No. 892,098. PATENTED JUNE 30, 1908.

J. THORNTON, JR. & J. THORNTON, SR.

AIR COMPRESSOR.

APPLICATION FILED MAY 9, 1906.

2 SHEETS—SHEET 1.

Fig. 1.

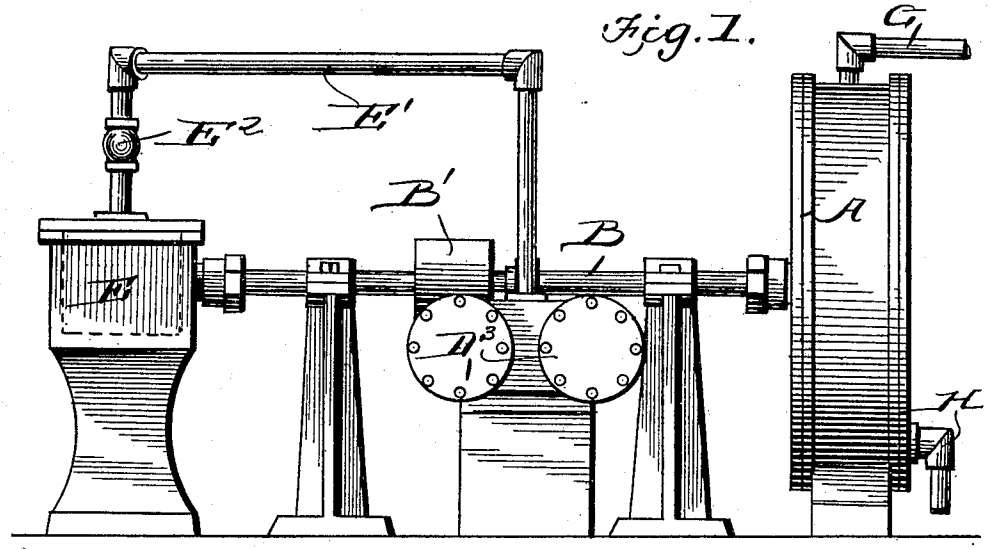
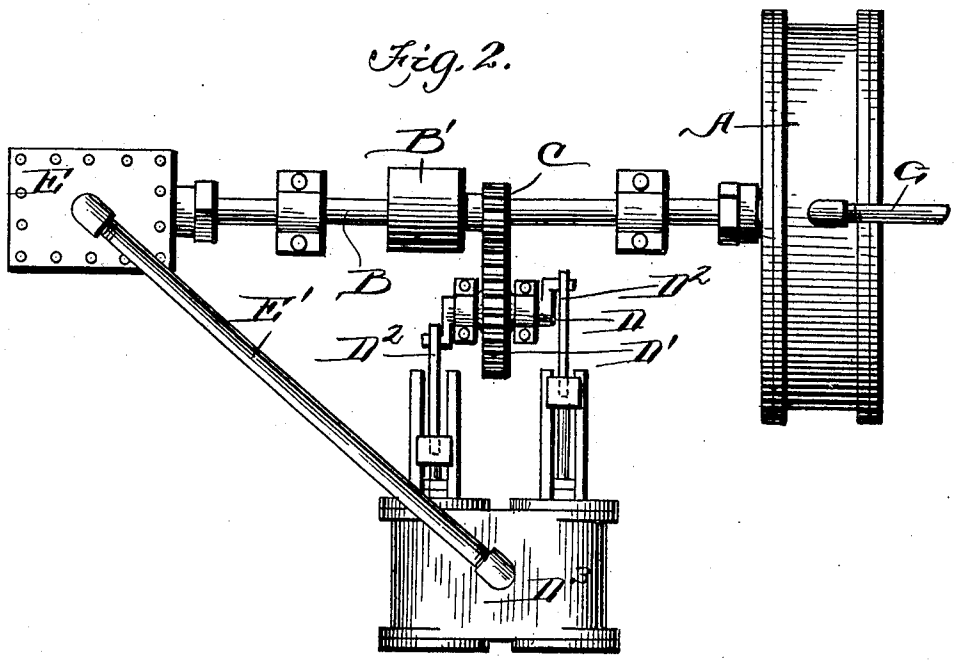


Fig. 2.



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2 SHEETS—SHEET 2.

Fig. 3.

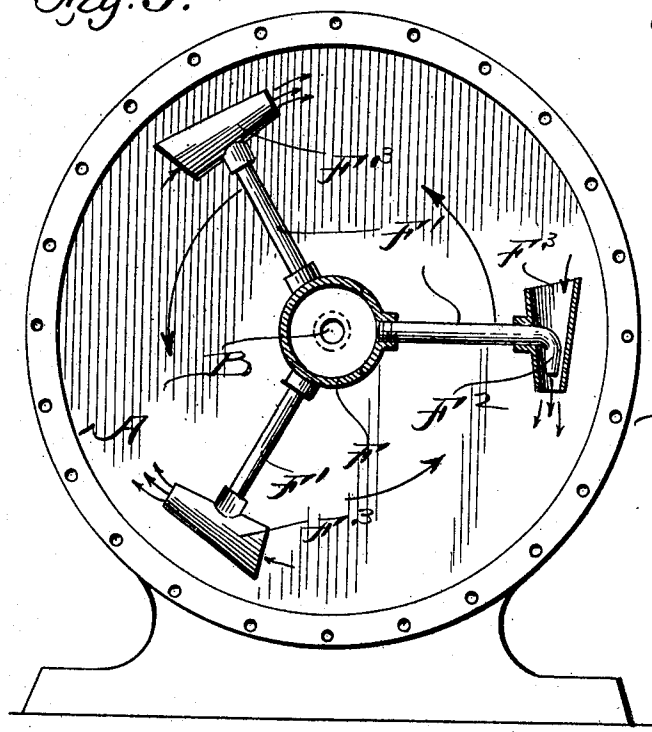


Fig. 4.

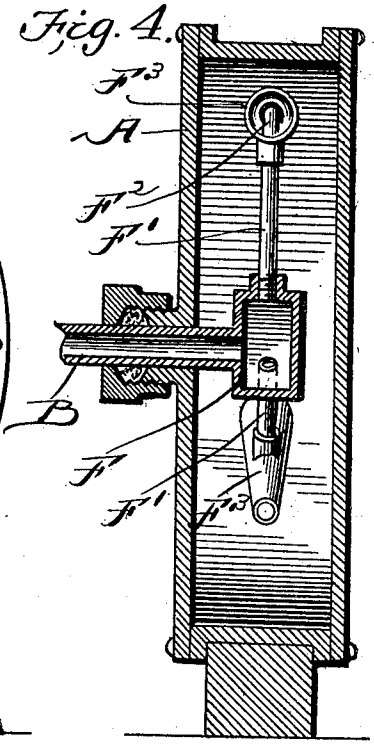


Fig. 5.

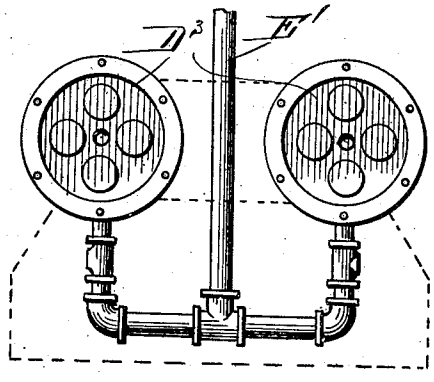
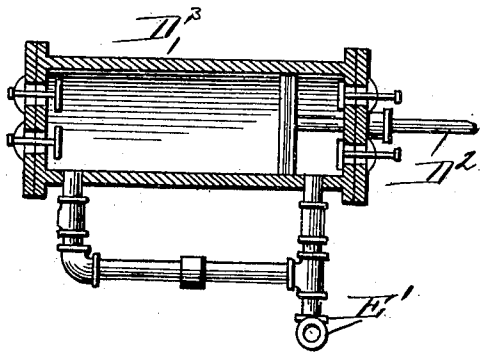


Fig. 6.



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JAMES THORNTON, JR., AND JAMES THORNTON, SR., OF DUQUOIN, ILLINOIS.

AIR-COMPRESSOR.

No. 892,098. Specification of Letters Patent. Patented June 30, 1908.

Application filed May 9, 1906. Serial No. 315,952.

To all whom it may concern:

Be it known that we, JAMES THORNTON, Jr., and JAMES THORNTON, Sr., citizens of the United States, residing at Duquoin, in the county of Perry and State of Illinois, have invented a new and useful Improvement in an Air-Compressor, of which the following is a specification.

This invention relates to an improvement in air compressors, and the object of the invention is to increase the efficiency of such machines thereby enabling the user to employ a smaller or lighter engine than is usually required to obtain a compression of the desired number of pounds per square inch.

The invention consists of passing the air being compressed through a cylinder arranged between the pumps and the receiving tanks, in which cylinder are rotated a plurality of air discharging nozzles provided with hoods.

In the accompanying drawings:—Figure 1 is a side elevation of the device. Fig. 2 is a plan view. Fig. 3 is a side view of the cylinder the end plate being removed to show the interior and portions being in section. Fig. 4 is a section through the cylinder at right angles to view shown in Fig. 3. Fig. 5 is an end elevation of the pump. Fig. 6 is a longitudinal section through a pump cylinder.

In these drawings A represents a cylinder fixed upon a suitable base and B is a hollow shaft suitably journaled and extending centrally into the said cylinder. Upon the shaft B is fixed a pulley B′ by means of which the shaft can be driven by a belt from a gasolene engine, small motor, or other light engines. A gear wheel C is also fixed upon the shaft B and upon a double crank shaft D is mounted a gear wheel D′ which meshes with the bevel gear C. Pitmen D^2 are connected to the crank portions of the shaft D by means of an air pump D^3. A shaft B also extends into an air receiver E which is supplied with air from the pumps D^3 through a pipe E′ provided with a check valve E^2. Within the cylinder A the shaft B terminates in a hollow hub F which is provided with tubular radiating spokes F′, said spokes being bent at their outer end portions and forming discharge nozzles F^2. Each spoke carries a funnel shaped hood F^3 open at each end which incloses the nozzle F^2, and is so placed that the nozzle discharges through the smaller end of the hood. A suitable pipe G leads from the cylinder A to the receptacle or point where the compressed air is to be stored. The cylinder A is also provided with a suitable valve controlled outlet pipe H by means of which air in the cylinder can be exhausted.

The operation of the device is as follows:—Air compressed by the pump D^3 will be delivered to the pipe E′ to the tank E and thence through the shaft B into the hub F from which it will be discharged through the nozzle F^2 of the spokes F′. As shown by the arrows in Fig. 3 it will be noted that the nozzles F^2 discharge in a direction opposite to the direction of rotation of the spokes F′ and it will also be obvious that the funnel shaped hoods having their smaller ends surrounding and extending in the same direction as the nozzles that a strong suction of air will pass through the said hoods thus creating a decided air suction at the mouths of the nozzles. The effect of this suction will be to relieve to a great extent the discharge nozzles from back pressure due to the compressed state of the air delivered into the cylinder A and a discharge of air through the said nozzles would be increased. The suction created by means of the hoods at the mouths of the nozzles will be dependent upon the velocity of the spokes and it is therefore obvious that the efficiency of the pumps and the amount of air compressed will be increased when the shaft B is driven at a high rate of speed, and it is also obvious that the action of the hoods in relieving the nozzles from back pressure will enable a smaller and lighter engine to drive the pumps at a speed which would not be possible except with a larger engine if the hoods were removed.

Having thus fully described our invention, what we claim and desire to secure by Letters Patent, is:—

A device of the kind described comprising a hollow shaft, a cylinder, a hub carried upon the shaft within the cylinder, said hub being hollow and communicating with the interior of the shaft, radial spokes carried by the hub said spokes being hollow and opening into

said hub, the end portions being bent and forming discharge nozzles, funnel shaped hoods carried by the said nozzles, each nozzle discharging through the smaller end of a hood, the hoods being spaced from the nozzles, means for delivering compressed air into the shaft, means for conveying air from the cylinder, and means for driving the said shaft and rotating the nozzles in a direction opposite the direction of discharge.

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Witnesses:
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