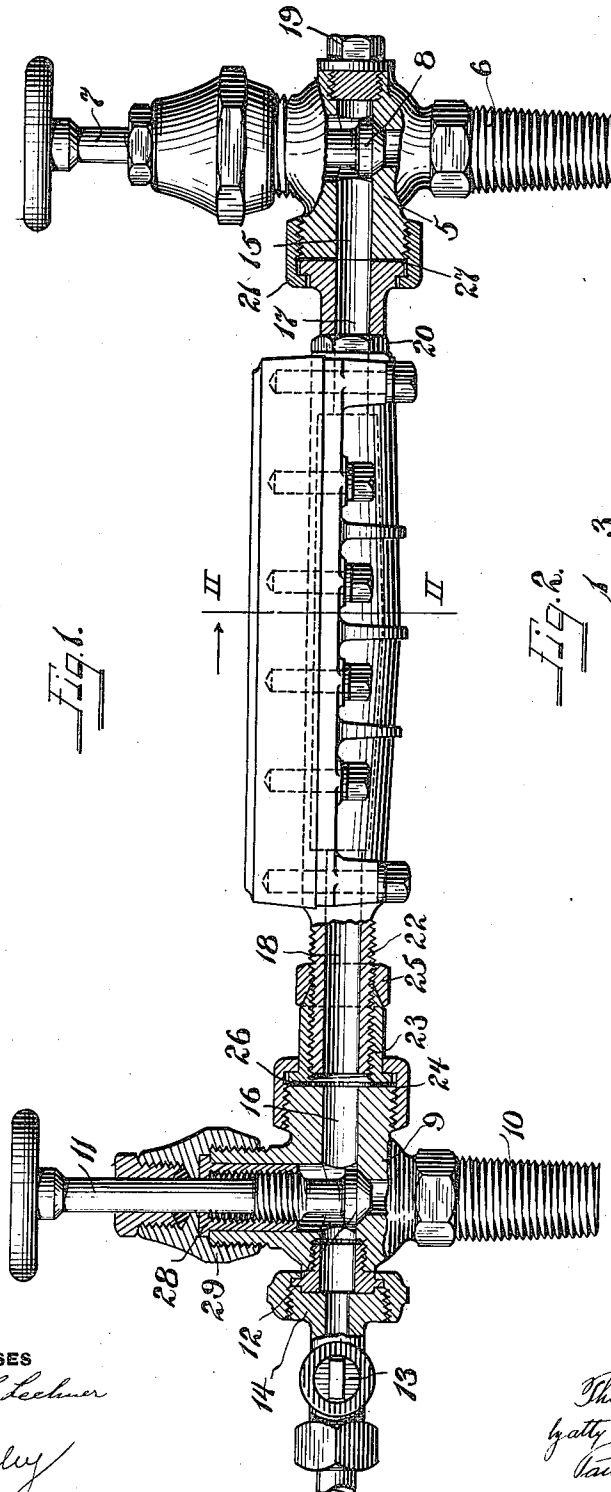


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WITNESSES
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J. C. Bradley

INVENTOR
Thomas R. Cook
by *Paul S. Smeets*

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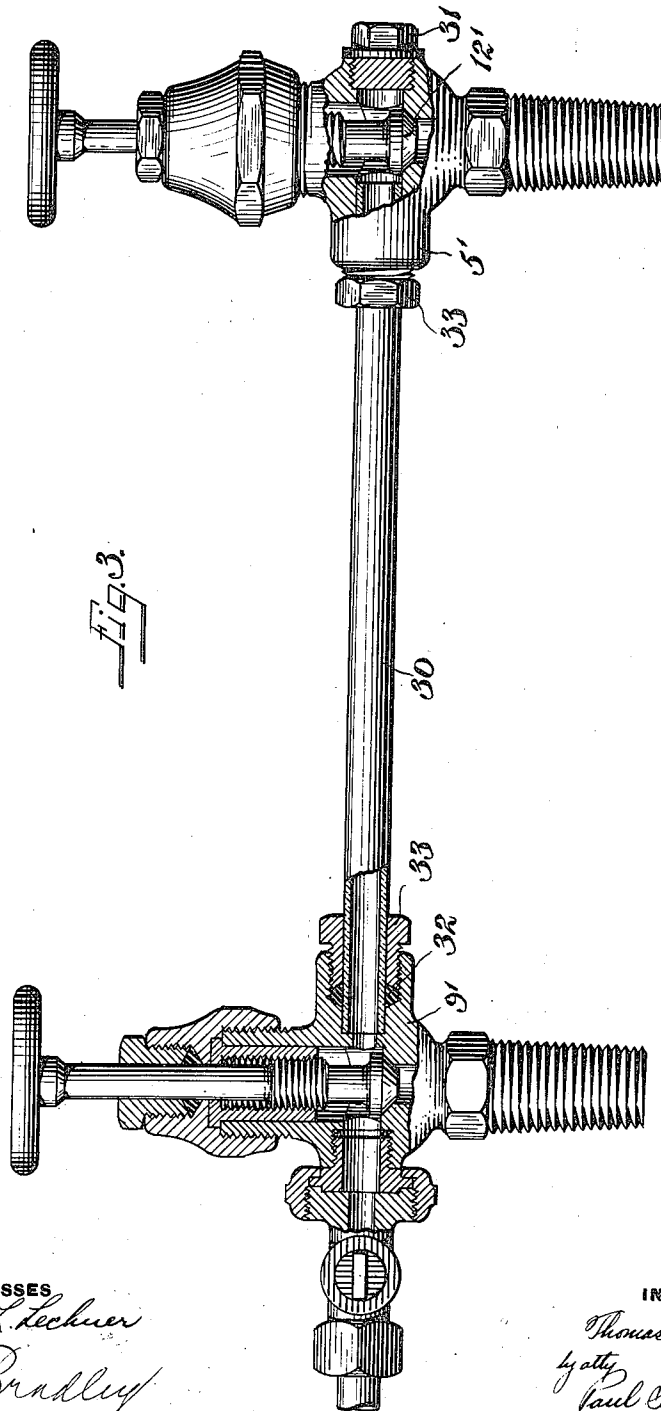


Fig. 3.

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UNITED STATES PATENT OFFICE.

THOMAS R. COOK, OF FORT WAYNE, INDIANA.

WATER-GAGE FOR BOILERS.

945,756.

Specification of Letters Patent.

Patented Jan. 11, 1910.

Application filed August 8, 1908. Serial No. 447,581.

To all whom it may concern:

Be it known that I, THOMAS R. COOK, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented certain new and useful Improvements in Water-Gages for Boilers, of which the following is a specification.

The invention relates to water gages for boilers, and particularly to the manner of mounting such gages. The invention has for its primary objects, the provision of an arrangement of gage glass and mountings whereby a tool may be applied to remove sediment from all of the parts to which fluid from the boiler has access, without removing the glass or connections from their mountings; the provision of a gage readily applicable to fittings located apart varying distances; the provision of a gage wherein the soft gaskets ordinarily employed may be dispensed with, and the provision of an improved controlling valve connection wherein sediment may be removed from its passages, disk, and seat, without removing the valve from its mounting.

Certain embodiments of the invention are illustrated in the accompanying drawing, wherein—

Figure 1 is a side elevation, partly in section, of one form of gage and mounting;

Figure 2 is a section on the line II—II of Figure 1, and

Figure 3 is a side elevation, partly in section, of a modified form of gage.

Referring first to the construction of Figures 1 and 2, 1 is the glass which constitutes the front of the gage, 2 is a metal casing providing a passage at the back of the glass, 3 is a clamping member engaging the glass at its front side and secured to the casing 2 by means of the bolts 4, 5 is the upper valve casing provided with the screw threaded portion 6 for connecting the casing to the boiler and carrying the valve stem 7 and disk 8, 9 is the lower valve casing provided with the screw threaded portion 10 for connecting the casing to the boiler and carrying the valve stem 11 and disk 12, and 13 is a cock connected to the valve casing 9 by means of the coupling 14.

The valve casings 5 and 9 are provided with transverse passages 15 and 16, which passages are in alinement with and register with the passages 17 and 18 leading to the cavity in the casing 2. These passages are

all straight, and by removing a plug 19 at the end of the passage 15 in the upper valve casing, and disconnecting the cock 13 from the lower valve casing, a clear passage is provided through both valves and the gage, so that a tool may be passed therethrough and any sediment which has collected may be bored out. The passages 17 and 18 are preferably made of the relative large size shown, in order to reduce the danger of these passages becoming filled up, and in order to secure a steady and reliable indication of the water level in the gage. The upper valve body 5 is coupled to the casing 2 by means of the plug 20 screw threaded into the top of the casing, and the coupling sleeve or nut 21 for securing the upper end of the plug to the valve casing. The lower end of the casing is provided with a threaded stem 22 on which is mounted the flanged sleeve 23, and this flanged sleeve 23 is coupled to the valve casing 9, by means of the flanged coupling nut 24. A lock nut 25 is screwed over the beveled end of the sleeve 23 and maintains such sleeve in any position to which it may be adjusted upon the stem 22. The soft metal gaskets 26 and 27 are provided at the ends of the sleeve 23 and plug 20 respectively, as illustrated. Heretofore it has been common to use soft packing for joints of this character in gages, which packing is objectionable, as it tends to work into the passages and choke them up to a certain extent. The use of the metal gaskets obviates this difficulty. It will also be seen that by the use of the sleeve 23 the gage may be adjusted to suit locations in which the distances between the valve centers vary. This is desirable, as the valves are frequently inaccurately placed, and great difficulty is experienced in connecting the gage thereto.

In order that the valve disks may be turned upon their seats to remove any sediment collected thereon and to smooth the meeting surfaces, each of the valves is provided with a sleeve 28 slidably mounted in the valve casing and threaded onto the valve stem. This sleeve is normally held rigidly in position by means of the valve bonnet 29. When, however, it is desired to turn the valve disk upon its seat without moving the stem thereof longitudinally, the bonnet is loosened, and a rotation of the valve stem merely reciprocates the sleeve 28, while the disk remains upon its seat. By this arrangement the valve need be removed from its

mountings for refitting, only at long intervals. Access is had to the passages through the parts 6 and 10, for boring out, by unscrewing the bonnets and withdrawing the valve disk longitudinally. This provides a free passage clear to the boiler, and any sediment or scale which may have collected in the passages is readily removed, and this without the necessity of removing the valves from their mounted positions. It will be seen from the foregoing that every part of the fittings and gage to which the fluid from the boiler has access is readily accessible for the removal of the sediment and scale with a boring tool, and that this cleaning operation may be conducted with a minimum amount of labor, due to the fact that the parts do not have to be taken from their mountings.

Figure 3 illustrates the invention as applied to a different style of gage, such gage being the old style wherein a plain glass tube 30 is used. The valve casings 5' and 9' are substantially identical with the casings 5 and 9 heretofore described, with the exception that the connection to the gage glass is different. The gage glass 30 is applied in place by removing the plug 31 in the valve 5' and sliding the glass to position through the casing 5', the valve disk 12' having been withdrawn to permit the passage of the glass. A packing 32 is used at each end of the glass, and is adjusted and held in place by means of the glands 33. In gages of this character it is customary to apply the glass after the valve has been mounted in position, and by the use of the transverse passage through the valve 5' closed by the plug 31 it is possible to use a longer glass than was the case in the old type of apparatus wherein the glass had to be inserted at one end into one of its recesses, and then subsequently retracted a certain distance to engage its recess in the other valve. The long glass is desirable, as the ends of the glass under these conditions project past the packings 32 a considerable distance, and there is no

danger of the packing working out past the end of the tube, as was often the case in the old type of apparatus referred to wherein a shorter tube had to be used. It will be seen that the construction of the valves and connections in this form of device is such that the various passages may be bored out with the same facility as described for the construction of Figures 1 and 2.

Having thus described my invention and illustrated its use, what I claim as new and desire to secure by Letters Patent, is the following:

1. A gage for a boiler comprising a glass face and a metal casing therefor providing a passageway behind the glass and provided with connecting end sections having passages in alinement with the said passageway, a valve casing at each end of the gage having a removable closure in alinement with said passages, and provided with an unobstructed passage in alinement with the closure and also provided with another unobstructed passage transverse to the last mentioned passage and leading to the boiler, and a valve in each casing operating in alinement with the passage to the boiler, such valve being removable whereby access by a boring tool is secured to all of the passages.

2. The combination with a water glass gage, of a valve mechanism at each end thereof, each comprising a body communicating with the gage and boiler, a sleeve mounted for longitudinal movement in the body, a valve stem carrying a disk threaded through the sleeve, and a bonnet threaded to the body and adapted to clamp the sleeve in position and provided with a stuffing box for the stem of the valve.

In testimony whereof I have hereunto signed my name in the presence of the two subscribed witnesses.

THOMAS R. COOK

Witnesses:

JAMES C. BRADLEY,
DOERING BELLINGER.