

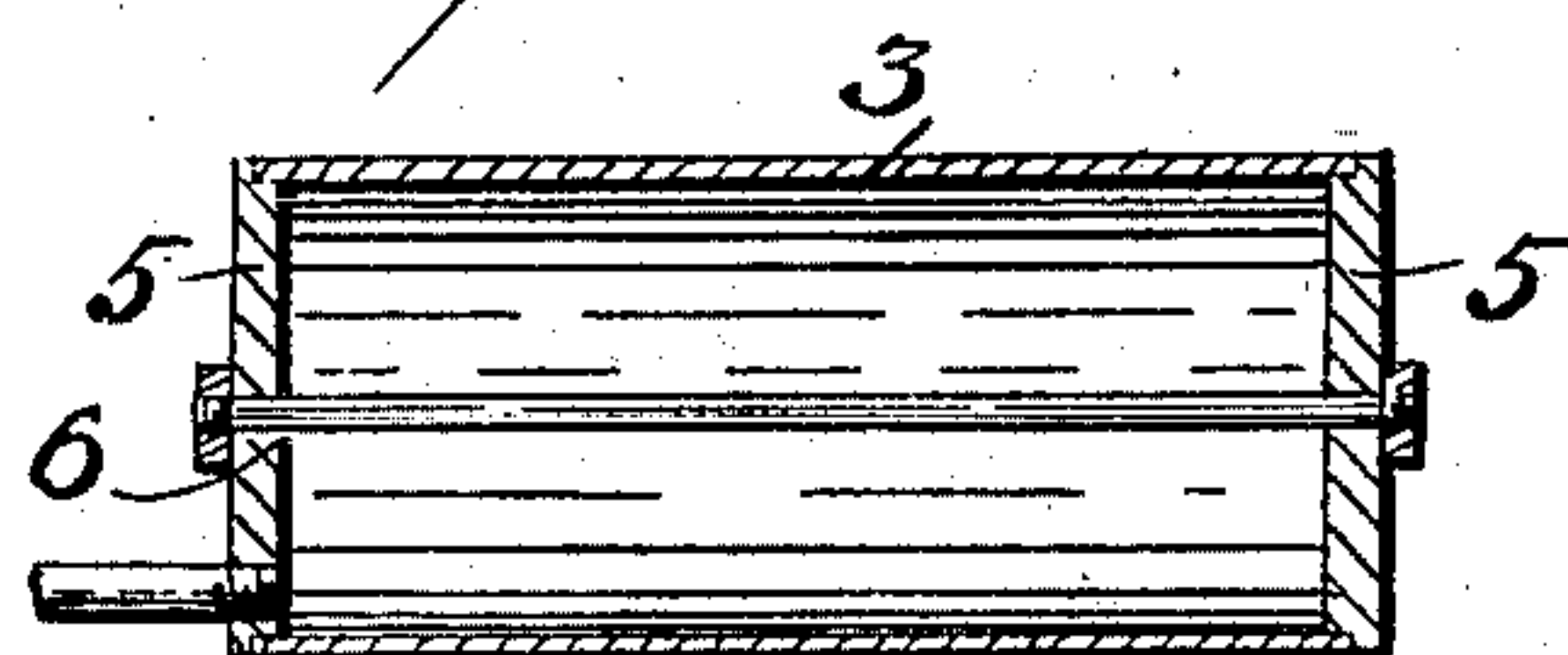
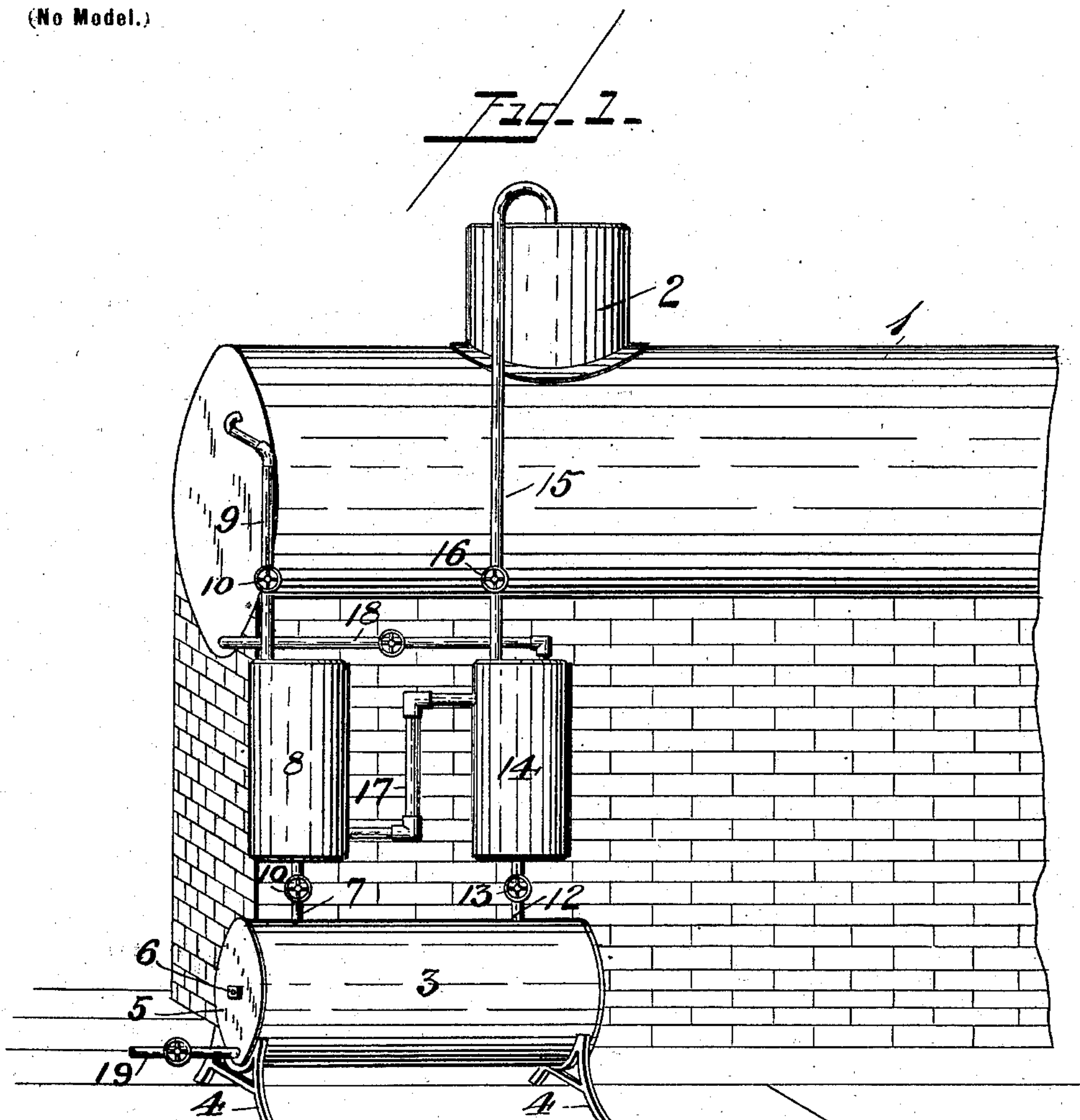
No. 669,982.

Patented Mar. 19, 1901.

G. W. DUCHARDT.
WATER PURIFIER.

(Application filed Nov. 14, 1899. Renewed Aug. 22, 1900.)

(No Model.)



Witnesses:
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James J. [Signature]

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UNITED STATES PATENT OFFICE.

GEORGE W. DUCHARDT, OF BEARDSTOWN, ILLINOIS.

WATER-PURIFIER.

SPECIFICATION forming part of Letters Patent No. 669,982, dated March 19, 1901.

Application filed November 14, 1899. Renewed August 22, 1900. Serial No. 27,730. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. DUCHARDT, a citizen of the United States, residing at Beardstown, in the county of Cass and State of Illinois, have invented new and useful Improvements in Water-Purifiers, of which the following is a specification.

My invention relates to automatic water-purifiers for steam-boilers of that class or description in which the water at the water-line of the boiler, together with the impurities which rise to the surface thereof during the generation of the steam, is carried away and the impurities allowed to settle in a suitable vessel and the purified water then returned to the boiler.

The invention consists in the novel construction and combination of parts hereinafter fully described and claimed.

In the accompanying drawings, Figure 1 is a perspective view showing a steam-boiler provided with my improvements. Fig. 2 is a longitudinal sectional view of the purifier.

In the said drawings the reference-numeral 1 designates a steam-boiler of any ordinary or suitable construction provided with the usual steam-dome 2.

The numeral 3 designates the horizontal receptacle of the purifier, provided with legs 4 for supporting the same. This receptacle, which is designed to receive the impurities or sediment, may be placed on the ground in proximity to the boiler or may be carried by a locomotive or traction-engine when used in connection with such engines. This receptacle consists of a cylinder provided with heads 5, connected together by means of a rod 6. Connected with said receptacle by means of a short pipe 7 is a vertical cylinder 8, provided with a pipe 9, leading to the boiler and terminating at about the water line or level thereof. The said pipes 7 and 9 are provided with valves or stop-cocks 10. Also connected with said receptacle by a pipe 12, provided with a valve 13, is a cylinder 14, similar to cylinder 8, and provided with a pipe 15, leading to the steam-space of the boiler and hav-

ing a valve 16. The said cylinders 8 and 14 are connected by means of a pipe 17, which communicates at its upper end with the cylinder 14 and at its lower end with the cylinder 8.

The numeral 18 designates a return-pipe connected with the cylinder 14 and leading to the lower part of the boiler.

The numeral 19 designates a blow-off pipe connected with the receptacle 3.

In practice the impurities contained in the water will during the generation of the steam rise to the surface of the water and from thence, with the water, will flow down through the pipe 9 to the cylinder 8. The sediment or impurities will now escape into the receptacle 3, while the purified water will flow into the cylinder 14 and by reason of the steam-pressure from pipe 15 will be forced into the boiler through pipe 18.

It is obvious that the invention may be employed with a battery of boilers by connecting the purifier therewith.

Having thus fully described my invention, what I claim is—

The combination with a steam-boiler, the pipe connected therewith at or about the water-line, and the vertical cylinder with which said pipe is connected, of the vertical cylinder, the pipe connected therewith and with the steam-space of the boiler, the pipe communicating, respectively, with the upper and lower ends of said cylinders and the sediment-receptacle connected with said cylinders, said sediment-receptacle consisting of a cylinder having a head at each end, said heads being held in place by a rod passing through them, and nuts on the ends of the rod, substantially as described.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

GEORGE W. DUCHARDT.

Witnesses:

HARRY DUCHARDT,
THEODOR DUCHARDT.