

No. 626,934.

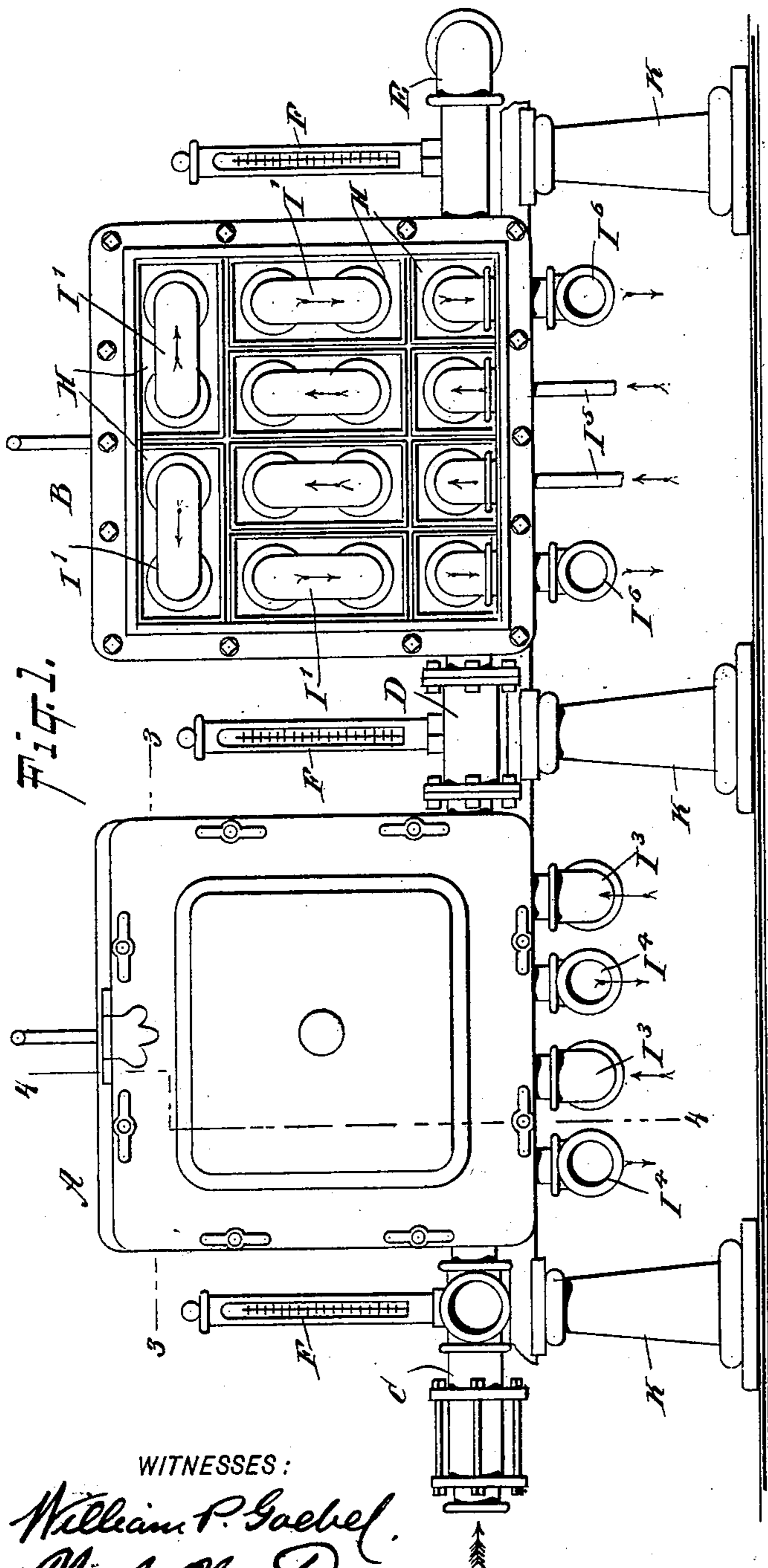
H. REININGER.
BEER COOLER.

(Application filed Nov. 2, 1898.)

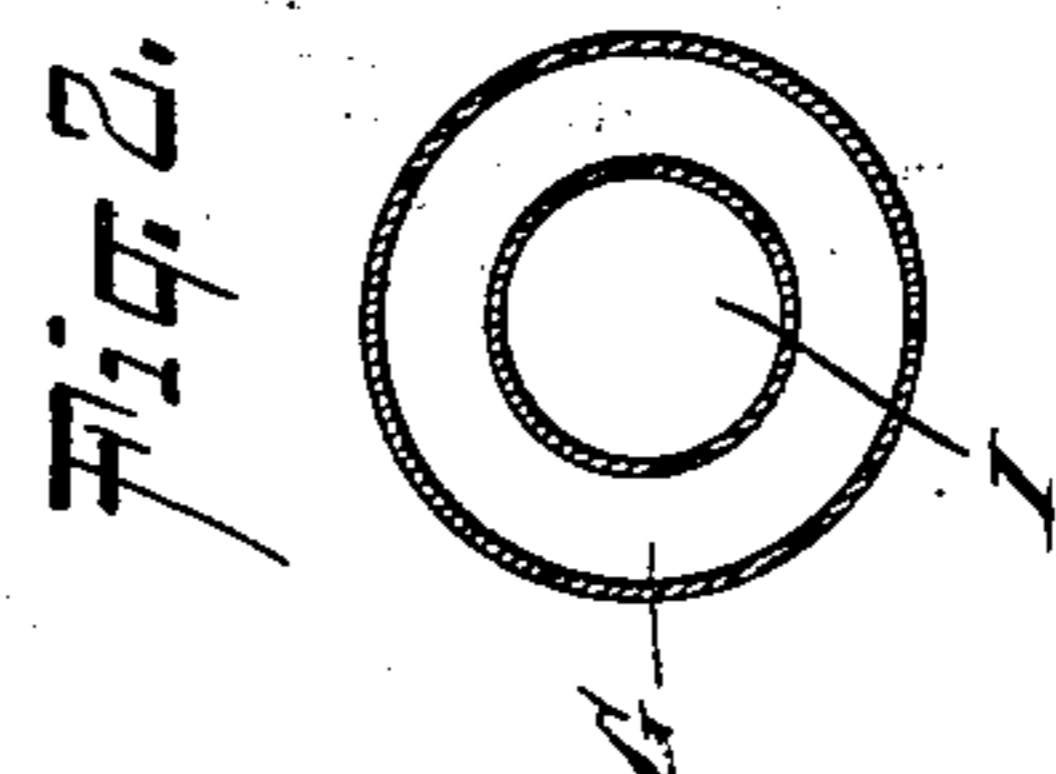
Patented June 13, 1899.

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
William P. Gaebel.
Rev. G. H. H. H.



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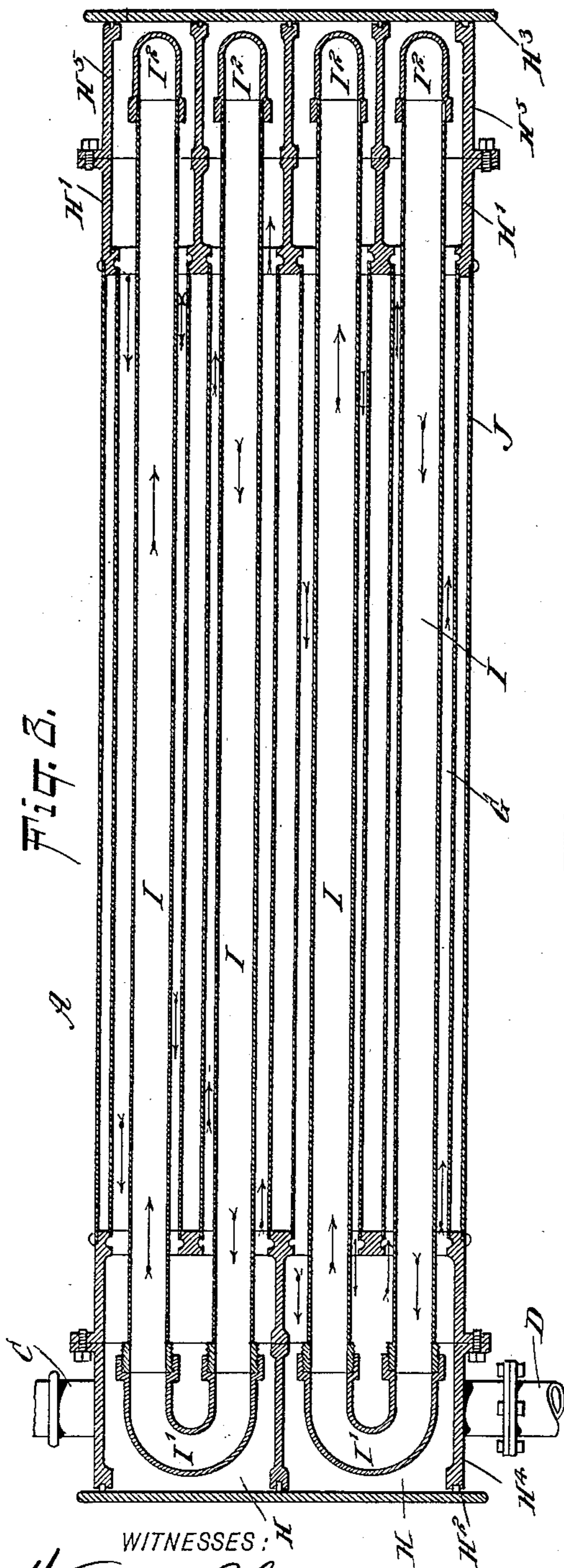
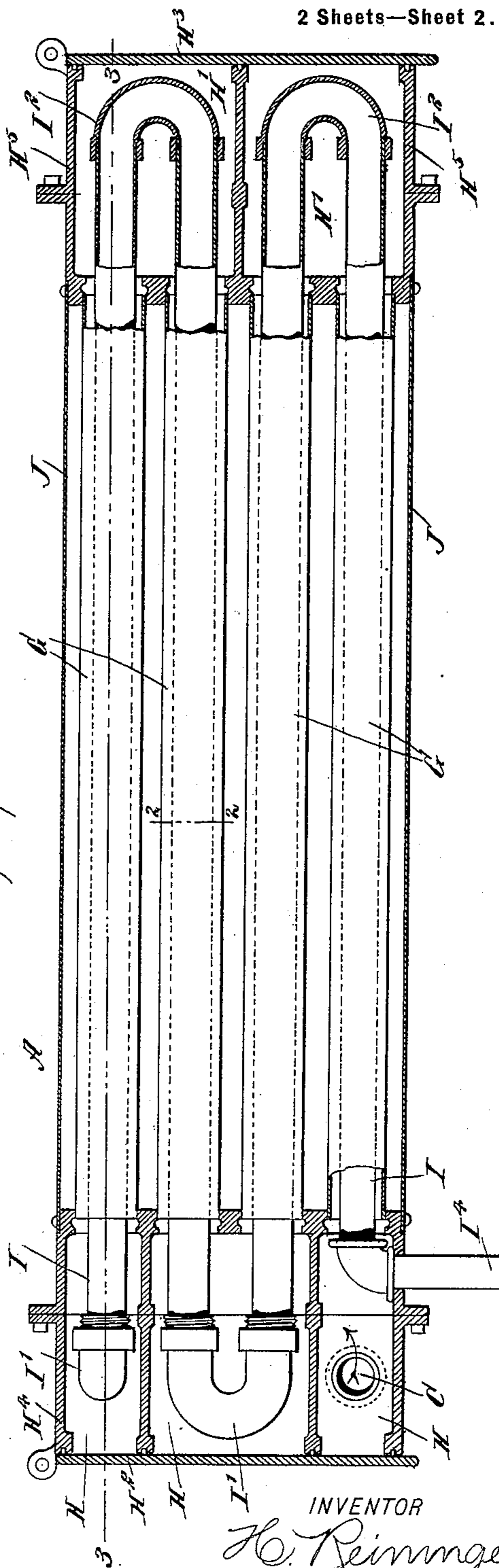


Fig. 4.



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UNITED STATES PATENT OFFICE.

HENRY REININGER, OF NEW ORLEANS, LOUISIANA.

BEER-COOLER.

SPECIFICATION forming part of Letters Patent No. 626,934, dated June 13, 1899.

Application filed November 2, 1898. Serial No. 695,314. (No model.)

To all whom it may concern:

Be it known that I, HENRY REININGER, of New Orleans, in the parish of Orleans and State of Louisiana, have invented a new and Improved Beer-Cooler, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved beer-cooler which is simple and durable in construction, very effective in operation, insures great economy in the use of the cooling medium, is arranged to permit of convenient cleaning, and reduces the loss of the liquid under treatment to a minimum.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is an end elevation of the improvement with one of the bonnets removed. Fig. 2 is an enlarged transverse section of one of the tubes and the pipe contained therein, the section being on the line 2 2 in Fig. 4. Fig. 3 is a sectional plan view of one of the sections of the improvement, the view being on the line 3 3 in Figs. 1 and 4; and Fig. 4 is a longitudinal sectional elevation of the same on the line 4 4 in Fig. 1.

The improved beer-cooler is preferably made in two sections A and B, of which the section A uses water as the cooling medium and the section B uses ammonia, brine, or the like as the cooling medium. Both sections are, however, the same in construction, so that it suffices to describe but one in detail.

The liquid to be cooled passes through a pipe C into the section A, at one side thereof and at one end, and then circulates through said section and passes by a connecting-pipe D into the other section B to circulate through the latter and be finally discharged from the section B through a pipe E. The pipes C, D, and E are provided with suitable thermometers F for indicating the state of the liquid as it passes through said pipes.

Each section A and B is in the form of a casing containing longitudinally-extending

tubes G, connected at their ends with heads H H', forming the ends of the casing and divided into compartments. One of the compartments of the head H receives from the pipe C the liquid to be cooled, and a compartment of the other head H' discharges the cooled liquid into the pipe D to pass the liquid into a corresponding compartment in the other section B, to be finally discharged from the last compartment in said section into the pipe E. The tubes G and the compartments in the heads H H' are so arranged as to form a continuous passage from the pipe C to the pipe D for the liquid to circulate through said passage and over a pipe I, extending through the tubes G and the compartments in the heads, the return-bends I' I² of said pipe extending within the compartments, as is plainly indicated in the drawings. As shown in Fig. 1, two such pipes I may be employed for each section, and each pipe I for the section A is provided at one end with an inlet-pipe I³, extending through the bottom of the head H and connected with a suitable source of water-supply. The other end of the pipe I is connected with an outlet-pipe I⁴, also extending through the bottom of the head H and serving to carry off the water. Each pipe I in the section B is connected at one end with an ammonia or brine supply pipe I⁵, and the other end is connected with a discharge-pipe I⁶ for carrying the ammonia or brine to a suitable place of discharge. The cooling medium circulating through each pipe I is caused to travel in an opposite direction to the flow of the beer or other liquid to be cooled, as is plainly indicated by the arrows in Fig. 3, so that the beer or other liquid first comes in contact with that part of the pipe I containing cooling medium of a higher temperature and gradually comes in contact with those parts of the pipe containing the cooling medium of lower temperature. By this arrangement a proper and gradual cooling of the liquid takes place during its travel through the continuous passage in the sections A and B.

As indicated in the drawings, the ends of the casing are closed by bonnets H² H³, adapted to be removed for affording access to the pipes I, the tubes G, and the compartments in the heads, and thus permit of readily cleaning

the same whenever deemed necessary to insure a proper contact with the pipes and a consequent cooling of the liquid passing over the said pipes and through the continuous passage formed by the tubes G and the compartments in the heads. The bonnets H² and H³ are fitted against removable sections H⁴ H⁵, respectively, bolted or otherwise secured to the heads H and H'. As indicated in Fig. 3, the return-bends or elbows I' I² for the pipes I extend within said removable sections H⁴ H⁵, respectively, this construction being necessary in order to readily attach the elbows or return-bends to the pipe-sections when the apparatus is manufactured.

The bonnets H² and H³ are preferably hinged at their upper ends to the sections H⁴ H⁵, as indicated at the left in Figs. 1 and 4, and suitable fastening devices are employed for securing the bonnets in place while the apparatus is in use.

It is evident from the foregoing that by the arrangement described very little, if any, of the liquid under treatment is lost during its passage to the sections A and B, and great economy is had in the use of the cooling medium, as an exceedingly large cooling-surface is provided for the liquid to travel over to insure proper cooling of the same.

The space between the pipe I and the tube G through which the pipe-sections pass is reduced as much as possible to cause the liquid to travel in a comparatively thin film over the pipe and insure a very rapid cooling of the liquid. A shell or jacket J, attached to the heads H H', incloses all the tubes in each sec-

tion. The sections A and B are supported on suitable standards K, as shown in Fig. 1.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the inner pipes adapted to receive the cooling liquid, the outer pipes surrounding the inner pipes and adapted to receive the liquid to be cooled, the spaced heads located at the ends of the outer pipes and forming closed chambers communicating with the outer pipes, and bends or elbows located within said chambers and connecting the ends of adjacent inner pipes.

2. The combination of the spaced heads forming end compartments, the outer tubes connecting said end compartments and communicating therewith, the inner tubes extending longitudinally within said outer tubes, and elbows located within said compartments and connecting adjacent inner tubes.

3. The combination of the spaced heads forming end compartments, the outer tubes connecting said heads and communicating therewith, the inner tubes extending longitudinally within said outer tubes, connections between the ends of the inner tubes, said connections being located within the said end compartments, and bonnets hinged to the heads to close the outer ends of said compartments.

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Witnesses:

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