

H. S. JEWELL & F. STEELE.  
Improvement in Safety-Valves.

No. 126,304.

Patented April 30, 1872.

Fig. 1.

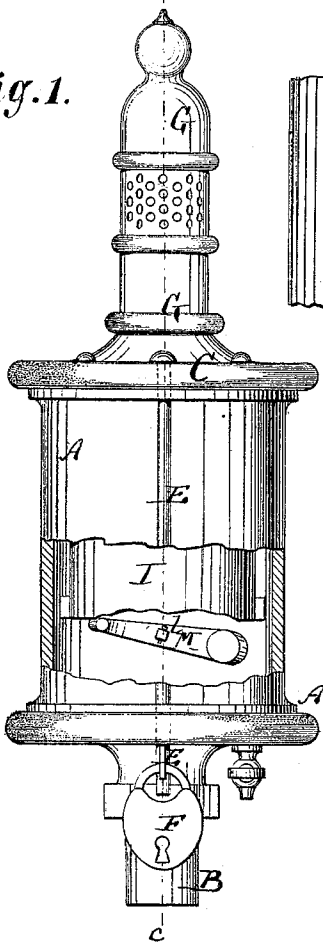


Fig. 3.

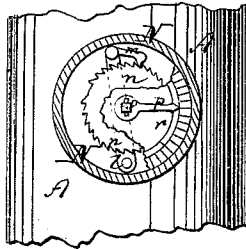


Fig. 2.

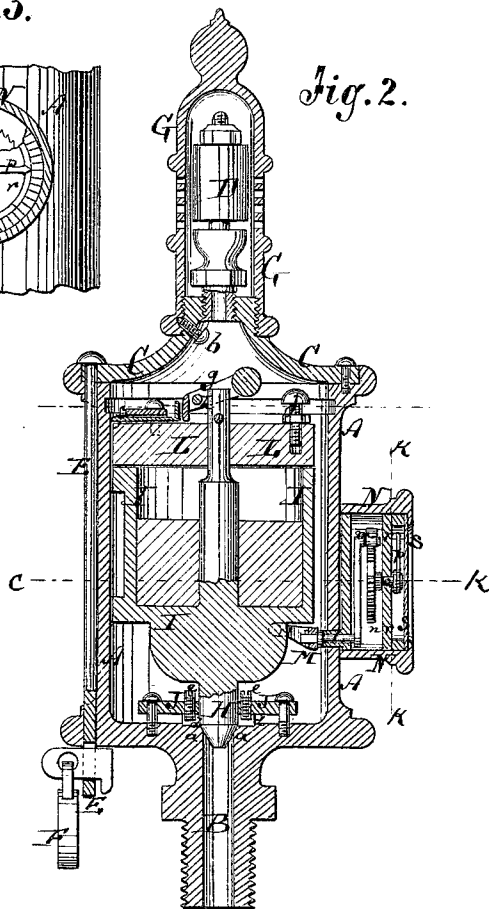


Fig. 4.

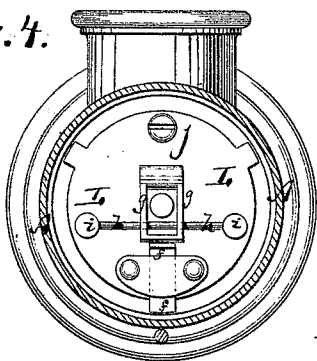


Fig. 5.

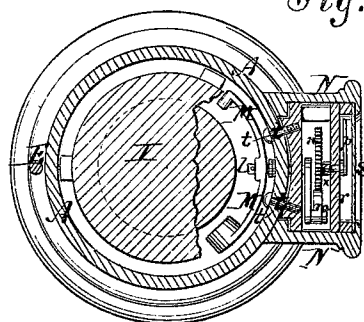
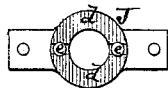


Fig. 6.



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## IMPROVEMENT IN SAFETY-VALVES.

Specification forming part of Letters Patent No. 126,304, dated April 30, 1872.

Specification describing a new and Improved Safety-Valve, invented by HERBERT S. JEWELL and FERDINAND STEELE, of Brooklyn, in the county of Kings and State of New York.

This invention relates to improvements of the safety-valve and alarm, for which we have made application for Letters Patent of the United States, that were allowed on or about January 6, 1872. The invention consists, first, in an adjustable plate, provided with a notched ring for graduating the steam-inlet apertures; secondly, in a swinging weight applied to the sliding bolt of the valve; thirdly, in a weight sliding and adjustable on the stem of the valve by a set-screw, and fourthly, in connecting a weighted lever, on which the valve rests, with a dial mechanism by an intermediate arbor, all as and for the purpose hereinafter fully described.

In the accompanying drawing, Figure 1 represents a side elevation, partly in section, of our improved valve. Fig. 2 is a vertical central section of the same on the line *c c* of Fig. 1. Fig. 3 is a detail vertical section on the line *k k*, Fig. 2. Fig. 4 is a top view of the opened valve-case. Fig. 5 is a horizontal section on the line *c k*, Fig. 2; and Fig. 6 is a bottom view of the plate which regulates the admission of steam to the valve-chamber.

Similar letters of reference indicate corresponding parts.

A, in the drawing, represents the valve-case, of cylindrical or equivalent form. B is the steam-pipe leading to the bottom thereof, and containing the valve-seat *a*. C is the cover of the case A; and D the alarm-whistle, projecting upward from the cover. The cover C is secured to the case by means of bolts or screws, or equivalent fastenings. A rod, E, fitted through the cover and flanges of the case, and adapted to receive a lock, F, at the lower end, prevents, when thus locked, the removal of the cover C by persons not having the key to the lock. The latter may, however, be applied in other manner equally convenient. G is a cap placed over the whistle D, and secured to the cover C by a screw or screws, *b*, applied from the inner side. The cap G is perforated to permit the escape of steam from the whistle. Its object is to conceal the whistle and prevent its removal, and the consequent possible tampering with the valve. The screw *b* cannot be

reached until after the lock has been removed and the lid unfastened. H is the valve-stem, and I the enlarged head of the same or valve. Above the seat *a* is secured to the bottom of the case A a plate, J, which is perforated to admit the stem H. On the under side of the plate J is formed a ring, *d*, which embraces the stem H, and has two, more or less, slots or notches cut through it, that are closed by screws *e e*. The steam from the pipe B can enter the valve-chamber only through these slots or notches, when the screws are moved up. The more the latter are elevated the more steam will be let into the chamber when the valve is raised. The inspector, can, therefore, before the cover is closed, set the screws *e e*, more or less, up or down, to adjust the valve to a greater or less steam pressure. L is the weighted plate placed upon the valve I, substantially as described, in our former application. It has a sliding-bolt, *f*, whereby it is to be held suspended when the valve has been elevated; but, this bolt is, in this case, crowded outward by a pivoted weight, *g*, and not by a spring, as formerly described. This weight *g* swings on a pin, *h*, which has its bearings in ears *i i*, that project from the top of the plate L. *j* is a screw, fitted into the top of the plate L. It can be set higher or lower, as may be desired, and serves to confine the upward motion of the valve within a suitable limit. To the inner side of the case A is pivoted a lever, M, weighted at one end. It is vibrated by contact with the valve on every descent of the latter, and connects its arbor *l* with a pawl, *m*, that engages the teeth of a ratchet-wheel, *n*. This wheel *n* is arranged in a cylindrical projection, N, on the outside of the case A, and has on its arbor *o* an index-arm, *p*, which moves over a circular dial, *r*, behind a glass window, *s*. Whenever the valve is raised by excessive steam pressure and then redescends, it swings the lever M once, and with it the pawl, and moves the ratchet-wheel one tooth, and turns the pointer *p* one degree on the dial. The pointer will thus show the number of times the valve was thus raised. In order to prevent the pointer from completing its full circuit, and being brought to zero again, the ratchet-wheel *n* has one tooth taken out. When the pawl is arrived at the vacant space it will move the wheel no further, and the engineer cannot bring the pointer to zero as though

no irregularities had taken place. Whenever the case is opened the inspector can swing the lever M further than the valve would, and thereby bring the pawl over the vacant space on the ratchet. The case N, it will be seen, is fastened to A by screws *t t*, that are applied from the inside, and is, therefore, also protected from meddling by unauthorized parties.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

1. The swinging weight *g*, applied to the sliding bolt of a valve-weight, as and for the purpose described.

2. The plate J, provided with the notched ring *d*, and with the set-screws *e e*, for the pur-

pose of regulating the admission of steam to the valve-chamber, as specified.

3. The weight L, adjustable on the stem of its valve I by set-screws *b*, constructed and arranged as and for the purpose herein described.

4. The dial mechanism in case N, which has a spur-wheel with one tooth omitted, combined by an arbor, *l*, with the vibratory and weighted lever M, as and for the purpose described.

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