

No. 725,450.

PATENTED APR. 14, 1903.

C. R. KELLER.
AIR COMPRESSOR AND HEATER.
APPLICATION FILED FEB. 9, 1901.

NO MODEL.

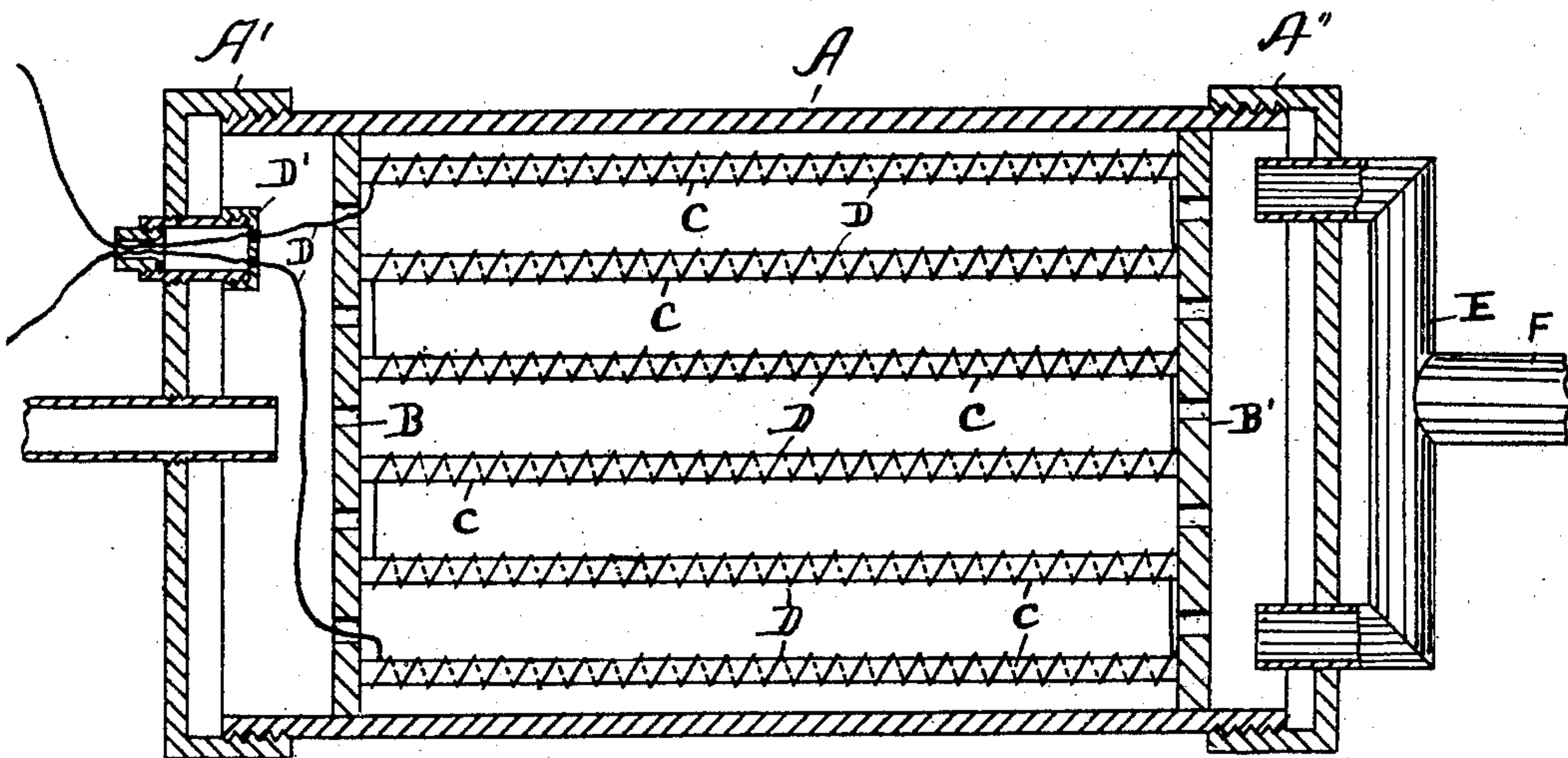
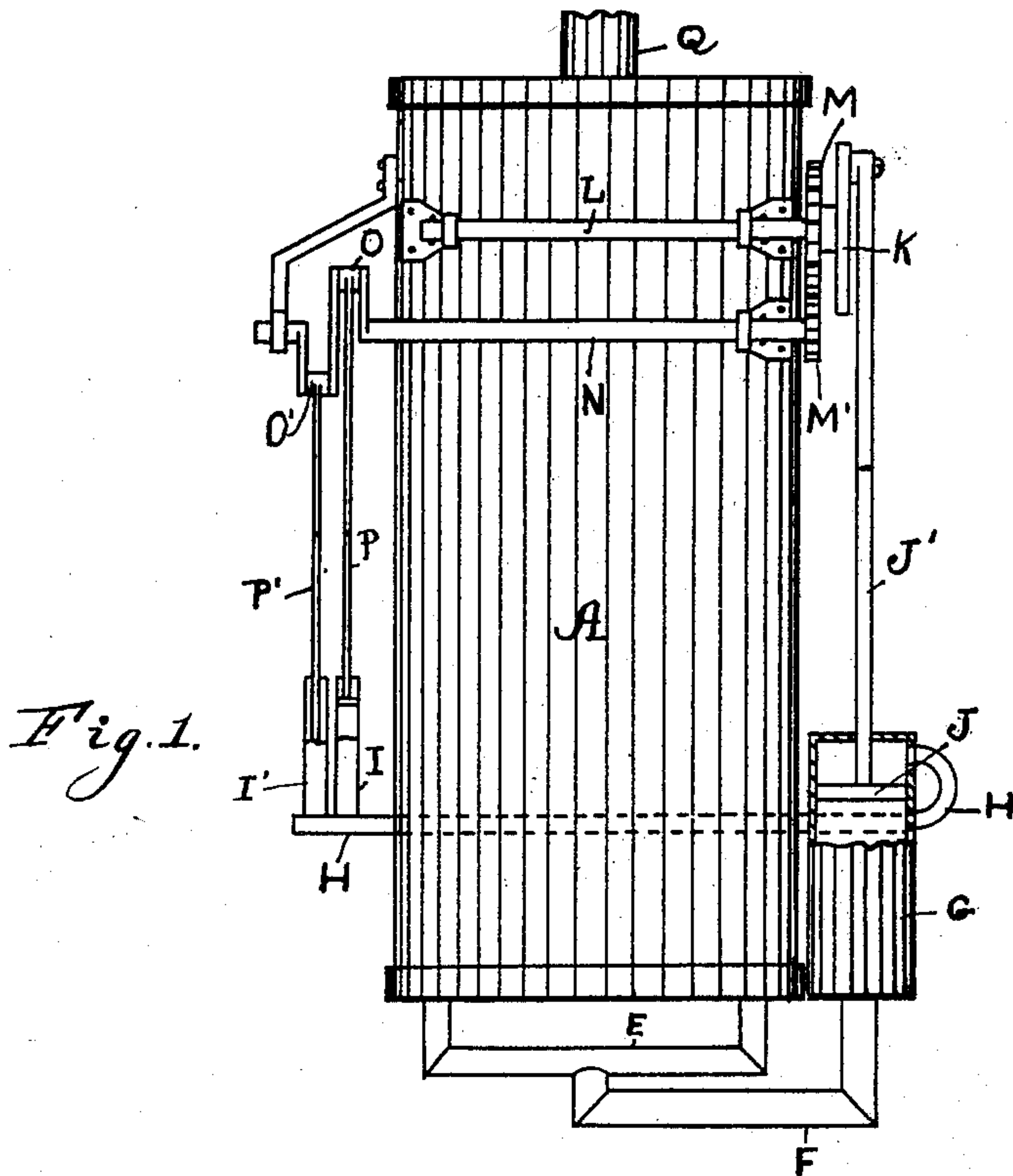


Fig. 2.

WITNESSES.
Matthew Liebler.
C. M. Theobald.

INVENTOR.
C. R. Keller
By R. J. McCarthy
ATTORNEY.

UNITED STATES PATENT OFFICE.

CHARLES R. KELLER, OF DAYTON, OHIO.

AIR COMPRESSOR AND HEATER.

SPECIFICATION forming part of Letters Patent No. 725,450, dated April 14, 1903.

Application filed February 9, 1901. Serial No. 46,602. (No model.)

To all whom it may concern:

Be it known that I, CHARLES R. KELLER, a citizen of the United States, residing at Dayton, in the county of Montgomery and State of Ohio, have invented certain new and useful Improvements in Air Compressors and Heaters; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to new and useful improvements in electrical or hot-air motors.

The object of the invention is to provide an air compressor and heater adapted to generate the heated air for the purposes of driving machinery of various kinds.

The invention will be hereinafter described and claimed in the following specification, reference being first made to the accompanying drawings, of which—

Figure 1 is a top plan view of my improved air compressor and heater. Fig. 2 is a sectional view of the heating-cylinder.

In a detail description of my invention similar letters of reference indicate corresponding parts.

A designates a heating-cylinder, the ends of which are closed by air-tight caps A' and A'', which fit over the ends of the cylinder. On the interior of the cylinder there are securely placed two perforated disks B and B' in the positions substantially as shown. These disks are constructed of asbestos or any other suitable non-conducting material. Supported in these disks are a suitable number of rods or wire-supports C, upon which is wound an electrical conductor D. As shown in Fig. 2, this wire or conductor D passes into the cylinder through an insulated cap D' and is coiled around each of said rods in opposite directions and again passes out through said insulated cap back to the opposite pole of the source of electrical power or the generator, which is not shown. Passing into the cylinder through the cap A'' is a T-pipe E. To this T-pipe E is connected an air conductor or pipe F from a compressor-cylinder G, arranged in any suitable position. The air pump or cylinder G is fed with air through a pipe H, into which air is pumped through two pumps I and I'. Within the cylinder G

there is a piston J, the rod J' of which is driven from a crank-wheel K.

The crank-wheel K is mounted on a shaft L and is driven through gears M and M', the latter gear being on a shaft N, which is the primary driving-shaft of the compressor. Upon this shaft N are two cranks O and O', which drive the piston-rods P and P' of the air-pumps I and I'. The air is forced into the cylinder A by means of the air-pumps I and I' and G. The air entering said cylinder becomes thoroughly heated through contact with the heat furnished through the medium of the electrical conductor D, and as said air becomes heated up to a sufficiently-high temperature it discharges from the cylinder through pipe Q. The pipe Q is connected to the engine to be driven, and this engine, which is not shown in the drawings, furnishes the power to drive the shaft N. The air discharging through the pipe Q discharges into the piston-cylinder of the engine. A portion of the energy coming through pipe Q is utilized to furnish power to drive the shaft N.

It will be understood that the power furnished through the medium of the heated air is due to the compression and expansion of said air, the expansion taking place in the hot-air cylinder A and exerting itself on the piston of the engine.

Having described my invention, I claim—

The combination in an electrical heating apparatus for heating air under compression, for motive power, a cylinder, two perforated disks arranged on the interior of said cylinder adjacent to the ends thereof, caps inclosing the ends of said cylinder and providing chambers between the perforated disks and said caps, a series of solid electrical conductors arranged between said disks and serving to heat air introduced to the chamber between said disks, an air-inlet pipe through which air is inducted under compression at one end of the cylinder, and an air-outlet pipe at the opposite end of the cylinder through which heated air is discharged for the purposes specified, the inlet and outlet pipes communicating with the chambers in the ends of the cylinder, substantially as specified.

In testimony whereof I affix my signature in presence of two witnesses.

CHARLES R. KELLER.

Witnesses:

JOHN W. KALBFUS,
R. J. McCARTY.