L. M. ELLISON.

DRAFT GAGE.

APPLICATION FILED OCT. 31, 1914.

1,145,676. Patented July 6, 1915.

Fig. 1.

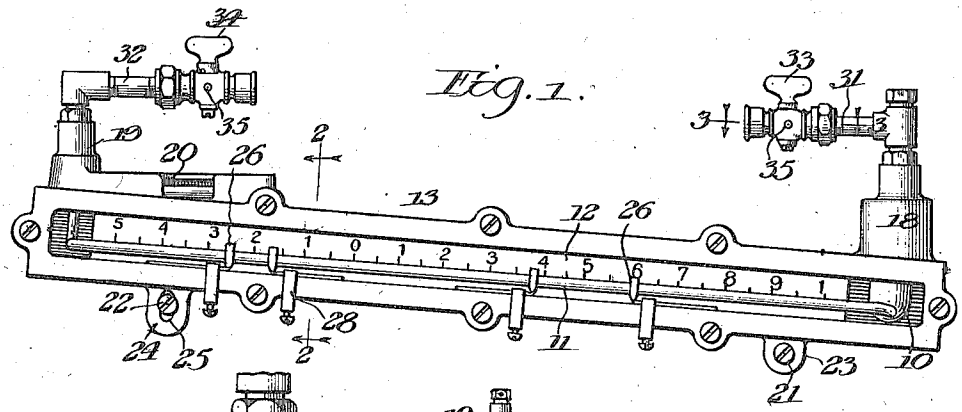


Fig. 2.

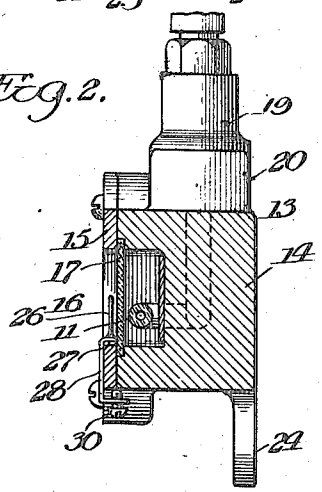


Fig. 5.

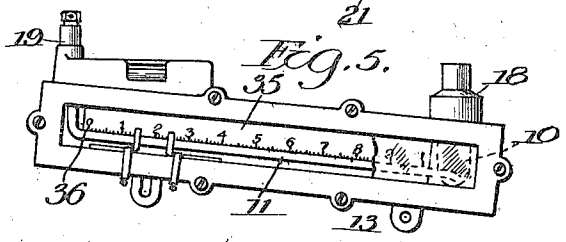


Fig. 3.

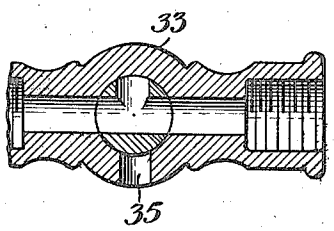
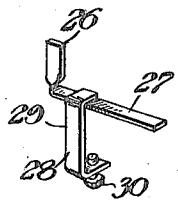


Fig. 4.



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DRAFT-GAGE.

1,145,676. Specification of Letters Patent. Patented July 6, 1915.

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To all whom it may concern:

Be it known that I, LEWIS M. ELLISON, a citizen of the United States, and resident of Chicago, county of Cook, and State of Illinois, have invented certain new and useful Improvements in Draft-Gages, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to draft gages and has for its object to provide a draft gage which is equipped with devices of improved construction for showing the limits between which the movement of the indicating medium should be confined for obtaining the most efficient operation of the furnace to which the gage is applied.

In the accompanying drawings—Figure 1 is a front elevation showing a draft gage embodying the features of improvement provided by the invention; Figs. 2 and 3 are detail sectional views taken on the lines 2—2 and 3—3, respectively, of Fig. 1; Fig. 4 is a detail perspective view showing a form of index or pointer which may be used upon the device; and Fig. 5 is similar to Fig. 1 but shows a slightly different form of construction.

Fig. 1 shows the invention applied to a draft gage so constructed as to provide for registering the pressure which obtains in either one of two separated parts of the chamber of a boiler setting, or the net difference between such pressures, upon a single instrument. This instrument preferably comprises a cup 10, a tube 11 which extends laterally away from the bottom of the cup in an inclined position, and a scale 12. These parts are conveniently mounted within a case which is generally designated 13.

As shown, the case 13 comprises a channeled body portion 14, a cover 15 having an elongated or slotted opening 16, and a glass panel 17. The cup 10, tube 11, and scale 12 are laid within the channel of the body portion 14, and the glass panel is held over these parts by the cover 15. Upstanding nipples 18 and 19 are provided at the opposite ends of the case 13, and communicate, respectively, with the chamber of the cup 10 and with the outer end of the tube 11. A spirit level 20 is also mounted on the case 13. This is conveniently employed in adjusting the position of the instrument when the same is being set up for use, as by being secured against a wall or other fixed support through screws 21 and 22. Bracket lugs 23 and 24, formed upon the case 13, serve for receiving the screws 21, 22. Preferably the opening 25 provided in one of these bracket lugs, as 24, for receiving the corresponding screw, is slotted. When so constructed the device may be angularly adjusted about the attaching screw 21 as a pivot, upon loosening the attaching screw 22.

A plurality of pointers 26 are desirably positioned along the case 13 in front of the cover glass 17, for indicating the limits between which the readings upon the scale 12 should remain if the steam boiler furnace is being operated for securing the most desirable results. As shown, each pointer 26 consists of the upturned end portion of an L-shaped strap 27. The body portion of this strap rests upon the cover 15 of the case at the margin of its opening 16, and is secured in adjusted position thereon by means of a clamp 28.

The clamp 28 is shown as comprising a U-shaped strap portion 29, with one leg of the U resting upon the body portion of the strap 27 and the other leg of the U extending beneath the lower edge of the cover plate 15. A clamping screw 30 has threaded engagement with the last-mentioned leg of the U-shaped strap 29 and reacts against the under side of the cover plate 15. It will be understood that for a coarse adjustment of the pointer 26 the clamping screw 30 is loosened and the strap 27 and clamp 28 moved together along the cover plate 15. For a nicer adjustment of the position of the pointer 26 the clamping screw 30 will be loosened only sufficient to permit a sliding movement of the strap 27 beneath the upper leg of the U-shaped strap 29.

Each of the nipples 18, 19, has a tube, as 31 or 32, connected therewith, said tubes extending to different parts of the chamber of a boiler setting (not shown). A convenient practice is to extend the tube 32, which is connected with the nipple 19 at the higher end of the case 13, to the chamber of the furnace or fire-box of the boiler setting. The tube 31 may then be connected with the flue chamber of the boiler setting. Preferably each of the tubes 31, 32, is controlled by a pet cock, as 33, 34, each pet cock having a vent 35 to permit the corresponding nipple 18 or 19 to be open to the atmosphere, when the tube 31 or 32 leading therethrough is closed. It will accordingly be under-

stood that after a suitable adjustment of the instrument, the pressure obtaining in the boiler flue may be registered directly upon the scale 12 by opening the pet cock 33 and closing the pet cock 34. Similarly, the pressure obtaining in the furnace or fire-box may be read directly upon the scale 12 by opening the pet cock 34 and closing the pet cock 33. On the other hand, if both of the pet cocks 33 and 34 be opened simultaneously, the difference which exists between the furnace and flue pressures will be read directly upon the scale 12.

The use of the pointers 26 in front of the glass 17, and the construction of same, permits of a ready adjustment of the pointers without interfering with a complete protection of the cup 10, tube 11, and scale 12 against dust and the like.

Fig. 5 shows a form of construction in which the nipple 19 is intended to be left open to the atmosphere at all times. In this instance the tube 11 extends along a scale 35, which is graduated to read in one direction only and from that end, as 36, which is near the outer end of the tube 11. The construction may be the same as that illustrated in Fig. 1 in all other respects.

I claim as my invention—

1. In combination, a movable indicator, a frame having an opening through which the indicator is visible, an edge of the said opening and the adjacent marginal edge of the frame being both parallel with the path of movement of the indicator, a pointer having a base with parallel top and bottom walls perpendicular to its axis whereby the pointer is extended over the frame opening by the engagement of the bottom wall of its base with the said edge of the frame opening and the position of the pointer is adjusted along the path of movement of the indicator by movement of its base along the said edge of the frame opening, and a clamp reacting between the top wall of the pointer base and the said marginal edge of the frame, the clamp being adjustable along the frame and along the said top wall of the pointer base.

2. In combination, a movable indicator, a frame having an opening through which the indicator is visible, an edge of the said opening and the adjacent marginal edge of the frame being both parallel with the path of movement of the indicator, a flat strip having a laterally turned end portion serving as a pointer whereby the said pointer is extended over the frame opening when the body of the strip is laid against the said edge of the frame opening and the position of the pointer is adjusted along the path of movement of the indicator by movement of the body of the strip along the said edge of the frame opening, and a clamp reacting between the strip and the said marginal edge of the frame, the clamp being adjustable along the frame and engageable with the strip in a plurality of different adjusted positions along its body.

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