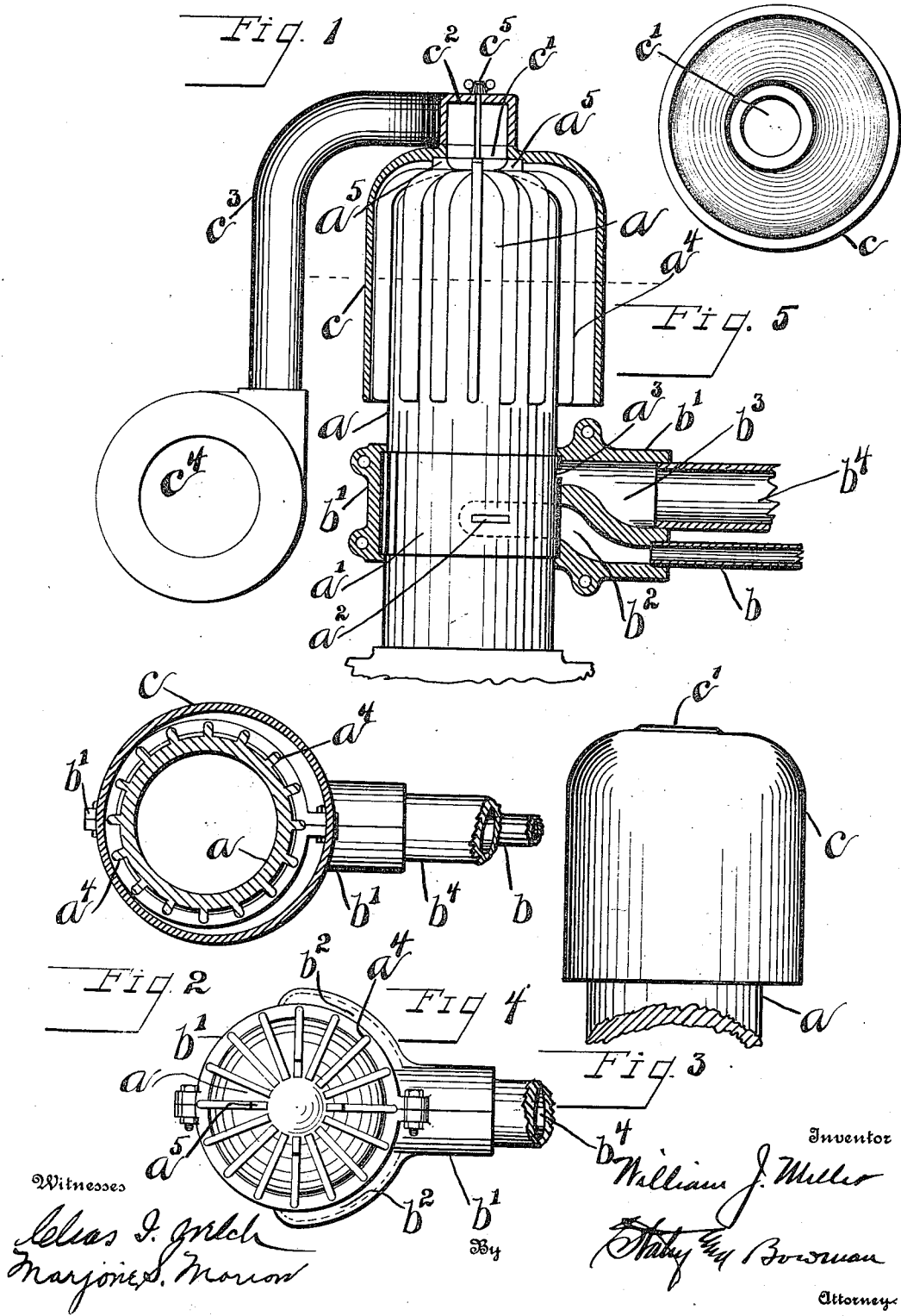


962,233.

Patented June 21, 1910.



UNITED STATES PATENT OFFICE.

WILLIAM J. MILLER, OF SPRINGFIELD, OHIO, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
THE KELLY MOTOR TRUCK COMPANY, OF SPRINGFIELD, OHIO, A CORPORATION OF
OHIO.

AIR-COOLED ENGINE.

962,233.

Specification of Letters Patent. Patented June 21, 1910.

Application filed May 11, 1908. Serial No. 432,142.

To all whom it may concern:

Be it known that I, WILLIAM J. MILLER, a citizen of the United States, residing at Springfield, in the county of Clark and State of Ohio, have invented certain new and useful Improvements in Air-Cooled Engines, of which the following is a specification.

My invention relates to improvements in explosive engines and especially to that class of engines which is designed for use in automobiles and the type known as air cooled.

The invention particularly relates to arrangements for cooling the cylinder and the exhaust ports and pipe in that type of engines such as the two-cycle type in which the exhaust and supply is regulated by the piston or means within the cylinder.

My invention consists in the construction and combinations hereinafter described and set forth in the claims.

In the accompanying drawings Figure 1 represents the cylinder with the exhaust and supply ports of a two-cycle engine to which my invention is applied. Fig. 2 is a transverse sectional view of the cylinder. Fig. 3 is a side elevation of the same. Figs. 4 and 5 are views of the cylinder and jacket separate.

Like letters of reference represent like parts throughout the several views.

In the said drawings *a* represents the cylinder, the extended portion *a*¹ of which is provided with the inlet ports *a*² and the outlet or exhaust port *a*³. There are preferably two of the inlet ports *a*², one only being shown, the other being on the opposite side of the cylinder and access to these ports from the supply pipe *b* is had through a chambered casing *b*¹, a passage *b*² being formed therein extending partly around the cylinder to connect with the ports. A passage *b*³ is also formed leading from the exhaust port *a*³ and from thence to the exhaust pipe *b*⁴. This chambered casing *b*¹ is preferably made in two parts adapted to be bolted together around the cylinder which it fits, this particular construction, however, forming no part in my invention. The cylinder is provided on the outside with a series of projections *a*⁴ which may be in the form of ribs, as shown, or other usual forms such as spikes or studs. At the top of the cylinder are a series of radial projections *a*⁵ and these projections are turned off at their outer ends concentric with the cylinder. Surround-

ing the upper part of the cylinder and extending down to a point near the chambered casing *b*¹ is a jacket *c* which forms with the outer part of the cylinder, an air chamber, through which the air is forced for cooling the cylinder. This jacket *c* is closed at the top except for an opening *c*¹ and is open at the bottom. This opening *c*¹ is eccentric to the casing and is adapted to set on the top of the cylinder immediately over the projections *a*⁵.

The inner part of the casing is recessed slightly concentric with the opening *c*¹ and adapted to fit over the ends of the projections *a*⁵ which hold the casing in place in its eccentric position about the cylinder and permits it to be readily removed. At the top of the casing *c* is the air conduit *c*² which is connected by a pipe *c*³ to a suitable blower or fan indicated at *c*⁴. A clamping bolt *c*⁵ serves to hold the conduit and jacket in position on the cylinder. It will be understood that any number of cylinders can be attached to the fan, each of the casings being arranged in the eccentric manner shown. By this arrangement the air from the source of supply is forced onto the cylinder and passes down along the cylinder. By the eccentric arrangement of the casing a comparatively large passage for the air is formed on that side from which leads the exhaust ports and a small amount is distributed around the other parts of the cylinder. The exhaust port is also arranged over the supply so that it is intermediate the two air strata, that which is formed by the air passing through the enlarged passage of the air chamber and that of the incoming charge which also has a tendency to cool the exhaust. This particular arrangement of parts is found very effective in air cooled engines of this type.

It is obvious that any suitable blower may be employed and driven from any source, generally from the engine shaft, in the usual way, the particular means for supplying the air not being a part of the present invention.

Having described my invention, I claim:

1. In a two-cycle engine, a cylinder, an exhaust port, a supply port or passage, an air jacket for said cylinder forming an air passage about the same, and means for forcing a current of air through said air passage, said exhaust port being located intermediate the air outlet from said jacket and

said supply port or passage and in proximity to the latter, as and for the purpose specified.

2. In a two-cycle air cooled engine, a cylinder, an eccentrically arranged casing around said cylinder, an exhaust port leading from said cylinder below said casing, and means for supplying air to the upper portion of said casing whereby a larger supply of air is directed along the cylinder on the side immediately above the exhaust port, as and for the purpose specified.

3. In combination with the cylinder of a two-cycle engine, an eccentrically arranged casing fitting over said cylinder, projections on said cylinder extending into the air space, an exhaust and supply for said cylinder both arranged below the eccentrically ar-

ranged casing, the exhaust port being intermediate the casing and the supply port, as and for the purpose specified.

4. In a two-cycle air cooled engine, a cylinder having ribs or radially arranged projections at the top of said cylinder concentric with said cylinder, a casing having an eccentric opening and recessed to fit said projections, and means for removably connecting said casing to said cylinder, as and for the purpose specified.

In testimony whereof, I have hereunto set my hand this 2nd day of May, 1908.

WILLIAM J. MILLER.

Witnesses:

CHAS. I. WELCH,
MARJORIE S. MORROW.