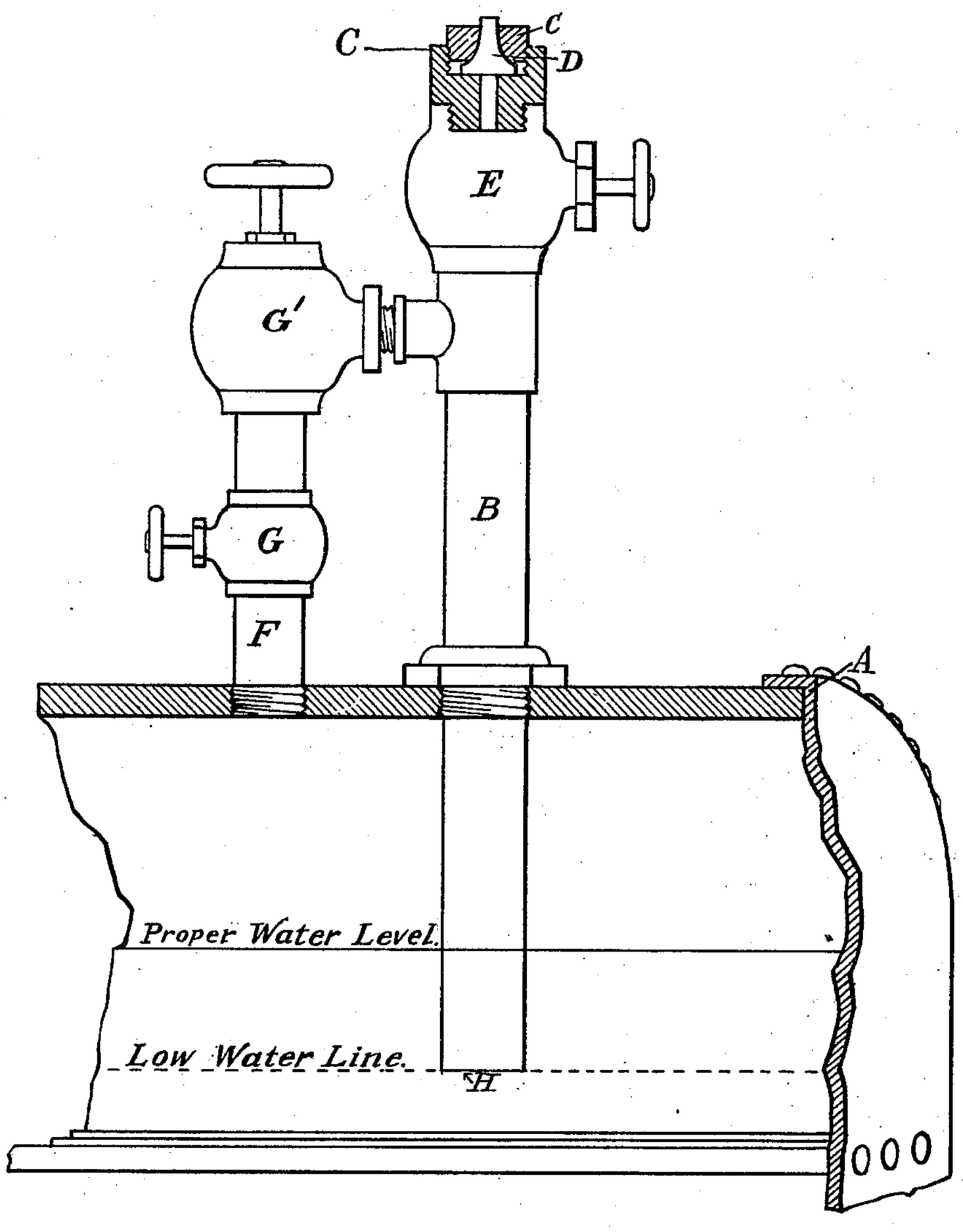
No. 658,300. Patented Sept. 18, 1900.

W. M. THOMPSON & C. NUHRING.

STEAM BOILER.

(No Model.) (Application filed May 7, 1900.)

Fig. 1.



Witnesses.
Walter A. Knight
Chas. Herbert Jones

Inventors.
Walter M. Thompson
Charles Nahring
by L. M. Hoes. Atty.

UNITED STATES PATENT OFFICE.

WALTER M. THOMPSON AND CHARLES NUHRING, OF CINCINNATI, OHIO.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 658,300, dated September 18, 1900.

Application filed May 7, 1900. Serial No. 15,762. (No model.)

To all whom it may concern:

Be it known that we, WALTER M. THOMPSON and CHARLES NUHRING, citizens of the United States, residing at Cincinnati, Hamilton county, and State of Ohio, have invented new and useful Improvements in Water-Column Devices for Steam-Boilers, of which the following is a specification.

Our invention relates to water-column apparatus for steam-boilers in which a water-column is maintained above the normal water-level with a fusible plug at the apex of the same, and is designed to simplify and improve the same in respect to the means of testing and keeping the same clear of obstruction.

To this end it consists in the combination and arrangement of parts constructed as herein set forth, whereby it is possible to test the condition of said apparatus without lowering the water in the boiler and also furnish a means of removing foreign matter from the water-pipe and of keeping the same open and in working order by circulating steam through the water-column and testing-pipe, allowing the water to descend and wash out any sediment, &c.

Mechanism embodying our invention is illustrated in the accompanying drawing, which shows a side elevation of a steam-boiler with water-column apparatus in place and the steam-circulating device, pipe with valves, &c., connecting the steam-chamber of the boiler with the water-column.

Referring now to the drawing, A designates the steam-boiler, and B a hollow tube or water-column extending through the upper surface of the boiler down into the boiler below the normal water-level and within a proper distance of the top row of tubes (if any) and extending up above the upper surface of the boiler a convenient height, terminating at the top in a hollow valve-casing C, which contains a plug D, which is fusible at a heat greater than the boiling-point of water, usually at about 290° Fahrenheit. A screw-nut *c* holds the fusible plug in place. The column is fitted with a valve E, located just below the casing C, making it possible to close the column near the top and protect the plug D.

At any suitable point on the upper surface of the boiler a tube F is inserted into the steam-space of the boiler. This pipe is fitted with one or more valves G G′, &c., and enters the water-column B preferably just beneath the valve E, allowing steam to enter the upper part of the column, when valves G G′, &c., are open through pipe F.

While the use of water-columns is advantageous under all circumstances as a means of protection against an insufficiency of water in the boiler by melting the plug whenever the water reaches such a low level that steam rises into contact with the exposed end of the fusible plug, yet in practice it has been found that calcareous and other deposits in time obstruct the lower orifice of the water-column and prevent thereby the efficient working of the old device. Therefore engineers, inspectors, &c., have found it necessary to test the water-column from time to time by lowering the water-level in the boiler to or below the low-water line. Now by our device the water can stand in the boiler at the proper working level during the test, for as soon as the valve or valves of the testing-pipe are opened the steam rushes into said pipe from the boiler, and if the water-column valve be open melts the plug if it is of proper fusibility. Moreover, by closing the water-column valve, thus protecting the plug, and opening the valves in the testing-pipe the steam will rush through said pipe and cause the contained water to descend with great force, and thus wash out and clear the water-column of all foreign matter.

We do not confine ourselves herein to the precise forms or arrangement of mechanism herein described, as they may be varied largely without departing from the essential spirit of our invention.

We claim as our invention and desire to secure by Letters Patent of the United States—

1. The improved water-column apparatus, embodying in combination with a steam-boiler and a water-column device with fusible plug and valve; a testing-pipe connecting the steam-chamber of the boiler with the water-column below its valve, substantially as set forth.

2. The improved water-column apparatus, embodying in combination with a steam-boiler and a water-column device with fusible plug and valve; a pipe provided with one or more valves connecting the steam-chamber of the boiler with the water-column.

In testimony whereof we have hereunto set our hands in the presence of two subscribing witnesses.

WALTER M. THOMPSON.
CHARLES NUHRING.

Witnesses:
WALTER A. KNIGHT,
CHAS. HERBERT JONES.