(No Model.)

G. H. SIMPSON.

CONDENSER.

No. 454,386. Patented June 16, 1891.

Fig. 1.

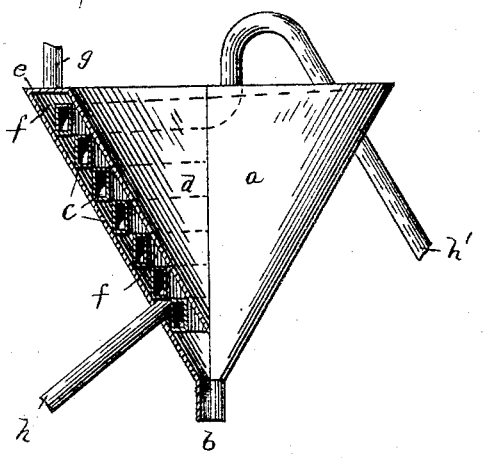
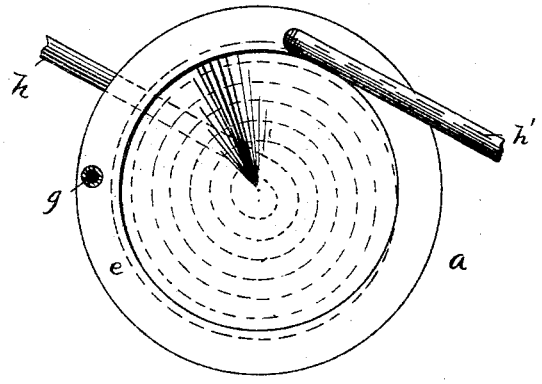


Fig. 2.



Witnesses:
E. C. Duffy
H. E. Peck

Inventor:
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per
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UNITED STATES PATENT OFFICE.

GEORGE H. SIMPSON, OF TERRE HAUTE, INDIANA, ASSIGNOR OF ONE-HALF TO WILLIAM C. BUNTIN, OF SAME PLACE.

CONDENSER.

SPECIFICATION forming part of Letters Patent No. 454,386, dated June 16, 1891.

Application filed September 18, 1890. Serial No. 365,343. (No model.)

To all whom it may concern:

Be it known that I, GEORGE H. SIMPSON, a citizen of the United States, residing at Terre Haute, in the county of Vigo and State of Indiana, have invented certain new and useful Improvements in Condensers; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to certain improvements in condensers.

The object of the invention is to provide an improved condenser exceedingly simple, cheap, and durable in construction and effective in operation, the particular object in view being the production of an improved and effective condensing-surface. These objects are accomplished by and this invention consists in certain novel features of construction, and in combinations of parts more fully described hereinafter and particularly pointed out in the claims.

Figure 1 is a sectional elevation of the condenser. Fig. 2 is a top plan of the same.

The condenser consists of a large funnel or conical vessel *a*, having a discharge-pipe *b* from the apex of the cone or lowest point of the vessel, a spiral coil of square pipe *c*, which exactly fits into said vessel, and an inverted metal cone *d*, which exactly fits into said coil. The space between the conical outer and inner walls or vessels is closed at the top by annular flange *e*, thus completely inclosing the coil. This flange can be integral with either the outer vessel or the inner cone, or can be made separate and secured to the upper edges of said parts. The pipe *c* is closely coiled, so that the convolutions lie together, as shown, and the pipe is square, rectangular, or flat in cross-section, and closely fits between the inner and outer conical walls, so that water admitted at the bottom through pipe *b* must follow the convolutions of the coil around and around the condenser, flowing in the angular passage *f*, formed between the coil and walls of the casing. Thus the water rises in a spiral column to the top, where it can pass out through pipe *g*. The opposite ends of the coil *h h'* project through the casing to be connected with suitable apparatus, as desired. This flat or square pipe is made of thin metal and forms a highly efficient condensing-surface, far superior to the ordinary steam-coil. This flat pipe can be either formed spherical or conoidal and may receive or discharge at either end, and the water may be passed through the condenser in either direction.

The operation of the condenser will be clearly understood without further explanation from the drawings and foregoing description.

What I claim is—

1. The condenser consisting of conical inner and outer casings, the coil of pipe fitted snugly in the space between said casings, said pipe being rectangular or flat in cross-section, with its convolutions lying close together, forming the angular cool-water passages within said space, substantially as described.

2. The condenser-coil of thin metal, rectangular or flat in cross-section, in combination with an inner and an outer casing for said coil, the coil embracing the inner casing.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

GEO. H. SIMPSON.

Witnesses:
JOS. MULLIKIN,
GEO. M. DAVIS.