June 12, 1928. 1,673,191

G. W. GILLE

AIR COMPRESSOR AND THE LIKE

Filed Nov. 17, 1927

Fig. 2.

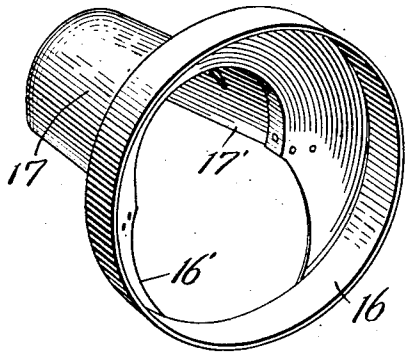


Fig. 1.

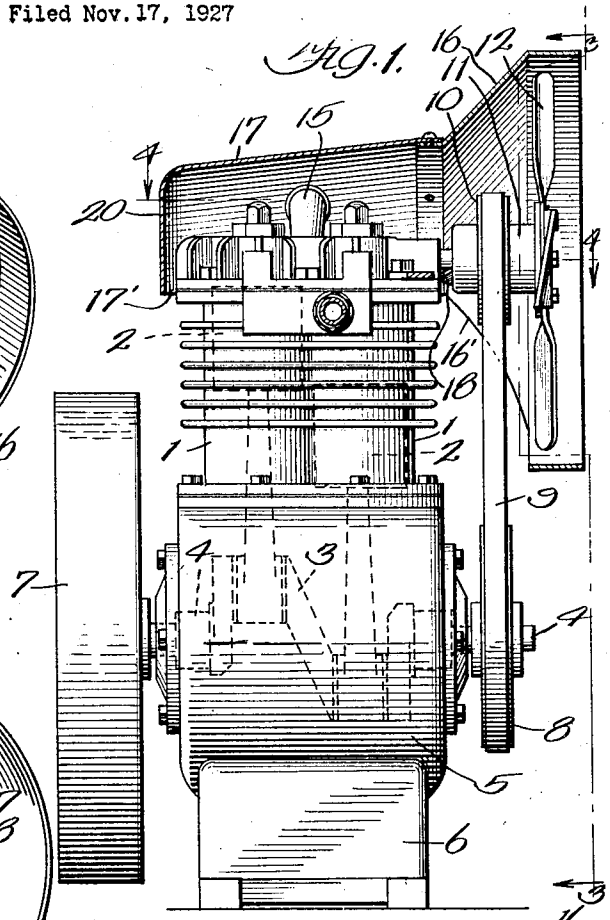


Fig. 3.

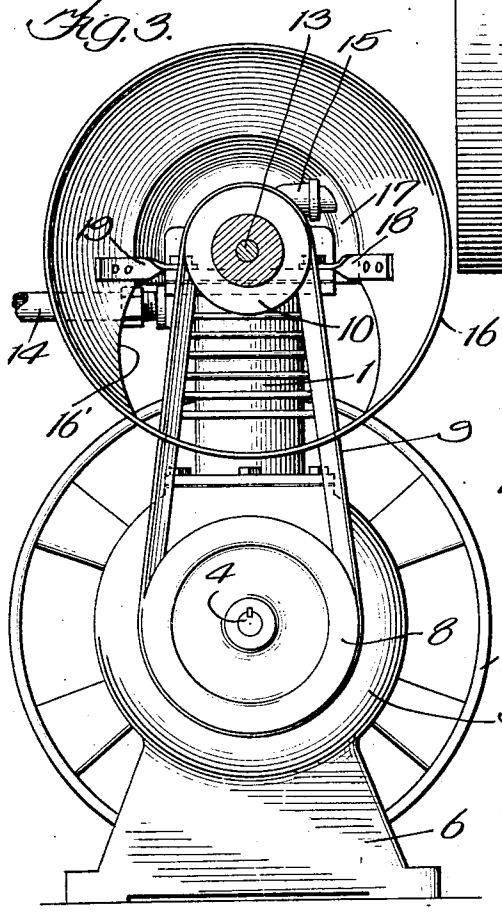
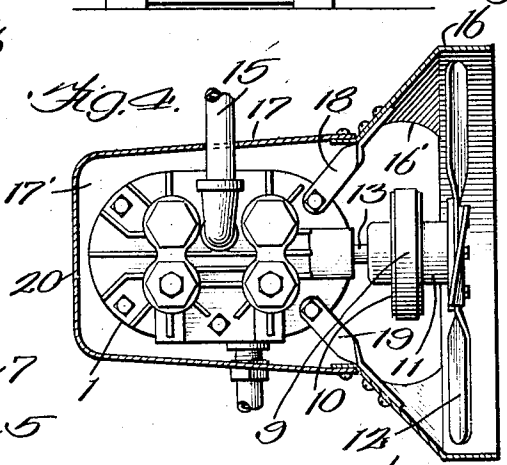


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE W. GILLE, OF BRYAN, OHIO, ASSIGNOR TO THE BRYAN SCREW MACHINE PRODUCTS COMPANY, OF BRYAN, OHIO, A CORPORATION OF OHIO.

AIR COMPRESSOR AND THE LIKE.

Application filed November 17, 1927. Serial No. 233,866.

My invention relates to apparatus employing cylinders having reciprocating pistons therein and is of particular use in connection with air compressors.

The invention has for its object the provision of improved means for cooling such apparatus by means of air suitably blasted upon the cylinders. I employ a blast fan at the outer end of a cylinder of such a machine and having its axis of rotation substantially at right angles to the axis of the cylinder. I also employ a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout of the funnel being cut away at one side of the funnel, the outer end of the cylinder being located at the spout where the spout is laterally cut away.

In the preferred embodiment of the invention, the mouth of the funnel is also laterally cut away to form a continuation of the lateral opening in the spout, the lateral opening in the funnel mouth permitting the fan to blast air upon a part of the cylinder without the intermediation of the funnel spout. The spout of the funnel also desirably has an end wall opposite the funnel mouth and constituting a baffle for deflecting air upon the cylinder. An air compressor or other similar apparatus thus blasted with air is effectively and enduringly cooled during its operation.

The invention will be more fully explained by reference to the accompanying drawing in which Fig. 1 is a view of one form of compressor in elevation with the air cooling means of my invention shown partially in section and partially in elevation; Fig. 2 is a perspective view of the preferred form of funnel; Fig. 3 is a sectional view on line 3—3 of Fig. 1; and Fig. 4 is a sectional view on line 4—4 of Fig. 1.

The air compressor illustrated includes a pair of cylinders 1 containing pistons 2 that reciprocate therein, these pistons being connected by means of cranks 3 to the crank shaft 4. The cranks and crank shaft are disposed within a crank case 5 which is provided upon a suitable base block 6. A fly wheel 7 is upon one end of the shaft 4 and a pulley 8 is upon the other end of said shaft. The fan belt 9 is driven by the pulley 8 and drives the pulley 10 which is provided upon the hub 11 of the fan 12. This hub turns upon a shaft 13 which is suitably secured upon the upper or outer ends of the cylinders 1, the common axis of the fan and this shaft being substantially at right angles to the axes of the two cylinders.

The usual or suitable air pipes 14 and 15 leading to and from the air compressor are disposed at the outer ends of the cylinders. A funnel is employed which is inclusive of the funnel mouth 16 and the funnel spout 17, the axis of the funnel being preferably substantially coaxial with the fan. The fan is at and preferably within the mouth of the funnel and the spout and funnel mouth are desirably both cut away at one side of the funnel, as respectively indicated at 17′ and 16′, the end of the cylinder entering the funnel spout laterally where the spout is laterally cut away, at 17′. The braces 18 and 19 that are secured to the compressor and the funnel, as illustrated most clearly in Fig. 4, support the funnel upon the compressor. The funnel spout has an end wall 20 at one side of the cylinder and opposite the funnel mouth, this end wall constituting a baffle for deflecting air upon the cylinder.

It will be apparent that the air which is blasted toward the compressor by the fan is directed in ample volume upon and along the cylinders, the air being partially directed in its flow by the funnel spout and the end wall 20 of the spout and elsewhere having direct access to the compressor from the fan and through the lateral opening 16′ in the mouth of the funnel.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout and mouth of the funnel being cut away at one side of the funnel, the outer end of the cylinder entering the funnel spout laterally where the spout is laterally cut away, said funnel spout having an end wall at one side of the cylinder and opposite the funnel mouth and constituting a baffle for deflecting air upon the cylinder, the lateral opening in the funnel mouth being on the opposite wall of said cylinder and permitting the fan to blast air upon a part of the cylinder without

the intermediation of the funnel spout; and a support for assembling the funnel with the aforesaid cylinder.

2. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout of the funnel being cut away at one side of the funnel, the outer end of the cylinder entering the funnel spout laterally where the spout is laterally cut away, said funnel spout having an end wall at one side of the cylinder and opposite the funnel mouth and constituting a baffle for deflecting air upon the cylinder; and a support for assembling the funnel with the aforesaid cylinder.

3. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout and mouth of the funnel being cut away at one side of the funnel, the outer end of the cylinder entering the funnel spout laterally where the spout is laterally cut away, the lateral opening in the funnel mouth being adjacent said cylinder and permitting the fan to blast air upon a part of the cylinder without the intermediation of the funnel spout; and a support for assembling the funnel with the aforesaid cylinder.

4. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout of the funnel being cut away at one side of the funnel, the outer end of the cylinder entering the funnel spout laterally where the spout is laterally cut away; and a support for assembling the funnel with the aforesaid cylinder.

5. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout and mouth of the funnel being cut away at one side of the funnel, the outer end of the cylinder being located at the spout where the spout is laterally cut away, said funnel spout having an end wall at one side of the cylinder and opposite the funnel mouth and constituting a baffle for deflecting air upon the cylinder, the lateral opening in the funnel mouth being adjacent said cylinder and permitting the fan to blast air upon a part of the cylinder without the intermediation of the funnel spout; and a support for assembling the funnel with the aforesaid cylinder.

6. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout of the funnel being cut away at one side of the funnel, the outer end of the cylinder being located at the spout where the spout is laterally cut away, said funnel spout having an end wall at one side of the cylinder and opposite the funnel mouth and constituting a baffle for deflecting air upon the cylinder; and a support for assembling the funnel with the aforesaid cylinder.

7. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout and mouth of the funnel being cut away at one side of the funnel, the outer end of the cylinder being located at the spout where the spout is laterally cut away, the lateral opening in the funnel mouth being adjacent said cylinder and permitting the fan to blast air upon a part of the cylinder without the intermediation of the funnel spout; and a support for assembling the funnel with the aforesaid cylinder.

8. The combination with a cylinder enclosing a reciprocating piston; of a blast fan mounted at the outer end of the cylinder and having an axis of rotation substantially at right angles to the axis of the cylinder; a funnel extending along the fan axis, the fan being at the mouth of the funnel, the spout of the funnel being cut away at one side of the funnel, the outer end of the cylinder being located at the spout where the spout is laterally cut away; and a support for assembling the funnel with the aforesaid cylinder.

In witness whereof, I hereunto subscribe my name.

GEORGE W. GILLE.