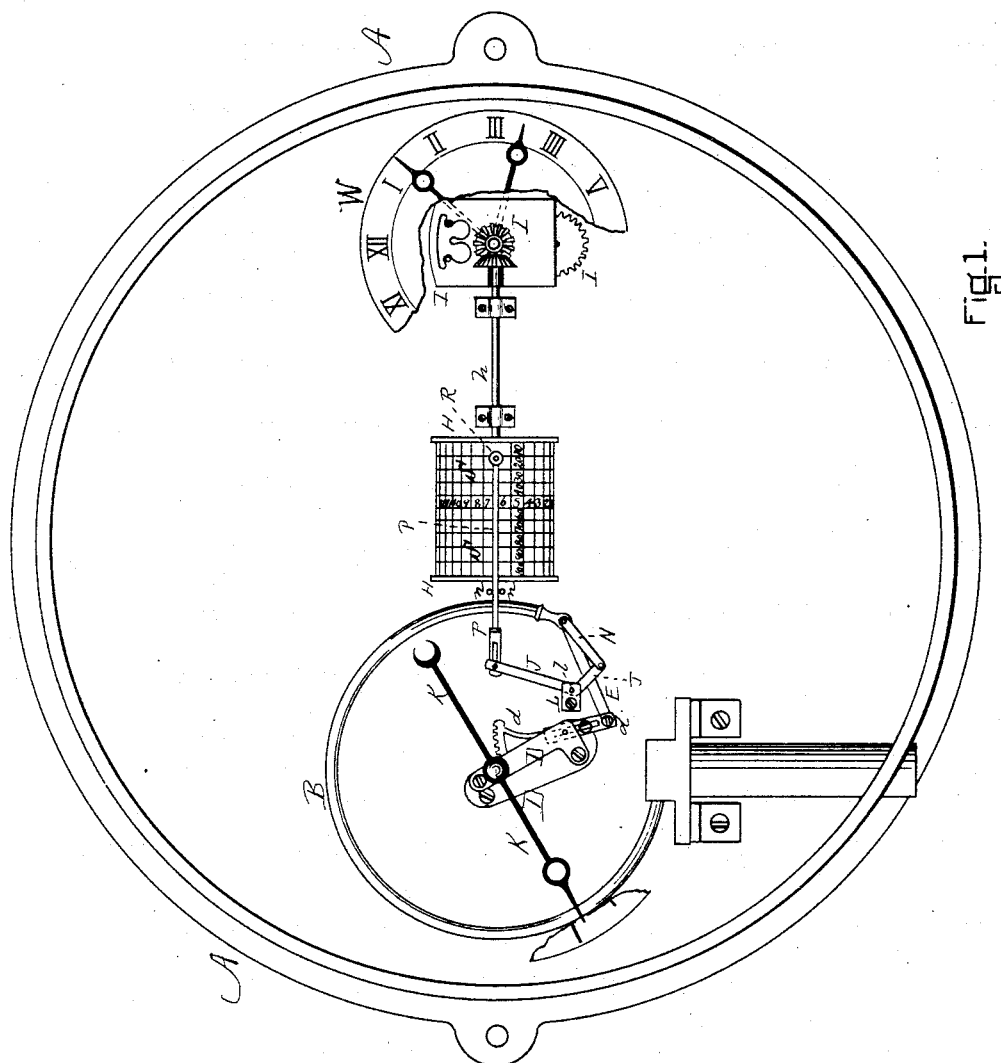


F. A. JONES.
RECORDING PRESSURE GAGE.

No. 344,448.

Patented June 29, 1886.



WITNESSES.

Joseph Ishbaugh
J. M. Hartnett

INVENTOR.

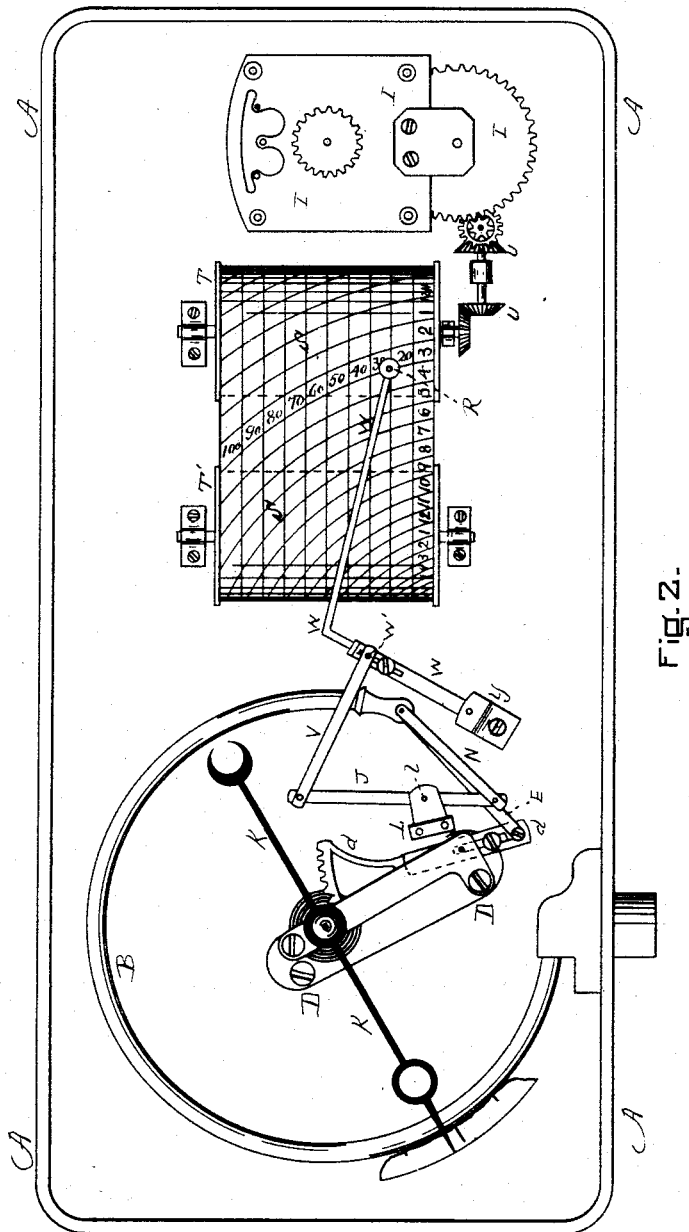
Florentine A. Jones
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UNITED STATES PATENT OFFICE.

FLORENTINE A. JONES, OF MALDEN, MASSACHUSETTS.

RECORDING PRESSURE-GAGE.

SPECIFICATION forming part of Letters Patent No. 344,448, dated June 29, 1886.

Application filed March 10, 1884. Serial No. 123,576. (No model.)

To all whom it may concern:

Be it known that I, FLORENTINE A. JONES, of Malden, in the county of Middlesex and State of Massachusetts, have invented new and useful Improvements in Recording Pressure-Gages, of which the following is a specification.

This invention relates to gages for recording the extent and variations of pressure in steam-boilers, cylinders, or other vessels containing air, gas, liquid, or other fluids, and is an improvement on the invention for which Letters Patent were issued to myself and one Sylvester Glines, numbered 287,684, and bearing date October 30, 1883, and to myself, numbered 287,686, of same date.

In the accompanying drawings, in which similar letters of reference indicate like parts, Figure 1 is a plan view of a recording pressure-gage embodying my invention, with the greater portion of the steam-pressure dial W removed. Fig. 2 is a view of a modification.

A represents a box of any convenient shape, containing, first, a double or single tubular or Bourdon spring, B; second, the ordinary mechanism, D, of a steam-gage, consisting, essentially of a segmental rack, *d*, connected near its rear end by a link, E, with the spring or springs, and meshing into a pinion (not shown in the drawings) carrying the pointer K, which indicates the steam-pressure on a suitable dial; third, a cylinder or drum, single in Fig. 1, and two drums in Fig. 2, provided with a recording-ribbon; fourth, suitable clock-work mechanism for imparting rotary motion to said cylinder or cylinders; and, fifth, mechanism connecting the steam-pressure mechanism with the recording-surface.

In Fig. 1 the cylinder H is single and wound with a ribbon, S, provided with circles and horizontal lines intersecting the same, whereby the extent and variations of pressure may be recorded. A shaft, *h*, imparts rotary motion to this cylinder from the clock-work mechanism I. A multiplying-lever, J, pivoted at *l* to a support, L, secured to the box, has its short arm loosely connected by a link, N, to the spring or springs, and its long arm adjustably connected to a longitudinally-reciprocating rod, P, operating a delineating device, R. *n* are guides for preventing lateral motion of the reciprocating rod.

In Fig. 2 the ribbon S is stretched from the

cylinder T to the cylinder T', and is suitably lined for the record of pressure, the cylinder T receiving rotary motion from the clock-work mechanism I by means of suitable connecting bevel-gear mechanism, U U, and imparting similar motion through the medium of the ribbon to the cylinder T'. In this modification the multiplying-lever J is adjustably connected by means of the link V with a multiplying-lever, *w*, pivoted to said link at W', and having its short arm pivoted to the support Y, secured to the box, and its long arm operating the delineating device R, whereby the extent and variations of pressure are recorded on the ribbon S.

It will be observed that in both of the figures a multiplying-lever communicates motion from the gage mechanism to a device which produces a delineation of the pressure upon a rotating ribbon or strip, said device being in Fig. 1 a reciprocating rod, and in Fig. 2 an additional multiplying-lever. The reciprocating rod is used necessarily when the cylinder carrying the ribbon or strip is a single one whose direction of rotation is at right angles to the line of said rod; but when two cylinders are used, as in Fig. 2, so that there is a flat surface of substantial area provided, a multiplying-lever may be employed to operate the delineating device. When only one drum is used, the recording-surface on that drum will of necessity be circular, and a reciprocating rod will work back and forth in a line, while, if a lever is used on one drum it will swing in a circle, more or less, as in Fig. 2, and would be impeded in its movement by the recording-surface being on a circle—that is, except when on the highest point it would be always rising or falling—whereas with two drums, which afford a flat recording-surface, either a reciprocating rod or a swinging lever can be used.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. In a recording pressure-gage in which the pressure actuates a tubular spring or springs, the combination of the following elements, viz: a tubular spring or springs, or cylinder or cylinders adapted to be rotated, and provided with a suitable recording chart, and a suitable multiplying intermediate mechanism, whereby the resultant movement of the

spring or springs is increased and transmitted to the chart independent of the indicating-gage mechanism, and a record of the pressure and its variations is made upon said chart, substantially as and for the purpose set forth.

2. In a recording pressure-gage in which the pressure actuates a Bourdon spring or springs, the combination of the following elements, viz: a Bourdon spring or springs and
10 suitable connecting mechanism, a multiplying-lever additional to said spring or springs

and gage mechanism, a ribbon adapted to be rotated by a cylinder or cylinders, and a suitable device intermediate with said multiplying-lever and said ribbon, whereby the extent
15 and variations of pressure may be recorded, substantially as and for the purpose set forth.

FLORENTINE A. JONES.

Witnesses:

HENRY W. WILLIAMS,
JOSEPH ISHBAUGH.