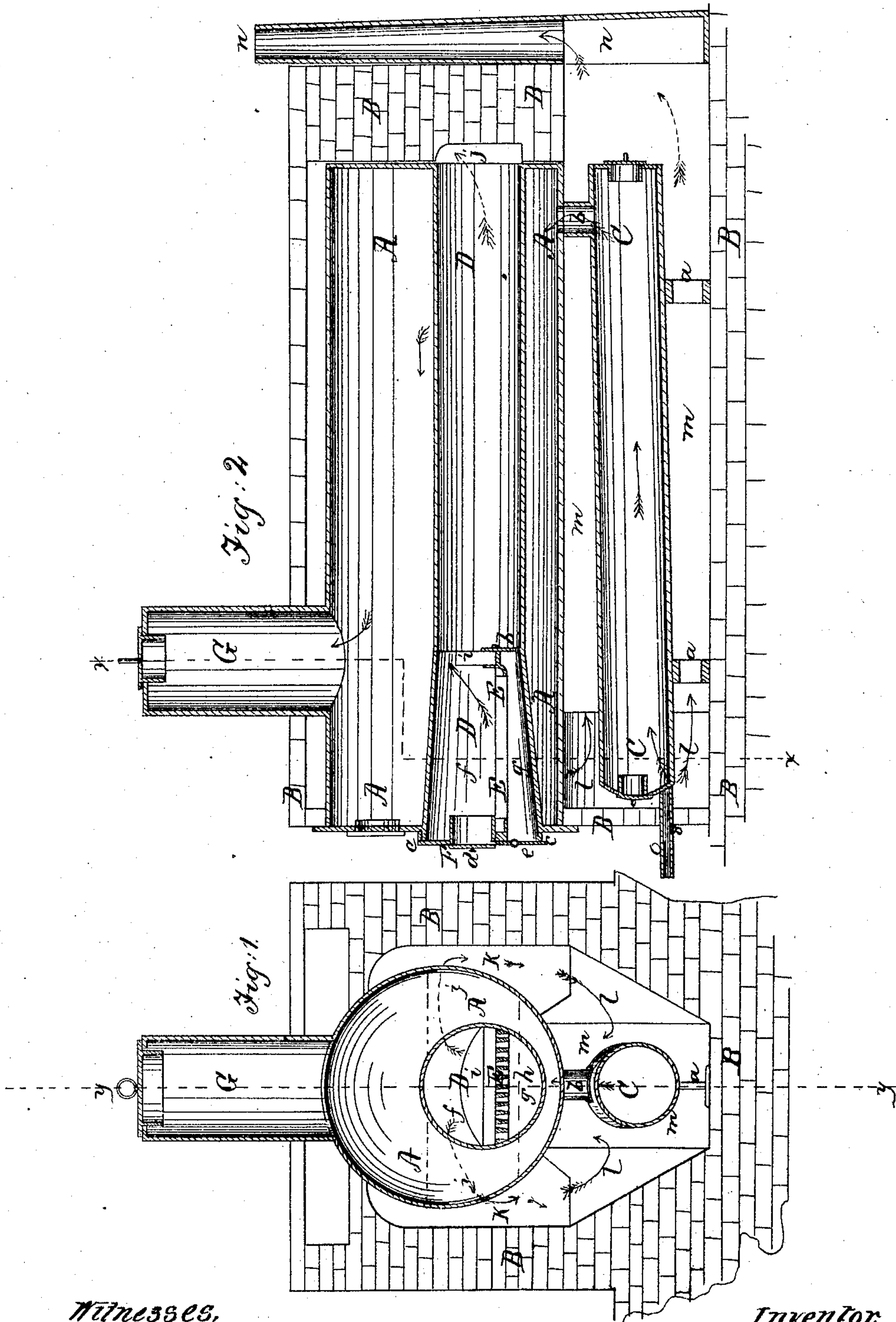


E. H. Rümmele. Steam Boiler.

No. 119,652.

Patented Oct. 3, 1871.



Witnesses,
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UNITED STATES PATENT OFFICE.

E. H. RÜMMELE, OF GLENBEULAH, WISCONSIN.

IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. 119,652, dated October 3, 1871.

To all whom it may concern:

Be it known that I, E. H. RÜMMELE, of Glenbeulah, in the county of Sheboygan and State of Wisconsin, have invented a new and useful Improvement in Steam-Boilers; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification, in which—

Figure 1 represents a vertical transverse section of my improved steam-boiler, the plane of section being indicated by the line *x x*, Fig. 2. Fig. 2 is a vertical longitudinal section of the same taken on the plane of the line *y y* of Fig. 1.

Similar letters of reference indicate corresponding parts.

My invention consists in an improvement on steam-boilers, which will first be described in connection with all that is necessary to a full understanding thereof, and then clearly pointed out in the claim.

A in the drawing represents a horizontal cylinder, made of sheet metal or other suitable material, of suitable dimensions. It is supported in suitable manner in a brick or other fire-proof structure, B. C is another horizontal cylinder, somewhat shorter and smaller than A. It is arranged by preference under the cylinder A, as shown, and is supported by means of suitable feet *a a*, as shown. The two cylinders A and C are connected with each other by means of a short tube, *b*. Through the larger cylinder A is fitted longitudinally another cylinder, D, with open ends. This cylinder D is arranged eccentrically within—that is, nearer the bottom of A—and an eccentric annular water-space is thus left around the tube D. The front part of the tube D is somewhat expanded, as in Fig. 2, and in it is arranged a grate, E, supported on suitable brackets or other supports. The front end of the tube D is closed by means of a removable plate, F, which has a projecting flange, *c*, fitting around the edge of D, as shown. In this plate are two doors, *d* and *e*, one leading to the fire-place *f* above the grate, the other to the ash-pan *g* below the grate. The rear end of the ash-pan is provided with a damper, *h*, while the rear end of the fire-place has its lower part closed by means of a

plate, *i*, to direct the flame upward. The rear end of the cylinder A abuts against the rear wall of the structure B, in which two channels, *j j*, are arranged, shown in Fig. 2 and by dotted lines in Fig. 1, to conduct the products of combustion from the tube D into two channels, *k k*, arranged on both sides of the main boiler A. In front the channels *k* communicate by means of passages *l l* with a chamber, *m*, surrounding the lower cylinder C, the rear end of which chamber communicates with the chimney *n*. The front end of the cylinder C receives the water-supply through a pipe, *o*. G is a dome, arranged upon the cylinder A above the furnace. The front and rear heads of the cylinder C and the front head of the water-cylinder A have man-holes to facilitate cleaning.

The water, entering the cylinder C through the pipe *o*, flows toward the rear end of the same, and thence ascends in the tube *b* into the cylinder A, flowing forward in the latter toward the furnace so as to be exposed to the greatest heat under the dome. The fire and products of combustion pass through the tube D toward the rear end of the same; thence through the passages *j j* into the channels *k k* so as to partly surround the vessel A. They then pass forward in *k k*, and through the passages *l l* into the chamber *m*, which surrounds the vessel C. From the chamber *m* the products of combustion pass off into the chimney.

It will be seen that the heat is well utilized in this boiler, even that of the cinders that fall through the grate.

The boiler can be easily cleaned, and is not liable to get out of order, and is not liable to accidents on account of clogged passages.

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

The cylinders A and C, connected, by the rear passage *b*, with the system of fire-passages D, *j*, *k*, *l*, and *m* within and around the said cylinders, all in combination substantially as and for the purpose described.

E. H. RÜMMELE.

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