

Patent 31,279.

THE RECORDS OF THE OFFICE SHOW THE ABOVE
DRAWING AS BEING LOST OR DESTROYED IN THE
FIRE.

UNITED STATES PATENT OFFICE.

WILLIAM BURNETT, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO ROBERT BURNETT, OF NEW YORK, N. Y.

STEAM-PRESSURE GAGE.

Specification of Letters Patent No. 31,279, dated January 29, 1861.

To all whom it may concern:

Be it known that I, WILLIAM BURNETT, of Boston, in the county of Suffolk and State of Massachusetts, have invented a new and Improved Pressure Gage or Indicator; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing, making part of this specification, and to letters of reference marked thereon.

The nature of my invention consists in certain improvements in the mode of deriving motion from elastic metallic plates or disks, or other elastic substances which may be employed in such gages or indicators as an elastic medium upon which the pressure to be measured acts,—whereby an increased first motion is secured, far greater than that which may be obtained by simply employing as a first movement, the direct motion produced by the bulging out of one side of the plate or disk when pressure is applied to the other. When the simple bulging of such a plate or disk, on being subjected to pressure, is relied on as a first motion in such indicators, it will be quite apparent that any little wear of the parts employed to increase the motion, in communicating the same to a suitable index, must very seriously affect the truthfulness of its indications; to obviate this difficulty, as well as to avoid the necessity of requiring so large a movement in the disk itself, as heretofore found necessary, are some of the objects of this invention.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation, reference being had to the accompanying drawing. To a circular metallic case (A Figure 1) forming a chamber of suitable depth to receive the working parts, is attached a second chamber (B) opening into the first,—this latter chamber being intersected by a circular elastic plate or diaphragm (C) upon which the pressure acts, the pressure being admitted through a pipe (D) into that portion of the chamber below the elastic plate. One end of a rigid arm or bar (E) is firmly secured to the elastic plate or disk (C), while the other end of said arm or bar is left free to move laterally, for the purpose of driving a sector (F) by means of a link (G), which causes the said sector to revolve a pinion (H) into which

it is geared, thereby communicating motion through its shaft, to an arrow or pointer (J) employed to indicate the pressure upon the dial. The fixed end of the arm or bar (E) is not, it will be perceived, attached to the center of the plate (C), for in that case, on pressure being applied under the plate, no lateral motion of the bar would ensue,—but the said bar (E) is rigidly connected with the elastic plate at some distance from its center or point of greatest direct motion, and at that part of its surface which assumes, when pressure is admitted beneath the plate, the steepest angle when considered relatively to the plane represented by the surface of the plate when in a state of rest.

I do not confine myself to the precise arrangement of parts above described, but have merely given this example as an illustration in which the principle of my invention is embodied; nor is my invention confined to the attachment of a single rigid arm, such as that described, to a point removed from the center of greatest motion of a flat circular elastic plate, as obviously, two such arms may be employed, the same being affixed to the elastic plate so as to move laterally in opposite directions, by being secured to the said plate at opposite sides of its center, and their combined motion employed, through suitable mechanism, to indicate the pressure;—or the elastic plate may be of any other form, and may be corrugated either in straight lines or in concentric circles, without changing the principle of action; and the arm employed may also have a different position relatively to the surface upon which it is affixed, and may lie parallel thereto,—as shown at Fig. 2 of the drawings, in which, as above described, the bar (E) is represented as lying parallel to the elastic plate (C),—the dotted lines showing the position of the parts when subjected to pressure; or,—as shown at Fig. 3, of the drawings, said arm or bar (E) may be affixed to the side of a short flattened tube (C), or a tube of which the transverse section is elliptical, in such a position that a lateral motion of the free end of the arm will ensue upon the application of pressure to the interior of the tube,—this would also embody the principle of my invention. I intend also to employ this instrument as a vacuum gage, and as a barometer;—in the latter case the air must be removed from the

chamber below the elastic plate, and the vacuum thus formed made permanent by sealing hermetically.

What I claim as my invention, and desire
5 to secure by Letters Patent, is—

Obtaining an increased or enlarged first motion in pressure gages or indicators, through the agency of a bar or arm securely and rigidly affixed to the elastic medium
10 upon which the pressure acts, at a point removed from its center or point of greatest

direct motion, and in such a position that a lateral motion of the free end of said bar or arm is induced, and employed, through suitable mechanism, to indicate the pressure, 15 substantially in the manner and for the purpose herein specified.

WM. BURNETT.

Witnesses:

ROBERT B. HINE,

W. S. CLARY.