

No. 649,977.

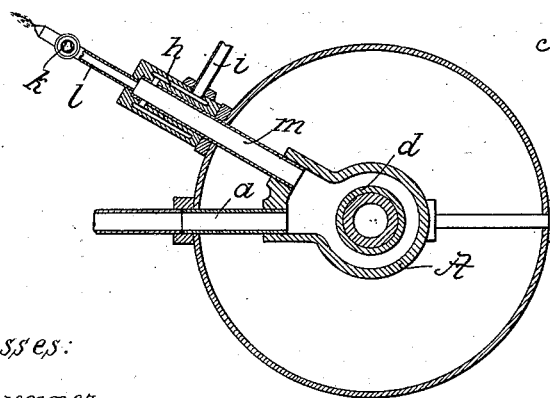
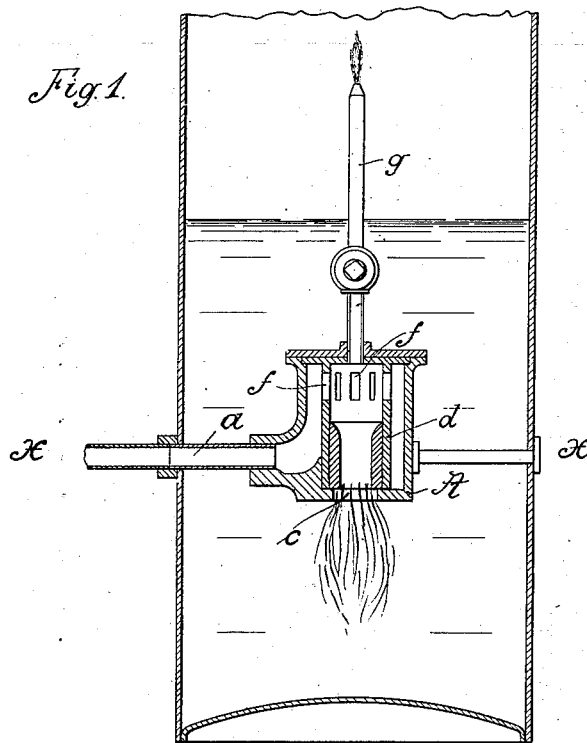
Patented May 22, 1900.

O. BRÜNLER.

INTERNAL FURNACE FOR STEAM BOILERS.

(Application filed Aug. 1, 1898.)

(No Model.)



Witnesses:  
Hans Brenner.  
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# UNITED STATES PATENT OFFICE.

OSCAR BRÜNLER, OF EILENBURG, GERMANY.

## INTERNAL FURNACE FOR STEAM-BOILERS.

SPECIFICATION forming part of Letters Patent No. 649,977, dated May 22, 1900.

Application filed August 1, 1898. Serial No. 687,458. (No model.)

*To all whom it may concern:*

Be it known that I, OSCAR BRÜNLER, mechanical engineer, a subject of the Emperor of Germany, residing at Eilenburg, in the Empire of Germany, have invented certain new and useful Improvements in Internal Furnaces for Steam-Boilers, of which the following is a specification.

My invention relates to the firing of steam-boilers, and more especially to steam-boilers with an internal furnace, where the flame is kept in operation within the water and in the steam-dome.

In the accompanying sheet of drawings, Figure 1 shows a vertical section through a steam-boiler provided with my new improved internal furnace, and Fig. 2 is a horizontal section on the line *xx* of Fig. 1.

Compressed air mixed with gaseous, liquid, or powdered fuel is introduced through the pipe *a* into the burner *A*. The pressure with which this combustible mixture is pressed in must be higher than the internal steam-pressure plus the pressure of the column of water at the mouth *c* of the furnace or burner *A*. Within the burner *A*, which in shape somewhat resembles a diving-bell, the combustible mixture is ignited and burns with such violent force as to drive the water away from the mouth *c* of the burner, as is shown in Fig. 1. A cylindrical mantle *d* is provided in the burner *A*, having a number of passages *f* for the admission of the combustible mixture. This cylinder *d*, which, however, is not absolutely necessary, very soon becomes red-hot, and the blown-in liquid fuel quickly evaporates and is then ignited. Part of the burning gases can be conducted by means of the stand-pipe *g* into the steam-dome.

The igniting device or auxiliary burner, which can also be made use of to heat the

burner *A*, is shown in Fig. 2. The burner *h*, of similar construction to the main burner *A*, is heated by a lamp in the well-known manner, as is also the auxiliary igniting-tube *m*. The combustible mixture is pressed in through pipe *i*. The cock *k* is opened a little, when part of the gas formed in the burner *h* will pass through the hot tube *m*, where ignition will take place, and will then escape through the cock *k*. As soon as a flame shoots out of the cock the latter is to be closed, and the burner *h* now performs its function. The burning gases pass through pipe *m* into the main burner *A* and heat the latter until constant gasification and ignition is established within it.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In an internal furnace for steam-boilers in combination the main burner *A*, the stand-pipe *g*, the cylindrical mantle *d*, being provided with passages *f*, the supply-pipe *a*, the auxiliary burner *h*, the supply-pipe *i* and the pipe *m*, connecting the said auxiliary burner with the main burner, as and for the purpose specified.

2. In an internal furnace for steam-boilers in combination the main burner *A*, the stand-pipe *g*, the cylindrical mantle *d*, being provided with passages *f*, the supply-pipe *a*, the auxiliary burner *h*, the supply-pipe *i*, the pipe *m*, connecting the said auxiliary burner with the main burner, the auxiliary igniting-tube *l* and the cock *k* as and for the purpose specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

OSCAR BRÜNLER.

Witnesses:

ARTHUR WEISEY,  
PAUL SIEBERT.