

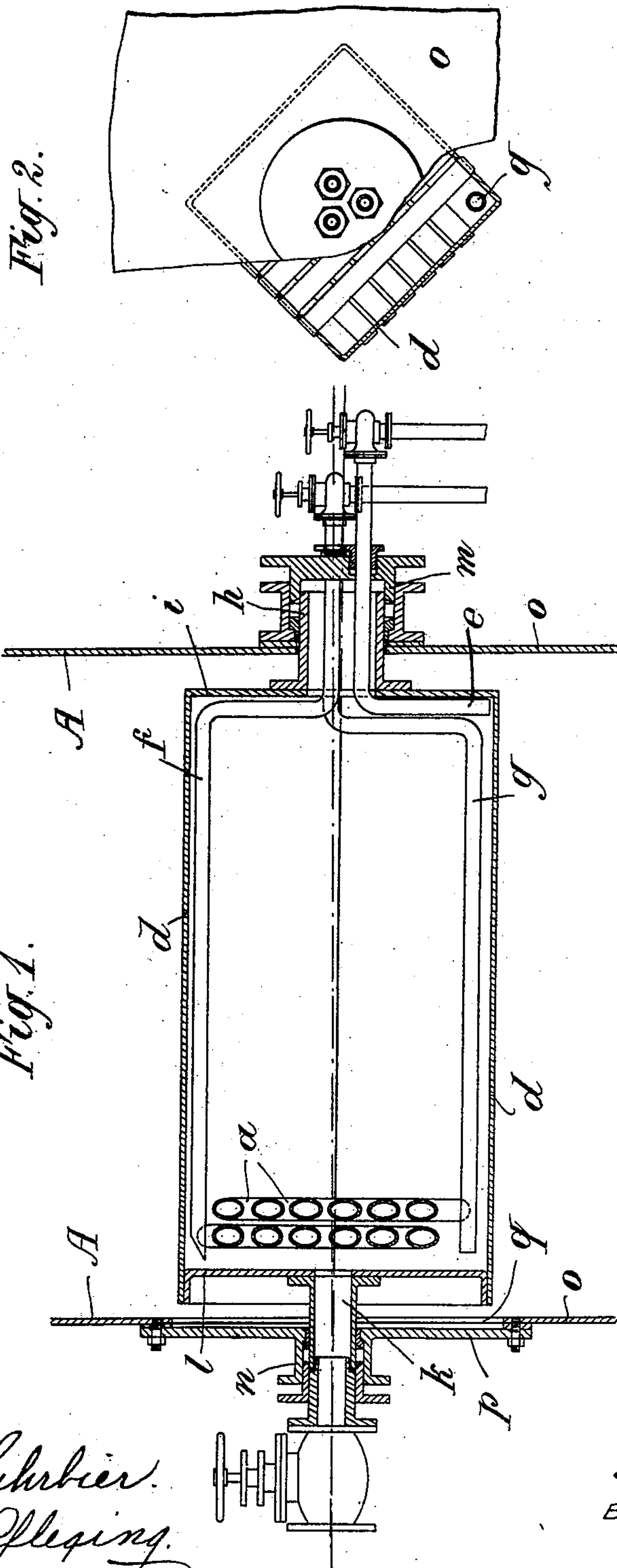
No. 714,053.

Patented Nov. 18, 1902.

G. STADE.  
BOILER.

(Application filed May 15, 1902.)

(No Model.)



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

GEORGE STADE, OF GROSS-WUSTERWITZ, GERMANY.

## BOILER.

SPECIFICATION forming part of Letters Patent No. 714,053, dated November 18, 1902.

Application filed May 15, 1902. Serial No. 107,386. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE STADE, engineer, a citizen of the German Empire, residing at Gross-Wusterwitz, in the Province of Brandenburg, Kingdom of Prussia, Germany, have invented certain new and useful Improvements in Boilers, of which the following is a full and clear specification.

The invention relates to a device used for evaporating purposes, which comprises a boiler or cylinder having transverse heating-tubes diagonally disposed in parallel groups according to the well-known construction and having longitudinal pipes for carrying off the condensation-water and the ammoniacal gases. Said pipes and an air-pipe extend from the interior of the boiler through a tubular trunnion in the boiler, which is arranged opposite to the steam-admission trunnion in such a manner that the boiler is rotatably mounted by means of these trunnions in the walls of the apparatus, while it is adapted to be removed from the apparatus without its being necessary, as hitherto, to loosen the screw connections of the said three pipes within the apparatus itself, as all connections are outside the apparatus.

The invention is illustrated in the accompanying drawings, in which—

Figure 1 is a longitudinal section on the axis of the boiler, only a portion of the heating-tubes being shown. Fig. 2 shows the rear wall of the apparatus partially broken away and showing a portion of the boiler in cross-section.

Referring to the drawings, *a* represents transverse heating-tubes diagonally disposed in parallel groups according to the well-known boiler construction.

As shown in Fig. 1, the boiler is mounted with its longitudinal axis somewhat inclined to the horizontal, so that the condensation-water dropping from the tubes *a* may collect in the right-hand lower corner, from which it may be removed through the siphon-pipe *e*. This pipe *e*, the pipe *f*, which is carried along the upper edge of the boiler for carrying off the ammoniacal gases, and also the pipe *g* for carrying off the air, which runs along the lower edge of the boiler, all pass through the tubular trunnion *h*, which is arranged at the

middle point of the rear wall *i* of the boiler, and this trunnion and also the trunnion *k* for the admission of steam, which is arranged oppositely in the front wall *l* of the boiler, are mounted in suitable stuffing-boxes *m n* in the walls *o* of the apparatus. Owing to this arrangement of the pipes *e f g*, the boiler *d* may be rotated upon its longitudinal axis without its being necessary to unscrew any connections within the apparatus A. The steam-admission trunnion *k* passes through a cover-plate *p*, which covers the manhole *q*, through which the boiler may be completely removed from the apparatus A after the screw connections of the pipes *e f g* and of the trunnion *k* have been loosened.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. The combination of an inclined rotatably-mounted boiler having transverse heating-tubes, hollow trunnions at the ends of said boiler, a gas-outlet pipe arranged longitudinally in said boiler and communicating with the uppermost portion thereof, an air-outlet pipe arranged in the lower portion, and a liquid siphon-pipe communicating from the lowermost portion of the boiler, said pipes leading from said boiler through the rear one of said trunnions, substantially as set forth.

2. The combination, with front and rear supporting-walls, said front wall being provided with a manhole having a cover-plate and journal-bearings in said cover-plate and rear wall, of an inclined boiler rotatably mounted, hollow trunnions at the ends of said boiler journaled in said bearings, a gas-outlet pipe arranged longitudinally in said boiler and communicating with the uppermost portion thereof, an air-outlet pipe arranged in the lower portion, and a liquid siphon-pipe communicating from the lowermost portion of the boiler, said pipes leading from said boiler through the rear one of said trunnions, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GEO. STADE.

Witnesses:

WOLDEMAR HAUPT,  
HENRY HASPER.