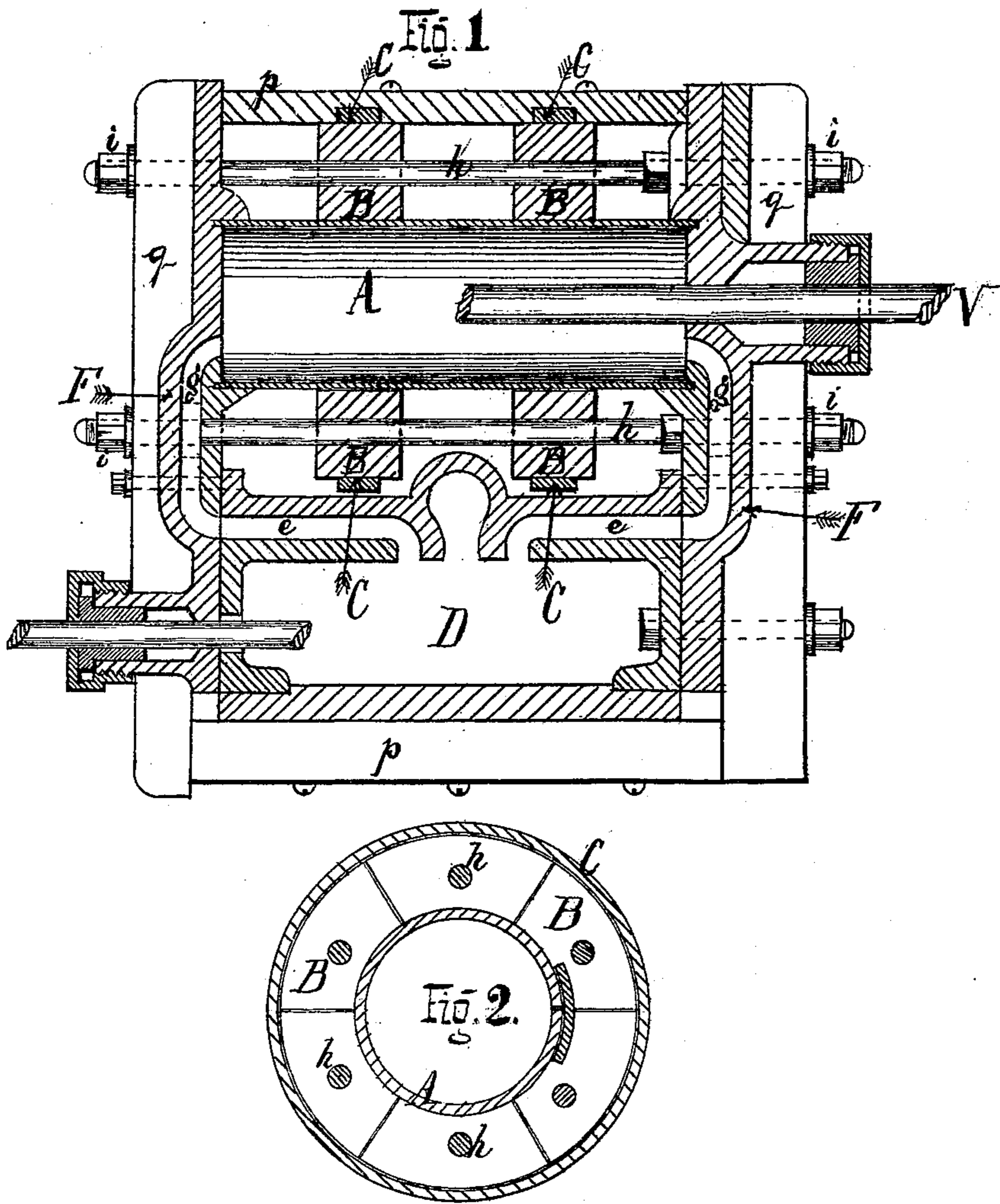


H. GERNER.
Steam-Engine Cylinders.

No. 143,008.

Patented September 23, 1873.



Witnesses:
Richard Gerner
Franklin Garritt.

Inventor:
Henry Gerner

UNITED STATES PATENT OFFICE.

HENRY GERNER, OF NEW YORK, N. Y.

IMPROVEMENT IN STEAM-ENGINE CYLINDERS.

Specification forming part of Letters Patent No. **143,008**, dated September 23, 1873; application filed July 10, 1873.

To all whom it may concern:

Be it known that I, HENRY GERNER, of the city, county, and State of New York, have invented certain Improvements in Steam-Engines, of which the following is a specification:

The object of my invention is to provide a stronger and cheaper cylinder for steam-engines than those heretofore known or used. By substituting wrought metal for cast metal in constructing a steam-cylinder independent of the steam-chest, a cheaper and stronger cylinder is obtained; cracking and rupturing are prevented, owing to the superior strength of the metal, and to the fact that the evil influences of expansion and contraction of a steam-cylinder and steam-chest cast together are done away with. In case of repairs and in substituting parts, expense and time are saved. My invention consists in a wrought-iron cylinder, constructed of a drawn tube or pipe, or by bending a true-rolled plate over a mandrel, letting the ends meet, and either riveting them together, with a separate piece laid over both ends, or soldering them together with or without this separate piece. This so-formed tube, which must be a perfectly true cylinder, forms the cylinder of a steam-engine without ports or inlets or outlets for the steam, as generally used, and is perfectly independent of the steam-chest. Around this cylinder are laid a number of wooden hoops, formed in the same way, in section, as the rim of a wheel, around which is sprung or laid an iron band to hold them firmly together. The inside of this wooden rim is turned true, in a perfect circle, to fit the outside of the cylinder. The steam-chest is made of cast metal, of the same length as the steam-cylinder, but independent of the same. Two metal heads, in which channels are formed for the ingress and egress of steam to and from the cylinder, as well as both ends of the steam-chest and the joints, are made steam-tight, with suitable packings, and

grooves made in the heads. Both ends of the cylinder and chest are planed off true. The ports in the steam-chest are made to correspond with the channels in the heads, so that the steam will flow through the ports in the chest and the channels in the heads into and out of the steam-cylinder. The steam cylinder and chest are placed side by side, the heads, which are made large enough to cover the ends of the chest as well as the cylinder, being placed over the ends of both, so that the ports and channels come opposite each other, and are held in this position by means of bolts and nuts. The cylinder, chest, chest-covers, and heads are all lagged and covered with wood, to prevent the radiation of heat and cooling of the steam.

In order more fully to describe my invention, I refer to the accompanying drawings forming a part of this specification.

Figure 1 is a detached view of the cylinder, steam-chest, and heads. Fig. 2 is a detached sectional view of the cylinder, wooden rims, iron hoop, and bolts.

A is the steam-cylinder; B B, the wooden bands; C C, the metal bands; D, the steam-chest; *e e*, the ports; F F, the heads or coverings for the heads of the cylinder and steam-chest; *g g*, the channels or passages in the interior of the heads F F. *h h* are bolts, and *i i* nuts, holding the heads to the cylinder. *p p* are wood coverings for the chest and cylinder. *q q* are wood coverings for the heads.

Having thus described my invention, I claim as follows:

The steam-cylinder A, with wooden bands B B and metal bands C C, in combination with the steam-chest D with ports *e e*, and heads F F with passages *g g*, substantially as and for the purposes hereinbefore set forth.

HENRY GERNER.

Witnesses:

ANTON C. CRONDAL,
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