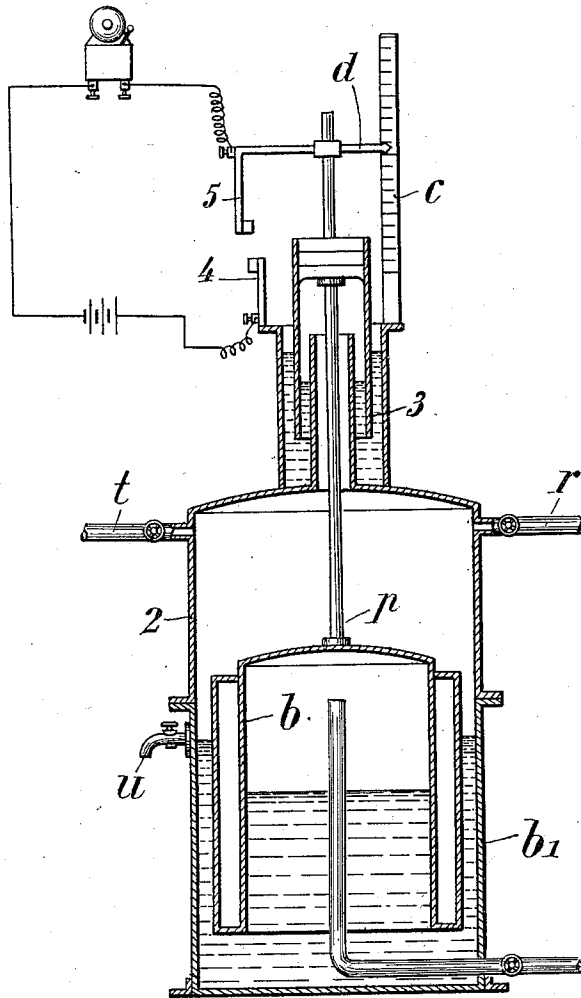


H. STRACHE.
 MEANS FOR INDICATING THE PRODUCTION OF GAS.
 APPLICATION FILED MAR. 11, 1908.

1,018,942.

Patented Feb. 27, 1912.



WITNESSES

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UNITED STATES PATENT OFFICE.

HUGO STRACHE, OF VIENNA, AUSTRIA-HUNGARY.

MEANS FOR INDICATING THE PRODUCTION OF GAS.

1,018,942.

Specification of Letters Patent.

Patented Feb. 27, 1912.

Application filed March 11, 1908. Serial No. 420,392.

To all whom it may concern:

Be it known that I, HUGO STRACHE, a subject of the Emperor of Austria-Hungary, and a resident of Vienna, in the Empire of Austria-Hungary, have invented new and useful Means for Indicating the Production of Gas; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to means for indicating the production of gas.

It is of very great importance to the entire gas industry to possess an instrument which, when it is connected to gas-producing apparatus, visibly indicates the quantity of gas formed per unit of time. This plays a very important part particularly when generating water-gas, since from the quantity of gas formed per unit of time with constant velocity of the steam introduced into the producer, the perfection of the decomposition of the steam may be known.

The instruments employed hitherto for following the course of the generation of gas are:

1. Ordinary station gas-meters, the revolving parts of which cause curves to be drawn on diagrams or scale-cards rotated by clock-work, from the shape of which curves the quantity of gas produced per unit of time can be deduced.

2. Differential manometers, the two sides of which are connected with a chamber at the front and back of the throttle-valve respectively.

3. Pressure-recorders which record the pressure in the water-gas producer, from which the duration of the production of gas can be found, since there is a less pressure in the producer during the hot blast than during the production of gas.

4. Small gas-holders, inserted in the main of water-gas plants, which keep the gas at constant pressure and from which the gas is conducted likewise at constant pressure; these holders therefore rise when the production is higher than the emission of gas from the holder and sink in case the production is less than the emission of gas.

The devices which serve for indicating the quantity of gas produced only fulfil their purpose in the following cases: when the quantity of gas generated per unit of time is perceptible and indicated at all times and

at somewhat great distances; or, when producing water-gas, when a signal is given if the production of gas is diminished, which signal indicates to the workman the diminished gas-production, *i. e.* the diminished decomposition of steam; or when the periods of producing gas are recorded automatically in such a manner that the workman is relieved of the trouble of recording each single period of producing gas in writing in the working-tables. The device will answer perfectly when combinations of these modes of indicating are effected. The above mentioned instruments do not satisfy these conditions, for:

1. Gas-meters combined with clocks cannot be inserted in a main supplying impure gas, since the same would soon become unusable. Moreover the quantity of gas generated per minute is not readable at any time and is not discernible at a fairly great distance. Also it is not possible for them to operate a signaling device in the event of the production of gas diminishing.

2. Differential manometers cannot be arranged self-registering in a simple manner, and known complicated recorders of differences of pressure cannot be used for the management of gas-works on account of their too great sensitiveness to dust and blows.

3. The recorders already largely employed in water-gas works which indicate the pressure in the producer and thereby the duration of the blast and gas periods do, it is true, admit of its being known from the recorded pressure whether the producer supplies much gas or little under otherwise like circumstances. The records of pressure are, however, influenced also by the highly fluctuating temperature of the gas, and particularly by the resistances in the gas-pipe in the scrubber, etc., besides by the quantity of gas, so that it is not possible to read the quantity of gas generated per minute and this is also not in any way intended in these instruments.

4. The gas-receivers connected to the main rise to their uppermost position when the production of gas is high and sink to their lowest position when the generation of gas has sunk below a certain limit, the registration of the quantity of gas per minute being impossible.

An important object of the present invention is to combine all the above stipulated

conditions without the disadvantages of the known instruments particularized above, and in order that the invention may be clearly understood, reference is made to the accompanying drawing in which embodiments are represented diagrammatically and by way of example in connection with a water-gas plant, although of course the same can also be employed in a similar sense in other plants for producing gas.

In the drawing, is shown a sectional elevation of a combination of recording instruments connected with a water gas plant.

Referring to the drawing, the gas main *x* leads into the double walled receiver *b*, which is movable vertically in the basin *b'*, a water seal being arranged between the receiver and the basin. To neutralize the effect of fluctuating pressure, a chamber is formed above the double walled receiver *b* and closed by means of a cap 2 seated on the edge of the basin *b'* and connected by means of a pipe *r* with the main gas pipe (not shown). Any errors which might be produced by unequal pressure are neutralized by the pressure above the receiver *b* in the chamber formed by the cap 2. The spindle *p* of the receiver *b* passes upwardly out of the chamber formed by the said cap, and carries a pointer *d* on the upper end thereof. The spindle *p* must be passed gas tight through the top of the cap 2, for instance, by means of the hydraulic closure 3. An over-flow tap *u* is provided for the water, forming the seal, and a tap *t* for the escape

of air. A normally open circuit 6 is provided, in which is interposed a battery 7 and a signal 8, a bell in the present instance, and contacts 4 and 5 are provided, one on the pointer *d*, and the other on the hydraulic closure 3 for closing the circuit when the receiver *b* falls below a predetermined level. The pointer *d* coöperates with a scale supported on the hydraulic closure. It will be evident that when the receiver *b* falls below a predetermined level, the contacts 4 and 5 will engage to close the circuit 6 and actuate the signal 8.

I claim:

In apparatus of the character described, the combination, with a gas supply main or pipe having a throttling device constricting the passage therethrough, of a branch pipe opening into said main on the supply side of said throttling device, a closed chamber, a liquid seal of the bell type in said closed chamber for sealing said branch pipe, the bell of said liquid seal having double walls inclosing an empty chamber, means for establishing communication between said closed chamber with the discharge side of said throttling device, a rod attached to said bell and passing through said closed chamber, a liquid seal of the bell type for sealing said rod, and a scale arranged in operative relation with respect to said rod.

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Witnesses:

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