

(No Model.)

J. E. WOOTTEN.
LOCOMOTIVE BOILER.

No. 254,581.

Patented Mar. 7, 1882.

FIG.1.

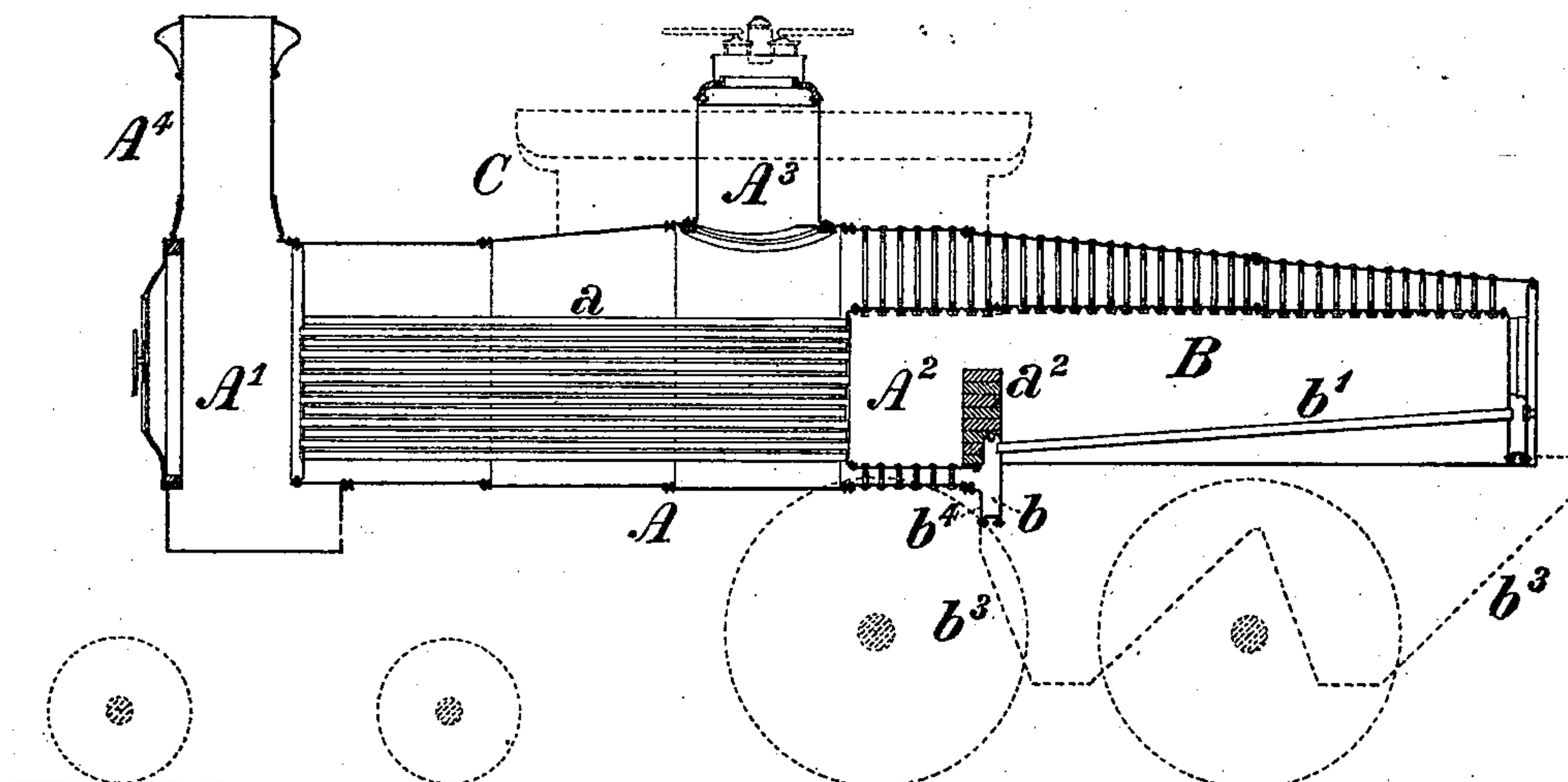


FIG.2.

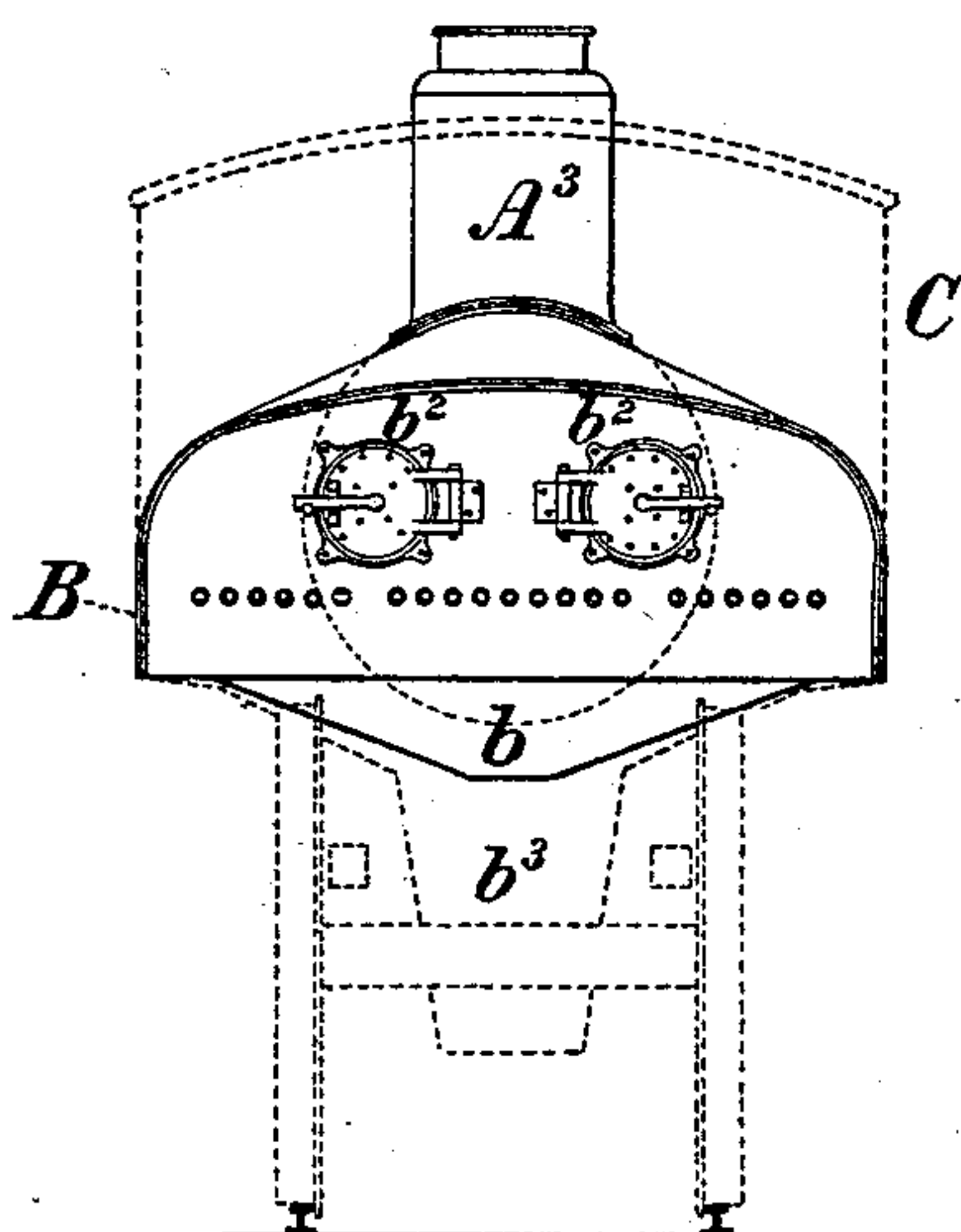
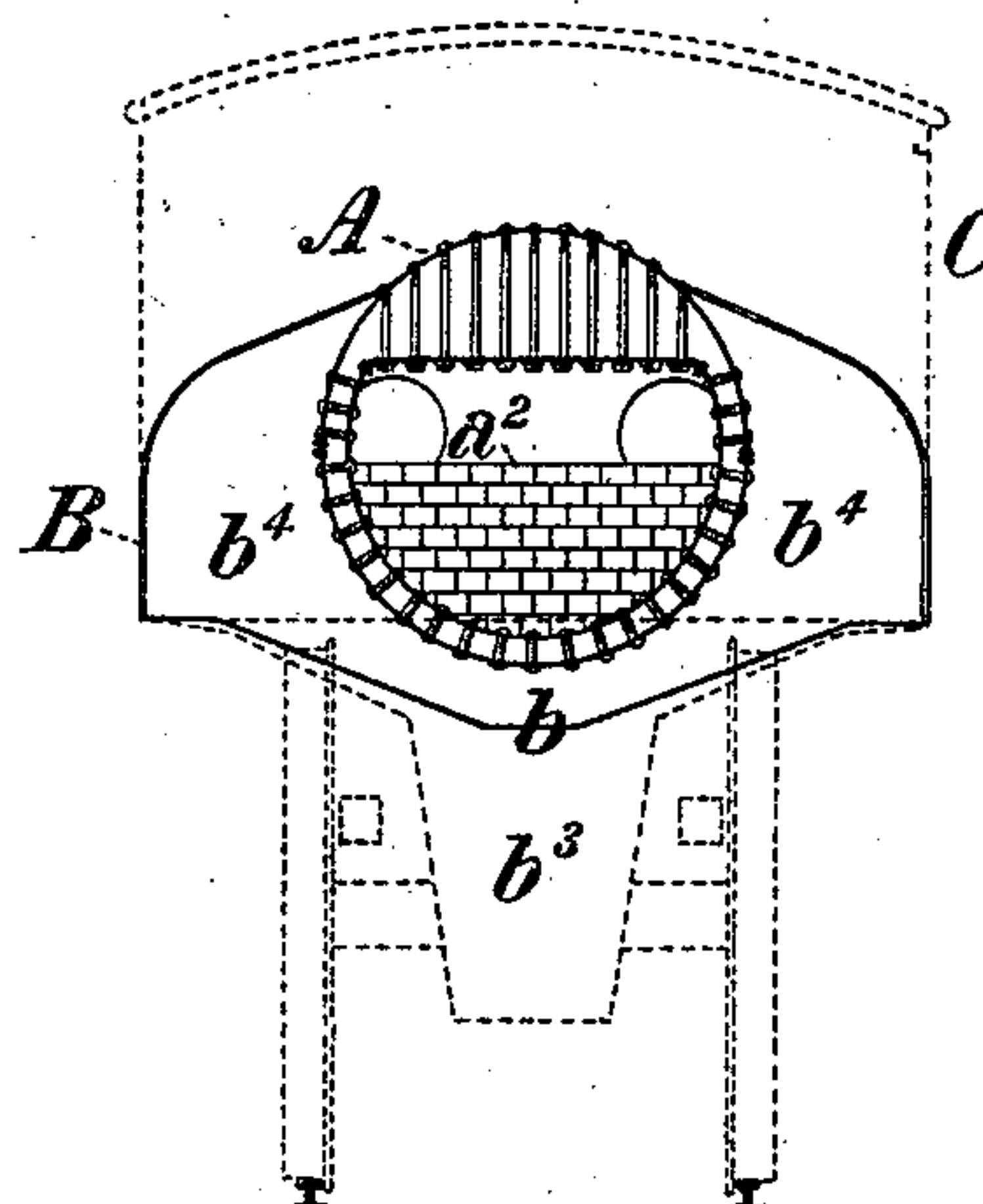


FIG. 3



WITNESSES.

WITNESSES.
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INVENTOR .

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UNITED STATES PATENT OFFICE.

JOHN E. WOOTTEN, OF PHILADELPHIA, PENNSYLVANIA.

LOCOMOTIVE-BOILER.

SPECIFICATION forming part of Letters Patent No. 254,581, dated March 7, 1882.

Application filed December 28, 1881. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. WOOTTEN, of the city and county of Philadelphia, in the State of Pennsylvania, have invented certain new and useful Improvements in Locomotive-Boilers, of which improvements the following is a specification.

My invention relates to locomotive-boilers having a fire-box located above and extended laterally beyond the driving-wheels, combined with a combustion-chamber and a fire-bridge interposed between the combustion-chamber and fire-box, for which Letters Patent of the United States No. 192,725 were granted and issued to me under date of July 3, 1877.

The object of my present invention is to enable the waist or cylindrical portion of a locomotive-boiler of the class above referred to to be arranged at as low a level as practicable, in order that the cab, dome, smoke-stack, &c., may be attached in proper position and of required proportions without unduly elevating the entire structure or the center of gravity thereof.

To this end my improvements consist in a locomotive-boiler having a waist or barrel combined with a fire-box extended laterally beyond and placed entirely above the bottom line of said waist or barrel; also, in the combination of a laterally-extended fire-box, a waist or barrel having its bottom line in a plane below the bottom of the fire-box, and a water-connection formed by a curved or inclined bottomed downward extension of the forward water-space of the fire-box.

The improvements claimed are hereinafter more fully set forth.

In the accompanying drawings, Figure 1 is a vertical longitudinal central section through a locomotive-boiler embodying my improvements; Fig. 2, an end view of the same, taken from the rear; and Fig. 3, a vertical transverse section through the combustion-chamber.

The waist or barrel A of the boiler is fitted with a series of fire-tubes, a , extending from the smoke-box A' to a combustion-chamber, A², formed in the end of the waist adjacent to and communicating with the fire-box B, and a fire-bridge, a^2 , extends across the lower portion of the combustion-chamber, separating the same from the fire-box. A dome, A³, is placed

upon the waist in any convenient position, and carries the safety-valves, whistle, and other ordinary attachments.

The cab C can be conveniently located about midway of the length of the boiler, or otherwise, if preferred; and the smoke-box is provided with a stack, A⁴, of any preferred construction.

The fire-box B is similar to that of Letters Patent No. 192,725, before referred to, in the respects of being located entirely above the driving-wheels, and of being extended laterally beyond the same to any desired extent within the greatest width admissible for passage over the road, and is furnished with a grate, b' , furnace-doors b^2 , and ash-pans b^3 , suitably arranged relatively to the engine-frame and driving-axles.

Under my present invention the fire-box B is, as shown in the drawings, placed entirely above the bottom line of the waist A, by which such reduction in the height of the latter and its accessories above the rail is effected as is of material advantage in avoiding the undue elevation of the center of gravity of the engine, and in admitting of the employment of a stack, dome, and cab of the height required for the normal and convenient operation of the engine within the limit of extreme height which obtains with locomotive-boilers as ordinarily constructed.

Inasmuch as the requirements of fast passenger-train service involve the employment of driving-wheels of comparatively large diameter, my improvements are of special advantage in engines designed for such service, in enabling the beneficial features of the enlarged fire-box to be utilized without substantial objection as to resultant height of the engine.

The waist A and fire-box B are united through a water-connection, b , formed by a downward extension of the forward water-space of the fire-box, below the bottom line thereof, the lowest portion of said water-connection being at such distance below the bottom line of the waist as will admit of the insertion and securing of the rivets by which the bottom sheet or bar of the water-connection is united thereto, and the bottom of the water-connection being inclined or curved upwardly on each

side of the center line of the boiler from said lowest portion to the bottom line of the fire-box, that portion of the outside sheet, b^4 , of the fire-box which forms the forward boundary
5 of the water-connection (which sheet b^4 is flanged outwardly and riveted to the waist) constituting a flange by which so much of the waist as projects below the fire box is united thereto. While the water-connection b may
10 be further extended downwardly as far as desired to serve as a receptacle for the deposit of mud and other foreign matters, it is not essential that its depth at center below the waist of the boiler shall be any greater than is re-
15 quired for the insertion and securing of a rivet; nor is it material whether its bottom be of curved outline or be formed in double inclines, as shown.

I claim as my invention and desire to secure
20 by Letters Patent—

1. In a locomotive-boiler, the combination, substantially as set forth, of a waist or barrel

and a fire-box extended laterally beyond and located entirely above the bottom line of said waist.

2. In a locomotive-boiler, the combination,
25 substantially as set forth, of a laterally-extended fire-box, a waist or barrel having its bottom line in a plane below the bottom of the fire box, and a water-connection formed by a
30 curved or inclined bottomed downward extension of the forward water-space of the fire-box.

3. In a locomotive-boiler, a laterally-extended fire box having its outer forward sheet
35 flanged outwardly for connection to the waist and extended downwardly below the waist for a sufficient distance to serve as a flange for the reception of the rivets of the bottom water-space sheet or bar, substantially as set forth.

JOHN E. WOITTEN.

Witnesses:

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GEORGE T. KELLY.