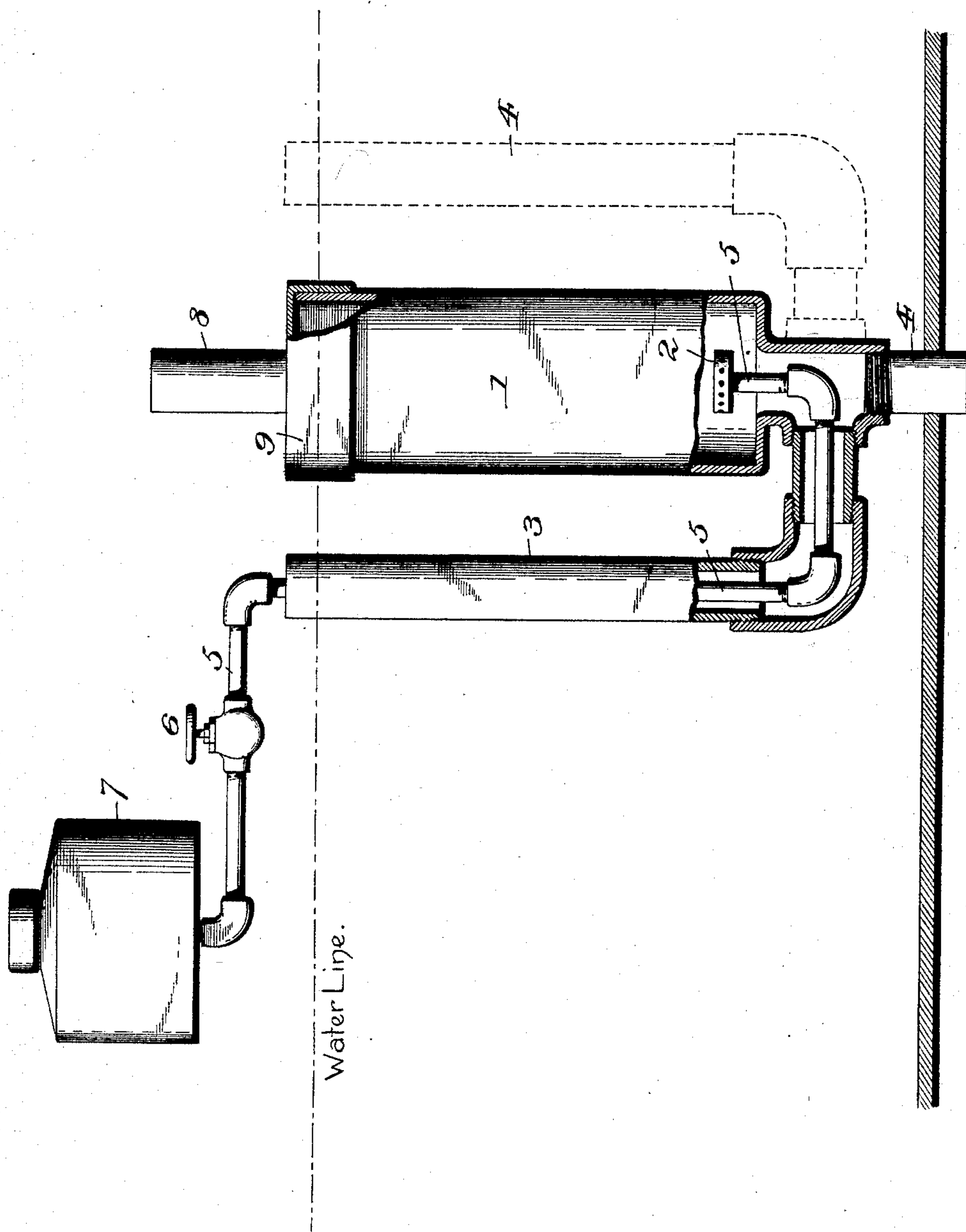


(No Model.)

J. H. SHIVLAR.  
WATER HEATER.

No. 485,892.

Patented Nov. 8, 1892.



Witnesses

Inventor

Albert Spiden.  
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# UNITED STATES PATENT OFFICE.

JOHN H. SHIVLAR, OF BELOIT, KANSAS.

## WATER-HEATER.

SPECIFICATION forming part of Letters Patent No. 485,892, dated November 8, 1892.

Application filed January 28, 1892. Serial No. 419,585. (No model.)

### *To all whom it may concern:*

Be it known that I, JOHN H. SHIVLAR, a citizen of the United States, residing at Beloit, in the county of Mitchell and State of Kansas, have invented certain new and useful Improvements in Water-Heaters; 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 same.

This invention relates to heaters, and has for its object to prevent the freezing of water in stock-watering tanks, ponds, and other places where the water is exposed and liable to freeze; also, to keep water warm in any place where the same is desired.

The improvement consists of the novel features and the peculiar construction and combination of the parts, which will be hereinafter more fully described and claimed and which are shown in the annexed drawing, which is a side elevation of a heater embodying my invention, parts being broken away to show the details of construction and the relative arrangement of the parts.

The heating-drum 1 is of proper length and diameter and material and is provided at its ends with an air-receiving and an air-discharging pipe 4 and 8, respectively, which communicate with the interior of the drum through the heads thereof. The cap 9 is removably fitted to the upper end of the drum, and the pipe 8 connects with the said cap. The burner 2, which is an ordinary gasoline, kerosene, gas, or naphtha burner, is located at the bottom or lower end of the drum and is connected by pipe 5 with tank 7, the latter being arranged above the level of the drum 1. The valve 6, arranged in the horizontal portion of the pipe 5 and above the level of the drum, is provided to cut off the supply of oil from the burner 2 when the heater is not in use. The pipe 3, encircling the pipe 5 and connected with the lower end or head of the drum 1 and terminating about in the same plane with the upper end or head of the drum, prevents the water from direct contact with the said pipe 5 and forms a supplemental air-inlet for admitting air to the burner 2 for supporting combustion. The two pipes 3 and 4 are united just below the heating-drum 1, substantially in the manner shown.

In practice the heater is lowered into the water to be prevented from freezing or kept warm. If it be a pond, the air-pipe 4 should be arranged about as indicated by the dotted lines in the drawing to prevent the water flooding the drum. For a watering-trough the pipe 4 is arranged to extend through the bottom of the said trough, as shown. The burner being lighted, the air admitted through pipes 3 and 4, besides supporting combustion, is heated and fills the drum 1, the heat radiating from the latter and keeping the water from freezing. The spent air escapes through pipe 8.

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

1. A submerged heater comprising a drum having air-pipes communicating with its opposite ends, the upper end being closed by a removable cap, a burner located in the lower end of the drum, an oil-reservoir located about in the plane of the upper end of the drum, a vertical and horizontal pipe connecting the oil-reservoir with the burner, and a valve in the horizontal portion of the said pipe to control the flow of oil therethrough, substantially as and for the purpose described.

2. The combination, with a watering-trough, of the hereinbefore shown and described submerged heater, composed of a drum having pipe 4 at its lower end to project through the bottom of the trough to supply air to the burner and support the heater in the trough and having a removable cap at its upper end provided with pipe 8, a burner located in the lower end of the drum, an oil-reservoir arranged above the trough, a vertical and a horizontal pipe connecting the said reservoir with the burner and having valve 6 in the horizontal pipe, and a pipe 3, surrounding the said vertical pipe and connected with the pipe 4, substantially as shown, for the purpose described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN H. SHIVLAR.

Witnesses:

S. M. EWING,  
J. E. TICE.