

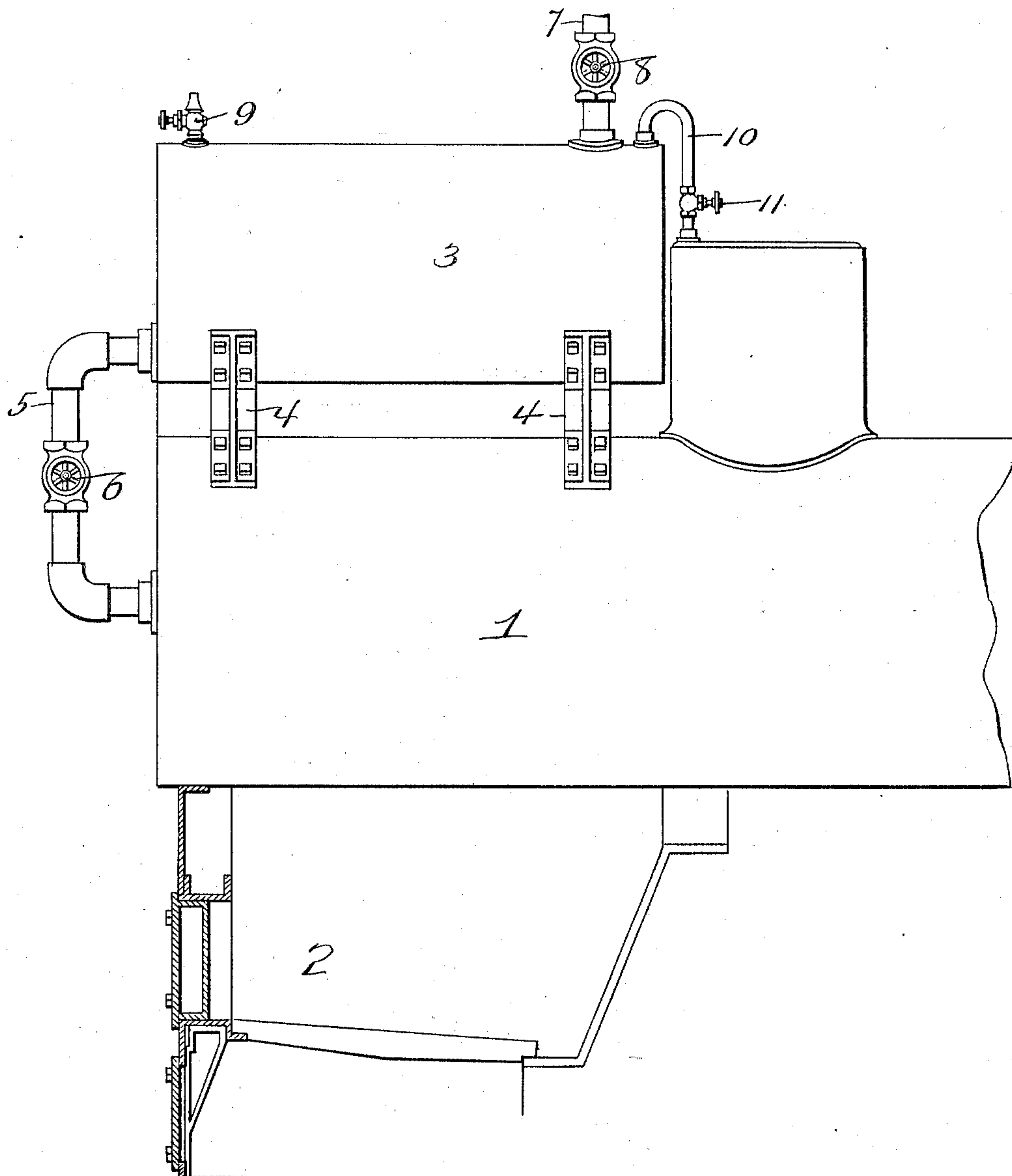
No. 760,072.

PATENTED MAY 17, 1904.

F. E. KEYES.  
BOILER FEED.

APPLICATION FILED MAY 2, 1903.

NO MODEL.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

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## BOILER-FEED.

SPECIFICATION forming part of Letters Patent No. 760,072, dated May 17, 1904.

Application filed May 2, 1903. Serial No. 155,339. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK E. KEYES, a resident of New York, in the county of New York and State of New York, have invented certain  
5 new and useful Improvements in Boiler-Feeds; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the  
10 same.

My invention relates to an improved boiler-feed, the object of the invention being to provide an improved mechanism which will permit the feeding of water at boiler-pressure  
15 and high temperature without the employment of pumps, injectors, inspirators, or the like; and with this object in view the invention consists in certain novel features of construction and combinations and arrangements of parts,  
20 as will be more fully hereinafter described, and pointed out in the claims.

The accompanying drawing is a view, partly in section, illustrating my improvements.

1 represents a boiler, and 2 a fire-box below  
25 the same, and while my improvements are especially adapted for use on locomotive-boilers they are equally well adapted for use on stationary boilers as well.

My improved tank 3 is supported above the  
30 boiler by suitable brackets 4, and a pipe 5 connects the tank 3 at or near its bottom with the boiler, and this pipe 5 has a valve 6 therein to regulate the passage through the pipe or entirely close the same.

With the top of tank 3 a water-supply pipe  
35 7 communicates and has a valve 8 therein to govern the passage of water to the tank.

An air or steam escape cock 9 is provided  
40 on top of tank 3 to permit the escape of air and steam when the tank is being filled, and a steam-pipe 10 connects the steam-dome of the boiler with the top of tank 3 to equalize the pressure in the tank and boiler, and a valve  
45 11 is located in this pipe 10.

The tank 3 may be of various constructions—in fact, might be a large pipe or coil of pipes, but must be sufficiently strong to withstand the boiler-pressure.

The operation of my improvements is as follows: When tank 3 is empty, valve 6 is closed  
50 and valve 8 opened to admit water to the tank,

the escape-cock 9 being opened to permit the escape of air and steam to allow the water to enter. When the tank has its proper supply of water, valves 8 and 9 are closed. The heat  
55 from the boiler and from the steam admitted to the tank through pipe 10 heats the feed-water up to a high temperature and maintains the pressure therein the same as in the boiler, so that when valve 6 is opened the hot water  
60 will flow from the tank into the boiler as rapidly as desired without affecting the pressure in the boiler.

A great many changes might be made in the general form and arrangement of the parts described without departing from my invention,  
65 and hence I do not confine myself to the precise details set forth, but consider myself at liberty to make such slight changes and alterations as fairly fall within the spirit and scope  
70 of my invention.

Having fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination with a boiler, of an elongated water-receptacle supported by the boiler  
75 so as to be exposed through its full length to heat radiating from the boiler, a water-inlet for said receptacle, a steam-pipe connecting the top of the boiler with the top of the receptacle at one end of the latter, a water-discharge  
80 pipe connecting the other end of the receptacle with the boiler and a vent for the receptacle.

2. The combination with a boiler and its steam-dome, of an elongated receptacle located  
85 upon and supported by the boiler, said receptacle extending from a point in close proximity to the dome to one end of the boiler and adapted to be heated by radiation from both the boiler and its dome, a water-supply pipe  
90 communicating with the receptacle, a pipe connecting the steam-dome with one end of the receptacle, a water-discharge pipe connecting the other end of the receptacle with the boiler and a vent for the receptacle.  
95

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

FRANK E. KEYES.

Witnesses:

F. J. MATTISON,  
CHAS. A. HAUCK.