

No. 861,656.

PATENTED JULY 30, 1907.

J. S. JACOBSEN.
TANK HEATER.

APPLICATION FILED OCT. 1, 1906.

Fig. 1.

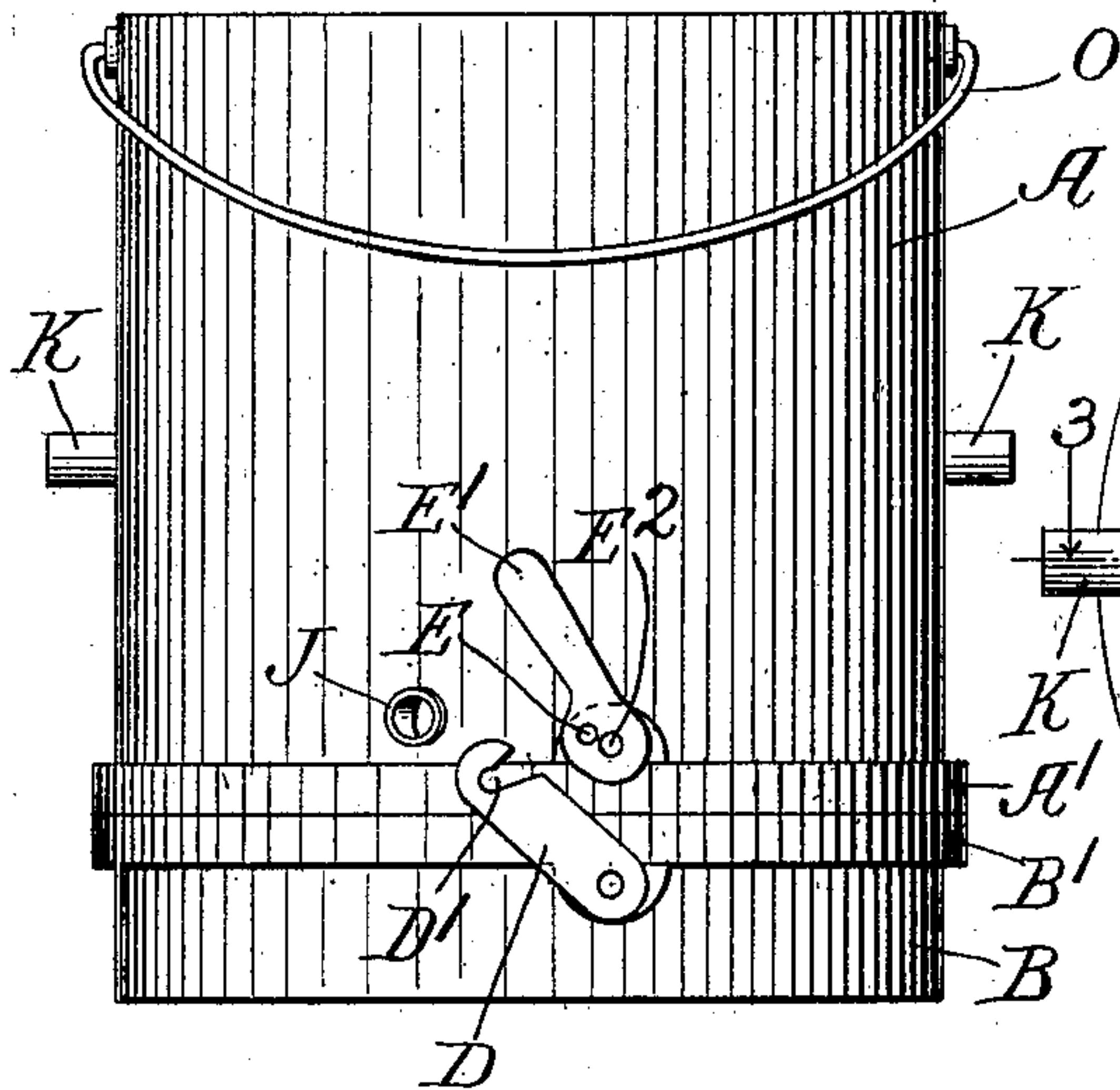


Fig. 2.

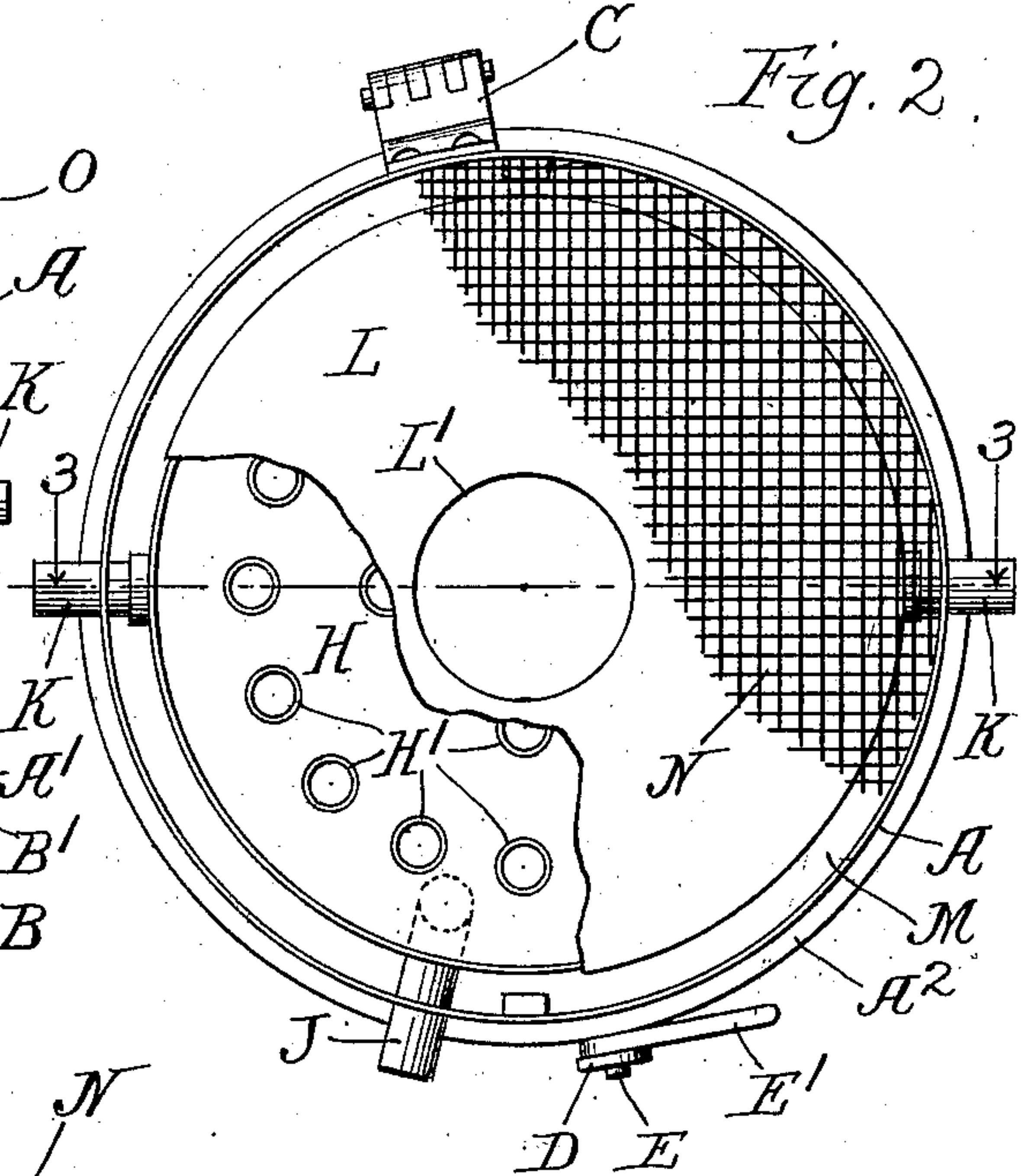


Fig. 3.

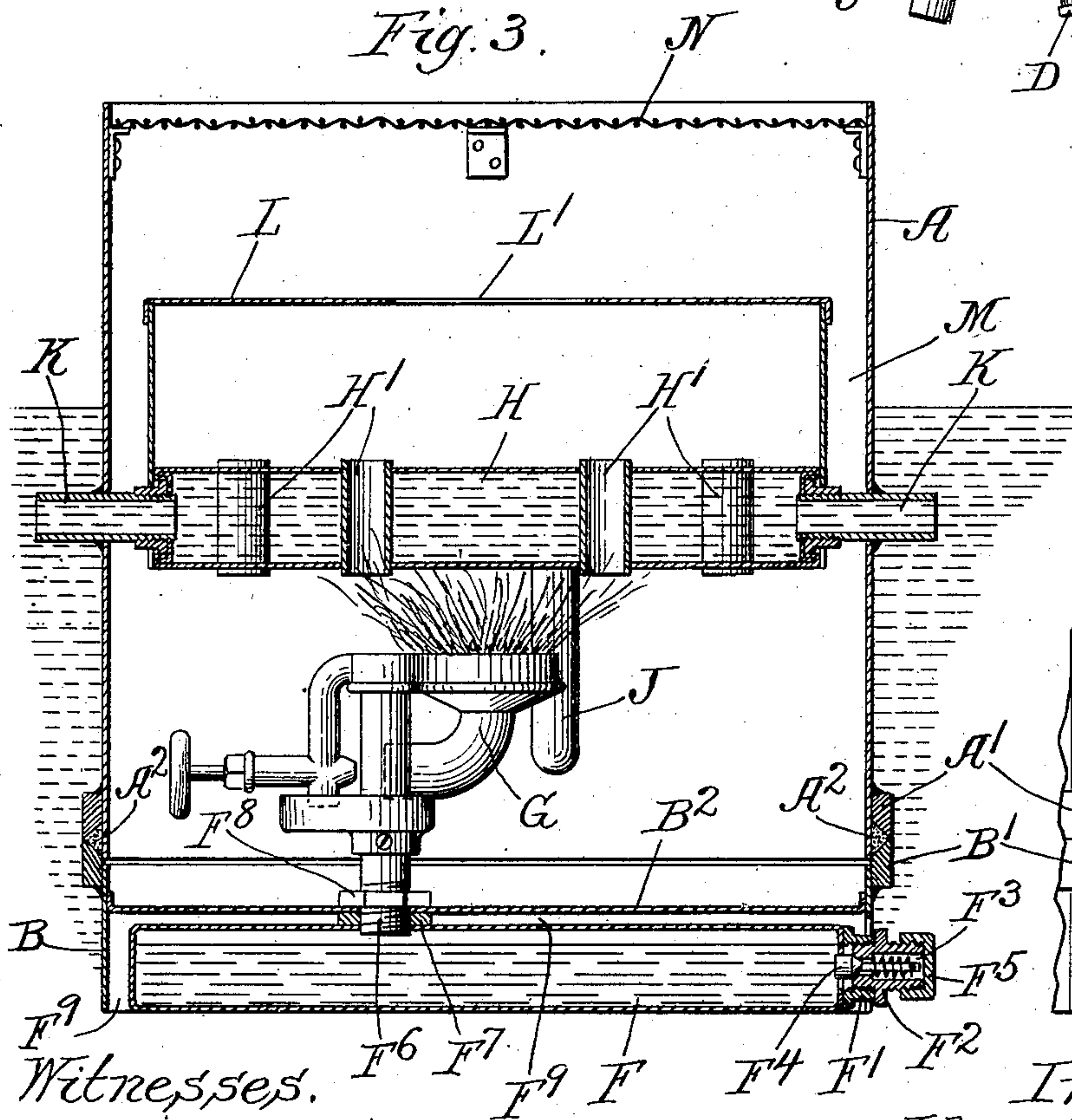
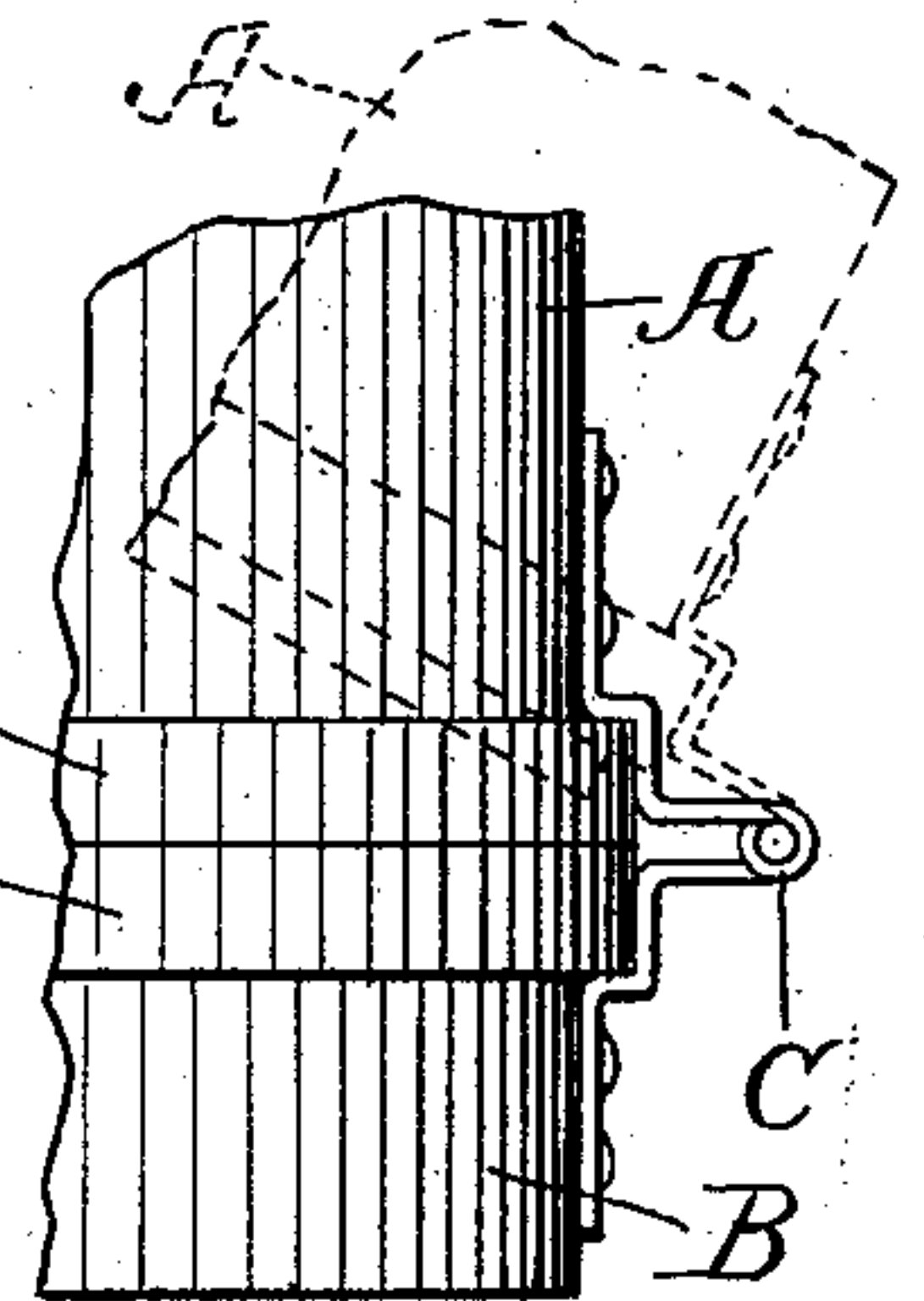


Fig. 4.



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UNITED STATES PATENT OFFICE.

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TANK-HEATER.

No. 861,656.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed October 1, 1906. Serial No. 336,812.

To all whom it may concern:

Be it known that I, JOHN S. JACOBSEN, a citizen of the United States, residing at Harvey, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Tank-Heaters, of which the following is a specification.

My invention relates to tank heaters and has for its object to provide a new and improved heater suitable for use in heating water or other liquid in a tank.

The invention is illustrated in the accompanying drawing, wherein

Figure 1 is a side elevation of the heater, Fig. 2, a plan view on an enlarged scale with parts broken away; Fig. 3, an enlarged section on line 3—3 of Fig. 2, and Fig. 4, a detail elevation.

Like letters of reference indicate like parts in all the drawings.

My invention has for its principal object to provide an inexpensive portable heater which may be set into a tank of water or other liquid for the purpose of heating the water therein or keeping the same from freezing, or at any desired temperature. The device could be used, for example, for stock farm watering troughs in winter time to keep the water from freezing or from getting too cold. The device will, of course, be capable of other and very different uses and might be used also to heat the water in a bath tub or other tank for any purpose whatsoever.

Referring to the drawings, A represents an upper casing, and B a lower casing. The casings A and B are hinged together by the hinge C and means is provided for making the connection between them water tight. For example, I may provide the upper casing with the beveled ring A¹ and the lower casing with a similar ring B¹, a gasket A² being attached to the upper ring and filling the space made by the bevels. A latch keeps the casing sections together. I have shown this as consisting of a pivoted clip D, with a notch D¹ engaging with an eccentric stud E on a locking lever E¹ turning on a pivot E² on the upper casing A. When the clip is brought into engagement with the stud E the lever E¹ may be drawn down a sufficient distance to make the connection between the two casing sections tight.

The lower casing B has the false bottom B² and below this in the casing is secured a fuel tank F. I may use any sort of fuel for heating. I have here shown a gasolene lamp of ordinary type although any sort of heat generator might be used. The tank F has the screw threaded inlet F¹ which is closed by the plug F² through which is a passage way F³ controlled by a check valve F⁴ of ordinary type. A cap F⁵ covers the end of the plug. The tank has the outlet pipe F⁶ and may be secured to a block F⁷ under the false bottom B². Preferably the pipe F⁶ and block F⁷ will be screw threaded and a nut F⁸ completes the connection

between the block and the false bottom. It will be seen that there is a space which I have designated by the letter F⁹ between the tank and the casing. When the tank is submerged in the water this space will, of course, be filled with water which will effectually prevent any danger due to overheating of the tank. The heater may, therefore, be left unattended all night, for example, without any possible danger of explosion. When the tank has been filled with gasolene a sufficient quantity of air may be forced into the tank by means of a small pump such as a bicycle pump.

G represents in general the gasolene burner which may be of any desired type and as devices of this character are well known in their construction and operation I shall not describe the burner in detail.

Above the burner is a boiler or water heater H which may be of any desired type. I have shown it as a tank provided with a number of vertical flues H¹ H¹. The water heater is provided with one or more inlet pipes J and the outlets K, K. Above the water heater and connected therewith is a drum L with the central perforation L¹. This aids to keep the heat down around the boiler although it may not be essential in all cases. It will be seen that there is an annular space, which I designate by the letter M, between the boiler and the casing A. This permits a supply of cold air to be fed down to the burner. I preferably cover the top of the casing with a netting N to prevent rubbish or other things from falling into the heater. Any preferred sort of cover could be used. For convenience a bail O is also provided.

I wish it to be understood that I do not desire to be limited to the exact details of construction shown and described for obvious modifications will occur to any person skilled in the art.

The use and operation of my device are as follows: The tank will first be filled with gasolene and enough air injected into the tank to keep up a forced flame in the burner. The heater will then be set into the tank of water. If the water is not too deep the tank will rest on the bottom, but ordinarily it is intended that the heater should float around in the water as in the manner indicated in Fig. 3, the device sinking so that the pipes K, K are just below the water line. The intake for the water, it will be seen, is below the outlets, this arrangement securing a proper circulation and also providing for the discharge of the warm water near the surface of the tank which, of course, freezes first. There will be a constant circulation of water through the heater and this circulation will also be imparted to the water in the tank. As a result, the heater will in a sense, propel itself around the tank. In case the device is used to supply heat sufficient merely to keep the water in a watering trough from freezing or at a temperature which is high enough to prevent injury to the health of the stock drinking the water. This

movement of the heater in the tank and the constant circulation of the water caused by its operation will result in keeping the water at a uniform temperature, and if desired, keeping the water from freezing without getting the water or any of it too hot. The movement of the water and of the tank in the water will, of course, in itself aid to prevent the formation of ice. Such an arrangement will accomplish the desired end with a very economical expenditure of fuel, since the flame may be kept just hot enough to cause a slow circulation of water through the heater and a slow movement of the water in the tank. As suggested the heater may also be used for heating or boiling the water in the tank or for other analogous purposes.

I have used the word "tank heater" in my specification and claims, but it will be understood that I intend by the term "tank" any sort of a receptacle containing the liquid.

I claim:

1. In a floating tank heater, the combination of a casing comprising upper and lower sections hinged together, with a burner located in said casing, a fuel supply tank with which the burner is connected, a water heating tank extending across the inside of the casing except for a narrow space between said water heating tank and the casing, said tank being provided with vertical heating flues, pipe connections extending from the water heating tank through the casing, and means for making a water tight connection between the upper and lower sections of the casing.

2. In a floating tank heater, the combination of a casing comprising upper and lower sections hinged together, with a burner located in said casing, a fuel supply tank with which the burner is connected, a water heating tank located within the casing above the burner, pipe connections extending from the water heating tank through the sides of the casing, means for making a water tight connection between the upper and lower sections of the casing comprising a pair of beveled rings, one on the upper and one on the lower section, a gasket interposed between the same, a pivoted clip on one of the sections, and a locking lever on the other section having a stud with which the clip engages.

3. In a floating tank heater, the combination of a casing comprising upper and lower sections hinged together, with a burner located in said casing, a fuel supply tank with

which the burner is connected, a water heating tank extending across the inside of the casing except for a narrow space between said water heating tank and the casing, said tank being provided with vertical heating flues, pipe connections extending from the water heating tank through the casing, a drum having a central perforation extending over the water heating tank, and means for making a water tight connection between the upper and lower sections of the casing.

4. In a floating tank heater, the combination of a casing closed at the bottom comprising upper and lower sections hinged together, with a burner located in said casing, a fuel supply tank located within the lower section and spaced from the bottom and sides thereof so as to allow water to pass between said tank and the bottom of the casing, a water heating tank in the upper casing above the burner, and pipe connections extending from said water heating tank through the walls of the upper section.

5. In a floating tank heater, the combination of a cylindrical casing closed at the bottom, a gasoline tank located within the casing and below the bottom thereof, a gasoline burner having a supply pipe extending through the bottom and into the supply tank, an air supply pipe extending through the casing and into the tank, a valve in said pipe, a cylindrical water heater above the burner, and pipe connections leading from the water heating tank through the walls of the casing.

6. In a floating tank heater, the combination of a cylindrical casing closed at the bottom, a burner located in said casing, a fuel supply tank, connections from the burner to the fuel supply tank, a shallow cylindrical water heating tank above the burner and extending across the casing except for a narrow annular passage way, a plurality of flues extending through said water heating tank, pipe connections leading from said tank through the walls of the casing, and a cylindrical drum centrally apertured above the water heating tank.

7. In a floating tank heater, the combination of a casing closed at the bottom comprising an upper and a lower hinged section, with means for locking the same together by a water tight connection, a gasoline tank located within the lower section and spaced from the bottom and sides thereof, a burner within the casing, a shallow cylindrical water heating tank above the burner provided with vertical flues, and pipe connections extending from the tank through the walls of the casing.

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Witnesses:

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