ALLCROFT & MIGHTEN.

Pressure Gage.

No. 16,458. Patented Jan. 27, 1857.

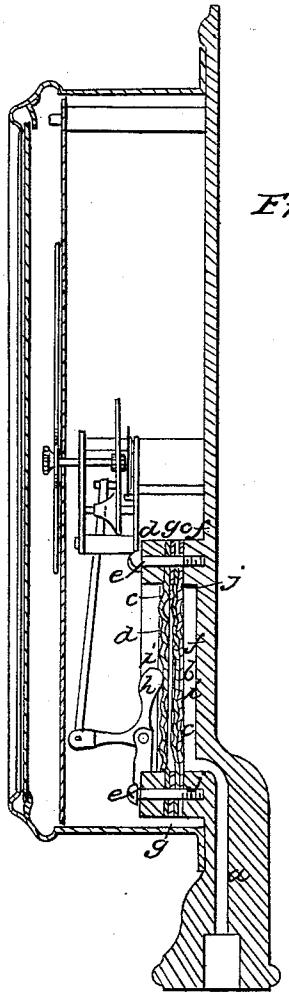
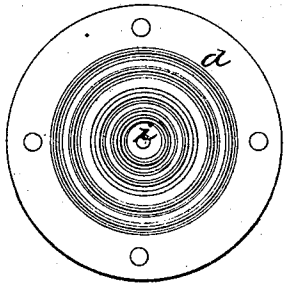


Fig. 1,

Fig. 2,



N. PETERS, Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN ALLCROFT AND THOMAS MIGHTEN, OF NEW YORK, N. Y.

STEAM AND PRESSURE GAGE.

Specification of Letters Patent No. 16,458, dated January 27, 1857.

To all whom it may concern:

Be it known that we, JOHN ALLCROFT and THOMAS MIGHTEN, of the city, county, and State of New York, have invented a new and useful Improvement in Pressure-Gages; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1, is a vertical section of a gage with our invention applied. Fig. 2, is a face view of one of the elastic metal disks upon which the pressure acts.

Similar letters of reference indicate corresponding parts in both figures.

This invention consists in a certain arrangement of two or more elastic metal disks which are deflected by the pressure of the steam or other fluid to be gaged and thereby caused to give motion to an index.

The object of the invention is to overcome certain objections to the elastic disk gage as constructed with a single disk. The gage thus constructed has been found unsuited for locomotive boilers or other boilers using a very high pressure of steam, as when the thickness of the disk has been sufficiently increased to prevent its being burst by the highest pressures, it has been found to be not sufficiently sensitive for lower pressures. Another objection arises from the difficulty of tempering all parts of the disk uniformly and its consequent liability to fail to return to its normal condition after having been for some time constantly deflected by a steady pressure. Two or more thin disks have been combined in various ways to overcome these difficulties, but without success, until we have arranged them in the manner which we will now proceed to describe.

The gage represented has two disks, but is supposed to be constructed in all other respects in the same manner as when a single disk is employed.

a, is the passage by which the steam or other fluid enters the gage.

b, is the circular box over which the disks *c*, *d*, are secured, the said disks being secured by screw bolts *e*, *e*, to a circular seat *j'*, surrounding the box *b*. The disks are corrugated circularly in the usual manner. One of the disks, *c*, is made exactly like the single disk commonly used; the other *d*, is the same with the exception of its being provided with a small rounded projecting boss *i*, at the center of the side next the other disk *c*, to bear against the said disk *c*, and keep all parts of their surfaces apart, except at the said boss. The inner disk *c*, is lined with a disk *f*, of india rubber in the usual manner to protect it from rusting, and a ring *g*, of india rubber is placed between the edges of the two disks, the thickness of the said ring *g*, being such that when the two disks are bolted together into their place by the bolts *e*, *e*, the projecting boss *i*, will keep them slightly strained apart. The outer disk *d*, has resting against it an elbow lever *h*, which acts in the usual manner upon the index.

The pressure of the steam or other fluid entering the gage acts upon the disk *c*, and through it upon the disk *d*, which assists in supporting and sustaining *c*, and transmits the pressure to the lever *h*.

The combination of the two corrugated disks without the interposed central bearing *i*, and ring *g*, is found to be impracticable. If the plates bear against each other on the whole of their adjacent surfaces, the friction is so great that they prevent each other's proper action and the same result is found to be obtained by interposing a disk of india-rubber between the whole of the said surfaces.

Instead of using a fixed bearing piece *i*, one of the disks may be fitted with a nut to receive a set screw, the point of which bears upon the other disk. This screw will serve as a means for straining the disks more or less apart at the center and thus adjusting them to make them less or more flexible. This screw we regard as equivalent to the boss *i*, as a central bearing.

We do not claim the combination of two or more springs for any purpose when the springs are laid close together in the form of what are known as leaves. But

What we claim as our invention and desire to secure by Letters Patent, is—

The arrangement, in pressure gages, of two or more corrugated elastic metal disks *c*, *d*, at a distance apart, with an interposed ring or rings *g*, between their edges and one or more central bearings *i*, between their centers, substantially as and for the purpose set forth.

JOHN ALLCROFT.
THOMAS MIGHTEN.

Witnesses:
W. TUSCH,
J. F. BUCKLEY.