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J. DORN.
WATER GAGE.

(Application filed Mar. 15, 1901.)

(No Model.)

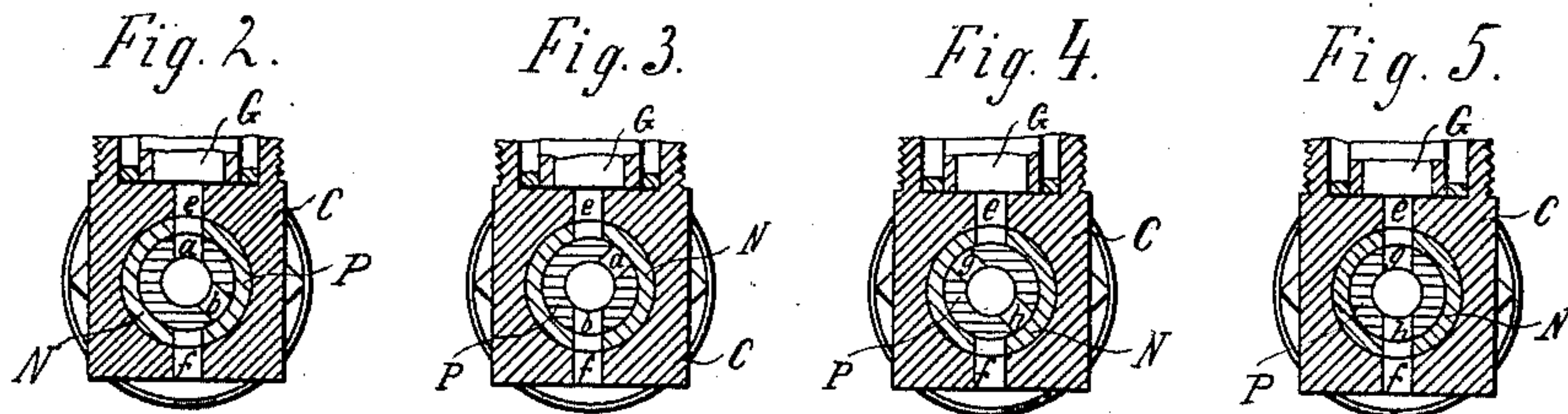
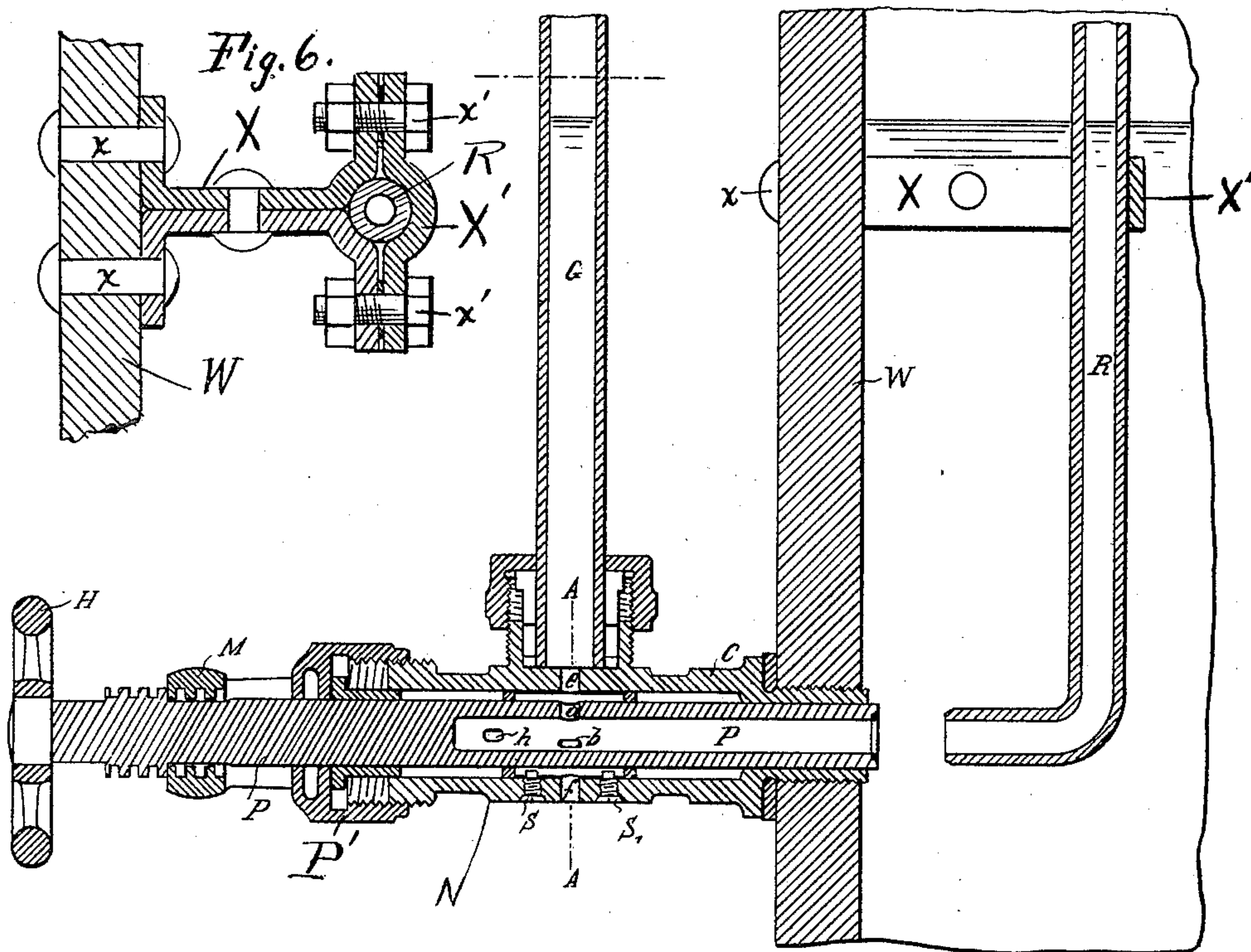


Fig. 1



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JOHANN DORN, OF SPITAL-ON-THE-PYHRN, AUSTRIA-HUNGARY.

WATER-GAGE.

SPECIFICATION forming part of Letters Patent No. 697,995, dated April 22, 1902.

Application filed March 15, 1901. Serial No. 51,334. (No model.)

To all whom it may concern:

Be it known that I, JOHANN DORN, a subject of the Emperor of Austria-Hungary, and a resident of Spital-on-the-Pyhrn, Upper Austria, Austria-Hungary, have invented certain new and useful Improvements in Water-Gages with Arrangements for Blowing Out the Channels by Means of Steam, of which the following is a specification.

Many boiler explosions are to be attributed to the fact that the channels leading to the water-gage were obstructed by incrustation, mud, and the like, tending to hide the actual level of the water. In order to obviate this disadvantage, the water-gage hereinafter described admits of blowing out in a rational manner and at any desired intervals of time all the channels having contact with the boiler-water, employing for that purpose the ordinary steam without stopping the working of the boiler.

In the accompanying drawings, Figure 1 represents an axial vertical section through the water-gage arrangement, Figs. 2 to 5 being sections on the line A A of Fig. 1. Fig. 6 is a detail view.

The principal component parts of the subject-matter of the present invention consist of a steam-tight casing C, solidly attached at the lower end of the water-gage to the wall W of the boiler and containing a hollow cylinder P, which passes through a stuffing-box P' and is journaled in a bracket M, forming an extension of said tube C. The cylinder P is rotatable and longitudinally movable in the tube C and is operated by a hand-wheel H. A tube R, arranged within the boiler and communicating with the steam-chamber thereof, is adapted to be brought into steam-tight communication with the hollow cylinder P by pushing the latter forward. This tube R is supported by a two-part bracket X, secured to the boiler by bolts x , and to which bracket the tube R is clamped by a plate X' and bolts x' . The said hollow cylinder is provided with four cross-orifices, two of which, a and b , are arranged in one vertical plane transverse to said tube, while the other two, g and h , are arranged in a parallel plane at a distance therefrom. Moreover, the said orifices are so arranged that by turning or pushing the hollow cylinder P they may either be

displaced in respect of the openings e and f , arranged in the wall of the casing diametrically opposite, or brought to effect communication therewith. The end of the hollow cylinder is provided with a thread to so much of its length as corresponds to the height of the nut, which is solidly connected with the casing. Lest the communication of the orifices of the hollow cylinder and the casing should be interfered with by the packing, a ring N, provided with longitudinal slits, is inserted in such a manner that it may be slightly displaced in the longitudinal direction, but is prevented by the small screws $s s'$ from being turned, so that the slits will always exactly correspond to the orifices $e f$ of the casing.

The mode of working of the apparatus is as follows: In the normal condition of the working of the boiler the hollow cylinder P is screwed backward to its extreme position, as illustrated in Fig. 1—that is to say, its connection with the steam-tube is interrupted—so that the water of the boiler may enter into its interior and thence pass through channel a , which in that position will be situated exactly underneath the orifice e , into the water-gage G, Figs. 1 and 2. In order to ascertain as to whether the apparatus is properly working, the hollow cylinder P is slightly moved backward by means of the hand-wheel H, so that the position shown in Fig. 3 is established and water exhausted through channel f , the operation being similar to that of the water-cock hitherto made use of and which is thus dispensed with; but the chief advantage of the new construction consists in the possibility of blowing out by steam the hole at the outlet or mouth of the boiler and of freeing the same from incrustations, which were often the cause of obstructions of the water-gages. Such obstructions could hitherto only be removed by resorting to imperfect methods, which frequently even necessitated stoppages in the working of the boiler. For that purpose the hand-wheel is turned until the screw-threads have entirely passed the nut. The hollow cylinder is thereby screwed forward to such extent that its close connection with the steam-tube R and at the same time the position of the channels shown in Fig. 4—that is to say, a complete closure—is established.

lished. By a slight additional turning, which owing to the threads having passed the nut only causes a turning of the hollow cylinder around its axis, the position shown in Fig. 5 is obtained, the water contained in the inner space of the hollow cylinder and in the water-gage and also the condensation-water accumulated in the steam-pipe escaping through *g* and *h*. The steam-pipe *R*, which preferably leads out of the boiler and draws the steam from the steam-dome, a superheater, or any other steam source by means of a cock, supplies the blowing-out steam on opening the latter, the said steam escaping through *f*. When the feed-cock of the tube *R* is closed, it is also possible to blow out the channel *g* from above. On reversing the hand-wheel the normal position is reestablished—that is to say, the water-gage is again intact. The said operation is frequently repeated during the day and affords a reliable means for preventing obstructions of the water-channels without the working of the boiler being thereby interfered with.

25 I claim—

1. In combination with a steam-boiler, a tube or casing connected therewith supporting a gage-glass, said casing having openings to said glass and to the outside air, and a

movable plug located in said casing and having openings adapted respectively to place the interior of the boiler in communication with said tube or with the outside air and a fixed tube within the boiler having one end extending above the water-level and the other in line with the bore of said plug, substantially as described.

2. In combination with a steam-boiler, a tube or casing connected therewith supporting a gage-glass, said casing having openings to said glass and to the outside air, a plug located in said casing and having transverse openings a stationary tube within the boiler having one end extending above the water-level and the other end in line with the inner end of said tubular plug, and a suitable handle whereby said plug may be rotated and also moved longitudinally to cause its inner end to abut against the stationary tube, substantially as described.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

JOHANN DORN.

Witnesses:

ALVESTO S. HOGUE,
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