(No Model.)

O. BELLMAN.

STEAM BOILER.

No. 410,065. Patented Aug. 27, 1889.

Fig. 1.

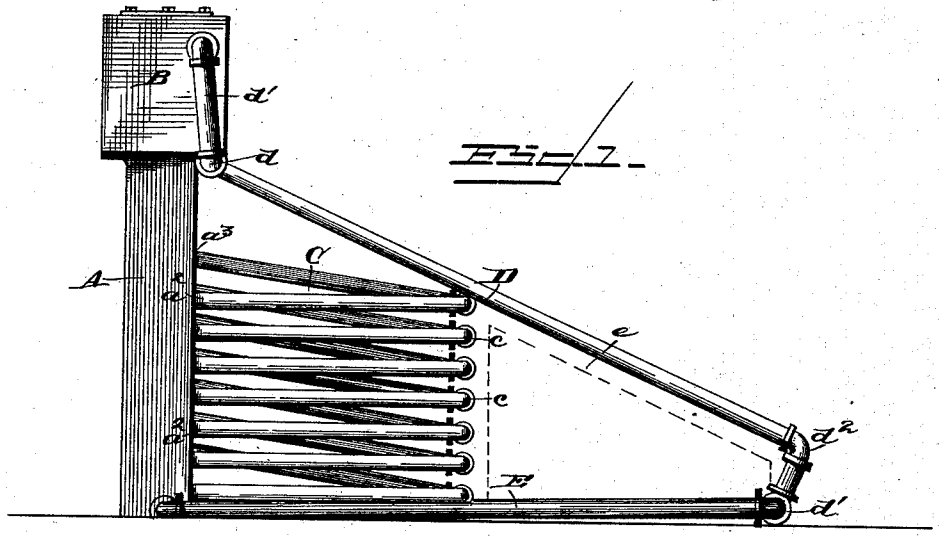


Fig. 2.

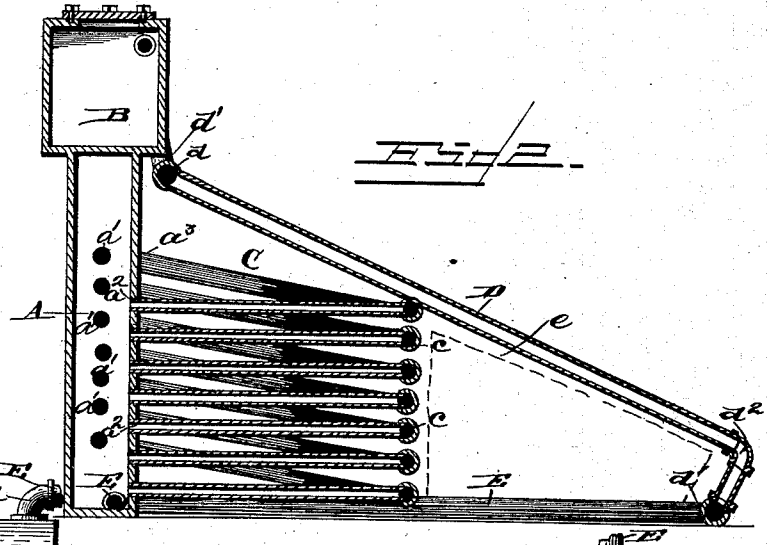
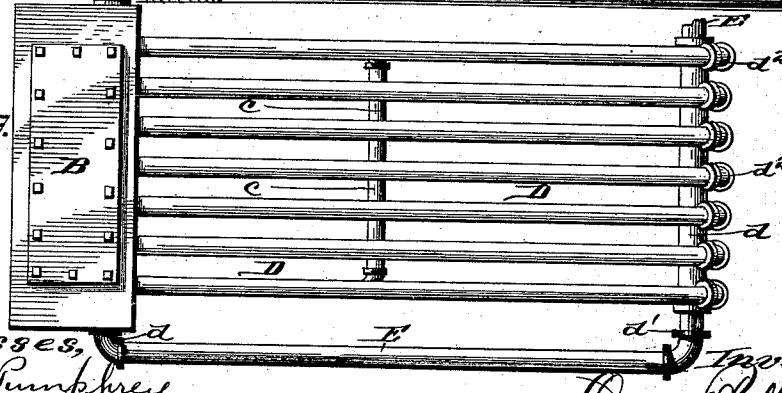


Fig. 3.



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UNITED STATES PATENT OFFICE.

OSCAR BELLMAN, OF HAGERSTOWN, MARYLAND.

STEAM-BOILER.

SPECIFICATION forming part of Letters Patent No. 410,065, dated August 27, 1889.

Application filed February 11, 1889. Serial No. 299,372. (No model.)

To all whom it may concern:

Be it known that I, OSCAR BELLMAN, a citizen of the United States of America, residing at Hagerstown, in the county of Washington and State of Maryland, have invented certain new and useful Improvements in Steam-Boilers, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention is directed to certain improvements in steam boilers or heaters, having for its object to promote the heating capacity thereof, as also to prevent the undue burning out of the pipes; and to these ends the nature of the invention consists of the combination of parts and their construction, as will more fully appear from the following description and the accompanying drawings, in which—

Figure 1 is a side elevation of my improved water heater or boiler. Fig. 2 is a sectional elevation thereof, and Fig. 3 is a plan view of the same.

In the embodiment of my invention I employ an upright feed-water column or chamber A, upon which is secured the water tank or chamber B.

C is a series of pipes consisting of a number of single pipes *c c*, each forming a proximate rectangle, one end a' being connected with one side of the feed-water column A, while the other end a^2 is connected with the front side of said column. The feeding or receiving end a' of each pipe connects with the feed-water column A at a higher level or point than its other or delivery end a^2 connects with said feed-water column, the pipes thus being arranged in an incline, the purpose of which is to insure the circulation of the water and its discharge into the same general source from whence the pipes receive their supply. This also, by keeping up the circulation, prevents the undue burning out of the pipes.

The series of pipes C C may be duplicated, if desired. These pipes form, as it were, the inner surface or lining of the fire-chamber of the furnace to effect the heating of the said pipes and the contained water for house purposes. The wall of the fire-chamber is not built so that the pipes will be in direct contact therewith, but will stand about one and a half or two inches therefrom, permitting the fire to have access to the pipes on all sides, said wall being made of fire-brick or other non heat-conducting material.

D is a series of inclined water-heating or steam pipes connecting at their upper ends with a common transverse pipe *d*, having arms d' d', reaching up and connecting with the upper part of the tank or chamber B. The lower ends of the said series of pipes D connect with a similar common transverse pipe *d* by means of elbows d^2, however. The pipe *d* is connected to horizontal side pipe E E, reaching forward and connecting by arms with the water-column A, thus securing a circulation of the water in the pipes D D. These pipes are also disposed within a fire-brick inclosure, while beneath them is erected a brick or masonry wall, forming a smoke and draft flue *e* of suitable dimensions—say of about two and a half or three inches deep—leading to the chimney at the lower ends of the said pipes. This heater or boiler produces a uniform temperature and heat, thus securing a uniform temperature of steam.

Although I have described the feed-water column as a single chamber, yet, if desired, it may be subdivided vertically by the proper disposition therein of a partition into two chambers or compartments, thus separating the delivery side of the column from the side receiving the return circulation or water.

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

1. The boiler or heater having the series of inclined pipes and the water-column having the superposed water tank or column, said inclined pipes connecting at their ends with transverse pipes, one having pipe-connections with the water-column and the other having like connection with the water tank or chamber upon the water-column, substantially as specified.

2. The boiler or heater consisting of the incased inclined fire-chamber pipes, the upright water chamber or column, the water tank or chamber superposed upon the upright water

chamber or column, and the series of inclined pipes connected at one end by a transverse pipe and arms to the water-tank, and having their lower ends connecting transverse pipe, connected by additional pipe with the lower end of the water-column, a smoke and draft space or flue being provided below the inclined pipes, and air-inlets between elbows at the lower ends of said latter pipes, substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

OSCAR BELLMAN.

Witnesses:
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WILLIAM N. KUHNS.