

S. BICKERSTAFF.
Steam-Boilers.

No. 157,114.

Patented Nov. 24, 1874.

Fig. 1

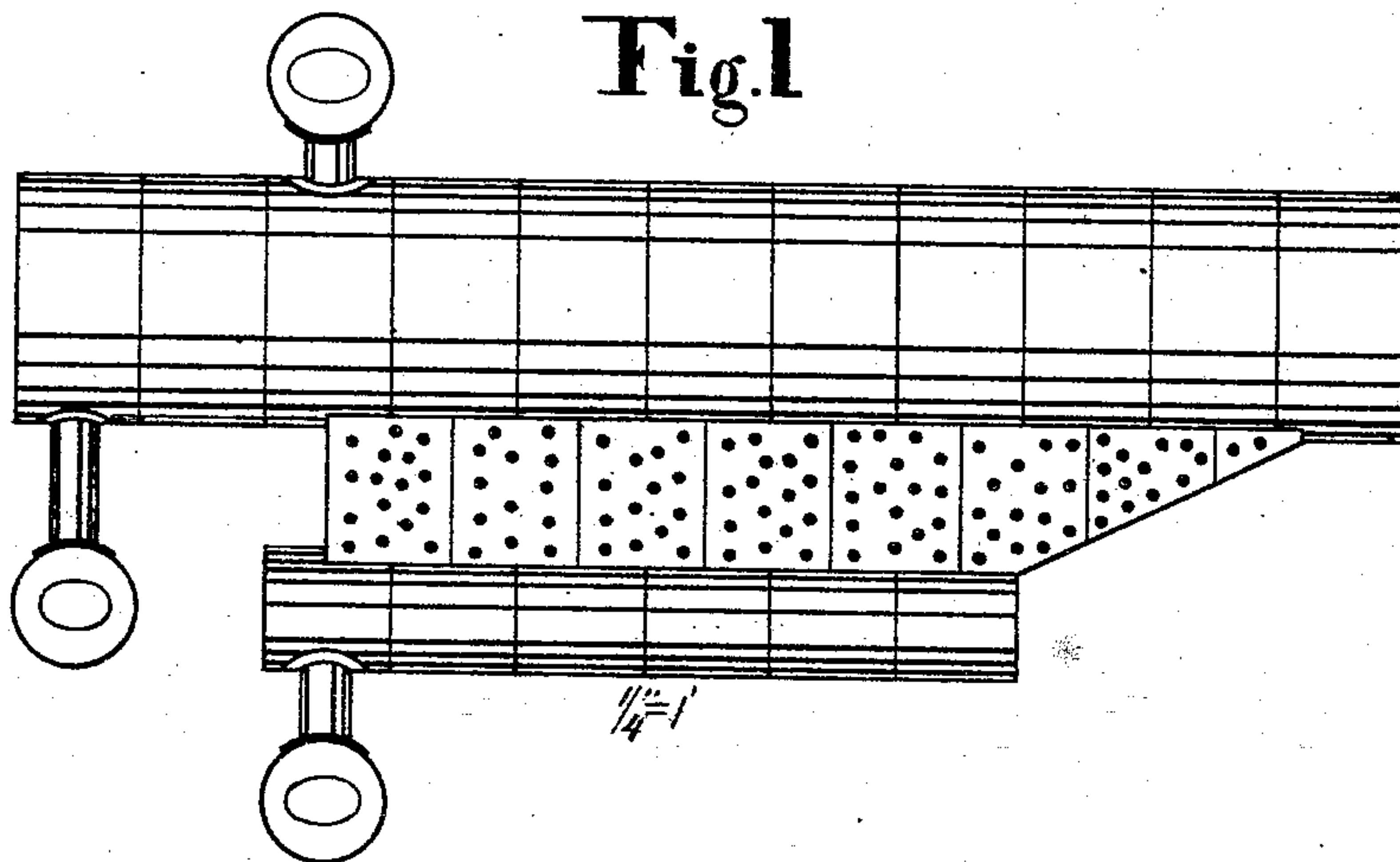
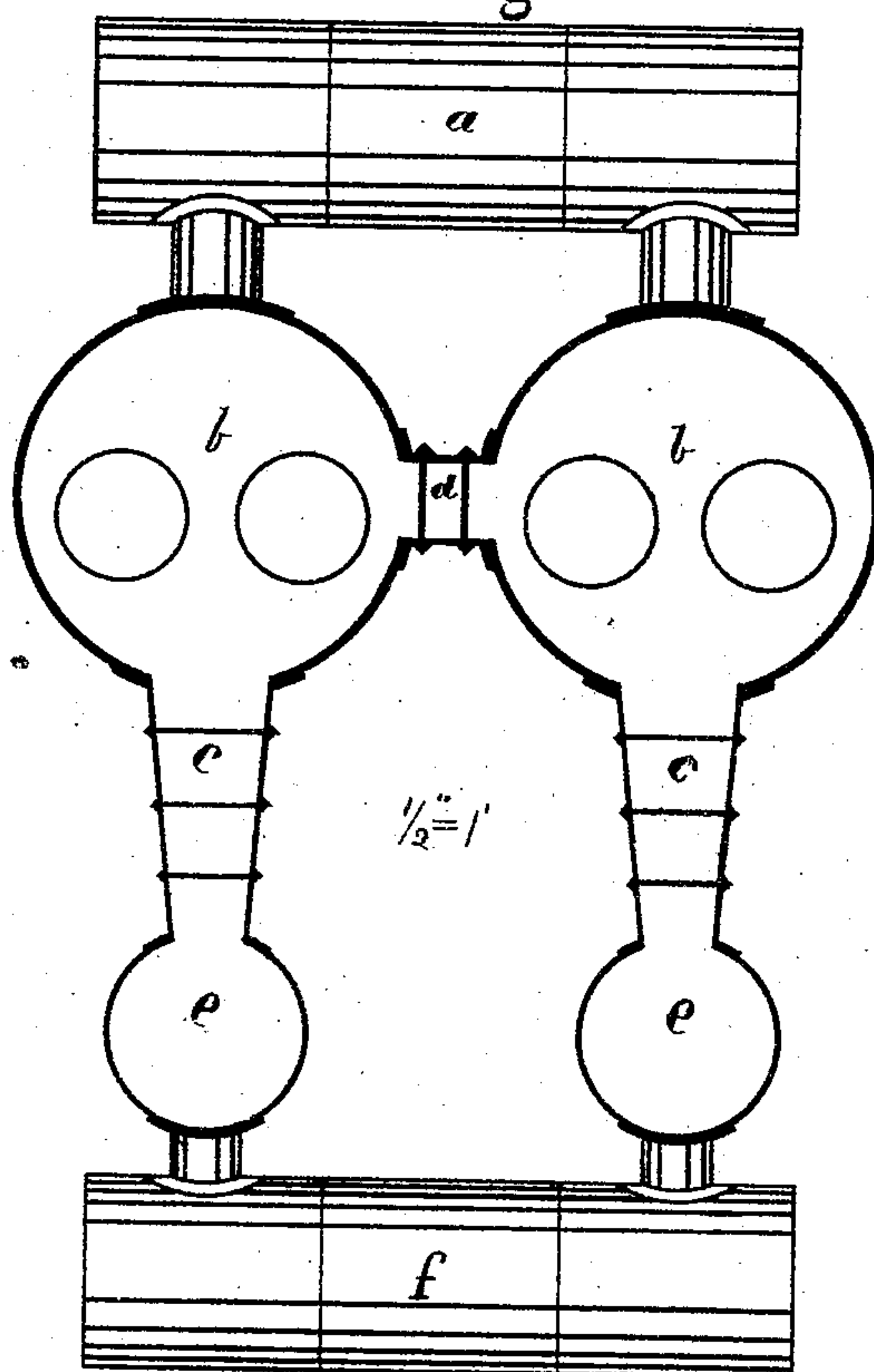


Fig. 2



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IMPROVEMENT IN STEAM-BOILERS.

Specification forming part of Letters Patent No. **157,114**, dated November 24, 1874; application filed August 7, 1874.

To all whom it may concern:

Be it known that I, SAMUEL BICKERSTAFF, of the city of Cincinnati and State of Ohio, have invented an Improved Steam-Boiler, of which the following is a specification:

The object of my invention is to construct a steam-boiler in such a manner as to increase its heating-surface, and at the same time make it the best form to precipitate the mud and other impurities in the water to the mud-drum by its own gravity, where it can be blown off in the usual manner. The formation of the water-legs and the large openings in the boiler and legs corresponding to one another permits a free circulation of water, and the precipitating of mud and other impurities in the water.

The boilers are illustrated in the drawings.

Figure 1 is a side elevation. Fig. 2 is a vertical section of the same.

In Fig. 2 I represent two common two-flued boilers, with my improvements attached. *a* is the steam-dome. *b b* are the boilers. *c c* are the water-legs and heating-surface. *d* is the continuous water and steam connecting-way between the two boilers, which may be made to run from end to end of leg and boiler

or any part thereof. *e e* are the lower water-drums, which connect the water-legs to the mud-drum F.

The construction of a steam-boiler in this manner has all the advantages of heating-surface and mud-precipitator to the lower mud-drum F. When water is in the boiler at the water-line, just above the flues, the water-legs *c c*, the water-drums *e e*, and mud-drum F, will be full of water at the point the greatest heat strikes the boiler, thus adding to the heating-surface of the boiler a very large per cent. over the common boilers with the same amount of fuel.

I claim as my invention—

1. The combination, in a steam-boiler, of the boiler *b*, water-leg *c*, water-drum *e*, and mud-drum F, substantially as described.

2. The steam-boilers *b b*, in combination with water-way *d*, water-legs *c c*, and water-drums *e e*, and mud-drum F, all made and operated substantially as described.

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