(No Model.)

W. H. BRAY & C. NICKERSON.

VALVE FOR WATER GAGES.

No. 381,609. Patented Apr. 24, 1888.

Fig. 1.

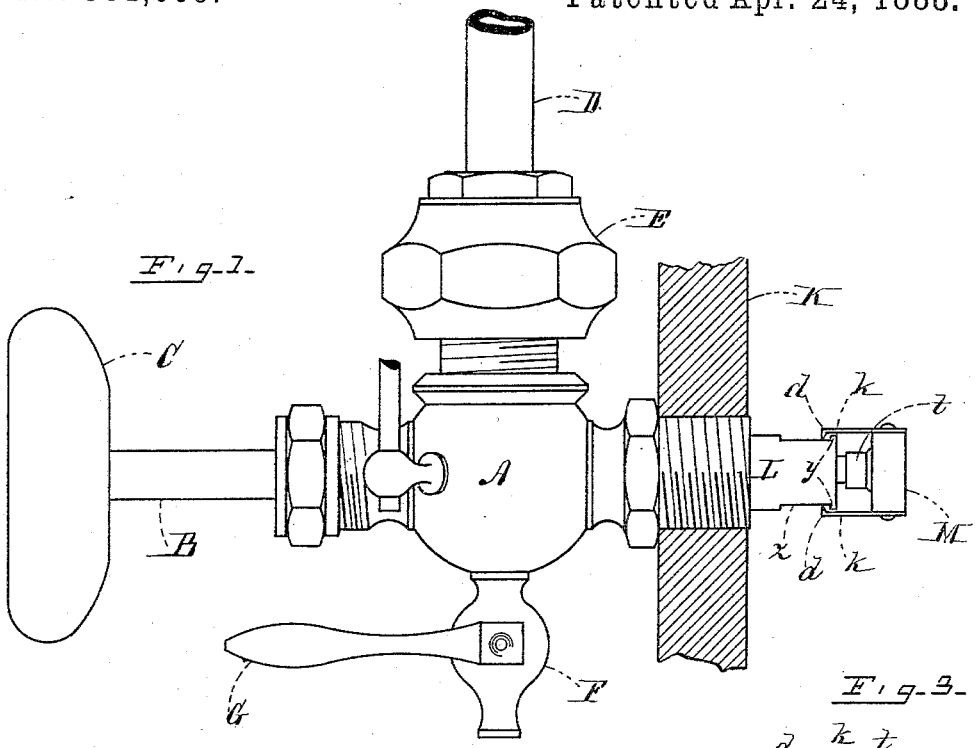

Fig. 3.

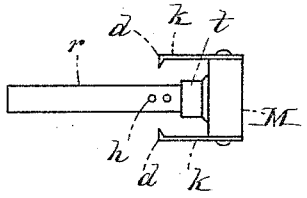

Fig. 2.

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UNITED STATES PATENT OFFICE.

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VALVE FOR WATER-GAGES.

SPECIFICATION forming part of Letters Patent No. 381,609, dated April 24, 1888.

Application filed January 24, 1888. Serial No. 261,780. (No model.)

To all whom it may concern:

Be it known that we, WILLIAM H. BRAY, of Boston, in the county of Suffolk, State of Massachusetts, and CORNELIUS NICKERSON, of Chelsea, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Valves, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming part of this specification, in which—

Figure 1 is a side elevation of a valve embodying our improvement; Fig. 2, a vertical longitudinal section of the same, a portion of the boiler being shown in section in both views; and Fig. 3, a view of the auxiliary valve detached.

Like letters and figures of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates more especially to the class of valves which are used on the gage-cocks of steam-boilers; and it consists in certain novel features, as hereinafter fully set forth and claimed, the object being to produce a more effective device of this character than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation.

In the drawings, A represents the body of the valve; B, the valve-stem; C, the hand-wheel mounted on the valve-stem; D, the gage or glass tube; E, the nut or gasket for packing the tube; F, the petcock; G, the handle mounted on the valve-stem of the petcock; H, the valve proper; J, the seat for the valve proper, and K the boiler, these parts being all of the usual form and construction and not claimed broadly or when in and of themselves considered in the present application.

The ordinary screw-threaded nipple, *m*, of the valve, which is fitted into a correspondingly screw-threaded hole in the boiler, is reduced in size or elongated to form the auxiliary nipple L, which is provided with a wide annular groove, *z*, on its periphery. The ordinary duct, *b*, in the nipple *m* is continued through the auxiliary nipple L and is counterbored or enlarged to form a valve-seat, *i*. An auxiliary valve, M, having its inner end, *t*, fitted to the seat *i*, is secured to the end of the auxiliary nipple L by means of the elastic arms *k*, said arms being provided with hooks *d*, which rest in the groove *z* when said valve is in position for use and engage the annular boss *y* on said nipple to prevent the valve from being displaced. A tubular valve-stem, *r*, provided with the lateral holes *h* near its inner end, is secured to the valve M, said stem being fitted to work in the duct *b*. A rod, *w*, is secured to the inner end of the valve-stem B, said rod being fitted to work loosely in the valve-stem *r*, and of such length that in closing the valve H it will pass through the stem *r* and open the valve M.

In the use of our improvement, the valve H being closed and the valve M open, with the rod *w* resting against its inner side, if now the valve H is opened by unscrewing or turning out its stem B, the rod *w* is removed from contact with valve M and the water in the boiler will pass through the holes *h* and hollow stem *r* into the body A and gage-tube D, and as the pressure on the valve M will be equal on both sides it will be "balanced" and remain open, as shown in Figs. 1 and 2. The auxiliary and main valves being open, as shown and described, if now the glass gage-tube D is accidentally broken the pressure of the water on the outside of the valve M will be removed, whereupon it will be instantly and automatically closed by the pressure of the water from within the boiler, thereby preventing the escape of the water through the broken tube, and also enabling a new tube to be substituted without shutting off the water or steam.

We do not confine ourselves to the use of the elastic arms *k* and boss *y* for securing the valve M to the nipple L, as any suitable means for that purpose may be employed.

Having thus explained our invention, what we claim is—

1. In a valve of the character described, the nipple L, having an exterior wide annular groove, *z*, forming a boss, *y*, at its end, and also having a valve-seat, *i*, in combination

with the valve M, arms *k*, secured thereto and extending inward past the valve-face, and hooks *d* on the ends of said arms adapted to engage said annular groove *z* and boss *y*, substantially as described.

2. In a valve of the character described, the body A, having nipple *m*, the auxiliary nipple L, continuing the same and having a valve-seat at its inner end, a valve, M, adapted to be seated on said seat, and a perforated tube, *r*, connected to said valve and sliding within said nipples, in combination with the valve-seat J, main valve H, closing against said seat in a direction opposite that in which valve M closes, and rod *w*, continuing said main valve and adapted to open the auxiliary valve M as the main valve H closes, said rod being guided in said tube *r*, substantially as described.

3. In a valve of the character described, the body A and nipple *m*, the auxiliary nipple L, having the duct *b*, boss *y*, and valve-seat *i*, the valve M, provided with arms *k*, having hooks *d*, the hollow valve-stem *r*, connected with the valve M and provided with the holes *h*, and the valve H, provided with the rod *w*, all combined and arranged to operate substantially as set forth.

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