(No Model.)

G. BEINKE.

WATER GAGE SAFETY ATTACHMENT.

No. 497,564. Patented May 16, 1893.

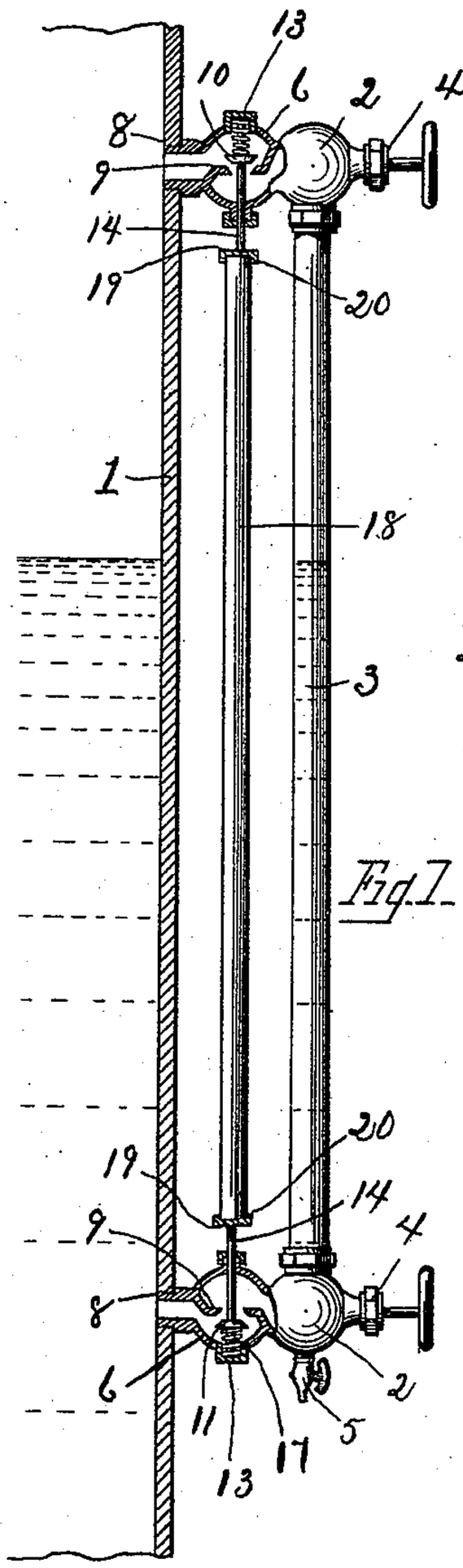

Fig. 1.

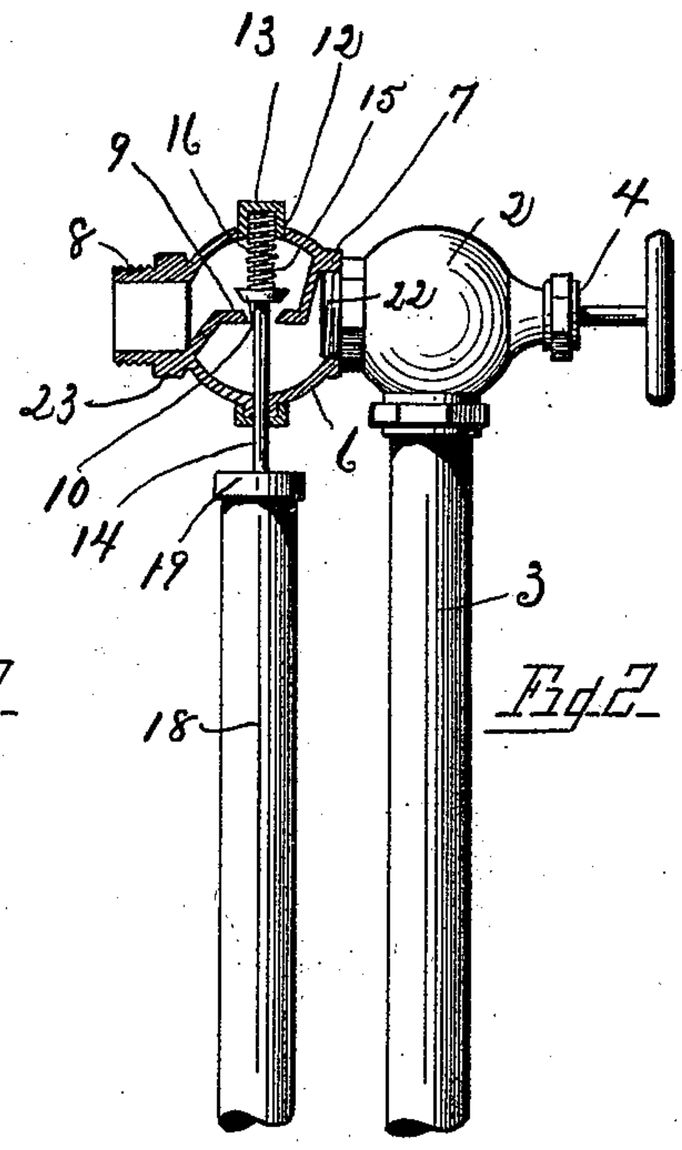

Fig. 2.

WITNESSES

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UNITED STATES PATENT OFFICE.

GEORGE BEINKE, OF TOLEDO, OHIO, ASSIGNOR OF ONE-HALF TO ELMER E. DALE, OF SAME PLACE.

WATER-GAGE SAFETY ATTACHMENT.

SPECIFICATION forming part of Letters Patent No. 497,564, dated May 16, 1893.

Application filed February 6, 1893. Serial No. 461,284. (No model.)

To all whom it may concern:

Be it known that I, GEORGE BEINKE, of Toledo, county of Lucas, and State of Ohio, have invented certain new and useful Improvements in Automatic Safety Appliances for Water-Gages; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form part of this specification.

My invention relates to an automatic safety appliance for water gages, and has for its object to provide a gage with automatic means for shutting off water or steam therefrom in case of fracture of the glass.

A further object is to provide means for adapting the safety appliance to gages of present construction.

With these objects in view the invention consists broadly in one or more valves interposed between the water or steam exit to the gage glass, and held open by a bearing, which, when in contact with escaping steam or water will become dissolved and allow the valve or valves to seat, and shut off the escape.

In the drawings: Figure 1 is a side elevation of a gage glass, with the automatic shut off, the valve chambers being shown in section to disclose the valves. Fig. 2 is an elevation of a coupling having the valves and adapted to be coupled with a gage of present construction, this view being drawn on an enlarged scale.

1 designates a section of boiler into which are screwed valve casings 2, preferably one below low water mark, and one in the steam space, connected by the glass cylinder 3 and having the ordinary valves 4, and draw off cock 5.

The automatic safety appliance comprises valve chamber 6, which may be formed integral with valve casings 2 as shown in Fig. 1, or as an auxiliary, as shown in Fig. 2, in which the outer end 7 is internally screw threaded to receive the inner screw threaded end of the valve casings originally designed to be screwed into the boiler, and the inner end 8 is screw threaded to be screwed into the boiler. Within each valve chamber is a valve seat 9, and the chambers are adjusted when connected to accommodate a downwardly seating valve 10 in the upper casing, and an upwardly seating valve 11 in the lower casing. Upon the upper and lower side of each casing is formed an internally screw threaded perforation 12 into which is screwed a cap 13. The cap of the lower projection of the upper casing, and the cap of the upper projection of the lower casing are perforated centrally to allow the valve stem 14 of valves 10 and 11 respectively to pass therethrough with the stem of each extending toward the vertical center of the glass. Valve 10 is provided with an upwardly projecting stem 15, of a length to support the lower end of a coiled spring 16 from displacement when seated upon the top of the valve, the upper end of the spring being seated in cap 13, to normally close the valve, the lower casing having a like arrangement in inverse order, in which valve 11 has a spring 17 seated upon cap 13, and exerting an upward pressure to close valve 11, upon its seat. It will be observed that when the valves are closed, the pressure of water or steam is upon the valves which assists in holding them upon their seats.

18 designates a column of a material easily dissolved by moisture. This column may be formed of wheat flour, and sand, rendered sufficiently plastic to be molded into shape, and then baked or dried, or of any material capable of being formed into the proper shape and dissolved by contact of water or steam therewith. This column is of a length when inserted between the valve stems to require that the valves be opened to admit the column between the ends of the stems, and is held in place by caps 19, secured upon the ends of the stems, and having annular flanges 20 into which the ends of the column rest.

In operation the valves being held open by means of the column interposed between the stems, the height of water is correctly indicated. If however, the glass 3 should become broken, the water and steam at once strike

the column with the effect of dissolving the same, springs 16 and 17 quickly seating the valves, and shutting off the passage of steam or water, and filling the chamber with a pressure to hold the valves closed by the force exerted upon the outer face of the valves.

In Fig. 2 the same arrangements of parts is observed, the chamber 6 being attachable to the ordinary-valve casings by being formed with an internally screw-threaded outer end 7, of an internal diameter to receive the screw threaded end 22 of the valve casings, the opposite end 8 having a thread to enter the boiler. By this arrangement the safety attachment may be readily attached to an ordinary gage, by simply unscrewing the valve casings from the boiler, and screwing the ends 8 into the boiler, and the ends 22 of the valve casings into the ends 7 of the chambers 6.

This appliance is inexpensive of construction, and positive in action, and positively avoids all danger to the engineer or possibility of loss of water or steam from the boiler.

What I claim is—

1. An automatic safety appliance for water gages, comprising auxiliary valve chambers interposed between the boiler and gage, valves in the chambers held in open relation by means of a column dissolvable by moisture.

2. In a water gage, the glass tube, end fastenings in communication with the glass and boiler, valves in the fastenings, a rest for the valves interposed to hold the same open, said rest being formed of a dissolvable material.

In testimony that I claim the foregoing as my own I hereby affix my signature in presence of two witnesses.

GEORGE BEINKE.

Witnesses:
FLOYD R. WEBSTER,
WILLIAM WEBSTER.