

L. PHLEGER.

2 Sheets--Sheet 1.

Improvement in Steam-Generators.

No. 127,511.

Patented June 4, 1872.

Fig. 2.

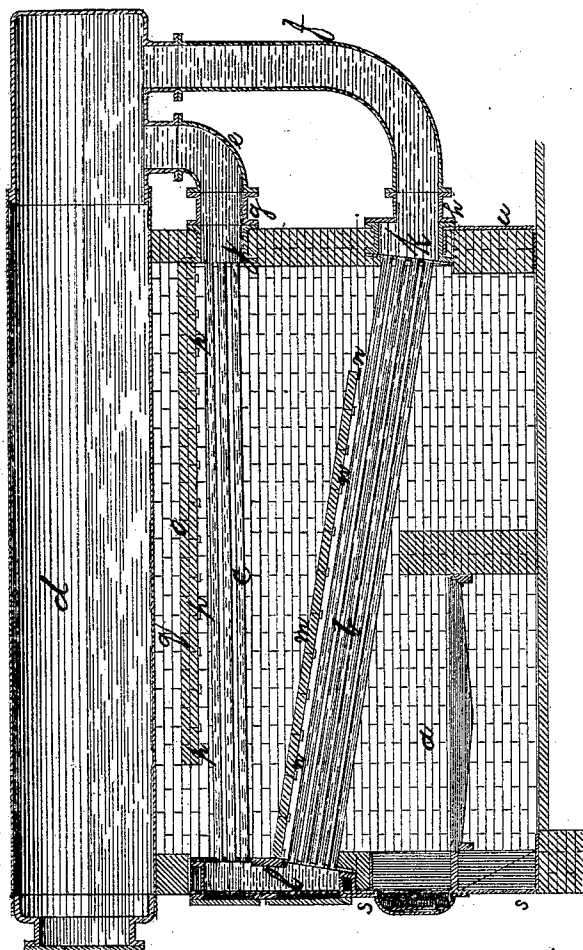
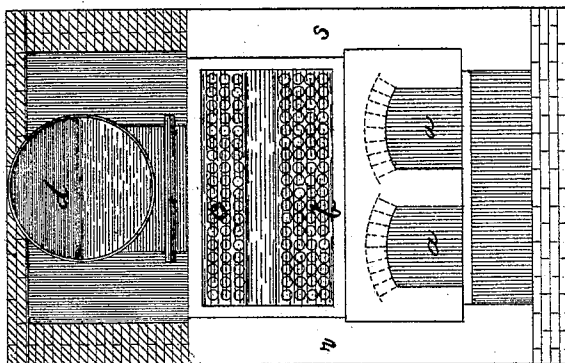


Fig. 1.



Witnesses.

Chas. Parkman
Gove Mitchell

Inventor:

Leonard Phleger

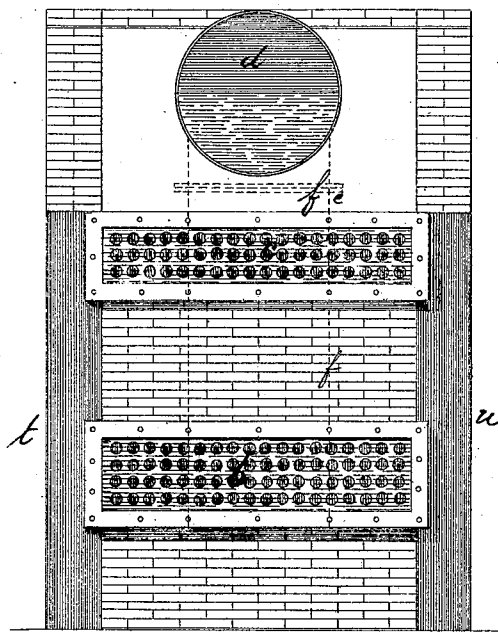
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Fig. 3.



Witnesses

Chas Parkham
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UNITED STATES PATENT OFFICE.

LEONARD PHLEGER, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN STEAM-GENERATORS.

Specification forming part of Letters Patent No. 127,511, dated June 4, 1872.

Specification describing certain Improvements in Steam-Generators, invented by LEONARD PHLEGER, of the city of Philadelphia, in the State of Pennsylvania.

My improvements consist in the combination of the water-tubes, circulation-pipes, steam-drum, and water-cells.

In the drawing, Figure 1 is a front view of my improved generator with the bonnets removed; Fig. 2, a longitudinal vertical section of the generator; Fig. 3, an elevation of the rear side of the same, the two circulation-pipes *e* and *f* being indicated by dotted lines, the bonnets of the water-cells being removed, and the steam-drum being in section.

a represents an ordinary furnace; *b* the lower, and *c* the upper series, of inclined water-tubes; *d*, the steam-drum; *e* and *f*, curved circulation-pipes, which are attached at their upper ends, by flanges and bolts, to the steam-drum *d*, and at their lower ends to the tubular bonnets *g* and *h*, Fig. 2, of the water-cells *j* and *k*, which are connected with the upper and lower series of water-tubes, respectively. *m* is a fire-brick partition supported by iron bars *n*, which extend across from one side to the other side of the furnace, resting on the side walls thereof. This partition may be arched, and thus made self-supporting, if desired. *o* represents another partition of fire-bricks supported by iron bars *p*, which are similar in construction and arrangement to the iron bars *n*. The partition *o* forms one side of the flue *q*, of which the steam-drum *d*

forms the other side. The flue *q* leads into the smoke-stack, not shown, situated near the rear end of the drum *d*. *r*, *s*, *t*, and *u* are iron stands, each having an L-shaped base, (see Fig. 2,) embedded in the side walls of the furnace, and each having below and near its upper end a projecting shelf or bracket for supporting the water-cells, the front cell *l* being free to move on its shelf, and thus prevent the expansion and contraction of the water-tubes from injuriously affecting the joints of these tubes. The water-cells *j k l* are attached to the water-tubes *b* and *c* by steam-tight joints.

Where the water-tubes *b* and *c* are of any length, varying from three feet to twenty feet, the elevation of the front end of the lower tubes *b* is from fifteen inches to eighteen inches above the horizontal plane wherein the rear ends of these tubes rest; and the elevation of the rear ends of the upper tubes *c* is from one inch to one and one-half inch above the horizontal plane wherein the front ends of said tubes *c* rest.

I claim—

The combination of the inclined water-tubes *b* and *c*, circulation-pipes *e* and *f*, steam-drum *d*, and water-cells *j*, *k*, and *l*, all constructed and arranged in the manner and for the purpose substantially as set forth.

LEONARD PHLEGER.

Witnesses:

CHAS. PARHAM,
GOVE MITCHELL.