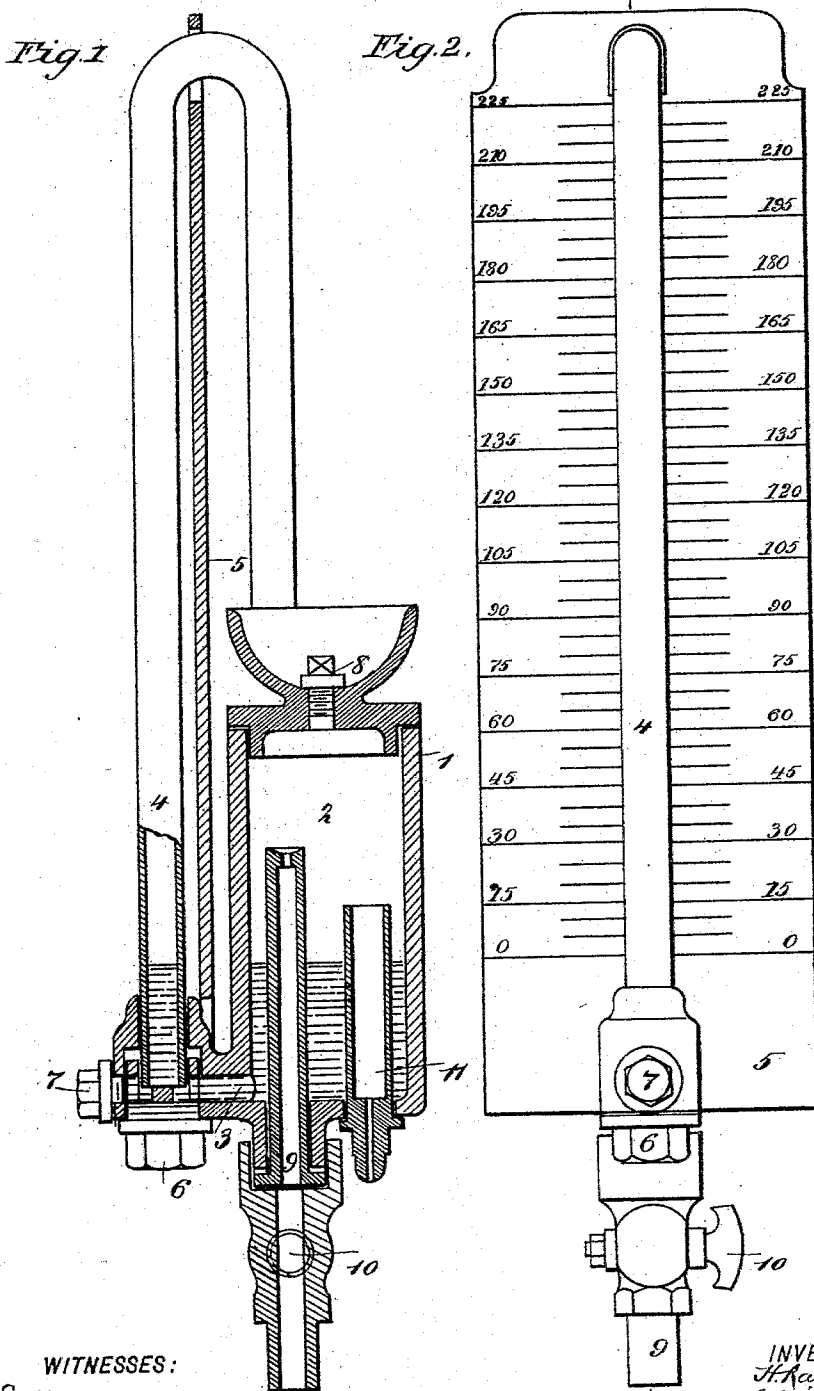


(No Model.)

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PRESSURE GAGE.

No. 515,611.

Patented Feb. 27, 1894.



WITNESSES:
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HENRY RAUSER, CHARLES WIEBER, AND ALEXIS SOKOLOFF, OF MOSCOW,
RUSSIA.

PRESSURE-GAGE.

SPECIFICATION forming part of Letters Patent No. 515,611, dated February 27, 1894.

Application filed July 18, 1893. Serial No. 480,302. (No model.)

To all whom it may concern:

Be it known that we, HENRY RAUSER, CHARLES WIEBER, and ALEXIS SOKOLOFF, all subjects of the Emperor of Russia, and residents of Moscow, in the Empire of Russia, have invented a new and useful Improvement in Pressure-Gages, of which the following is a full, clear, and exact description.

Our present invention relates to a pressure gage for steam and other fluids, and has for its object to relieve the parts of the gage from excessive strain, by reducing the pressure of steam or other medium before it acts on the indicating column. A specific embodiment of the principle involved in our invention is shown and described in our Letters Patent No. 507,387, dated October 24, 1893. According to the specific construction of our pressure-gage as set forth in the above named Letters Patent, a float is employed which controls the admission of steam or other medium to a suitable chamber, and the float will oppose a greater or less resistance to the entrance of steam according to the increase or decrease of the pressure.

In its essence our invention virtually consists of two communicating tubes, one of which is employed as a gage tube, while the other serves as an expansion chamber for the inflowing steam or other agent to act on the liquid in the communicating tubes, and a tube is also provided for the exhaust steam, this tube being of a sufficiently reduced diameter to prevent the steam from escaping out of the expansion chamber without acting on the liquid.

The invention will now be described with reference to the accompanying drawings, in which similar figures indicate corresponding parts.

Figure 1 is a sectional side elevation of the pressure gage, on line 1—1 of Fig. 2; and Fig. 2 is a front elevation of the same.

1 is the tubular casing of the apparatus, forming the expansion chamber 2, and the horizontal passage-way 3, into which dips one end of the gage glass 4, the other end of the same being open. A graduated scale 5 is located adjacent to the gage glass 4.

6 and 7 are screw plugs for normally closing two apertures of the casing 1, and the

plug 6 also permits of closing the passage-way 3. A filling hole, adapted to be closed by a screw 8, is provided in the upper part of the casing.

9 is the tube for the admission of steam, provided with a cock 10, and 11 is the exhaust tube. The tubes 9 and 11 are shown as projecting through the bottom of the casing 1, but it will be understood that this is not a material feature of the invention. The chamber 2 and gage glass 4 are filled with a suitable liquid up to zero line of the scale 5. It will be observed that the inner ends of the tubes 9 and 11 are above the level of the liquid, and that the diameter of the said tubes is reduced at those ends at which the steam is adapted to issue.

The operation of our improved pressure gage is as follows:—The steam admitted through tube 9 issue through the reduced bore at the inner end of the said tube into the expansion chamber 2, where its pressure is greatly reduced by expansion. The steam presses on the liquid contained in the lower part of the chamber 2, and thereby causes the said liquid to rise in the gage glass 4. The water proceeding from condensation collects on top of the liquid and empties into the tube 11 as soon as it reaches the upper end of the tube. Thus, part of the steam and the condensation water escape through the tube 11, but it will be understood that the diameter of the nozzle of the said tube must not be too large, in order that the steam may not escape through the tube 11 without exerting a pressure on the liquid.

It will be obvious that a definite level of the liquid in the gage glass 4 will correspond to each degree of pressure of steam.

Owing to the pressure of steam being reduced by expansion, a comparatively short gage glass will suffice to indicate a wide range of pressure, and furthermore, there is no danger of the gage glass bursting, since it is open at the upper end and will not be subjected to any pressure.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. A pressure gage, the same consisting of two communicating tubes, one of which forms

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a gage glass and the other an expansion chamber, an inlet tube leading into the said expansion chamber and an outlet tube leading from the interior of the said chamber
5 to the outside thereof, substantially as and for the purpose set forth.

2. A pressure gage, the same consisting of two communicating tubes, one of which forms a gage glass open at its upper end, and the
10 other an expansion chamber, and inlet and outlet tubes leading into and from the upper part of the said expansion chamber, substantially as and for the purpose set forth.

3. In a pressure gage, the combination, with
15 the communicating tubes, one of which forms a gage glass open at its upper end, and the other an expansion chamber, of inlet and outlet tubes leading into and from the upper part of the said chamber, the inner end of
20 the outlet tube being placed at a lower level than the corresponding end of the inlet tube, whereby when the pressure-gage is used as a steam gage the condensation water will have access to the outlet tube before it can rise to
25 the orifice of the inlet tube, substantially as and for the purpose set forth.

4. In a pressure gage, the combination, with the communicating tubes, one of which forms a gage glass open at its upper end, and the

other an expansion chamber, of inlet and out- 30
let tubes leading into and from the upper part of the said chamber, said tubes being open at their inner ends, and the diameter of each tube being reduced at that end where
35 the steam or other medium is adapted to issue, substantially as and for the purpose set forth.

5. A pressure-gage, the same consisting of two communicating tubes, one of which forms a gage glass and the other an expansion cham- 40
ber, an inlet tube leading into the said expansion chamber, and a tube leading downward from the said chamber to form an outlet for the steam or other medium and the liquid products of condensation, the inner, 45
upper end of the said outlet tube being located at a lower level than the inner end of the inlet tube, whereby the products of condensation will be allowed to escape through
50 the outlet tube before they can rise to the orifice of the inlet tube, as and for the purpose set forth.

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Witnesses:
EMIL LINDEMANN,
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