

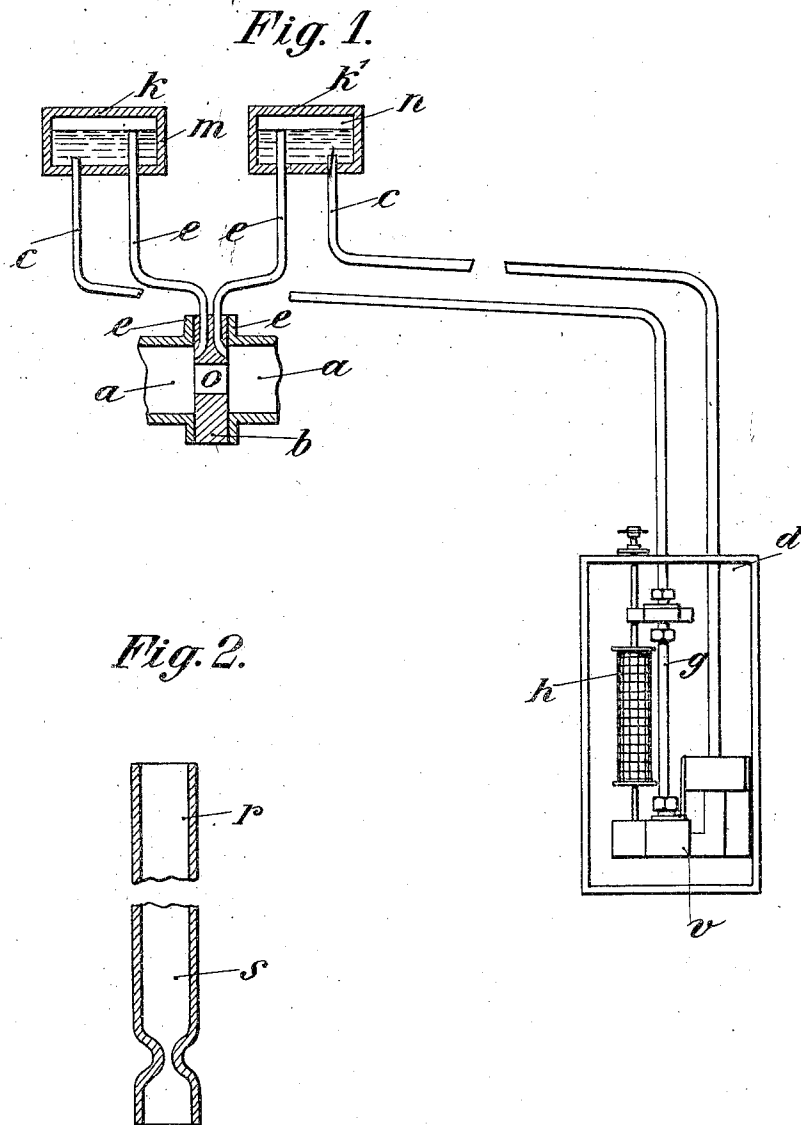
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M. GEHRE.

APPARATUS FOR MEASURING THE SUPPLY OF STEAM FROM A BOILER.

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APPARATUS FOR MEASURING THE SUPPLY OF STEAM FROM A BOILER.

No. 374,687.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MAX GEHRE, of Bismarckstrasse 71, of Dusseldorf-Rath, in the Empire of Germany, a subject of the Emperor of Germany, have invented certain new and useful Improvements in Apparatus for Measuring the Supply of Steam from a Boiler; and I do hereby declare the nature of this invention and in what manner the same is to be performed to be particularly described and ascertained in and by the following statement.

This invention relates to apparatus of the kind described in the specification of Letters Patent No. 21,178 of 1904 and is more particularly designed for use in ascertaining or indicating the amount of steam raised and the exact load upon the unit of heating surface of steam generators.

Heretofore apparatus has been provided for measuring the steam delivered from generators, but no apparatus is known which indicates or records the volume of steam per unit of heating surface, that is to say, the quantity of steam or load reduced to the unit of heating surface.

In the apparatus described in the said former specification, the pressure in front and at the rear of a contraction in the steam pipe or conduit are utilized in conjunction with water columns of constant height to act on the ends of a mercury column so that the latter is caused to rise and fall according to the difference of such pressures.

The present invention provides an improved apparatus of this kind in which, instead of the divided water-chamber described in the said specification for constant level of water columns two water chambers in any convenient position, or a horizontally-disposed capillary tube, or a horizontal capillary tube and a water-chamber combined are employed.

In the accompanying drawings this improved steam-measuring device is diagrammatically shown.

Figure 1 illustrates an arrangement having two water-chambers situated at the same level; Fig. 2 is a detail view of the mercury glass.

In Fig. 1, *a* is the steam pipe or conduit, *b* is the fitting or device in said conduit having

the contracted passage *c*. *e, e* are steam pipes leading from each side of the device *b* to the pressure chambers *m* and *n* above the water-levels in the water-tanks *k, k'*, and *c, c*, are the water-tubes leading to the mercury indicator *d*. The latter is fitted with an external sight-glass *g* and internal sight-glass *r* containing the variable mercury column *i* controlled by the varying pressure in the pipe *a*. *h* is a revolving diagram or scale-card bearing the indications of various weights calculated on time and heating surface. In order to obviate very quick variations of the mercury column by reason of sudden blows due to temporary steam supply, it is advantageous to form a contraction *s* in the interior of the sight-glass *r*, as indicated in Fig. 2, and so disposed as to prevent it becoming clogged with the impurities from the boiler which impurities usually collect on the surface of the mercury column in the mercury-chamber *v*.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim, is:

1. An apparatus of the character described, comprising a mercury column, a steam conduit, means interposed in said conduit for contracting the passage therethrough, a plurality of water chambers, means for establishing communication between one of said chambers and one end of the mercury column, means for establishing communication between the other of said chambers and the other end of the mercury column, means for establishing communication between one of said chambers and one side of said contracted portion of the passage through the conduit, means for establishing communication between the other of said chambers and the other side of said contracted portion of the passage through the conduit, and an adjustable scale arranged in operative relation with respect to said mercury column.

2. An apparatus of the character described, comprising a mercury column, a steam conduit, means interposed in said conduit for contracting the passage therethrough, a plurality of water chambers, means for establishing communication between one of said chambers and one end of the mercury col-

umn, means for establishing communication between the other of said chambers and the other end of the mercury column, means for establishing communication between one of
5 said chambers and one side of said contracted portion of the passage through the conduit, and means for establishing communication between the other of said chambers and

the other side of said contracted portion of the passage through the conduit. 10

In witness whereof, I subscribe my signature, in the presence of two witnesses.

MAX GEHRE.

Witnesses:

WILLIAM ESSENWEIN,
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