

(No Model.)

2 Sheets—Sheet 1.

J. C. H. STUT.

SUPERHEATER FOR ENGINES.

No. 301,074.

Patented June 24, 1884.

Fig. 1.

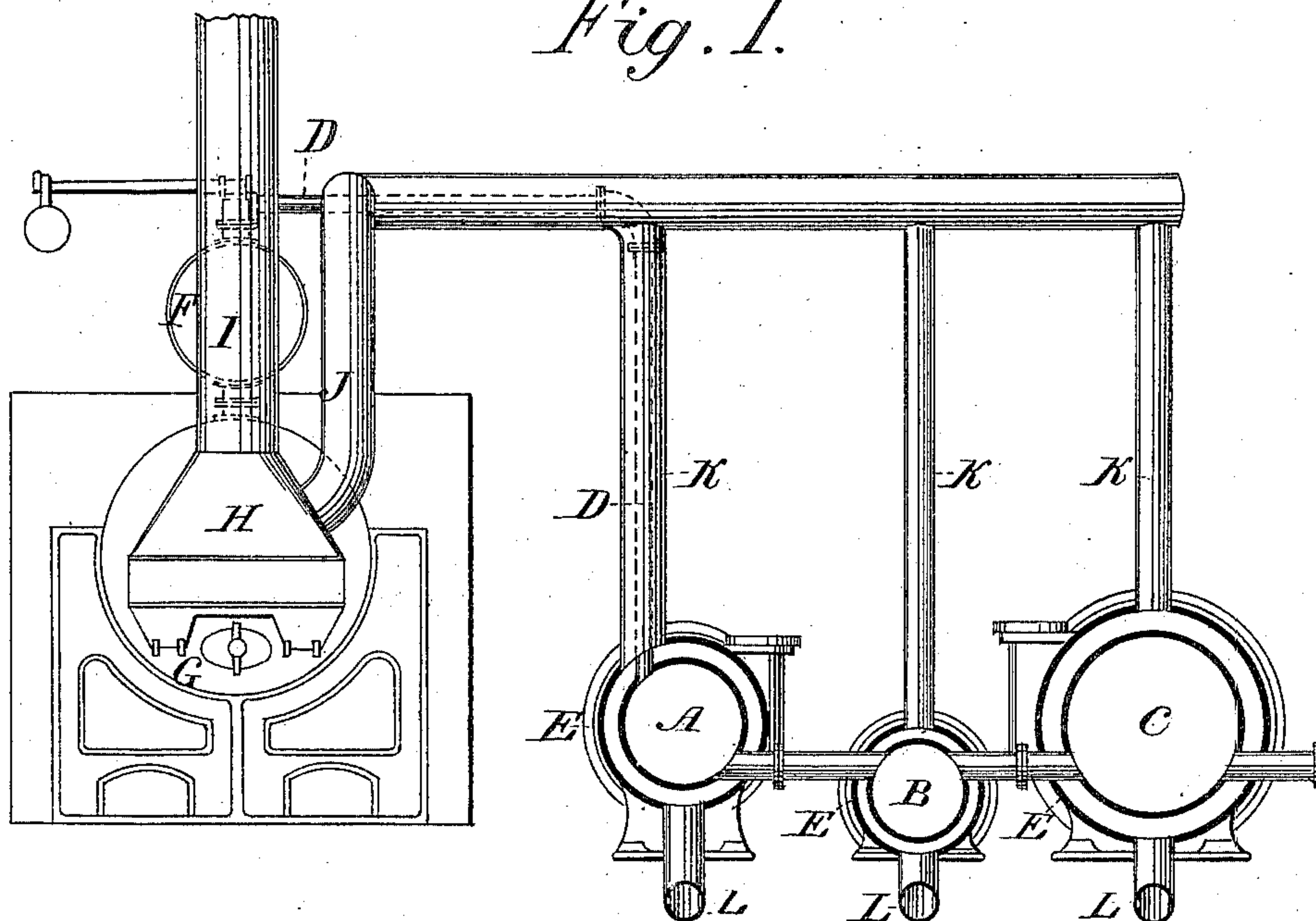
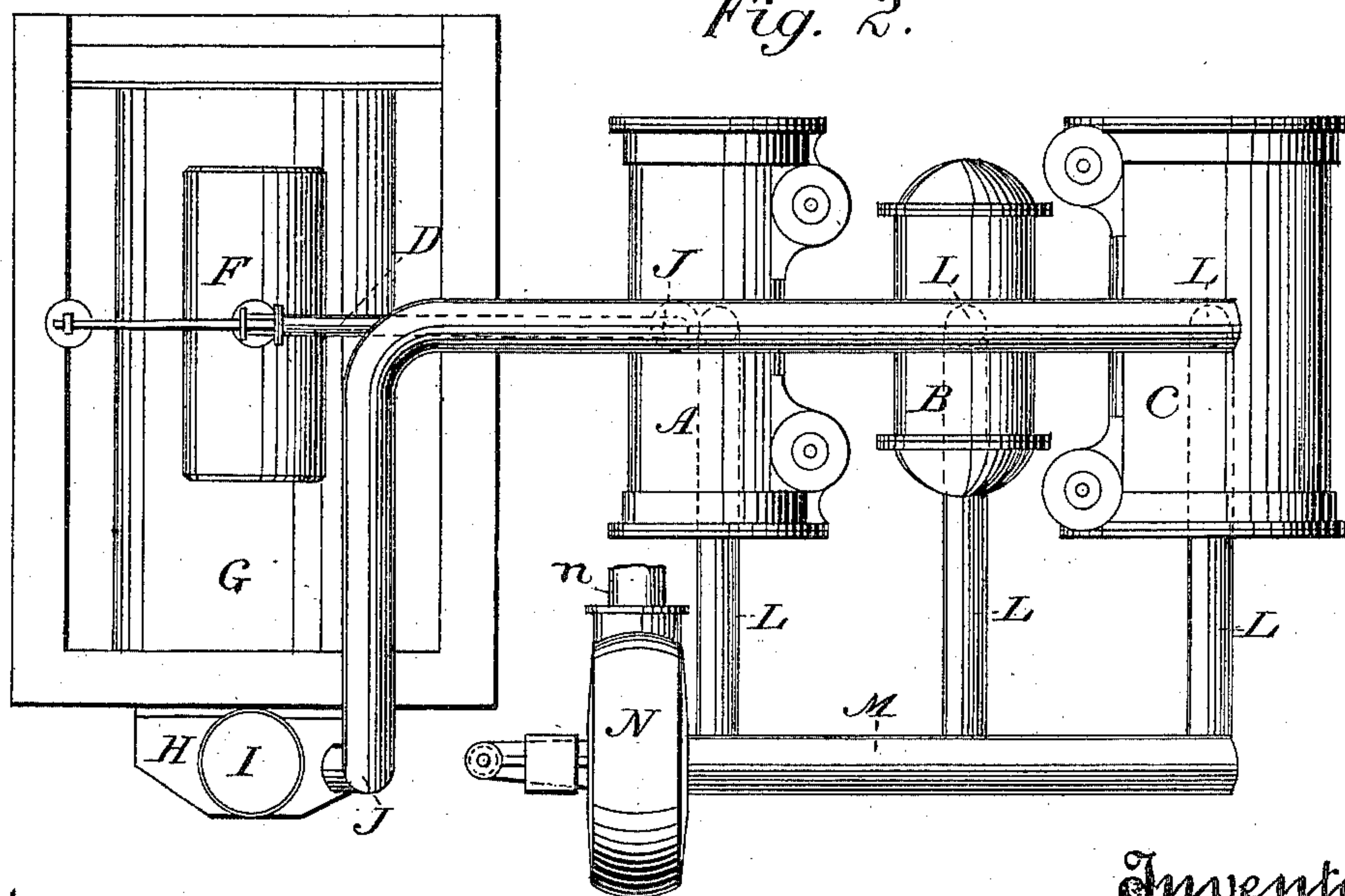


Fig. 2.



Witnesses,
Geo. H. Strong,
J. H. House.

Inventor,
John C. H. Stut
By
Dewey & Co.
Attorneys

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FIG. 3.

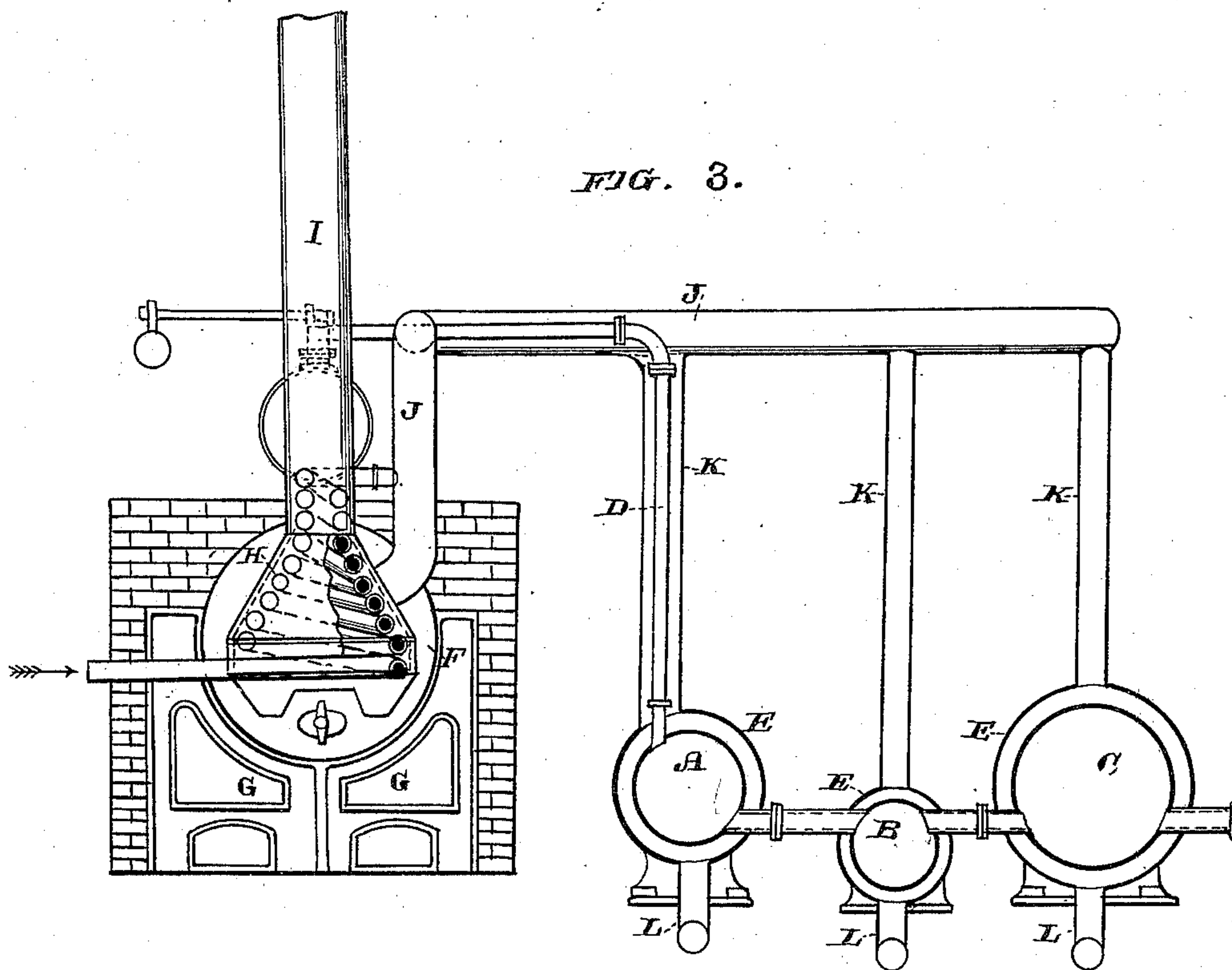
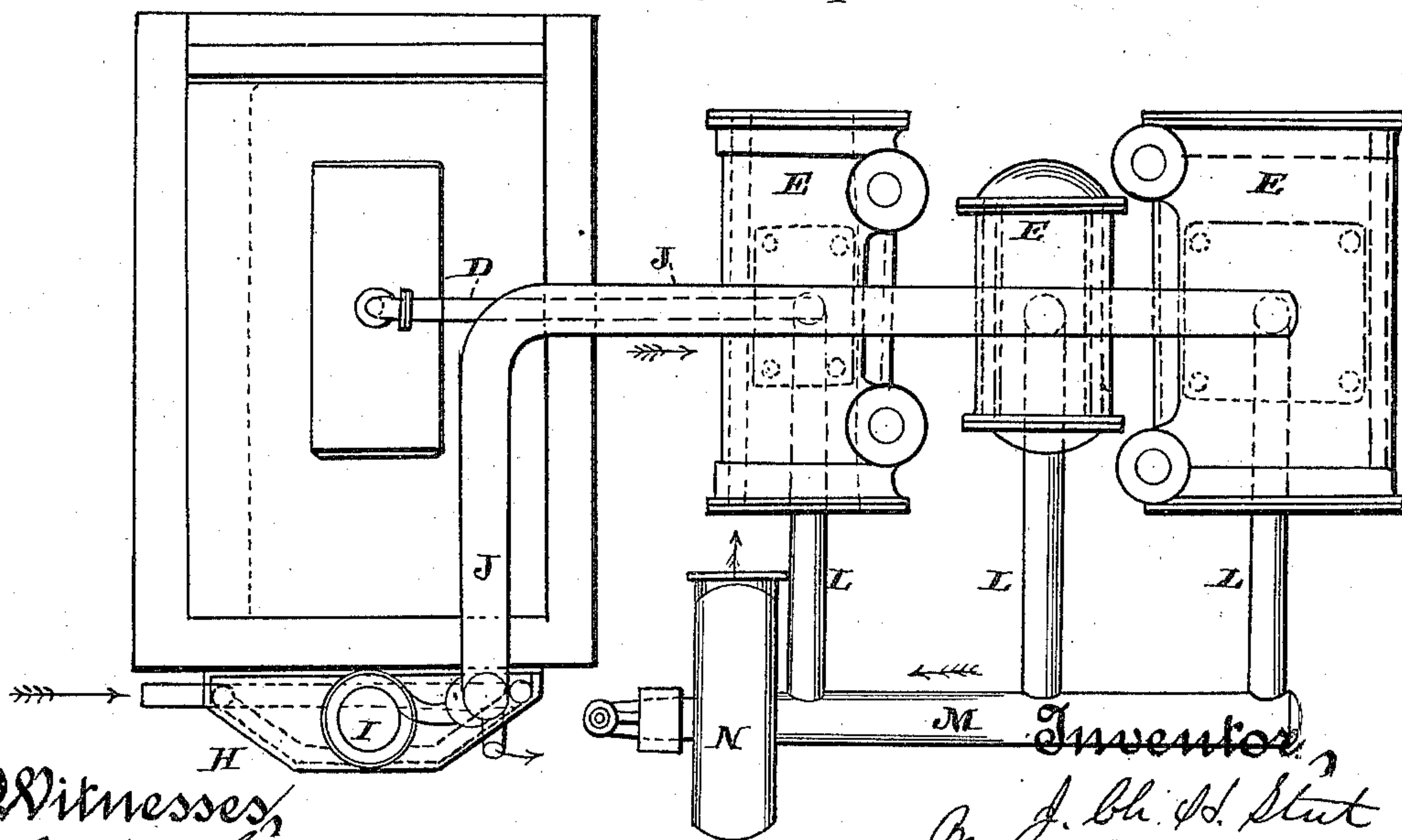


FIG. 4.



Witnesses,
Geo. H. Strong,
L. H. Moore

Inventor,
J. C. H. Stut
Dewey & Co.,
attorneys

UNITED STATES PATENT OFFICE.

JOHN CH. HENRY STUT, OF SAN FRANCISCO, CALIFORNIA.

SUPERHEATER FOR ENGINES.

SPECIFICATION forming part of Letters Patent No. 301,074, dated June 24, 1884.

Application filed September 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN CH. HENRY STUT, of the city and county of San Francisco, and State of California, have invented an Improvement in Superheaters for Steam-Engines; and I hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to certain improvements in engines which are driven by steam or other elastic vapor or gas; and it consists in jackets for the cylinders, receivers, or passages, and a means for transmitting the hot gases which escape from the furnace through these jackets to superheat the steam, or prevent its condensation, so that its full effect may be preserved through the initial and expansion cylinders when such are used, as in compound engines.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a transverse section of the cylinders, with an end view of the boiler, smoke-stack, and the connecting-pipes and mechanism. Fig. 2 is a plan view of the same. Fig. 3 is a transverse section of the cylinder, with an end view of the boiler and smoke-stack, and with a portion of the breeching H broken away. Fig. 4 is a plan view of the same.

A is the initial cylinder, B the receiver, and C the expansion-cylinder, of a compound engine, so arranged and constructed that steam is worked through them in the manner usual for compound engines; and D is the pipe through which steam is conveyed from the boiler. Around each cylinder is a jacket, E, between which and the cylinder is a space to admit the hot air or gases.

F is the boiler, with furnaces at G, and the usual return-flues and uptake or breeching at H, connecting with the smoke stack or chimney I. From the breeching H a pipe, J, leads and surrounds the steam-pipe D, so as to form a jacket for it. This pipe J may extend above or in some convenient relation to the steam-cylinders, and it has branches K leading from it to connect with the jackets E, surrounding the steam-cylinders and receiver. From these jackets other pipes, L, connect with a trunk, M, which leads to an exhaust-fan, N. From

this the gases may be discharged into the open air through pipe *n*, or led back into the breeching or chimney at will. The gases of combustion, after leaving the furnace, traversing the heating-chamber and return-flues, and arriving in the breeching, ready to escape up the chimney, always have a temperature much higher than that of the steam. When, therefore, the exhaust-fan N is set in motion, these hot gases are drawn through the pipe J, within which the steam-pipe D is inclosed, and they act to superheat the steam or dry it before it reaches the first cylinder. Passing on through the pipes K, it circulates around the cylinders and receiver A B C, and thus prevents any condensation of steam within them, and tends to raise their temperature and increase the elasticity of the steam within them, so that it will do its full service before and during the period of expansion.

It will be manifest that a current of air may be passed through the furnace, breeching, or smoke-stack to heat it, and it may then be carried through the pipes J K, instead of the gases of combustion, and with a similar result.

It will be manifest that a pressure-blower or forcing apparatus may be used instead of the exhauster to force the current of hot gases around the cylinder.

A valve or cut-off may be connected with the pipes, either to admit air to regulate the temperature or to cut off a part of the hot air or gases at will.

I am fully aware of English Patent No. 4,433 of 1877, and of the patent to Dixwell, August 17, 1875, No. 166,688, and do not desire to claim, broadly, any of the features therein shown.

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

1. A steam cylinder or cylinders having a supply-pipe connecting them with the steam dome or boiler, jackets E, surrounding the cylinders, a secondary pipe or jacket, J, opening into the uptake or flue, surrounding the steam-pipe and connected with the cylinder-jackets by branches, as shown, in combination

with pipes leading from the cylinder-jackets and connected with a fan, substantially as and for the purpose herein described.

2. A steam cylinder or cylinders having a
5 supply-pipe connecting them with the steam dome or boiler, jackets surrounding the cylinders and steam-pipe and connected by branches, and pipes leading from the cylinder-jackets to a fan, in combination with an
10 air-pipe passing through the furnace, breech-

ing, or smoke-stack, and connected with the jacket of the steam-pipe near the boiler, substantially as herein described.

In witness whereof I have hereunto set my hand.

JOHN CH. HENRY STUT.

Witnesses:

S. H. NOURSE,
HENRY C. LEE.