

(No Model.)

F. F. LANDIS.  
BAFFLE PLATE FOR BOILERS.

No. 464,305.

Patented Dec. 1, 1891.

Fig. 1-

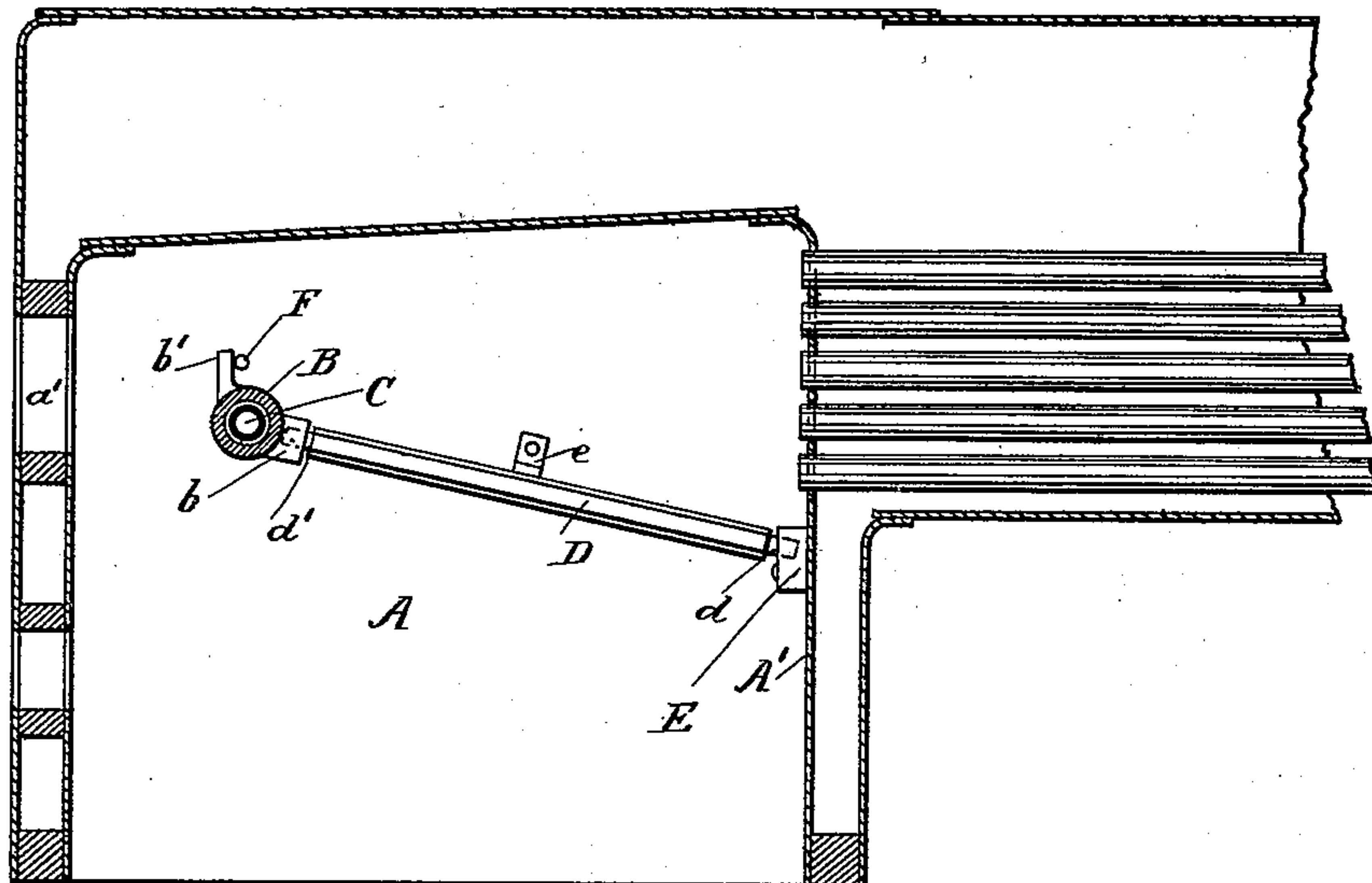


Fig. 2-

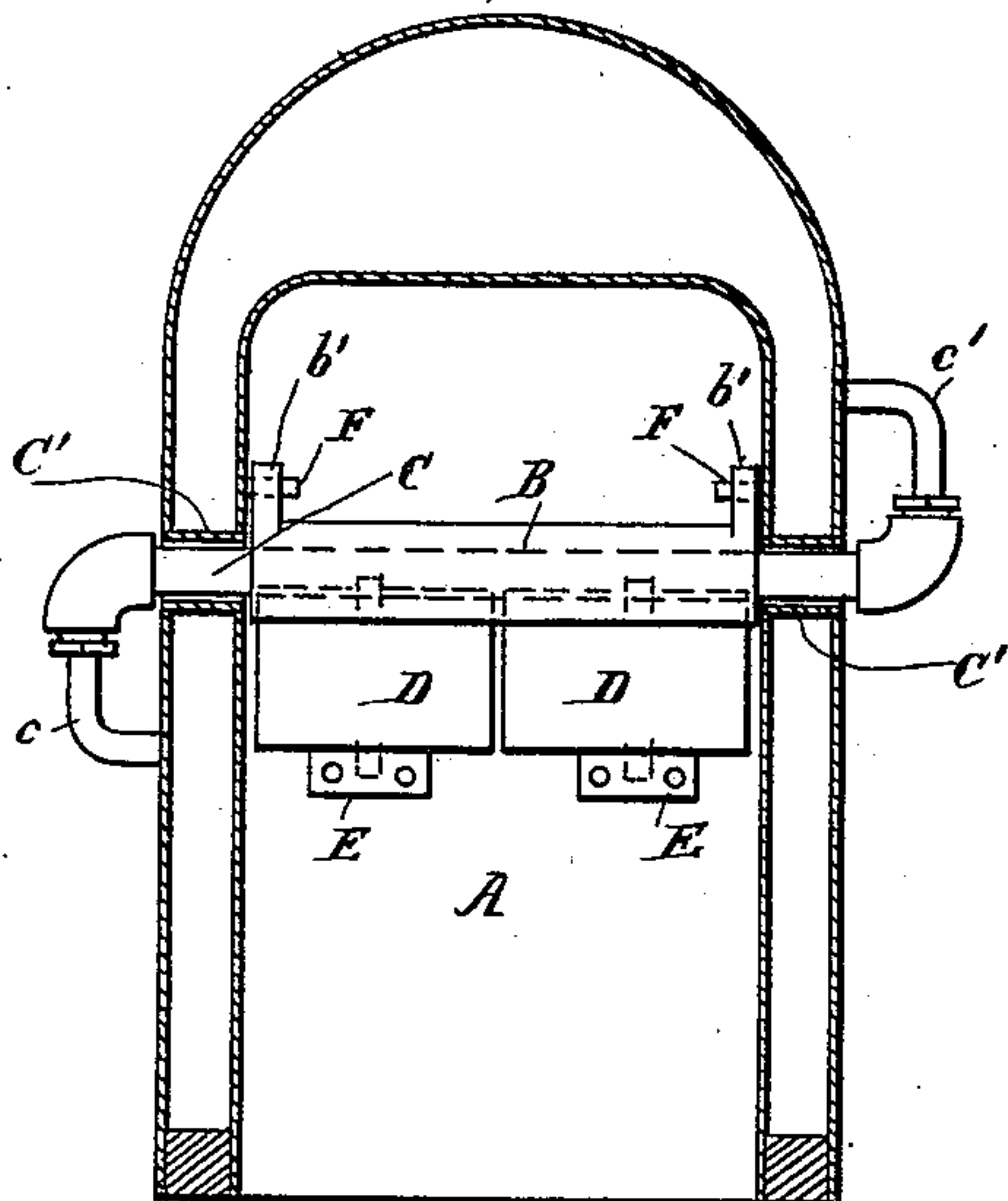


Fig. 3-

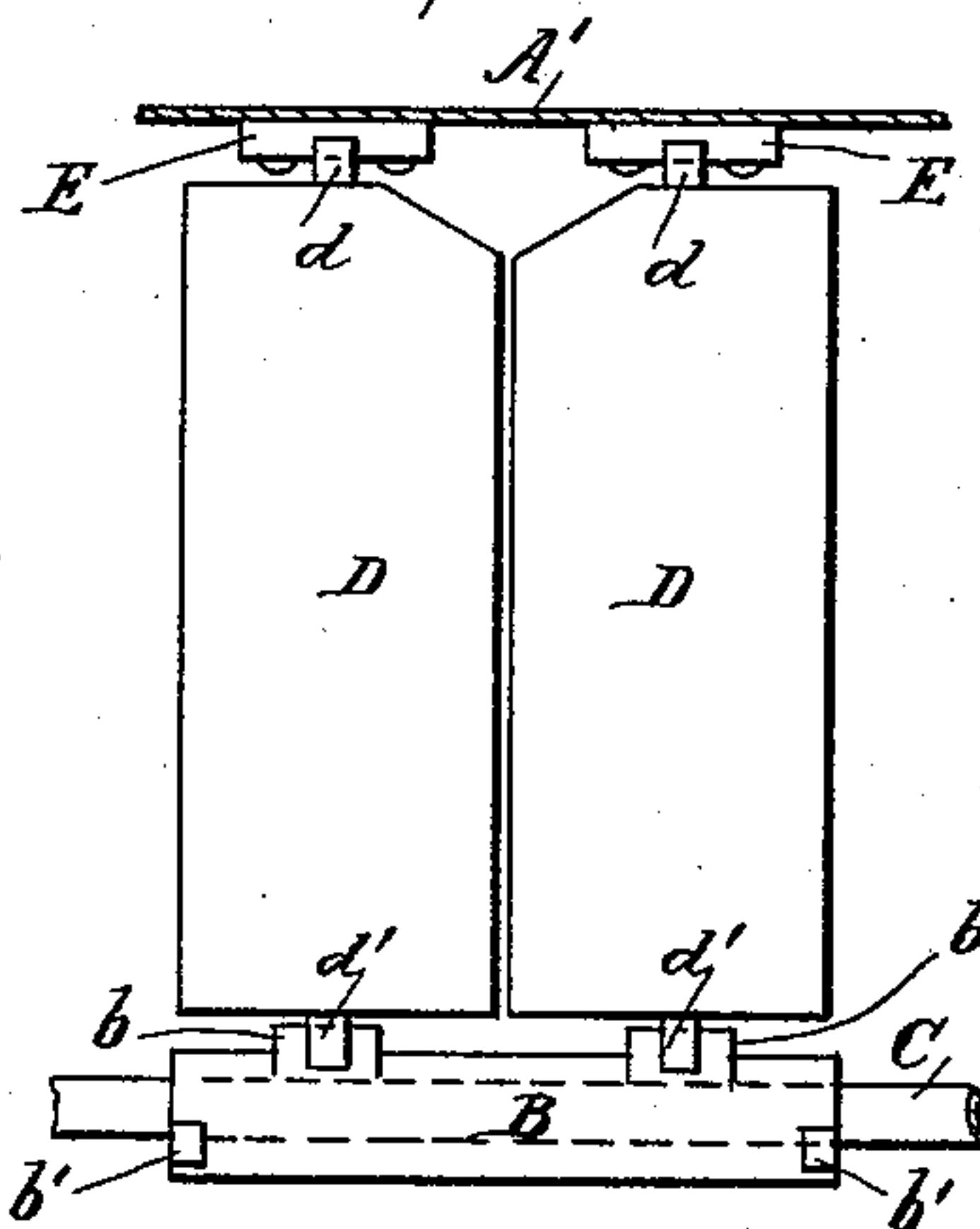
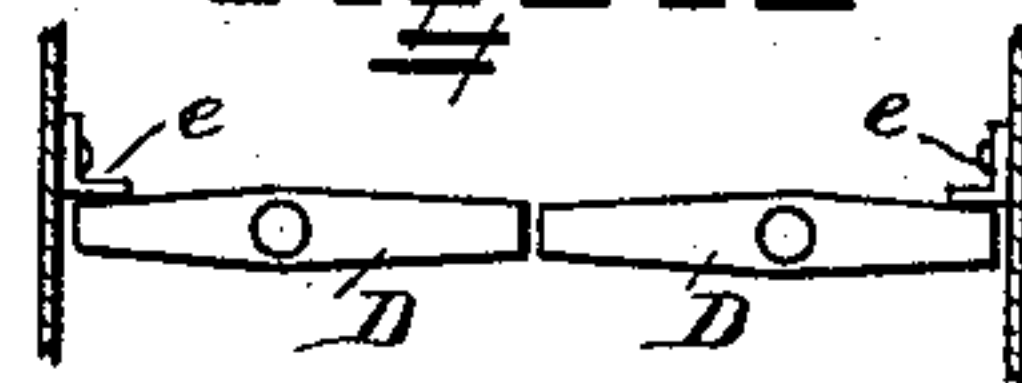


Fig. 4-



WITNESSES

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# UNITED STATES PATENT OFFICE.

FRANK F. LANDIS, OF WAYNESBOROUGH, PENNSYLVANIA.

## BAFFLE-PLATE FOR BOILERS.

SPECIFICATION forming part of Letters Patent No. 464,305, dated December 1, 1891.

Application filed March 16, 1891. Serial No. 385,157. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK F. LANDIS, a citizen of the United States, residing at Waynesborough, in the county of Franklin and State of Pennsylvania, have invented certain new and useful Improvements in Baffle-Plates for Boilers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to baffle-plates for boiler-furnaces; and it consists in the novel construction and combination of the parts, hereinafter fully described and claimed.

In the drawings, Figure 1 is a longitudinal section through a boiler-furnace provided with a baffle-plate according to this invention, and Fig. 2 is a cross-section through the same. Fig. 3 is a plan view of the baffle-plate, and Fig. 4 is an end view of the same.

A is the furnace of the boiler, which may be of any approved construction—such as, for instance, the boiler of a portable engine. A charging-opening *a* for coal or other hard fuel is provided, and *a'* is a second charging-opening for light fuel, such as straw, the boiler being adapted to be fired with coal or straw, as found convenient.

A' is the end plate of the furnace opposite the charging-openings, which is also the tube-plate.

B is a sleeve for supporting the front end of the baffle-plate. This sleeve B is loosely journaled on a pipe C, which passes clear through the shell of the boiler and through the fire-box.

C' are thimbles between the shell and the fire-box on each side of the boiler for the pipe C to pass through. One end of the pipe C is connected to the water-space of the boiler by the pipe *c*, and the other end of the pipe C is connected to the water-space of the boiler by the pipe *c'* at a level above the said pipe *c*. The thimbles afford a steam-tight and water-tight passage for the pipe C through the boiler and permit the said pipe and the boiler to expand and contract irrespective of each other and without becoming leaky, as would be the case if the ends of the pipe C were connected direct to the water-spaces on each side of the

fire-box without passing through the shell of the boiler.

The baffle-plate is formed of two similar reversible and interchangeable parts D D, each of which is provided with a back pivot *d* and a front pivot *d'*. The pivots are arranged in line with each other and a little to one side of the centers of gravity of the parts D D. The sleeve B is provided with pockets *b*, in which the pivots *d'* are supported, and *b'* are lugs projecting from the ends of the sleeve.

F are stops projecting from the sides of the fire-box for the lugs *b'* to bear against, so that the sleeve will not turn upon the pipe under the weight of the baffle-plate.

E are pockets secured to the tube-plate for carrying the back pivots *d* of the parts D D of the baffle-plate. Brackets *e* are secured to the sides of the fire-box for the outer edges of the parts D to bear against, so that the two parts will be held in position by gravity, as shown in the drawings. The baffle-plate is arranged with the usual inclination, and the flame passes around it and out through the tubes in the ordinary manner.

When ashes, &c., accumulate on top of the baffle-plate, a bar of iron is inserted through the charging-opening, and the parts D D are turned on their pivots so as to discharge all the ashes into the lower part of the fire-box at each side.

When the parts D D become warped by the heat beneath them, they can be taken out, turned over, and interchanged one for the other, so that they may become straight again.

A constant circulation of water is set up through the pipe C and the sleeve B is kept from being unduly heated and burned away. The metal sleeve protects the water-pipe C and prevents the gases of the furnace from being unduly cooled by direct contact with the pipe as they pass around the front end of the baffle-plate. As the sleeve is loosely journaled on the pipe C and as the front pivots of the baffle-plates merely rest in pockets on the said sleeve, the expansions and contractions of all these said parts are not communicated to each other.

What I claim is—

1. The combination, with a boiler-furnace, of a baffle-plate formed of two longitudinal



parts provided with pivots at each end for supporting them in the furnace and adapted to be reversed and interchanged one for the other when they become warped.

5 2. The combination, with a boiler-furnace, of a baffle-plate formed of two parts provided with pivots at each end for supporting them in the furnace, the said pivots being placed to one side of the centers of gravity of the said  
10 parts, and brackets secured to the furnace sides for holding the parts of the baffle-plates in the same plane.

3. The combination, with a boiler-furnace, of a water-pipe passing crosswise through the  
15 furnace, a sleeve completely inclosing the said water-pipe, and a baffle-plate supported in the said furnace and having its front end carried by pockets on the said sleeve, substantially as and for the purpose set forth.

20 4. The combination, with a boiler provided with an internal furnace, of a water-pipe passing clear through the boiler and its furnace, the ends of the said pipe being connected to the water-space of the boiler at different levels, a sleeve completely inclosing the said wa-  
25 ter-pipe, and a baffle-plate supported in the

furnace and having its front end carried by pockets on the said sleeve, substantially as and for the purpose set forth.

5. The combination, with a boiler-furnace, 30 of a water-pipe passing crosswise through the furnace, a sleeve inclosing the said water-pipe, and a baffle-plate formed of two longitudinal parts, each pivoted to the furnace end plate and to the said sleeve, substantially as and 35 for the purpose set forth.

6. The combination, with a boiler-furnace, of a water-pipe passing crosswise through the furnace, a sleeve inclosing the said pipe and having projecting lugs at its ends, stops on the  
40 furnace sides for preventing the rotation of the sleeve on the said pipe by bearing against the said lugs, and a baffle-plate formed of two longitudinal parts, each pivoted to the furnace end plate and to the said sleeve, substantially 45 as and for the purpose set forth.

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

FRANK F. LANDIS.

Witnesses:

ALF. N. RUSSELL,

D. B. RUSSELL.