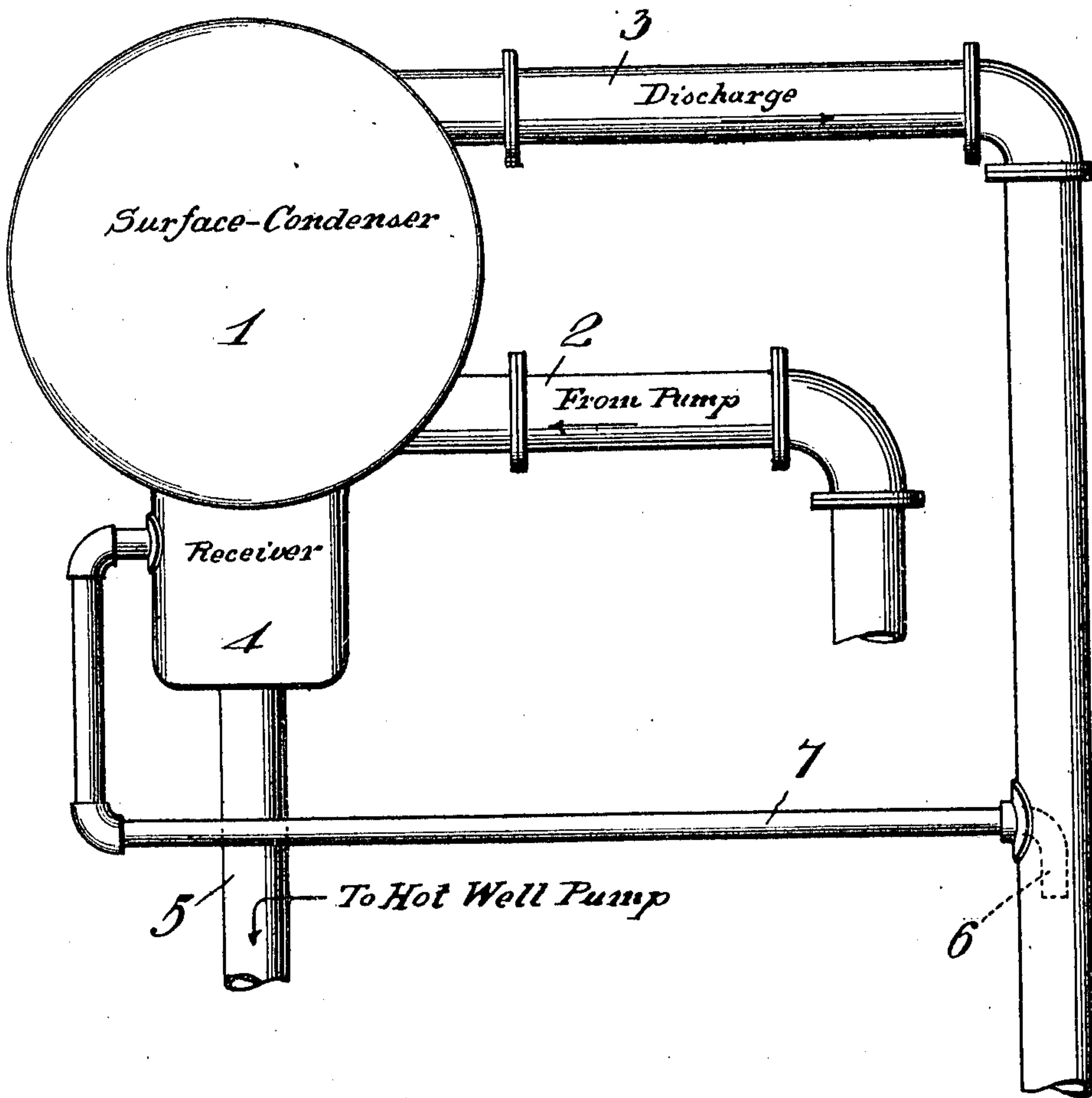


J. W. PENTECOST.  
SURFACE CONDENSER.  
APPLICATION FILED NOV. 12, 1909.

969,719.

Patented Sept. 6, 1910.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JACKSON W. PENTECOST, OF NASHVILLE, TENNESSEE.

SURFACE CONDENSER.

969,719.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed November 12, 1909. Serial No. 527,675.

*To all whom it may concern:*

Be it known that I, JACKSON W. PENTECOST, a citizen of the United States, residing at Nashville, in the county of Davidson and State of Tennessee, have invented certain new and useful Improvements in Surface Condensers; and I do 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.

My invention relates to surface condensers.

One object of the invention is the provision of means for automatically maintaining a vacuum in the condenser and another object of the invention is the provision of means for automatically forming a vacuum by means of the discharged condensing water. Heretofore, these objects have been accomplished by means of a dry air or vacuum pump and at considerable additional expense and it is the object of this invention, therefore, to avoid this difficulty and broadly speaking, consists in utilizing a column of moving water either propelled by gravity or by a pump and consisting either of the exhaust water used in the condensing tubes or of any other column of water to create a vacuum in the condenser.

With the foregoing and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts, as will be more fully described and particularly pointed out in the appended claim.

In the accompanying drawings, the figure is a diagrammatic illustration of a surface condenser 1, showing the supply and discharge pipes 2 and 3 for the condensing water connected thereto. Depending from the underside of the condenser, is a receiver 4, to which is connected the usual discharging pipe 5. This part 4 receives the water of condensation, from which it may be removed by the hot well pump connected to the pipe 5, but not shown herein. The discharge pipe extends downwardly for a predetermined distance from its connection with the con-

denser and in this depending portion, there is mounted a depending nozzle 6 which is connected to a vacuum pipe 7 which communicates with the upper end of the receiver or with the lower end of the surface condenser.

In the operation of the device, water is forced through the condensing tubes of the surface condenser from the pump and after passing through the condenser, is discharged through the pipe 3. In passing through this pipe, the water causes a suction in the nozzle 6 and pipe 7, thereby creating a vacuum in the surface condenser.

It is to be particularly noted that the vacuum tube is connected to the lowest part of the condenser, viz., the receiver, where the vapors are in their highest state of condensation, or in other words, where there is the least amount of uncondensed vapors; as distinguished from the type in which the vacuum is formed at a point where there is considerable uncondensed steam.

Having thus described my invention, what I claim is:

The combination of a surface condenser, a cooling-water inlet pipe connected to the lower part thereof, a cooling-water discharge pipe leading from the upper part thereof, a receiver for the water condensation, uncondensed vapor and air connected to the lower part of the condenser, a vacuum pipe connected to the upper part of the receiver and leading into the cooling-water discharge pipe, and a downwardly turned ejector nozzle at the end of the vacuum pipe inside of the cooling-water discharge pipe, whereby the cooling-water induces a vacuum to discharge vapor and air from the receiver at a point where the greatest accumulation thereof occurs, substantially as described.

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

JACKSON W. PENTECOST.

Witnesses:

GEORGE HAM,  
DANIEL ZACHARY.