H. C. SHERMAN.

Condenser.

No. 34,648. Patented March 11, 1862.

Fig. 2.

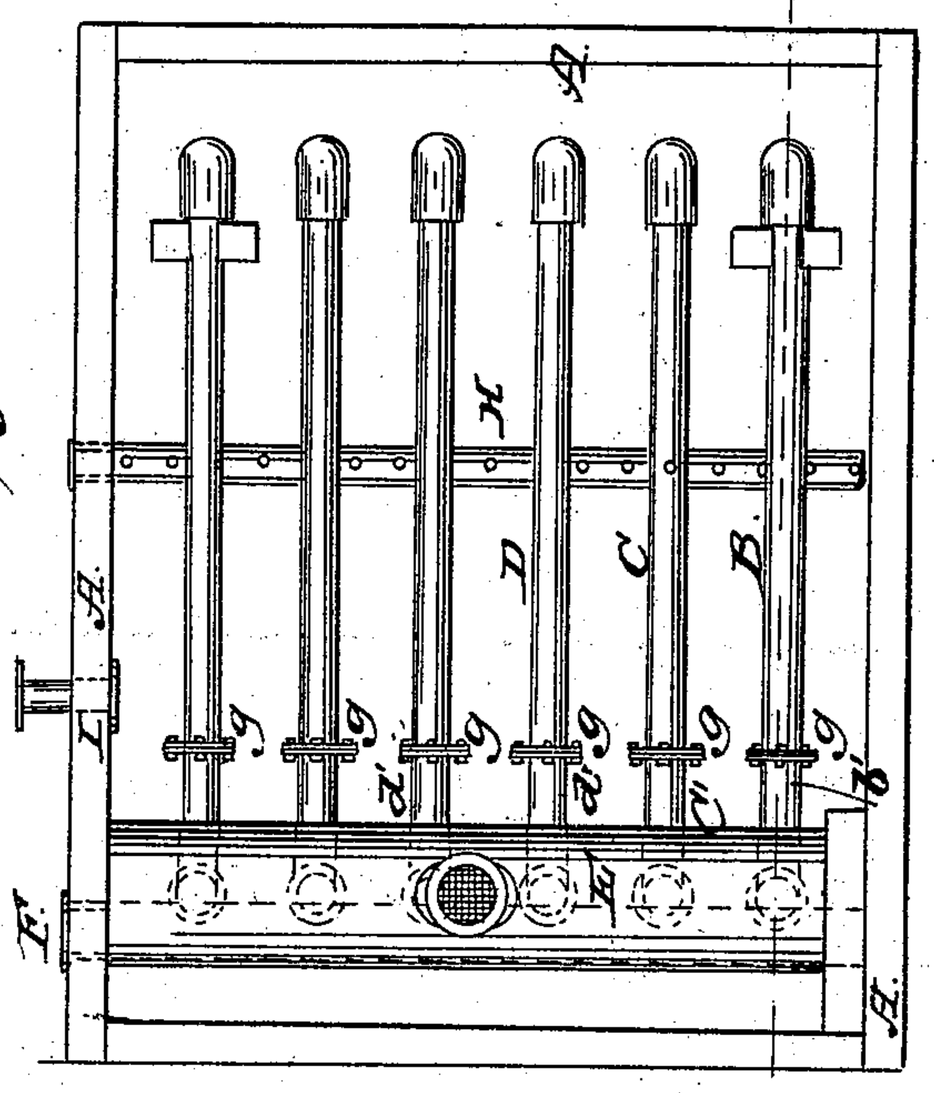
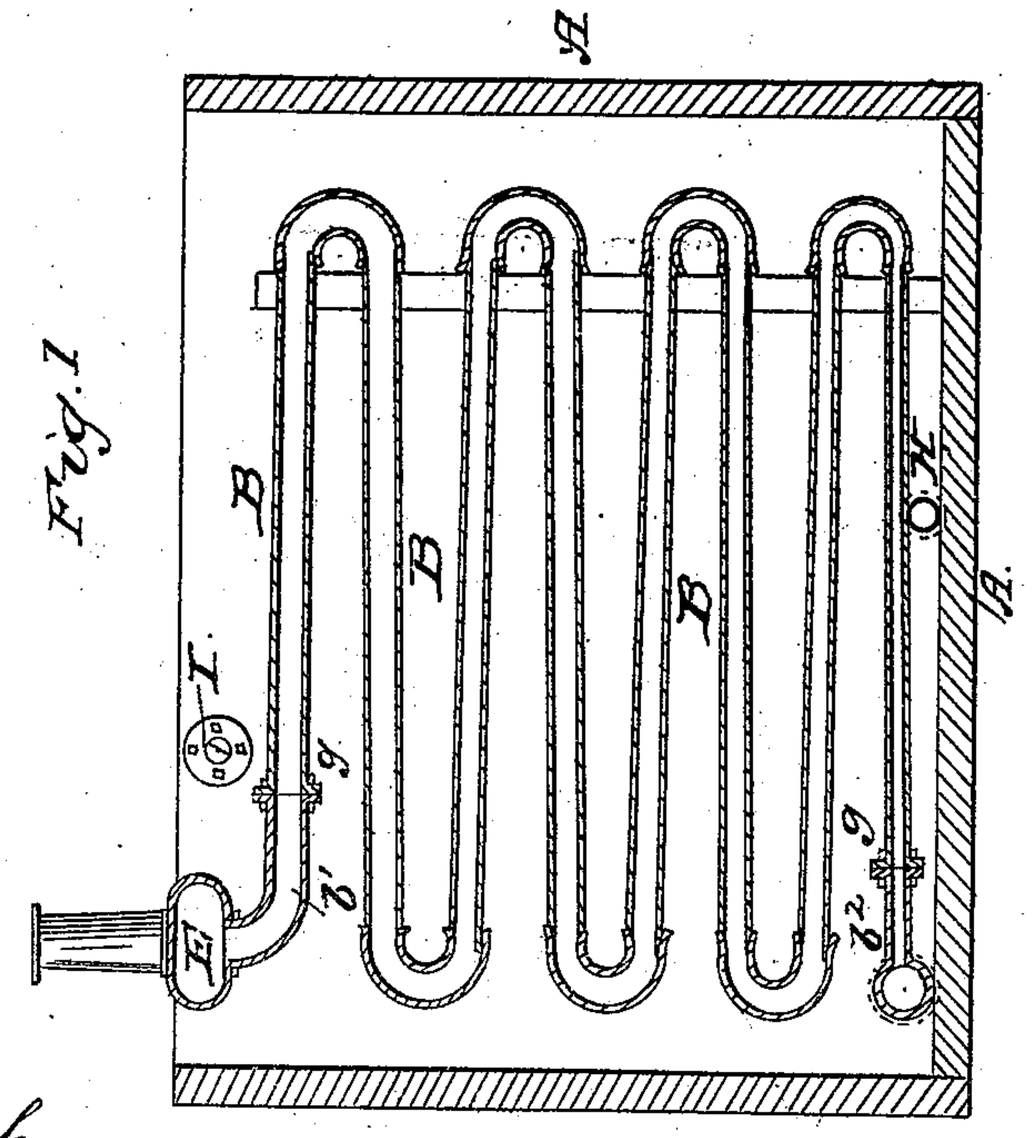


Fig. 1



Witnesses
E. B. Jarbush
E. H. Mealy

Inventor
H. C. Sherman.

UNITED STATES PATENT OFFICE.

H. C. SHERMAN, OF BUFFALO, NEW YORK.

IMPROVED CONDENSER FOR STILLS.

Specification forming part of Letters Patent No. **34,648**, dated March 11, 1862.

To all whom it may concern:

Be it known that I, H. C. SHERMAN, of the city of Buffalo, county of Erie, and State of New York, have invented certain new and useful Improvements in Condensers for Distilleries; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings and the letters of reference marked thereon, in which—

Figure I is a vertical section of my improved condenser as placed in the tank, and Fig. II is a top plan of same.

The nature of my invention relates to the arrangement of a number of zigzag condensing-pipes side by side in sections and parallel to each other, each section opening from a transverse supply-pipe at the top and into a transverse discharge-pipe at the bottom, so that the alcoholic vapors which enter the supply-pipe from the "still" will be divided, equal portions passing through each section of the zigzag condensing-pipe, making the condensation much quicker and more perfect; second, in connecting the zigzag condensing-pipes to the supply-pipe at the top and to the discharge-pipe at the bottom by means of flanges, so that either section may be removed for repairing without materially interfering with the operation of the condenser; third, in the arrangement of a perforated cold-water feed-pipe beneath the condensing-pipes in such a manner that a jet of cold water will be thrown directly against each section, thus increasing the rapidity and completeness of the condensation of the alcoholic vapors.

Letters of like name and kind refer to like parts in each of the figures.

A represents the cold-water tank, in which my improved condenser is placed.

B C D, &c., represent zigzag condensing-pipes arranged in sections, and standing vertically in the water-tank and arranged parallel to each other. Each section is separate and distinct from the other. These zigzag pipes, as constructed and arranged in sections, gradually lessen in diameter from top to bottom to correspond with the decreasing bulk of the liquor as it is condensed.

E represents the transverse supply-pipe, placed at the top of the tank into which the alcoholic vapors from the still are first received before passing into the condensing-pipes. It is considerably larger in diameter than the condensing-pipes, the upper ends of which open into it at equal distances apart.

F represents the transverse discharge-pipe, located at the bottom of the tank directly under the supply-pipe E. The lower ends of the condensing-pipes open into this pipe, which is of smaller diameter than the supply-pipe, corresponding to the lessening diameter of the condensing-pipes.

g represents joints formed in the upper and lower bends of the condensing-pipes near the supply and discharge pipes, having short parts b' c' d', &c., connected to the supply-pipe and similar parts, b^2 c^2 d^2, &c., connected to the discharge-pipe. A flange is formed upon the end of each of these short pipes, and a similar flange upon the ends of each of the condensing-pipes, by which they are connected together by means of bolts. Similar joints may also be formed at the center bend of each of the condensing-pipes, if desired. Should either of the sections become leaky or out of repair, this construction allows of its removal to be repaired, and by placing a blind flange over the openings of the short pipes made by its removal the operation of the other sections will not be interfered with.

H represents the cold-water feed-pipe, passing transversely across the bottom of the tank beneath the condensing-pipes, and having a number of holes or perforations therein, which throw jets of cold water directly upon the cendensing-pipes, thus using the condensing power of the cold water to much better advantage than were it thrown in in one large stream.

r represents the waste-water pipe, which carries off the heated water to the boiler, and prevents the tank from overflowing.

The advantages which this condenser has over the ordinary "worm" condenser are as follows: First, it is much cheaper of construction; second, with the same amount of material, a much larger condensing-surface is obtained, and it is more evenly distributed through the tank, so that it condenses more rapidly and perfectly; third, the tank may be made smaller, and the quantity of water used will be much less; fourth, in case of leakage in any one of the condensing-pipes, it may be removed, as before described, without interfering with the operation of the others.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. Making the condenser of zigzag condensing-pipes arranged side by side in sections, and parallel to each other, (or nearly so,) each section opening in and connected to a transverse supply-pipe at the top and a transverse discharge-pipe at the bottom, for the purposes and substantially as described.

2. The combination of the sections B C D with the transverse discharge and supply pipes E and F, each transverse pipe having short pipes b', c', and d', &c., and b^2 c^2 d^2, &c., to admit of an easy connection and disconnection of the sections thereto, for the purposes and substantially as set forth.

3. The combination and arrangement of the perforated cold-water feed-pipe H with a condenser constructed in sections, substantially as set forth.

H. C. SHERMAN.

Witnesses:
E. B. FORBUSH,
B. H. MEALY.