage member and spaced from said air passage member to provide an annular delivery orifice at the end thereof, said ejector being disposed in a spaced relation to the cylinder so that air is delivered against it.

3. The combination with an internal combustion engine comprising a cylinder provided with longitudinally disposed heat radiating fins extending onto the head thereof, an exhaust pipe, and an ejector comprising a body member to which said exhaust pipe delivers, an air passage member disposed in said body member and forming a passage therethrough, there being an annular exhaust delivery chamber around said air passage member, and an annular delivery orifice at the inner end thereof, said ejector being disposed in a spaced relation to the head

of the cylinder so that air is delivered against the head of the cylinder and longitudinally of its said radiating fins.

4. The combination with an internal combustion engine comprising a cylinder, an exhaust pipe, and an ejector comprising a body member to which said exhaust pipe delivers, an air passage member disposed in said body member and forming a passage therethrough, there being an annular exhaust delivery chamber around said air passage member, and an annular delivery orifice at the inner end thereof, said ejector being disposed in a spaced relation to the cylinder so that air is delivered against it.

5. The combination with an internal combustion engine, comprising a cylinder provided with longitudinally disposed heat radiating fins extending up under the head thereof, and an ejector to which the exhaust of said cylinder is connected to discharge comprising an annular nozzle and an air passage centrally thereof, said ejector being disposed so that there is a free circulation of air about the same and through said central air passage, and in a spaced relation to the head of the cylinder so that a current of air is delivered against the head of the cylinder and longitudinally of its said radiating fins.

6. The combination with an internal combustion engine, comprising a cylinder, and an ejector to which the exhaust of said cylinder is connected to discharge comprising an annular nozzle and an air passage centrally thereof, said ejector being disposed so that there is a free circulation of air about the same and through said central air passage, and in a spaced relation to the cylinder so that a current of air is delivered against it.

In witness whereof, I have hereunto set my hand and seal in the presence of two witnesses.

MILTON H. RIX. [L. S.]

Witnesses:
FRED E. BUERGIN,
ERNEST J. DUNN.