P. H. SELLERS.

STEAM CONDENSER.

APPLICATION FILED NOV. 6, 1909.

962,789.

Patented June 28, 1910.

Fig. 1.

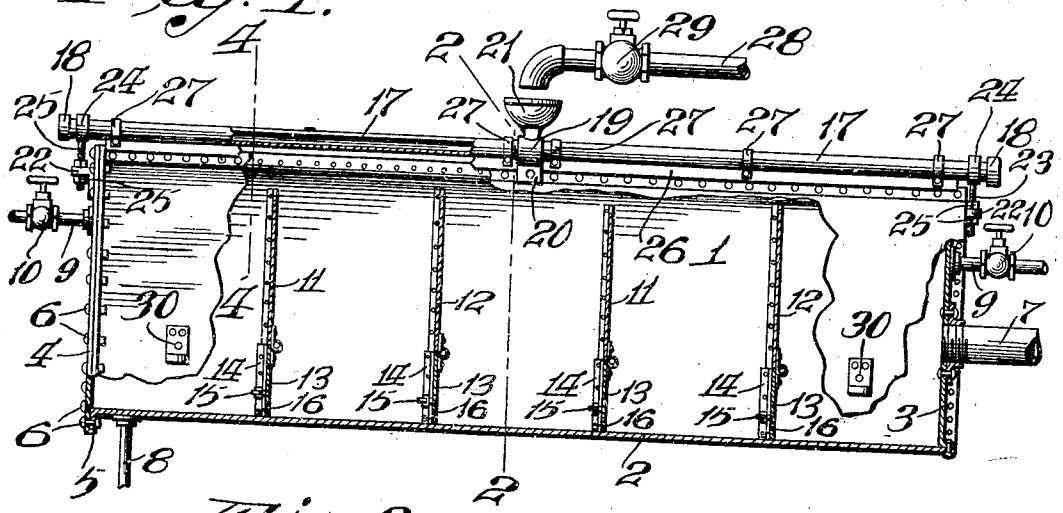


Fig. 3.

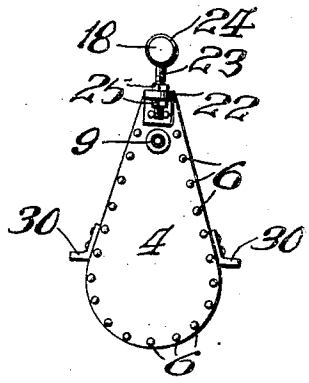


Fig. 2.

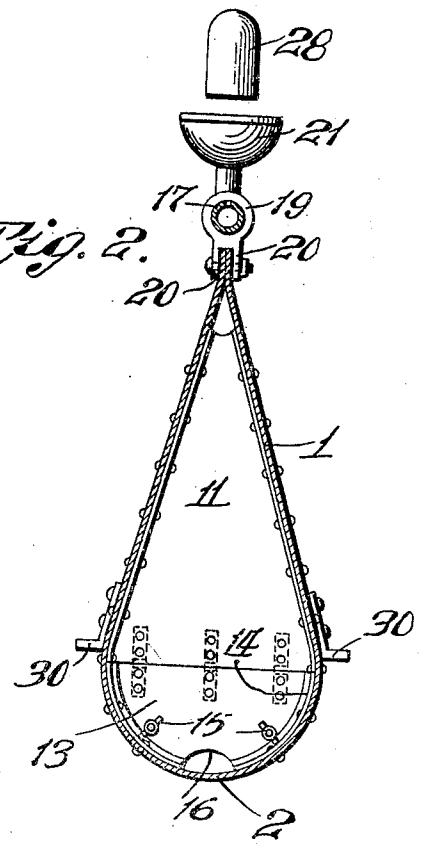
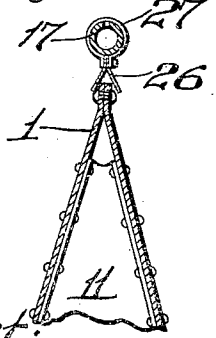


Fig. 4.



Attest:
H. G. Fletcher.
N. G. Butler.

Inventor:
Preston H. Sellers.
By Higdon & Hogan.
Attys.

ANDREW B. GRAHAM CO., PHOTO-LITHOGRAPHERS, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

PRESTON H. SELLERS, OF EAST ST. LOUIS, ILLINOIS.

STEAM-CONDENSER.

962,789. Specification of Letters Patent. **Patented June 28, 1910.**

Application filed November 6, 1909. Serial No. 526,636.

To all whom it may concern:

Be it known that I, PRESTON H. SELLERS, a citizen of the United States, and resident of East St. Louis, Illinois, have invented certain new and useful Improvements in Steam-Condensers, of which the following is a specification, containing a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to improvements in a steam condenser for which Letters Patent were granted to me November 6, 1906 and numbered 835,260.

The object of my present invention is to construct a condenser having a series of baffle plates on the interior thereof arranged to cause the steam admitted thereto to travel in a tortuous path through the condenser, which baffle plates are provided with hinged lower ends.

A further object of my present invention is to construct a steam condenser having a removable head which, together with the baffle plates having hinged ends, provides means whereby access may be had to any part of the condenser for purposes of cleaning or repair.

A further object of my present invention is to construct a device carried by the water-supply pipe for directing the water therefrom to either side of the condenser, and a still further object of my invention is to construct a novel means for leveling the water-supply pipe, which means are secured to the heads of the condenser where there is little danger of their being broken in shipping.

For the above purposes my invention consists in certain novel features of construction and arrangement of parts as will be hereinafter more fully described, pointed out in the claims and illustrated by the accompanying drawing, in which:

Figure 1 is an elevation of the complete condensing apparatus, the water-supply pipe and condenser being shown partly in section; Fig. 2 is an enlarged, vertical, transverse, sectional elevation taken on the line 2—2 of Fig. 1; Fig. 3 is a left hand end elevation of the complete condenser; and, Fig. 4 is an enlarged, detail, vertical, sectional elevation taken on the line 4—4 of Fig. 1.

Referring by numerals to the accompanying drawing: 1 designates the body portion of my improved condenser which is constructed of suitable sheet metal such as galvanized iron and is in the form of an elongated tank, the side walls of which are riveted together at their upper edges, which side walls extend from a point where they are joined downwardly and outwardly on slight angles and the bottom 2 of the body is rounded.

3 designates a fixed head at one end of the condenser and 4 a removable head at the opposite end of the condenser, the end of the condenser to which the removable head 4 is secured is provided with a perforated flange 5 and bolts 6 are inserted through said head and flanges for removably securing the head to said flanges. Extending through the head 3 is a steam inlet-pipe 7 and leading from the bottom of the tank, adjacent the head 4, is an outlet-pipe 8. Each of the heads 3 and 4 is provided with openings into which are seated pipes 9 provided with valves 10, which pipes and valves are arranged to be operated for the purpose of withdrawing non-condensible gases and vapors from the condenser.

Positioned within the tank, equi-distant apart, is a number of baffle plates 11 and 12. To the lower end of each of the baffle plates is hinged a door 13 and secured within the tank, parallel with the door and baffle plates, is a number of angle plates 14 against which the doors abut when in closed positions, and carried by each door is a pair of thumb screws 15 arranged for engagement with said angle plates for locking the doors in closed positions.

The baffle plates 11 are of less height than the baffle plates 12 as required to cause steam to travel in a tortuous path through the condenser.

Each of the hinged doors 13 is provided with an opening 16, the openings in the doors secured to the baffle plates 12 being larger than the openings in the doors hinged to the baffle plates 11.

Commencing with the right hand or initial compartment of the condenser, by reason of the restricted opening between the top of the initial baffle plate and top of the tank, the major portion of the steam admitted to said compartment is directed in a course under the baffle plate through an opening in the hinged door, then, by reason of the restricted opening in the second hinged door,

the steam is directed in a course above said second baffle plate. In this manner the steam is caused to travel over a number of the baffle plates and under the remaining baffle plates, and the steam which condenses between each pair of baffle plates is directed through the openings in the hinged doors to the pipe 8.

Positioned longitudinally of the tank at its apex is a slotted water pipe 17, which pipe is preferably made in two sections, the outer ends of each section being closed by a cap 18.

Secured to the united ends of the tank, adjacent the longitudinal center of the tank, is an internally threaded pipe-union 19 having integral, perforated ears 20 which are secured to the united ends of the tank and, supported by the pipe-union is an open-topped bowl 21 which communicates with the union 19. The pipes 17 are threaded at their inner ends, which threaded ends are seated in the union 19.

Secured to each head of the tank is a bracket 22, and carried by each of said brackets is a threaded stem 23 having an integral ring 24 through which the pipes 17 are passed to be supported. Embracing the stem 23 is a pair of nuts 25, one on either side of the horizontal portion of the bracket 22 to provide for the vertical adjustment of the outer ends of the pipe 17 for purposes of leveling the pipes. Inverted V-shaped spreaders 26, the apexes of which contact with the pipes 17, are hung from the pipes 17 by the straps 27 which embrace the pipes 17. Arranged to discharge water into the bowl 21 is a water-supply pipe 28, and located in said pipe is a valve 29. Secured to the sides of the tank 1 are a number of supporting brackets 30 arranged to be employed in securing the condenser in position for use.

In practical use steam to be condensed is introduced to the tank through the inlet 7 and, as before stated, by reason of the peculiar arrangement of the baffle plates, travels in a tortuous path through the condenser. The valve 29, in the waterpipe, is then opened and water is supplied to the bowl 21 and pipes 17 and discharges through the slots formed in the pipes 17, and, by reason of the spreader 26, the water from the pipes 17 is caused to flow down in equal amounts over each side of the condensing tank.

Heretofore, the water flowing from the pipes 17 was affected by winds which caused the water to flow unevenly over the surfaces of the tank, and by the employment of my improved spreader there is an equal amount of water over the entire surface of the tank.

In my former patent, there was no means which provided access to the tank for purposes of cleaning and repair. In the present construction of the tank the removable head and hinged doors of the baffle plates, provide access to any part of the tank.

I claim:

1. In a steam condenser of the class described, an inverted V-shaped tank having a rounded bottom, a removable head for said tank, baffle plates of unequal lengths vertically disposed at intervals within and throughout the length of the tank, the baffle plates of greatest length extending to the apex of the tank and the baffle plates of lesser length terminating some distance below said apex, a hinged door carried by each baffle plate, there being an opening in each of the doors, the openings in the doors carried by the baffle plates of greatest length being larger than the openings in the remaining doors.

2. In a steam condenser of the class described, an inverted V-shaped tank having a rounded bottom, a removable head for said tank, baffle plates arranged at intervals throughout the length of the tank, each alternate baffle plate extending to the apex of the tank, the remaining baffle plates terminating a distance below the apex, a door, having an opening therethrough, hinged to each baffle plate, means for locking the doors in planes paralleling the baffle plates, the openings in the doors being of different sizes and the doors being alternately arranged according to the sizes of the openings.

In testimony whereof, I have signed my name to this specification, in presence of two subscribing witnesses.

PRESTON H. SELLERS.

Witnesses:
E. E. LONGAN,
E. L. WALLACE.