B. ZINDEL.

WATER GAGE.

APPLICATION FILED JULY 31, 1912.

Patented Nov. 19, 1912.

1,044,621.

Fig. 2.

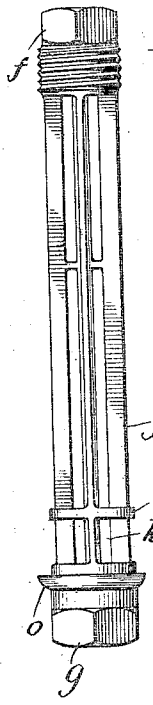


Fig. 1.

Fig. 3.

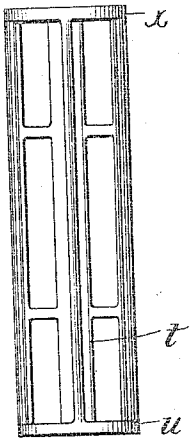


Fig. 4.

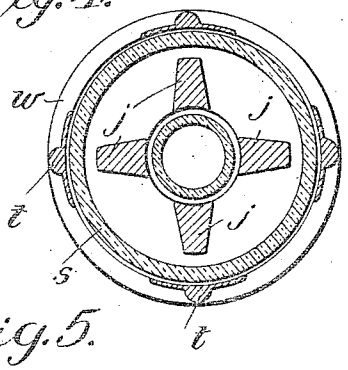
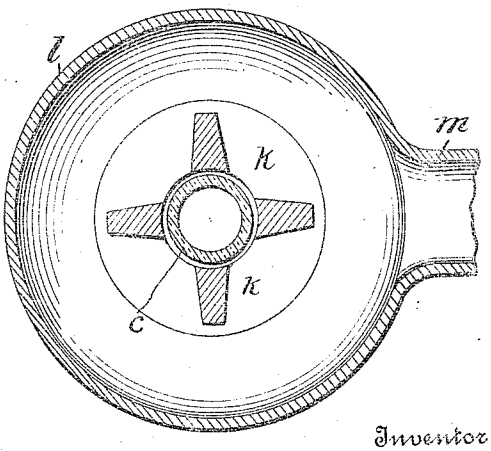


Fig. 5.



Witnesses

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UNITED STATES PATENT OFFICE.

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WATER-GAGE.

1,044,621. Specification of Letters Patent. Patented Nov. 19, 1912.

Application filed July 31, 1912. Serial No. 712,417.

To all whom it may concern:

Be it known that I, BARNHARDT ZINDEL, a citizen of the United States of America, and a resident of Green Bay, county of Brown, State of Wisconsin, have invented certain new and useful Improvements in Water-Gages, of which the following is a full and clear specification, reference being had to the accompanying drawings, in which—

Figure 1 is a view partly in side elevation and partly in vertical section showing my improved gage applied to a steam boiler; Fig. 2 is a side elevation of the main guard casing detached; Fig. 3 is a similar view of the guard frame or casing; Fig. 4 is a horizontal section on the line 4—4 of Fig. 1, the parts being enlarged; and, Fig. 5 is a similar view on the line 5—5 of Fig. 1.

The object of this invention is to so construct a glass water-gage that should the glass tube burst the steam and hot water and comminuted glass will be carried away by the pressure through a suitable waste pipe or tube, thereby protecting persons who may be near the glass from injury by flying glass particles and hot steam, as more fully hereinafter set forth.

In the drawing, *a* designates the connection between the top of the gage and the boiler and *b* designates the usual connection between the lower end of the gage and the boiler. The connection *a* is provided with a depending threaded nipple *c* and the connection *b* is provided with an upstanding threaded nipple *d*. The usual glass tube *e* connects and extends into these nipples, and surrounding this glass tube is the main guard frame or casing whose upper extremity *f* is screwed on to the nipple *c* and whose lower extremity *g* is screwed on to the nipple *d*, the outer surfaces of these parts *f* and *g* being preferably adapted to receive a wrench for convenience in connecting up the parts and detaching them. A suitable gasket *h* is provided within the upper end of the casing and a similar gasket *i* is provided at the lower end of the casing to make steam-tight joints at the respective ends of the glass tube.

The vertical openings in the guard casing form a series of vertical bars *j* which surround the glass tube and form a guard cage therefor, and at the lower end of the casing, at a point just above the lower gasket *i*, the casing is provided with a series of lateral openings *k*, which are virtually continuations of the bars *j*. Surrounding and inclosing the openings *k* is an annular chamber *l* which at one side has cast integral with it a discharge elbow *m* to whose extremity is connected a tube *n* leading to a suitable point of deposit.

The annular casing *l* bears upon an annular shoulder *o* formed on the main guard casing, and the top wall of this casing has a bearing against an annular shoulder *p* formed on the guard casing at a point just above the openings *k*. Projecting upwardly from the outer edge of the casing *l* is an annular flange *q* which, together with the top wall of the casing, forms an annular bearing for a gasket or packing *r*. Having its lower end bearing upon this gasket *r* is a supplemental glass tube *s*, and surrounding this tube *s* are vertical bars *t* of a supplemental guard cage or frame. The lower ends of these bars are connected by a ring *u* which fits within the upstanding flange *q* and bears down upon the packing *r*. Screwed on an externally threaded portion of the main guard casing, at a point above the termination of the bars *j* is an annular flange *v* which is provided with a depending flange *w* which surrounds the upper ends of the glass tubes *s* and a ring *x* connecting the upper ends of the bars *t*, a suitable packing ring *y* being provided to make a steam and water tight joint at this point.

It will be observed that should the main glass tube become broken while the gage is under pressure, the steam and water and small pieces of glass will be discharged out through the openings *k* and be conducted away by the pipe *n*, and the supplemental glass tube and guard bars will serve as temporary protection until the boiler is cut off from the gage. It will be observed that under such conditions the supplemental glass tube will not be subjected to the full pressure of the boiler since the blow-off casing and elbow and pipe are larger in area than the passages connecting the gage to the boiler, so that the supplemental glass tube will be amply sufficient to protect surrounding persons and objects until the gage can be cut off from the boiler. It will be observed also that my construction greatly facilitates assembling of the parts as well as dismantling of the structure, so that the gage can be readily put together and disassembled.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a water-gage, the combination of two boiler connections, a main guard casing connecting the extremities of these connections, a main glass sight-tube inclosed within the casing, said casing being formed of vertical bars throughout the main portion of its length and provided with lateral openings at its lower end and also with an annular shoulder at its lower end below said openings, an annular blow-off chamber surrounding the exits of said openings and bearing upon the said shoulder, an annular flange screwed on the upper end of said casing above the upper extremities of the bars, and a supplemental sight-tube and guard frame therefor clamped between said annular flange and the upwardly facing top wall of said blow-off chamber.

2. The combination with boiler connections, of a safety sight gage comprising a main guard casing connecting said boiler connections, a main sight tube inclosed therein, a blow-off chamber supported on the main casing at the lower end thereof, said main casing being provided with an opening communicating with said blow-off chamber, a supplemental sight tube surrounding the main casing, and an annular flange adjustably mounted on the main casing and adapted to clamp said supplemental sight tube against the blow-off casing, for the purposes set forth.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

BARNHARDT ZINDEL.

Witnesses:
GRACE MCCREA,
ARTHUR BEFY.