(No Model.)

E. E. ELLS.

STEAM BOILER.

No. 326,960. Patented Sept. 29, 1885.

Fig. 1.

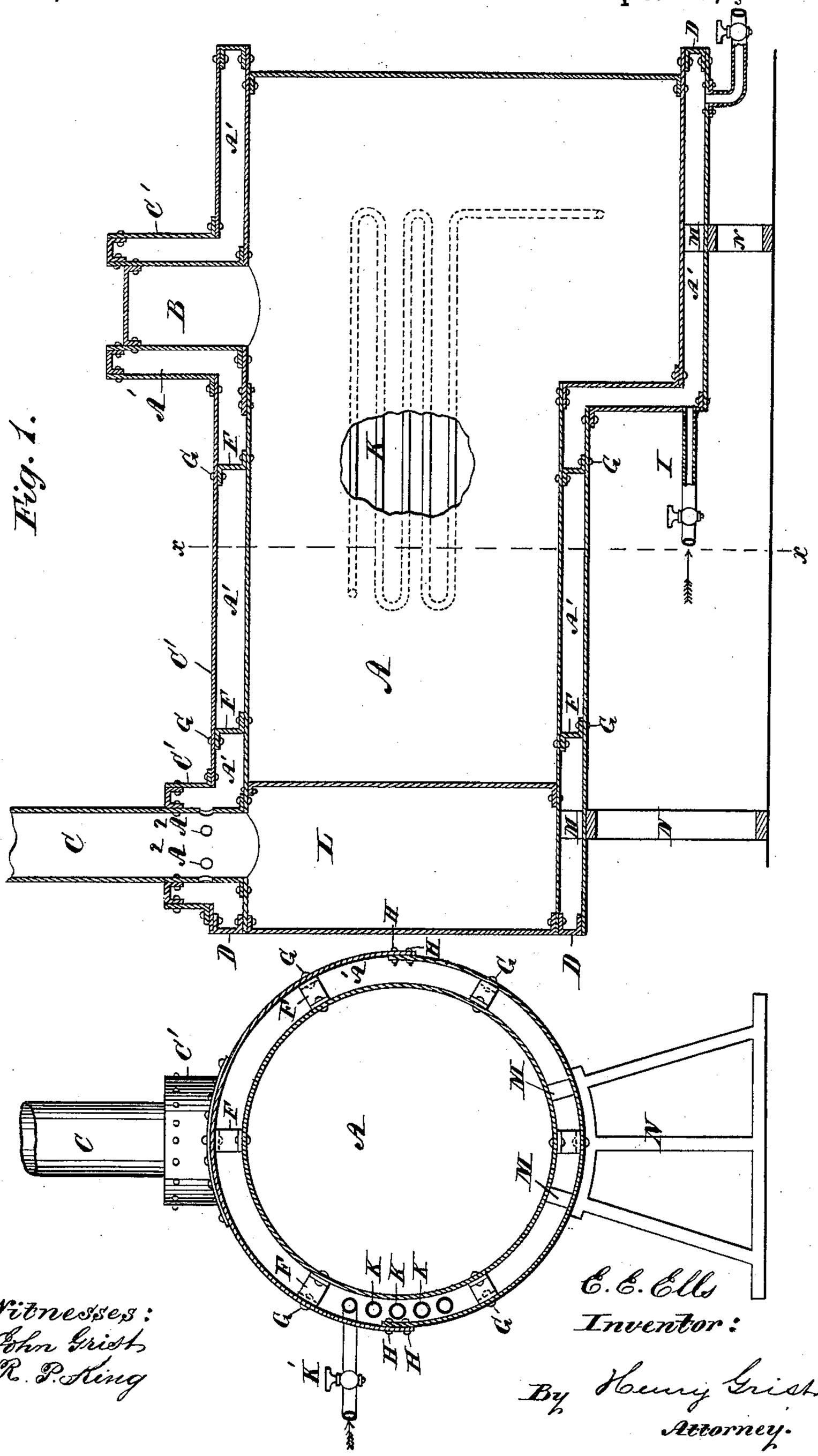

Fig. 2.

Witnesses:
John Grist
R. P. King

C. E. Ells
Inventor:

By Henry Grist
Attorney.

UNITED STATES PATENT OFFICE.

ELISHA EZRA ELLS, OF CANNING P. O., NOVA SCOTIA, CANADA.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 326,960, dated September 29, 1885.

Application filed April 15, 1885. (No model.) Patented in Canada February 25, 1885, No. 21,140.

To all whom it may concern:

Be it known that I, ELISHA EZRA ELLS, of the township of Cornwallis, (Canning post-office,) in the county of Kings, in the Province of Nova Scotia, in the Dominion of Canada, have invented certain new and useful Improvemen's in Steam Bo.lers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, in which—

Figure 1 is a longitudinal vertical section of a locomotive-boiler with steam-jacket, showing manner of application, and feed-water coil, shown in dotted lines. Fig. 2 is a transverse vertical section of the same on line *x x*, Fig. 1.

My invention has for its object to utilize the exhaust-steam from a boiler to heat the exterior, for economizing fuel, also to heat the feed-water before entering the boiler; and it consists of a sheet-metal steam-jacket encircling the boiler, the dome, and a portion of the smoke-stack, to surround the same with steam for imparting heat from the exterior and collect the water of condensation for reuse.

A is a steam-boiler, of any type now in use; B, the steam-dome, and C the smoke-stack.

C′ is a jacket, of boiler-plate, encircling the boiler, the dome, and the smoke-stack. The jacket is stopped at the ends by flanged plates D, riveted to the boiler, dome, and smoke-stack, whereby a steam-tight annular space, A′, prevails around the boiler and the dome and up the smoke-stack to a suitable distance. The jacket C′ is secured by knees F, riveted to the boiler, and by screws G to the knees, which are arranged in alignment at suitable distances apart around the boiler. The jacket is in two sections, consisting of upper and lower halves, whereby one section may be removed independently to effect repairs. The two sections overlap at the meeting edges and are connected by screws H.

I is a pipe, connecting with the exhaust of the steam-cylinder, to inlet the steam to the space A′ intervening the jacket and boiler. The smoke-stack has perforations A^2, to allow steam to pass from the space A′ under pressure of the inlet steam.

J is a pipe to carry off the water of condensation from the space A′ to a tank for reuse.

K is a coil-pipe within the space A′, and connects the tank with the boiler, and feeds water to the boiler after being heated by the steam within the space A′. A portion of the coil passes outside the jacket C, and is provided with a valve, K′, to shut off the feed-water when desired.

L is a smoke-box connecting with the smoke-stack.

M are blocks inserted between the boiler and jacket to resist the weight of the boiler on the jacket when placed on pedestals N, supporting the boiler in position.

I claim as my invention—

The combination, with a steam-boiler and smoke-stack C, having perforations A^2, of the upper and lower jacket-sections, bolted together and to knees F, the lower section provided with steam-inlet I and water-outlet J, whereby steam admitted to the space A′ circulates under pressure around the boiler and passes into the smoke-stack, as set forth.

ELISHA EZRA ELLS.

Witnesses:

WATSON W. ELLS,

C. R. DICKER.