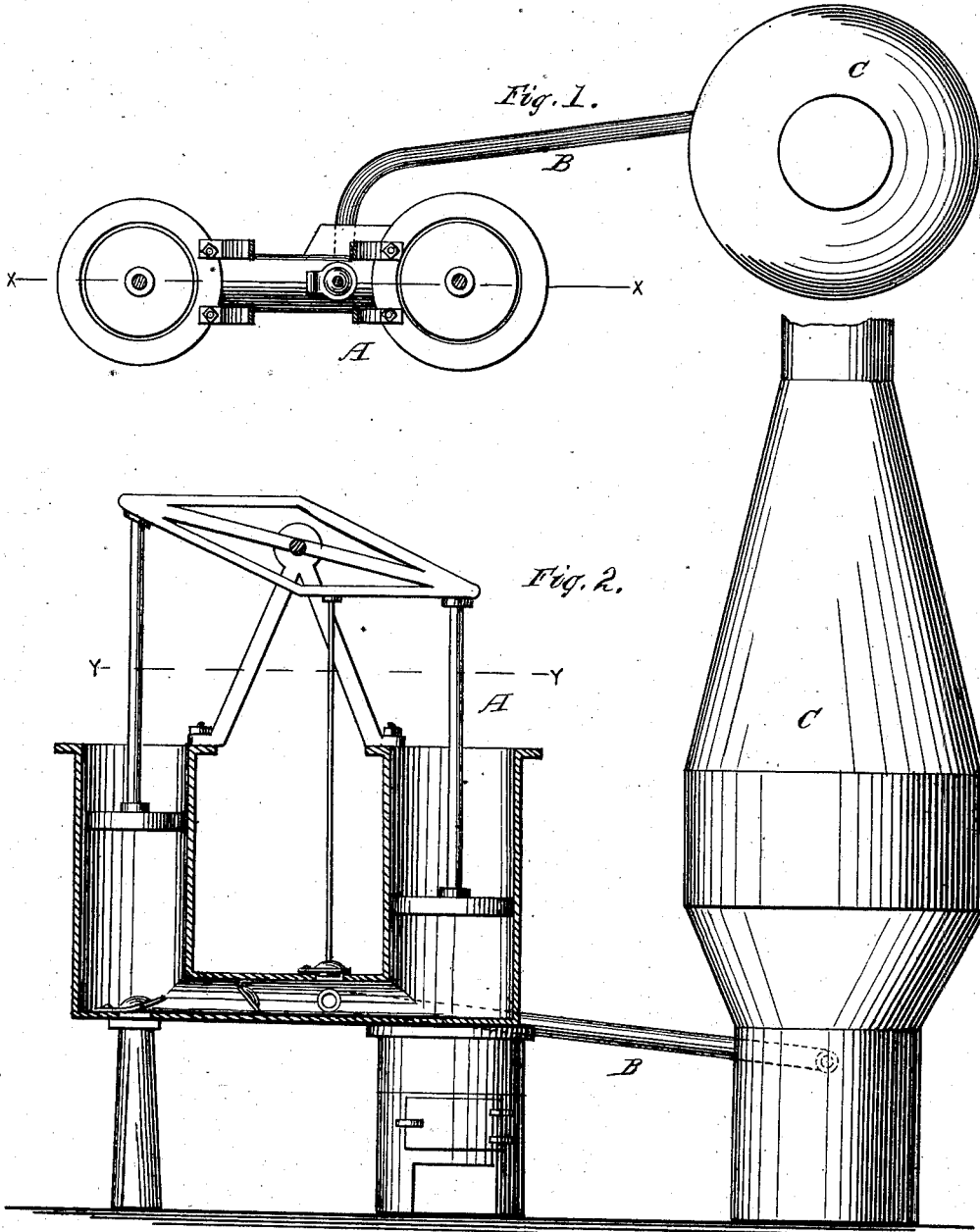


H. ESSEX.
Hot-Blast Apparatus.

No. 165,084.

Patented June 29, 1875.



WITNESSES:

P. C. Dieterich

W. C. McArthur

INVENTOR:

Henry Essex

per J. R. Alexander

ATTORNEY.

UNITED STATES PATENT OFFICE.

HENRY ESSEX, OF MEADVILLE, PENNSYLVANIA.

IMPROVEMENT IN HOT-BLAST APPARATUS.

Specification forming part of Letters Patent No. **165,084**, dated June 29, 1875; application filed December 11, 1874.

To all whom it may concern:

Be it known that I, HENRY ESSEX, of Meadville, in the county of Crawford and State of Pennsylvania, have invented certain new and useful Improvements in Hot-Blast Apparatus; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates more particularly to blast-furnaces and cupolas; and it consists in utilizing the exhaust of hot-air engines for the blowing of blast-furnaces and cupolas by means of one or more pipes connecting the exhaust of the hot air-engine with the blast-furnace or cupola, as will be hereinafter more fully set forth.

In order to enable others skilled in the art to which my invention appertains to make and use the same, I will now proceed to describe its construction and operation, referring to the annexed drawing, which fully illustrates my invention.

A represents a hot-air engine, of any suitable construction; and C is a blast-furnace or cupola, constructed in any of the known and usual ways. B is a pipe connecting the exhaust of the hot-air engine A with the tuyeres of the blast-furnace C, whereby the exhaust from the engine is utilized for blowing the blast-furnace.

Hot-air engines used in this connection here-

tofore have always exhausted in the open air, thus wasting the exhaust. By connecting the exhaust-port of the engine with the tuyere of the furnace or cupola, the exhaust, which would otherwise be wasted, is utilized.

It will readily be understood that I do not confine myself to the use of one hot-air engine and one conducting-pipe. Any number of engines may be employed, and each engine may be connected with the furnace by one or more pipes, as desired, and such pipe or pipes may be arranged in any suitable manner that may be deemed most advantageous to accomplish the desired object.

If the exhaust is not hot enough, the pipe or pipes B may be conducted through one or more hot-blast ovens, so as to bring the air up to the required temperature.

Having thus fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

The combination, with a blast-furnace or cupola, C, of one or more hot-air engines, A, and one or more pipes, B, connecting the exhaust of the engine with the furnace or cupola, for the purposes herein set forth.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

HENRY ESSEX.

Witnesses:

T. H. ALEXANDER,
C. M. ALEXANDER.