

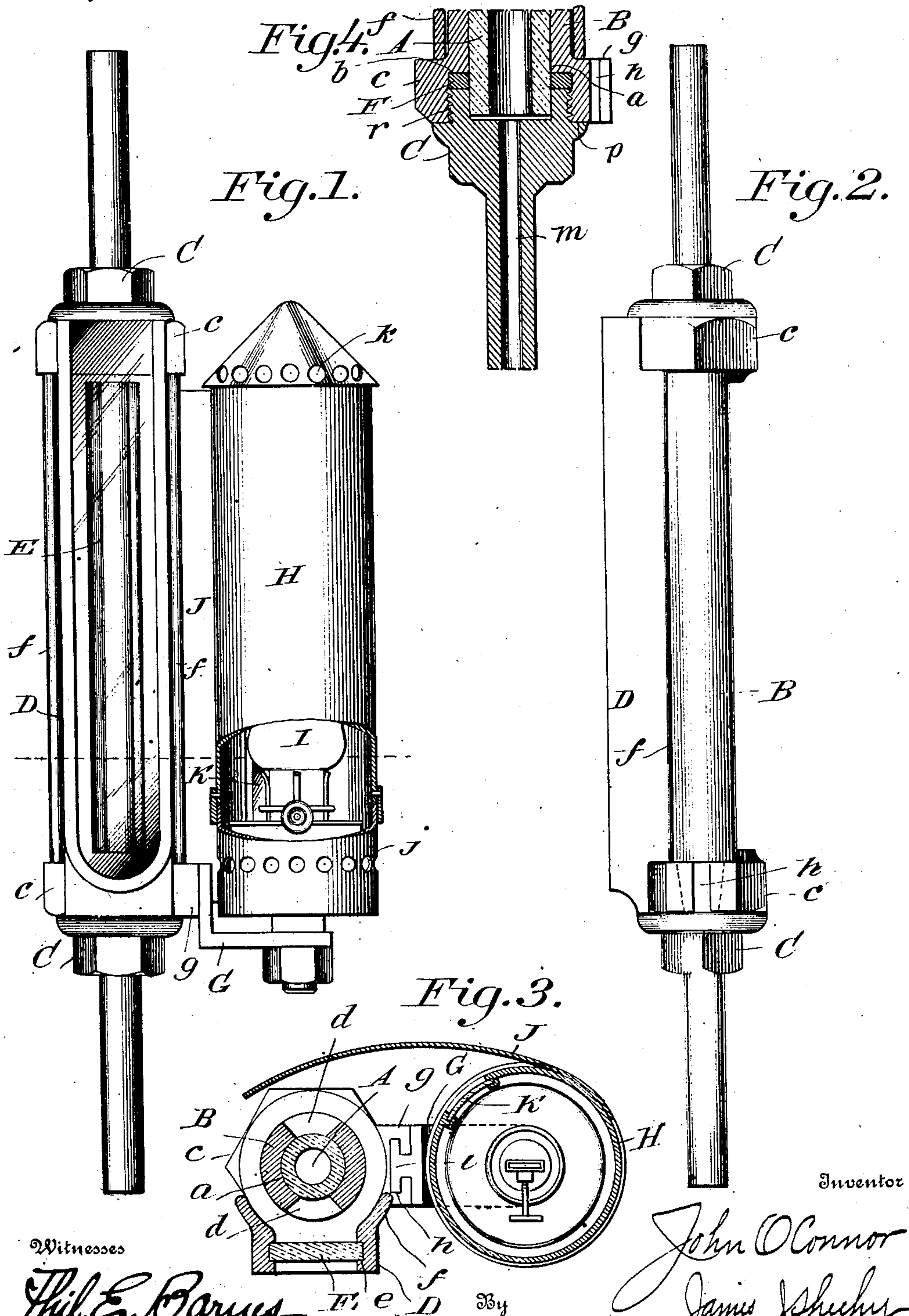
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WATER GAGE.

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WATER-GAGE.

No. 908,122.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN O'CONNOR, a citizen of the United States, residing at Clifton, Staten Island, in the county of Richmond and State of New York, have invented new and useful Improvements in Water-Gages, of which the following is a specification.

My invention has relation to water gages such as are designed more especially for use in combination with steam boilers; and it has for one of its objects to provide a water gage embodying simple and efficient means for preventing flying of fragments of glass and the liability of injury to an engineer attendant thereupon in the event of the glass tube of the gage being burst by the pressure in the boiler, and this without interfering with the display of the gage tube and its contents to the engineer.

Another object of the invention is the provision of a water gage equipped with highly efficient means for illuminating the transparent tube of the gage in the night time.

With the foregoing in mind, the nature of the invention and the novelty, utility and practical advantages thereof will be fully understood from the following description and claims, when the same are read in connection with the drawings, accompanying and forming part of this specification, in which:

Figure 1 is an elevation of the water gage constituting the best practical embodiment of my invention known to me with part of the lamp casing broken away. Fig. 2 is an elevation taken at a right angle to Fig. 1 and illustrating the gage with the lamp bracket and the lamp removed. Fig. 3 is a horizontal section taken in the plane indicated by the line 3—3 of Fig. 1, looking downward. Fig. 4 is a detail vertical section illustrating the manner in which I prefer to connect the end members of the tube-holding frame to the intermediate member thereof.

Similar letters designate corresponding parts in all of the views of the drawings, referring to which:

A is the glass tube of the gage.

B is the intermediate member of the tube-

holding frame, and C C are the end members of said frame. As shown in Figs. 3 and 4, the intermediate member B of the said frame is provided with a longitudinal bore *a* of a diameter to snugly receive the tube A, interior shoulders at the ends of the said bore *a*; one of the said shoulders being shown in Fig. 4 and indicated by *b*, and interiorly threaded, enlarged end portions *c*. The intermediate member B is also provided with upright, diametrically opposite sight openings *d* which extend from a point adjacent to its lower enlargement *c* to a point adjacent to the upper corresponding enlargement *e*, and are tapered or gradually increased in width outward, this in order that the height of the water in the tube A may be seen by persons standing at opposite sides of the gage, and also in order that the light entering the said openings will illuminate both sides of the tube A so that the height of the water may be readily noted. The taper or gradual increase in width outward of the said sight openings *d* is also advantageous inasmuch as it increases the width of the range from which a person may see the height of the water in the tube A.

In addition to the features mentioned, the intermediate frame member B is provided with a shield holder D which extends from its lower enlargement *c* to its upper enlargement *e*, is closed at its lower end and open at its upper end, is provided in its side walls with ways or grooves *e*, and is provided on said side walls with flanges *f*. The said flanges *f* are disposed as shown, relative to the tube A and the intermediate member B of the tube-holding frame, and hence it will be manifest that the said flanges will reduce to a minimum the liability of any fragments of glass escaping past the holder D when the tube A is broken and the fragments are impelled by the pressure of steam in the boiler out of the frame member B.

E is the shield of my improvements which is of thick plate glass or other material suitable to the purpose, and hence is adapted to prevent flying of fragments of glass in the event of the tube A bursting, and yet is not liable to be fractured by the impact of any

of said fragments. It will also be noted at this point that while the shield E will serve the purpose stated, it will not interfere with the tube A and the contents thereof being viewed with facility.

The end members C of the tube-holding frame are identical in construction, and hence a detailed description of the end member C shown in Fig. 4 will suffice to impart a definite understanding of both. The said end member C is provided with a bore *m* in line with that of tube A, and is also provided with a shoulder *p* arranged to abut against the end of the intermediate member B, and is further provided with a reduced and exteriorly threaded portion *r* which is turned into the threaded enlargement *c* of the intermediate member B and against a lower washer F, of rubber or other suitable material, so as to crowd the said washer against the interior shoulder *b* of member B and thereby assure the washer snugly surrounding the end portion of the tube A with a view of precluding leakage of water from the meeting portions of the intermediate frame member B and the end frame members C.

It will be gathered from the foregoing that the end frame members C do not interfere with the arrangement of the transparent shield E in its holder D, and hence when for any reason the same is necessary or desirable the shield E may be expeditiously and easily lifted out of the holder and a new shield as readily placed in the holder, and this notwithstanding the fact that there is absolutely no liability of the shield E being casually displaced incidental to the use of the gage.

In the present and preferred embodiment of my invention the lower enlargement *c* of the frame member B is provided at one side of the frame with a lateral projection *g* in which is formed a seat or socket *h* which is preferably of T-form in cross-section—i. e., has its inner portion larger than its outer portion, and is tapered downwardly as indicated by the dotted lines in Fig. 2. The said seat or socket *h* is designed to receive a correspondingly shaped lug *i* on a lamp bracket G, and consequently it will be manifest that when desired the lamp bracket G and the parts carried thereby may be readily disengaged from the gage of the frame and as readily reengaged with the said frame.

By reference to Figs. 1 and 3 it will be seen that the parts carried by the bracket G are a cylindrical casing H, of sheet-metal or other suitable material, having openings *j* and *k* for the passage of air and the passage of products of combustion, respectively, a lamp I designed to burn hydrocarbons, arranged in the said casing H, and a reflector J connected with the casing H, and extending

back of the water tube A, as best shown in Fig. 3. The casing H may be of any construction that will permit of access being readily gained to the lamp I, and, as shown in Fig. 3, the said casing is provided with a plate of glass K disposed toward that portion of the reflector J back of the tube A, whereby it will be manifest that at night and when the lamp is lighted, the said lamp in combination with the reflector J will efficiently illuminate the tube A so that said tube and its contents may be readily seen. In this connection it will be noted that the casing H hoods the lamp except at the point where the plate of glass K is arranged, and hence renders the device dark except at the point where the light passing through the plate of glass K is reflected by the reflector J, this being advantageous since it adds to the brilliancy with which the tube A and its contents are illuminated.

In addition to the practical advantages hereinbefore ascribed to my novel gage, it will be noticed that the gage is simple and inexpensive in construction, and is well adapted to withstand the vibrations and shocks and jars to which locomotives are subjected, as well as other rough usage.

As before stated, the specific construction herein illustrated and described constitutes the best practical embodiment of my invention of which I am aware, but it is obvious that in the future practice of the invention such changes or modifications may be made as fairly fall within the scope of my invention as defined in the claims appended.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. A water gage comprising a transparent water tube, a tube-holding frame, a transparent shield disposed in front of the water tube, a shield holder fixed with respect to the said frame and separated by an intervening space from the water tube and having rearwardly directed side flanges, a casing disposed alongside of and connected with the tube-holding frame, a reflector connected with the casing and extending back of the water tube, a transparent plate in the casing disposed toward the portion of the reflector back of the water tube, and an illuminating medium arranged in the casing.

2. A water gage comprising a transparent water tube, a frame holding the said tube, a casing disposed alongside of and connected with said frame, a reflector connected with the casing and extending back of the water tube, a transparent plate in the casing disposed toward the portion of the reflector back of the water tube, and an illuminating medium arranged in the casing.

3. A water gage comprising a transparent

water tube, a frame holding the said tube
and having a lateral portion in which is a
socket, a bracket having a lug removably
arranged in the said socket, a casing carried
5 by the bracket and arranged alongside the
frame, a reflector connected with the casing
and extending back to the water tube, a
transparent plate in the casing disposed to-
ward the portion of the reflector back of the

water tube, and an illuminating medium ar- 10
ranged in the casing.

In testimony whereof I have hereunto set
my hand in presence of two subscribing wit-
nesses.

JOHN O'CONNOR.

Witnesses:

R. TRESTRAIL,
HARRY LAWRENCE.