

(No Model.)

J. A. STOUT.

SUPERHEATING ATTACHMENT FOR STEAM BOILERS.

No. 292,146.

Patented Jan. 15, 1884.

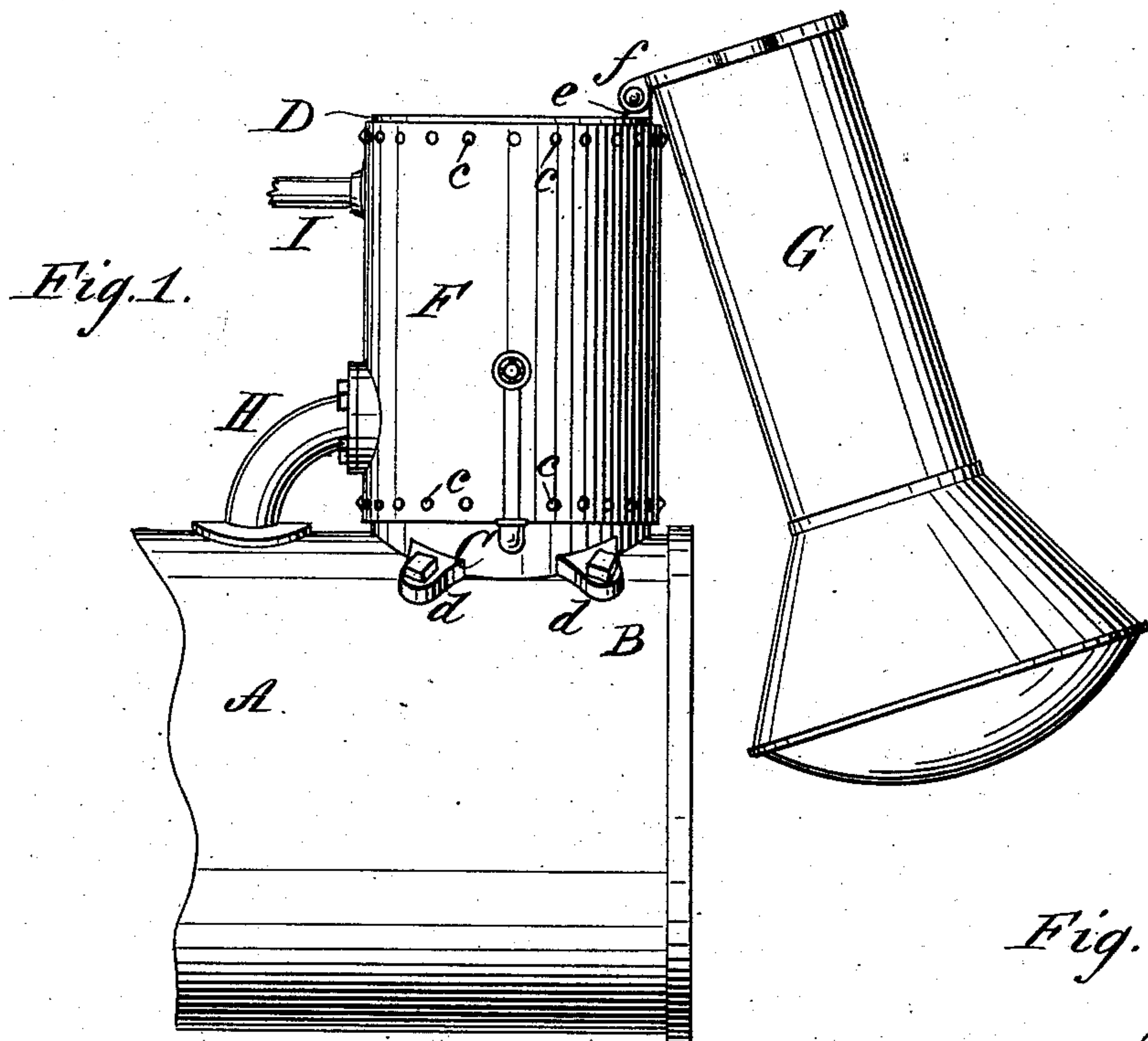


Fig. 3.

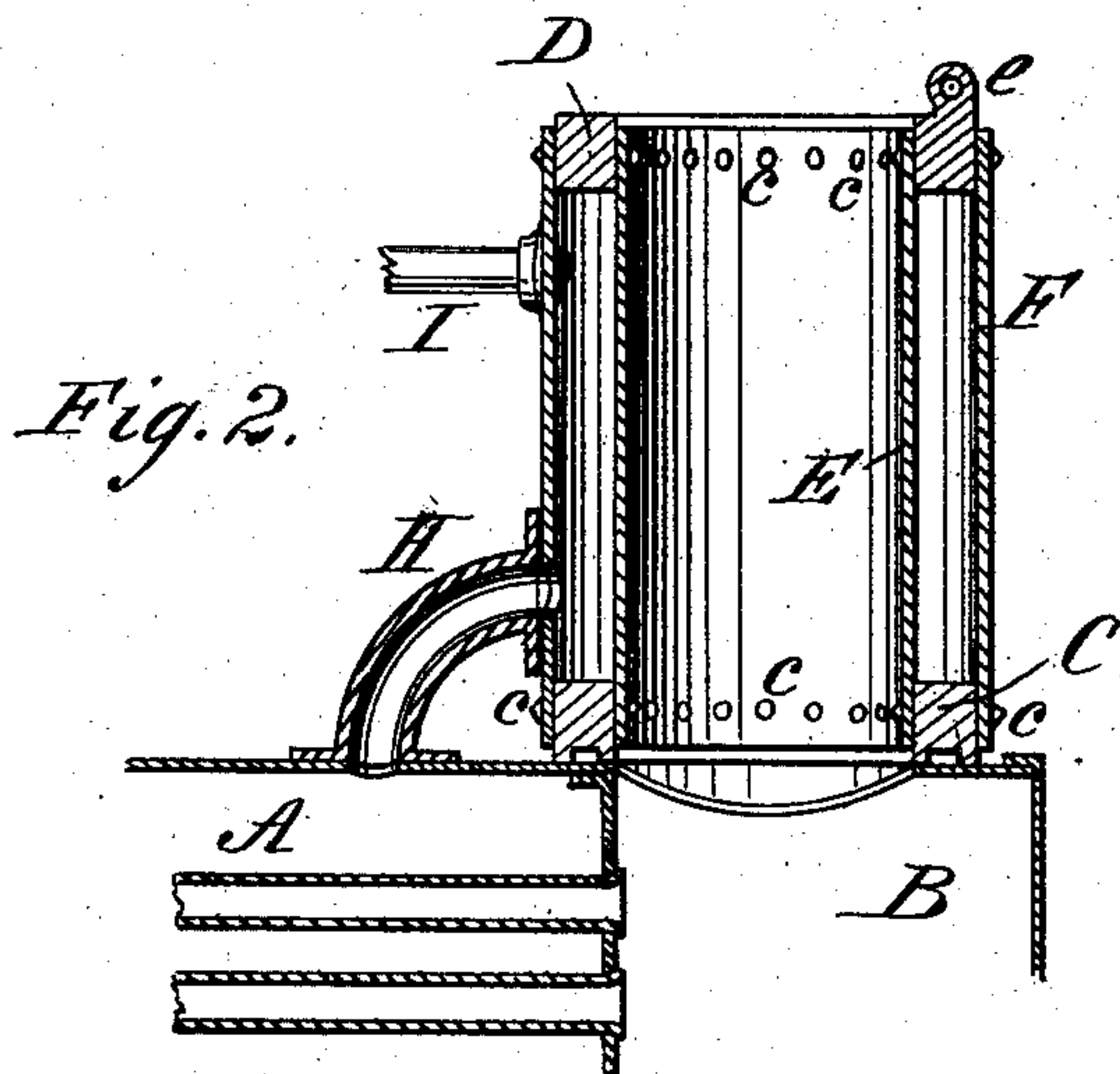
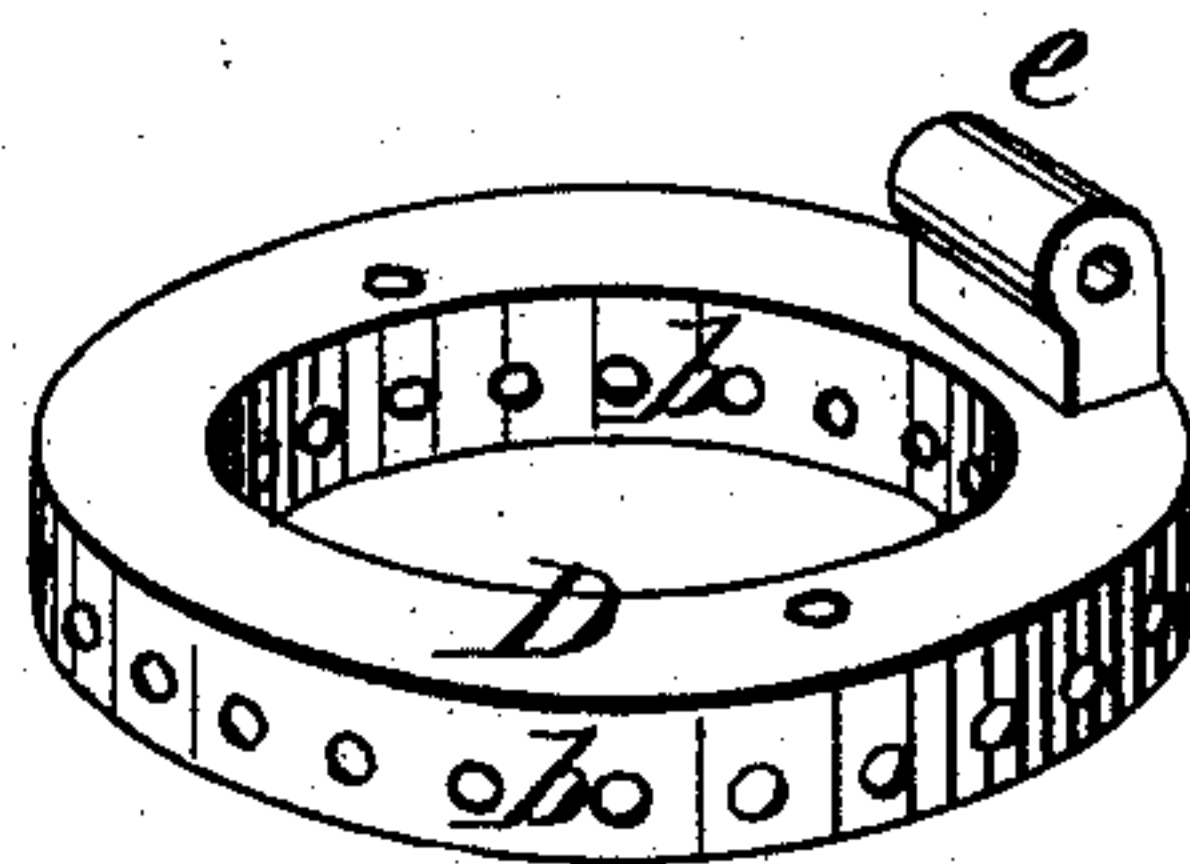
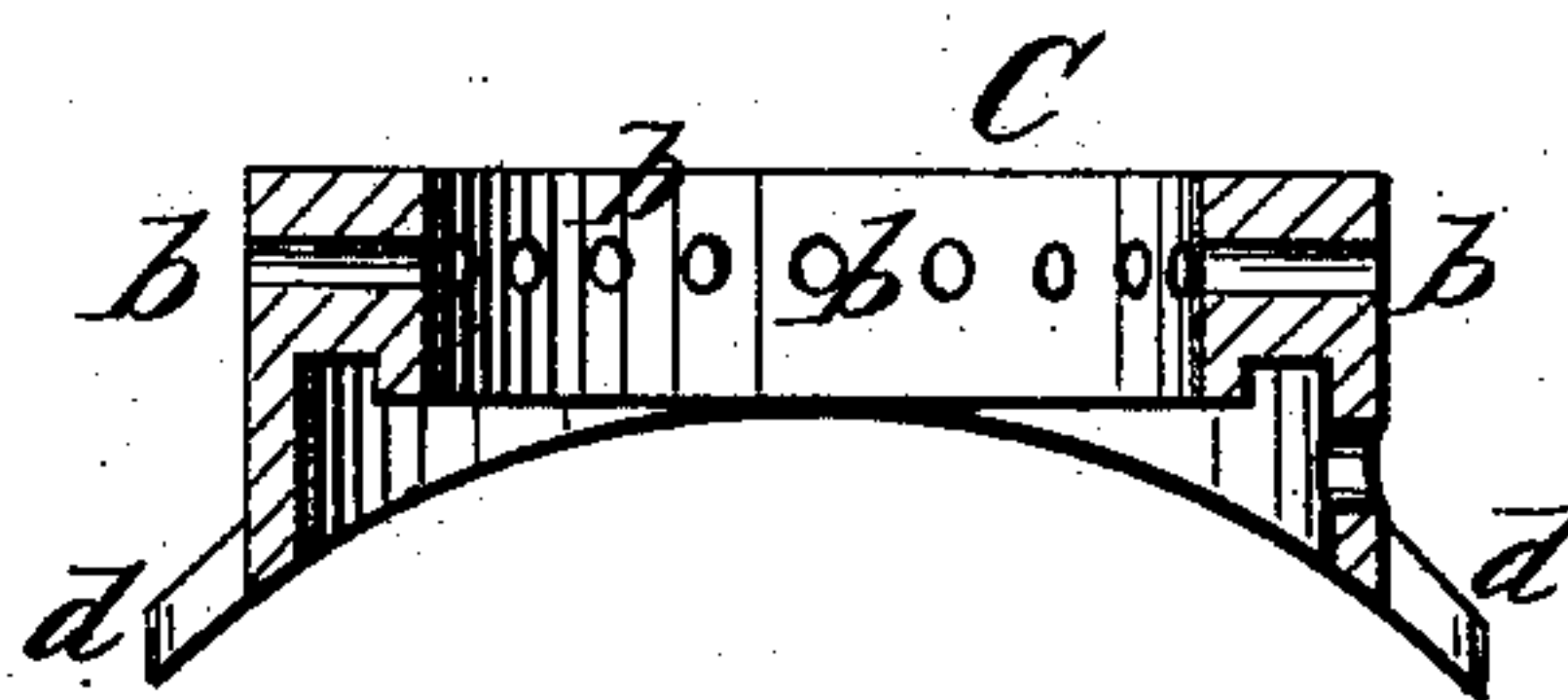


Fig. 4.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JAMES ANDREW STOUT, OF BELLEVILLE, ILLINOIS, ASSIGNOR TO THE HARRISON MACHINE WORKS, OF SAME PLACE.

SUPERHEATING ATTACHMENT FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 292,146, dated January 15, 1884.

Application filed November 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, JAMES ANDREW STOUT, of Belleville, in the county of St. Clair and State of Illinois, have invented certain new and useful Improvements in Superheating Attachments for Steam-Boilers, of which the following is a full, clear and exact description.

This invention is mainly designed for steam-boilers of portable and traction engines, and relates to that class of superheaters for steam-boilers in which a superheating steam-drum, composed of inner and outer casings, is combined with the chimney in such manner that the steam from the boiler is passed into the chamber or space between said casings, and superheated by the gaseous products of combustion as they pass through the drum to the chimney.

The object of the invention is to make such superheater so that it shall be a complete steam-tight structure within itself, independently of the boiler, and capable of easy attachment, and of detachment for repairs, the said superheater to take the place and answer the purpose of the ordinary steam-dome, and serving to prevent foaming or priming; also, to economize both fuel and water.

The invention consists in a novel construction of said dome, which has its heads formed of cast-metal rings at its opposite ends, and which is combined with the smoke-box end of the boiler, the upper one of said rings preferably being made with a hinge-joint for attachment of a raising and lowering smoke-stack; also, the dome having combined with it a steam-supply pipe connecting it with the boiler, substantially as hereinafter described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a side elevation of the smoke-box end of a tubular steam-boiler, such as used for portable engines, with my invention applied; Fig. 2, a vertical longitudinal section of the same in part; Fig. 3, a perspective view of the upper cast ring of the dome, and Fig. 4 a vertical section of the lower ring thereof.

A indicates the boiler, and B its smoke-box end, over and in open communication with

which the superheating steam drum or dome is arranged. This steam-dome has its heads or lower and upper ends constructed of two cast-iron rings, C D, having rivet-holes *b* cast in them, and which are connected by an inner shell, E, and outer shell, F, bent to conform, respectively, to the inner and outer peripheral surfaces of the rings, and united with each other and with the rings by rivets *c*. This makes the drum an independent structure complete in itself, the space between the shells E F forming the superheating-chamber, and the interior space the passage for the gaseous products of combustion from the smoke-box end of the boiler to the chimney or stack. The lower ring, C, is made to conform to the circular shape of the boiler, which it fits like a saddle, and may be secured thereto by bolts passing through ears *d d*, cast on said ring. The upper ring, D, is straight on top, and is provided with a lug, *e*, on top to form a hinge-joint with corresponding projections, *f*, on the lower ring of the smoke-stack G. This forms a cheap, simple, and strong attachment for the smoke-stack, the lowering or falling of which provides for the engine and boiler passing under overhead obstacles in the road or for entering barns and other places.

The whole construction of the drum is a cheap, simple, and strong one, the riveting of the shells composing it to the rings at each end also admitting of ordinary boiler-iron being used for said shells in the place of a more expensive quality of iron, as in hollow-shell steam-drums having flanges at their ends for attachment by riveting to an uptake-flange at the one end of the drum and to the chimney at the other end. The bolting of the lower ring to the boiler, too, in my improved superheater admits of a much cheaper and readier attachment to and detachment of it from the boiler.

H is a bent pipe connecting the upper portion of the steam-space of the boiler with the superheating steam-chamber of the drum at a distance a little above the lower ring, C, to provide, by condensation, for the accumulation of water in the lower portion of said chamber, to prevent overheating and cracking of the metal of the drum when first firing. The superheated steam is taken from the drum to work the

engine by an upper pipe, I. Said drum, which takes the place of an ordinary steam-dome, but which has no cut connection (weakening the boiler) with the steam-space thereof, may, if
5 desired, be fitted with the usual attachments of steam whistle, gage, and safety-valve.

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

10 The combination, with the boiler over the smoke-box end thereof, of the superheating steam-dome consisting of the lower and upper cast metal rings, C D, the lower one of which

is made to fit the boiler as a saddle, and is provided with the securing lugs or ears *d*, and of inner and outer wrought-metal shells, E F, 15 united with each other and with the rings C D by rivets passing through the shells and rings, and the inlet and outlet pipes, substantially as set forth.

JAMES ANDREW STOUT.

Witnesses:

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W. L. PIEPER.