

Chas. L. Liddle,
Pressure Gage.

No. 106,180.

Patented Aug. 9. 1870.

Fig. 1

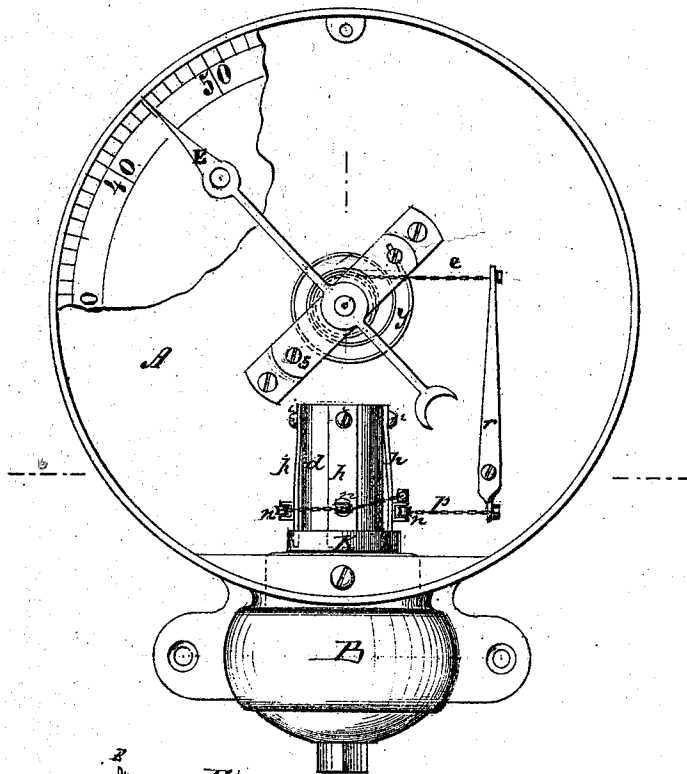
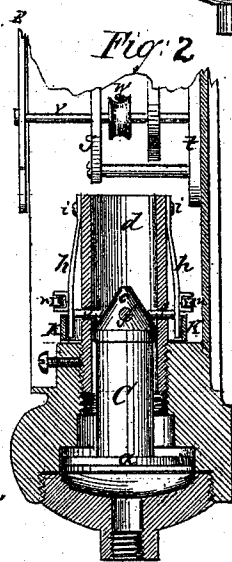
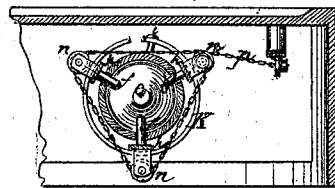


Fig. 2



Witnesses
H. L. Stettinborg
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Fig. 3



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United States Patent Office.

CHARLES LIEDKE, OF SANDUSKY, OHIO.

Letters Patent No. 106,180, dated August 9, 1870.

IMPROVEMENT IN PRESSURE-GAUGES.

The Schedule referred to in these Letters Patent and making part of the same.

To all whom it may concern:

Be it known that I, CHARLES LIEDKE, of Sandusky, in the county of Erie and State of Ohio, have invented a new and improved Pressure-Gauge; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawing and to the letters of reference marked thereon, making a part of this specification.

This invention relates to a new and improved pressure-gauge, and consists in so constructing a gauge as to combine accuracy, strength, and economy.

In the accompanying drawing—

Figure 1 represents a front view of my gauge, with the dial removed, and

Figure 2 a sectional view of the same.

Figure 3, a plan, showing end of plunger-pins and chain.

Similar letters of reference indicate corresponding parts in the several figures.

A is the shell or case of a steam-gauge, made of cast metal or other material.

This case is cast with a swell, B, on its lower outer side, into which is fitted the hollow plunger C.

One end of this plunger is provided with a flexible flange or diaphragm, *a*, and the other or upper end with a conical steel cap, *c*.

The plunger C, being placed within the swell B, extends upward through the case A, and into a hollow cylinder, *d*, which is screwed into said shell or box.

Passing into the cylinder *d*, and near its base, are three pins, *f f' f''*, the inner points of said pins being beveled in such manner as that, when the plunger C, if forced upward by pressure, the conical steel cap *c* of said plunger will press against the beveled points of said pins, and force them outward.

Fixed to the cylinder *d* are three springs, *h h' h''*.

These springs are secured to the cylinder, at their upper ends, by the screws *i i*, and their lower ends are confined by the spring ring *k*.

To each of the springs *h h' h''* are fixed the small rollers *n*, and around said springs and rollers is passed the chain *p*, one end of said chain being fastened to the springs *h h' h''*, and the other end to the lower arm or end of the lever *r*.

Also, within the shell or box A are fixed by screws the plates *s* and *t*, through which passes the spindle *v*.

Onto the spindle *v*, and between the plates *s* and *t*, are attached the pulley-wheel *w* and coiled spring *y*, and to the outer or projecting end of said spindle is affixed the hand or pointer E.

To the pulley-wheel *w* is attached one end of the chain *e*, the other end of said chain being fastened to the upper or longer arm of the lever *r*.

Now it will be seen, from the construction of this gauge, and from the foregoing description, that, when the plunger C is forced upward by steam or other pressure, the conical cap *c*, pressing against the beveled points of the pins *f f' f''*, will force them outward, the pins in turn forcing outward the springs *h h' h''*, thus drawing or contracting the chain *p*, which in turn draws in the lower end of the lever *r*, and this causing the upper end of said lever to move outward, drawing with it the chain *e*, which causes the pulley *w* to revolve, and with it the spindle and hand or pointer E, and, in this way, as the hand or pointer is moved from point to point of the scale or index, the increasing pressure is indicated, and, as the pressure is lessened, the hand or pointer returns or moves in the opposite direction by the action of the spiral spring *y*.

In order to prevent the plunger being forced too far upward, it is provided with the flange or diaphragm *a*. This flange or diaphragm is made of thin sheet-metal, or other flexible material, so that, while it prevents the plunger C from being forced too far, yet it will yield more or less to the pressure imparted to the plunger.

Having thus described my invention,

What I claim as new, and desire to secure by Letters Patent, is—

A pressure-gauge, composed of the plunger C, cylinder *d*, springs *h h' h''*, spring ring *k*, rollers *n*, chain *p*, lever *r*, chain *e*, pulley-wheel *w*, in combination with the spiral spring *y*, spindle *v*, and hand or pointer E, all constructed and arranged as and for the purposes hereinbefore described.

CHARLES LIEDKE.

Witnesses:

LOUIS TRAUB,
CONRAD TRAUB.