(No Model.)

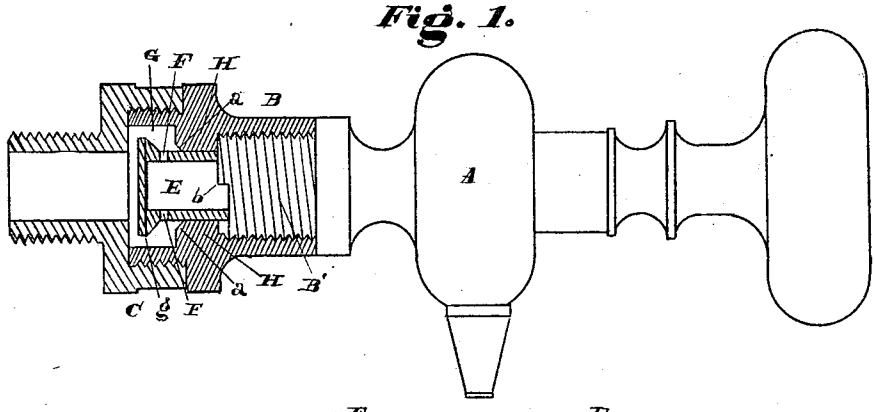
2 Sheets—Sheet 1.

E. W. COOKE.

STEAM VALVE.

No. 379,684. Patented Mar. 20, 1888.

Fig. 1.



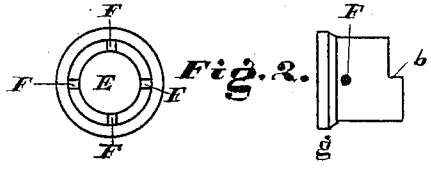
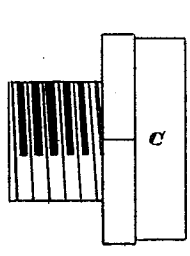


Fig. 2.



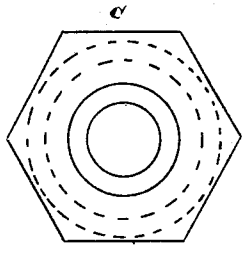
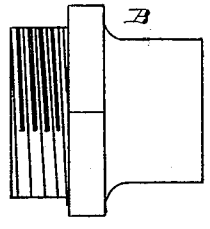


Fig. 3.



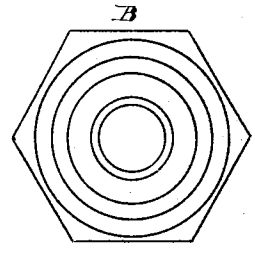


Fig. 4.

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A. Hauptman.

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Hauptman Brothers.

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N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

E. W. COOKE.

STEAM VALVE.

No. 379,684. Patented Mar. 20, 1888.

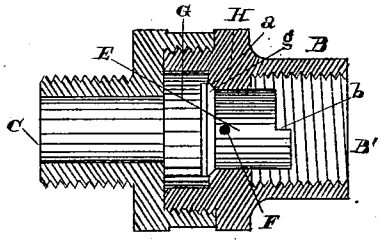

Fig. 5.

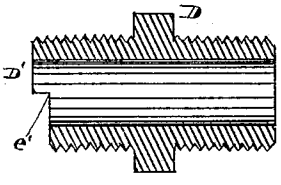

Fig. 6.

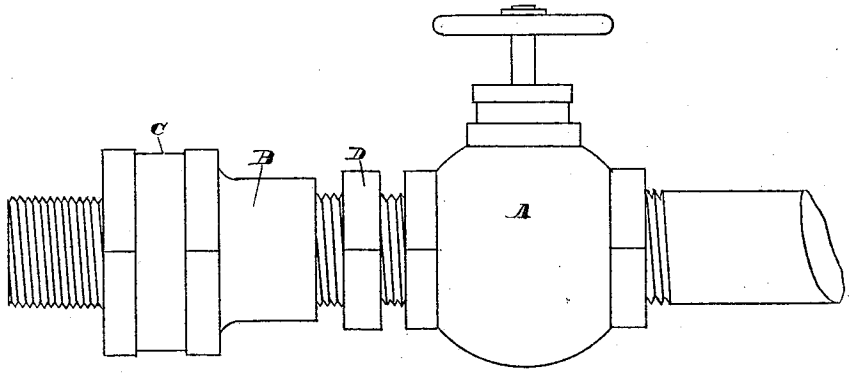

Fig. 7.

Witnesses:

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Hauph Bonham.

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UNITED STATES PATENT OFFICE.

ERNEST WM. COOKE, OF CHICAGO, ILLINOIS, ASSIGNOR OF ONE-HALF TO W. D. EATON AND CHAS. D. HAUK, BOTH OF SAME PLACE.

STEAM-VALVE.

SPECIFICATION forming part of Letters Patent No. 379,684, dated March 20, 1888.

Application filed September 7, 1887. Serial No. 249,054. (No model.)

To all whom it may concern:

Be it known that I, ERNEST WM. COOKE, a citizen of the United States, residing in Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Steam-Valves, of which the following is a specification.

My invention relates to steam-valves in which a cut-off plug is introduced in the stem of the valve to close the port when the valve-head is removed; and my object is to provide a steam-valve (which is applicable as a water or oil valve) that may be removed from a boiler or tank without injury to the person or allowing of the escape of steam or other contents of the tank. I attain this object through the mechanism shown in the accompanying drawings, in which—

Figure 1 is a sectional view of a test-cock with the valve attached. Fig. 2 is an end and side view of the valve-plug. Fig. 3 is a side and end view of the boiler-plug of the valve. Fig. 4 is a side and end view of the valve-seat. Fig. 5 is a sectional view of the boiler-plug and valve-seat, showing the valve-plug in its seat and the valve closed. Fig. 6 is a sectional view of the bushing used with a globe-valve. Fig. 7 is a view of the boiler-plug, valve-seat, bushing, and globe-valve, all united.

Similar letters refer to similar parts throughout the several views.

I make a boiler-plug, C, with a thread cut on the shaft to screw it into the boiler or other vessel. The outer edge of this boiler-plug C is hexagonal on the outside to allow of its being screwed up with a wrench. The outer end of the plug C is also provided with a screw-thread, into which fits the valve-plug B. The center of the boiler-plug C is made of a smaller diameter than the valve-plug B. The valve-plug B has on the outer side a hexagonal shape and on the inner side is divided into two chambers, B′ and G, with a restricting-collar in the central portion, H. The chamber B′ connects the valve-plug B with the valve A.

The chamber G is expanded so as to contain the head of the valve E and allow of free motion or play of the valve E, which moves laterally in the embrace of the collar H of the valve-plug B. The valve E is a cylindrical piece of metal perforated horizontally nearly to the extreme end, and so forming a cap with an expanded head, *g*, which is beveled and ground so as to exactly fit the edges of the valve-seat *a* in the collar H of the valve-plug B. In the sides of the shaft of the valve E, at right angles and some little distance removed from the head *g*, are four holes, F, communicating with the central chamber in the valve E. The extreme outer end of the valve E has a notch, *b*, cut into it by cutting away one-half of the cylinder to any desired depth. This notch *b* is made to exactly fit a corresponding notch, *e*, in the stem of the valve A.

When circumstances require it, I use a bushing, D, to connect the valve A with the valve-plug B, making in the end fitting into the valve-plug B the notch *e′*.

Having thus described the parts of my invention, I now proceed to explain the manner of operating the same.

I screw the boiler-plug C and the valve-plug B tightly together, first having placed the valve E in the collar H of the valve-plug B. I then make the attachment with the boiler by screwing the boiler-plug C and valve-plug B into a boiler, and the pressure of steam or water or other contents of the boiler presses upon the cap *g* of the valve E and drives it into the valve-seat *a*, forcing the holes F into the collar H, and so shutting them off. Thus much forms the valve-socket, and is perfectly secure and cannot leak if the work is well made. To the end of the valve-plug B, I now screw the valve A, the end of which is slotted at *e*, to correspond with the socket or notch *b* of the valve E, and when the end of the valve A has come in contact with the notch *b* of the valve E the valve E is pushed back and opens the steamway through the holes F as it recedes, so that when the valve A is firm in the socket the valve E has receded sufficiently far to open the holes F and allow of a free steamway into the valve A. When the valve A is removed, the valve E follows the end of the stem and closes till the holes F have passed the collar H, when the steam is shut off and the force of the steam or liquid in the boiler forces the valve E into the seat *a*.

When the nature of the case admits of it, I use, in connection with the valve-plug B, a bushing, D, having a thread at each end and a notch, *e'*, on the end D' for opening and closing the valve E.

I am aware that prior to my invention valves have been used with a moving plug, and I do not therefore claim the broad principle of a steam-valve; but

What I do claim, and desire to secure by Letters Patent of the United States, is—

1. As a new article of manufacture, a steam-valve consisting of the valve A, socket or notch *e*, the valve-plug B, chamber B', collar H, valve-seat *a*, chamber G, the valve E, cap and beveled edge *g*, holes F, and the boiler-plug C, all substantially as and for the purpose set forth and described.

2. As a new article of manufacture, a steam-valve consisting of the valve A, bushing D, notch *e'*, valve-plug B, chamber B', collar H, valve-seat *a*, chamber G, the valve E, cap and beveled edge *g*, holes F, and the boiler-plug C, all arranged and operating substantially as set forth and described.

3. In a steam or other valve, the combination of the valve A and notch *e*, combined with the valve E, holes F, and notch *b*, all substantially as set forth and described.

4. In a steam or other valve, the combination of the valve A, notch *e*, the valve E, holes F, and notch *b*, combined with the plug B, collar H, valve-seat *a*, chamber G, chamber B', and the boiler-plug C, all operating and arranged substantially as set forth.

5. In a steam or other valve, the combination of the valve A, the bushing D, notch *e'*, the valve E, holes F, and notch *b*, combined with the plug B, collar H, valve seat *a*, chamber G, cap *g*, chamber B', and the boiler-plug C, all operating and arranged substantially as set forth.

ERNEST WM. COOKE.

In presence of—
H. HAUPT, Jr.,
L. M. PAGE.