F. R. BISPHAM.

GAGE GLASS.

APPLICATION FILED FEB. 1, 1910.

976,030. Patented Nov. 15, 1910.

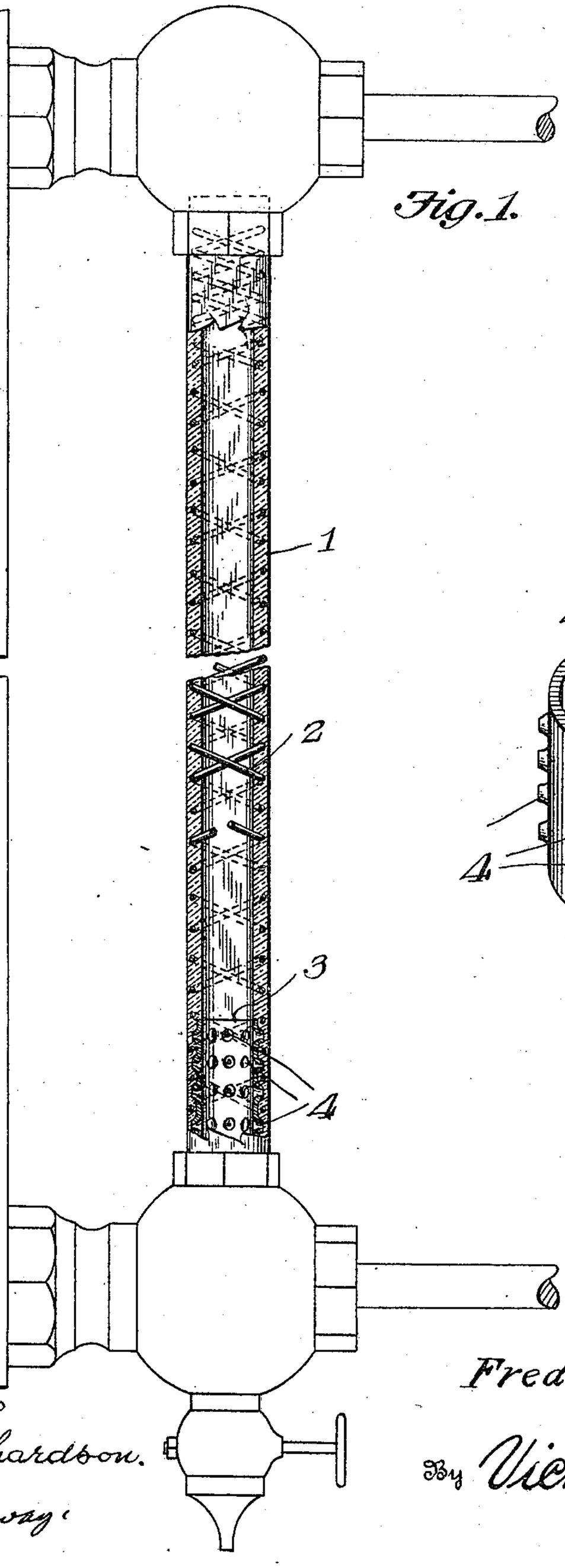
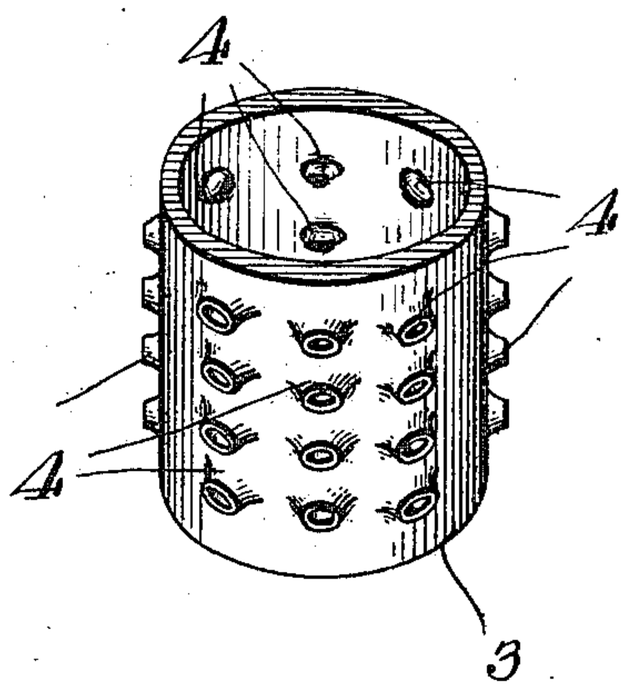


Fig. 1.

Fig. 2.



Witnesses

C. C. Richardson.

C. Bradway.

Inventor

Fred R. Bispham

By Victor J. Evans

Attorney

UNITED STATES PATENT OFFICE.

FRED R. BISPHAM, OF BEMIDJI, MINNESOTA.

GAGE-GLASS.

976,030. Specification of Letters Patent. Patented Nov. 15, 1910.

Application filed February 1, 1910. Serial No. 541,302.

To all whom it may concern:

Be it known that I, FRED R. BISPHAM, a citizen of the United States, residing at Bemidji, in the county of Beltrami and State of Minnesota, have invented new and useful Improvements in Gage-Glasses, of which the following is a specification.

This invention relates to a gage glass for boilers or lubricators, and relates more particularly to a level gage of that type in which the glass tube has embedded therein a netting or equivalent means for preventing minute fracturing of the glass or scattering of the particles in case of breakage.

The invention has for one of its objects to provide a gage glass of this character which is provided with a protecting device at the steam blow-off end of the tube for preventing wearing away or erosion, said device being a permanent part of the tube so as to form therewith a unitary structure or article of manufacture, so that the tube can be applied to boilers or lubricators already in use without any change in the couplings or parts holding the gage.

With these objects in view, and others as will appear as the description proceeds, the invention comprises the various novel features of construction and arrangement of parts which will be more fully described hereinafter and set forth with particularity in the claims appended hereto.

In the accompanying drawings, which illustrate one embodiment of the invention; Figure 1 is a vertical section of the gage tube. Fig. 2 is a perspective view of the protecting thimble for the steam discharge end of the gage.

Referring to the drawings, 1 designates a glass or other transparent tube, which has embedded therein a tubular reinforcing element 2 in the form of a wire net, the individual wires of which are helical and so arranged that the convolutions will be disposed obliquely to the axis of the tube so that the water level can always be readily ascertained because no convolution of any wire is disposed horizontally to conceal the water level. This netting 2 extends to within an inch, more or less, of the top of the tube so that the latter can be cut off to any desired length for fitting in the couplings that connect the gage with the boiler, but it is to be understood that the tube will project into the couplings to such an extent as to carry the netting into the same, as shown by dotted lines at the top of the glass. The lower end of the tubular netting may extend to the bottom of the glass if desired. Within the bore of the tube, at the lower end thereof, is arranged a metal thimble or tubular piece 3, which serves to protect the glass from being worn away by the steam when blowing off the gage, the thimble being of the same internal diameter as the tube 1, so that the bores of both will be flush. The thimble 3 is provided with anchoring means 4 for securing it in the tube 1. The anchoring means take the form of lugs that are pressed outwardly by perforating the metal thimble, and these lugs become embedded in the glass.

In making the gage, the tubular netting 2 and protecting device 3 are assembled in a suitable mold with their axes alining and while supported in this position, the glass is poured around the netting and protecting thimble and the glass molded into final form, the netting being bedded in the glass adjacent the outer surface thereof and the thimble being anchored in the glass by the lugs 4. The resulting product is a unitary structure which can be readily applied to ordinary gage fittings or couplings and after being once installed, the gage will last indefinitely, unless cracked or broken by accident or some abnormal condition.

From the foregoing description taken in connection with the accompanying drawings, the advantages of the construction and of the method of operation will be readily apparent to those skilled in the art to which the invention relates, and while I have described the principle of operation of the invention, together with the device which I now consider to be the best embodiment thereof, I desire to have it understood that the device shown is merely illustrative and that such changes may be made when desired as are within the scope of the claims.

What I claim as new and desire to secure by Letters Patent is:

1. A gage tube having a metal tubular piece in one end thereof, the bores of the tube and piece being the same, and lugs pressed out from the said piece and embedded in the tube for anchoring the said piece in the latter.

2. A gage glass consisting of a tubular body, a tubular netting embedded therein,

and a protecting thimble molded within the body at one end of the bore thereof.

3. A gage glass consisting of a tubular body, a tubular netting embedded in the body and extending from one end thereof to a point short of the other end, and a metal tubular protecting device arranged within the body at the end thereof and concentric within and in overlapping relation to the netting, said tubular body being molded around the protecting device.

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

FRED R. BISPHAM.

Witnesses:
CHESTER MCKUSICK,
INEZ L. WOODRUFF.