

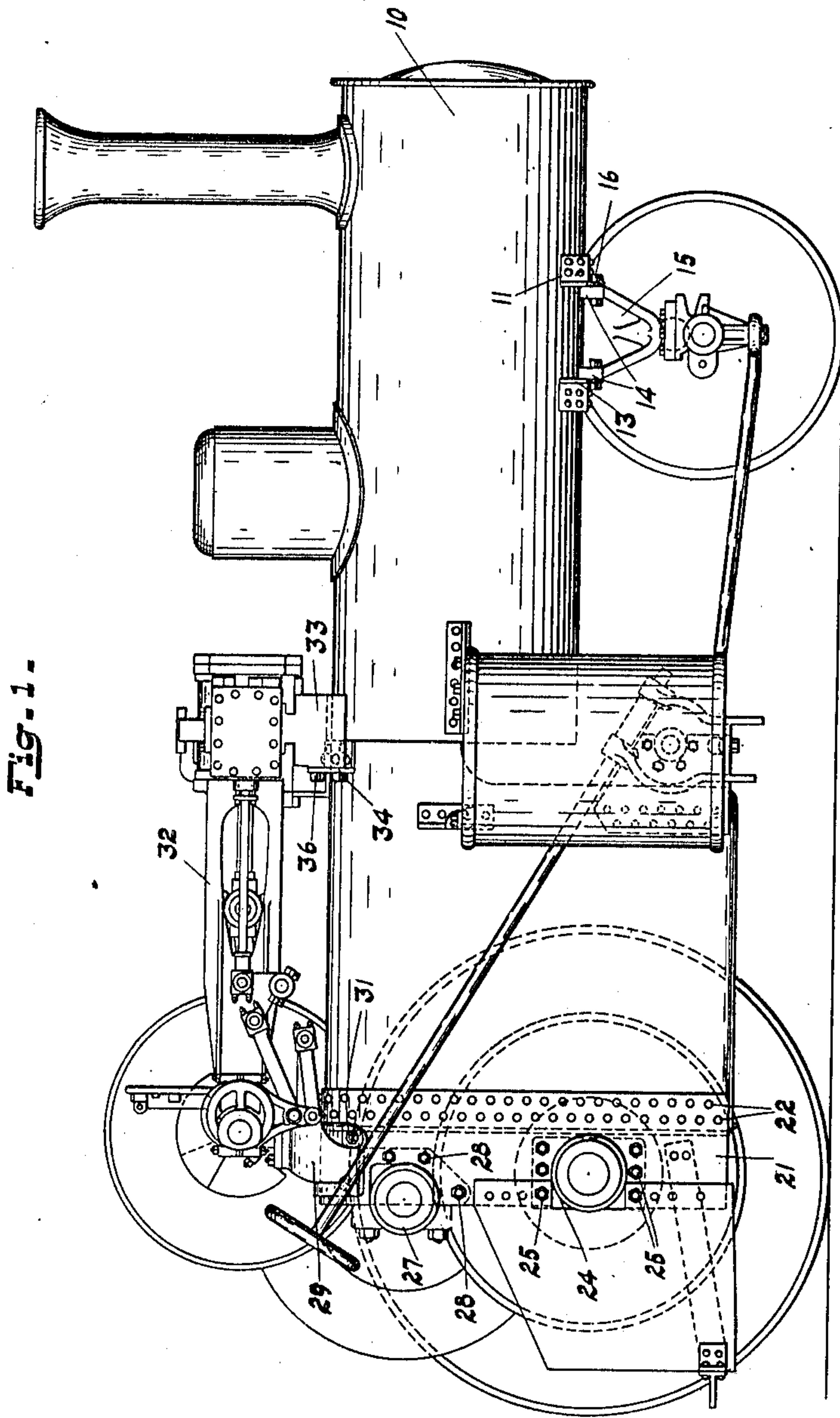
H. C. CLAY.  
BOILER.

APPLICATION FILED DEC. 13, 1909.

969,746.

Patented Sept. 6, 1910.

2 SHEETS—SHEET 1.



Witnesses  
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2 SHEETS-SHEET 2.

Fig. 3:

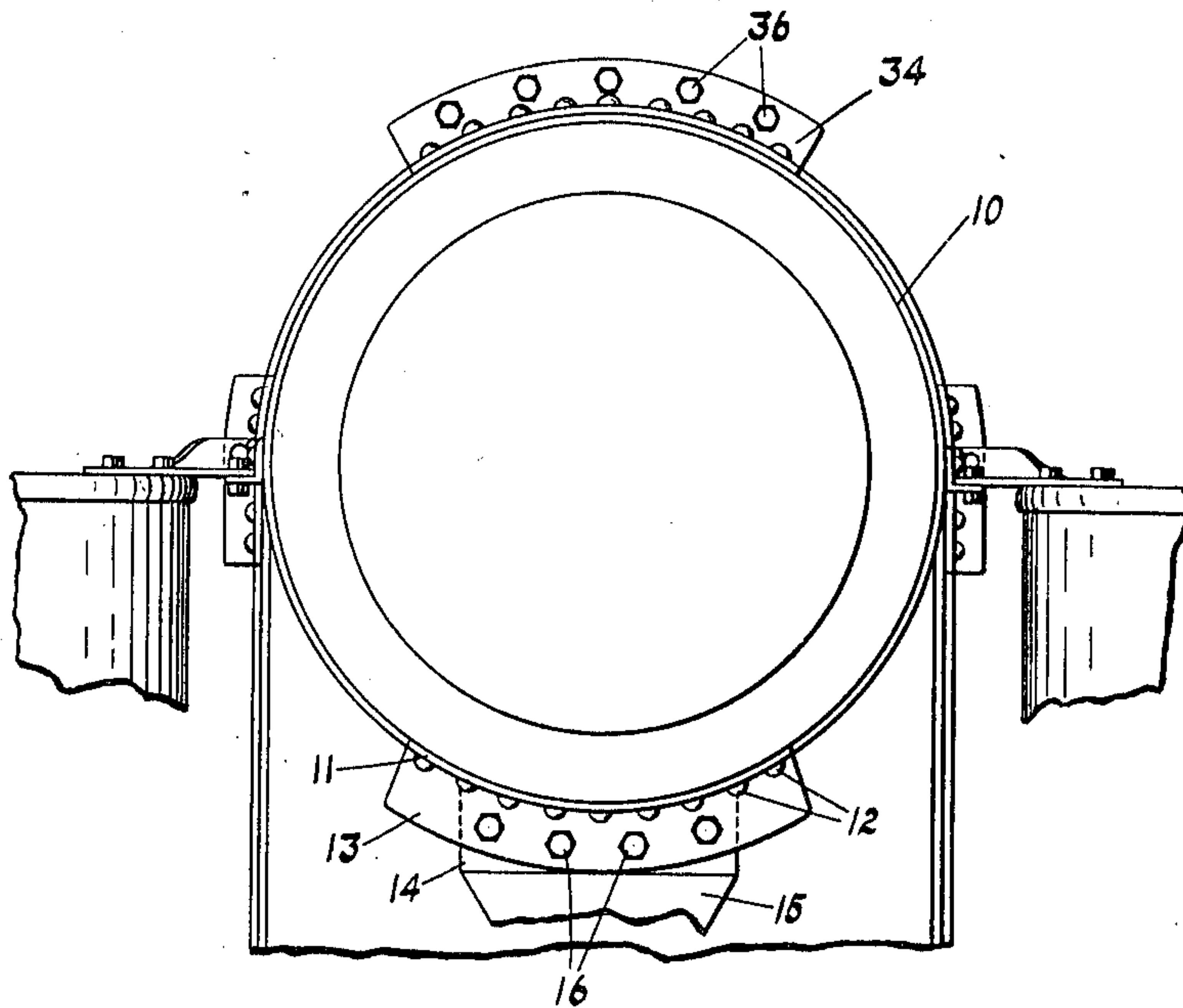
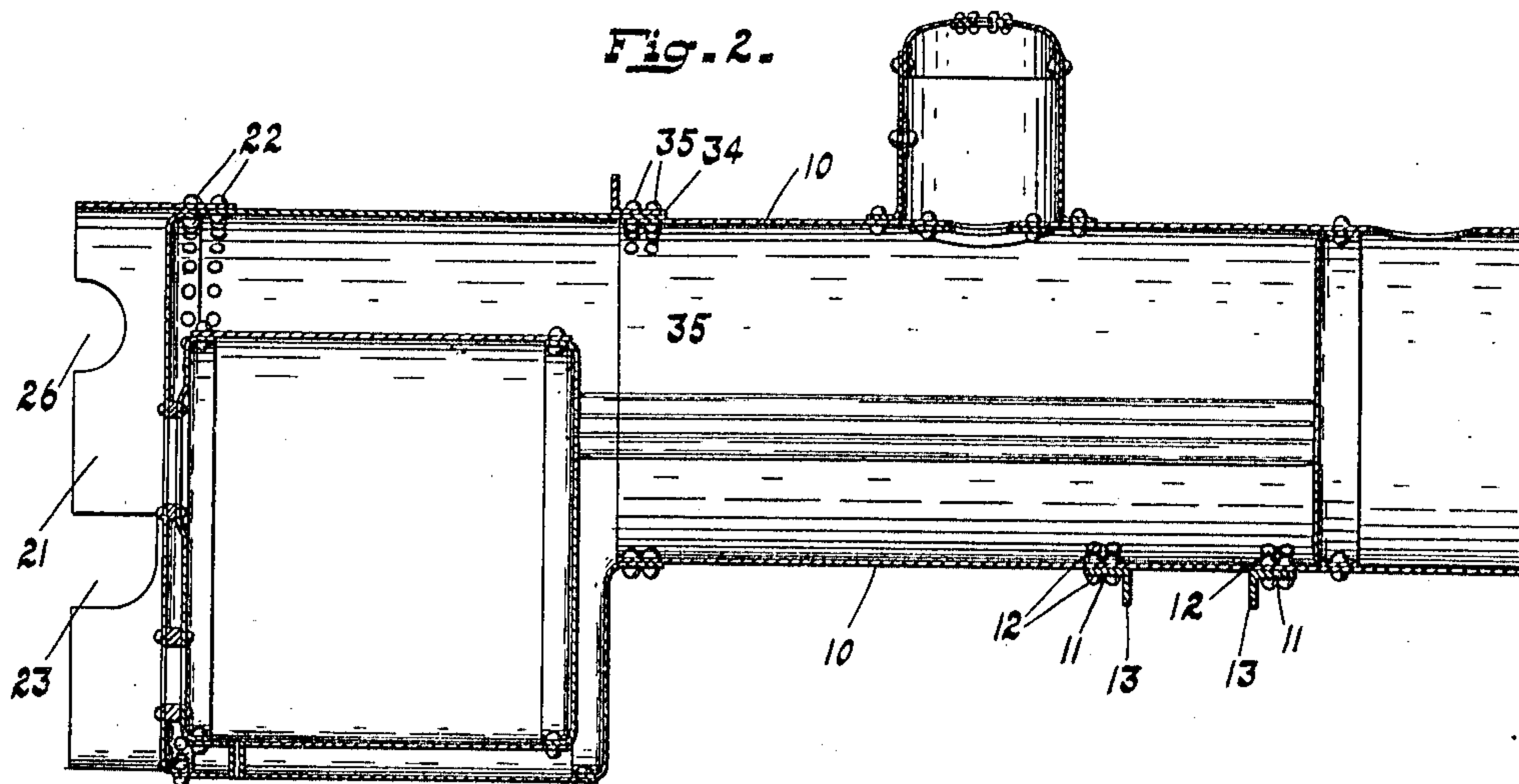


Fig. 2.



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# UNITED STATES PATENT OFFICE.

HARRY C. CLAY, OF COLUMBUS, INDIANA, ASSIGNOR TO REEVES & COMPANY, OF COLUMBUS, INDIANA, A CORPORATION OF INDIANA.

## BOILER.

969,746.

Specification of Letters Patent.

Patented Sept. 6, 1910.

Application filed December 13, 1909. Serial No. 532,775.

*To all whom it may concern:*

Be it known that I, HARRY C. CLAY, a citizen of the United States, residing at Columbus, in the county of Bartholomew and State of Indiana, have invented a certain new and useful Boiler, of which the following is a specification.

In the manufacture of traction engines many portions, like the king-post, the engine, etc. must be attached to the boiler shell and it has heretofore been customary to provide the boiler shell with threaded openings into which threaded clamping bolts are passed, said clamping bolts passing through castings forming part of the members mentioned. With such a construction it is difficult, after a time, to maintain steam tight joints, and recently the Canadian Government has passed an act condemning such construction unless reinforcing plates be arranged inside of the boiler shell at the points of attachment. Such a reinforcement is objectionable for many reasons, and the object of my present invention is to produce a construction by means of which castings, such as the king-post, journal bearings, engine, etc. may be attached to the boiler shell by removable bolts in such manner that a perfectly steam tight boiler shell may be maintained and in such manner that the expansion and contraction of the shell will not injuriously affect the said connections.

The accompanying drawings illustrate my invention.

Figure 1 is a side elevation of a traction engine constructed in accordance with my invention; Fig. 2 an axial section of the boiler shell, the stay-bolts and many of the fire tubes being omitted however for the sake of clearance; Fig. 3 a front elevation of the boiler shell, the smoke stack, steam dome and engine being omitted.

In the drawings, 10 indicates the main shell of the boiler to the lower side of which are secured two angle flanges 11, 11 which are bent to conform to the curvature of the shell and secured thereto by rivets 12, so that a steam tight connection may be produced. The depending arms 13 of the angles 11 face each other and are spaced apart, when the boiler is cold, a distance equal to the space between the outer faces of a pair of flanges 14, 14 formed at the upper end of the king-post casting 15, so that the said flanges 14 may be readily slipped between

the depending arms 13 of the angles 11 and detachably secured thereto by means of bolts 16 which pass through the arms 13 and flanges 14 but do not enter the boiler shell. By this arrangement, when the boiler shell expands under heat, the distance between the adjacent faces of the arms 13 will be increased. The said arms, however, are rigidly secured to the king-post casting 15 which does not materially expand so that there is a bending of the arms 13 toward each other. This action, however, has no effective tendency to tear the angles away from the boiler shell and therefore does not tend to make the connection between the angles and the boiler shell leaky.

At the rear end of shell 10 I provide an apron 21 which is secured to the shell by rivets 22 in a steam tight manner and this apron extends to the rear of the shell. At opposite sides, near the lower ends of the apron, I provide notches 23 adapted to receive the axle bearings 24 bolted to the apron by the removable bolts 25. Similarly the apron 21 is provided at a higher point with opposite notches 26 to receive the countershaft bearings 27 which are secured to the apron by the removable bolts 28. At the upper side the apron 21 receives a saddle casting 29 which is connected thereto by the removable bolts 31 and this saddle casting forms a support for one end of the engine 32, the opposite end of said engine having a portion 33. Secured to shell 10 is an angle 34, said angle being secured to the shell by means of rivets 35. The horizontal arm of angle 34 projects forwardly, *i. e.* away from the apron 21, and portion 33 of the forward end of the engine is connected to the forward face of the vertical arm of the angle by means of removable bolts 36 so that, when the boiler shell expands under heat, the stress placed upon the vertical arm of the angle 34 will tend to swing it away from the rivets 35 so that there will be no effective tendency to disturb the steam tight connection of the angle with the boiler shell.

I claim as my invention:

1. In a traction engine, the combination with the boiler shell, of a pair of circumferentially arranged angles permanently connected to said shell, and a king-post member detachably secured to the vertical arms of both said angles.

2. In a traction engine, the combination with the boiler shell, of a pair of circumferentially arranged angles permanently connected to said shell with their horizontal  
5 arms projected in opposite directions, and a king-post member detachably secured to the vertical arms of both said angles.

3. In a traction engine, the combination of the boiler shell, a circumferentially arranged fixture-receiving angle permanently  
10 connected to the shell, a second fixture-receiving member also attached to the boiler and a fixture connected to said second mem-

ber and also detachably connected to the free arm of said angle in such manner that, 15 upon expansion of the shell, the fixture will tend to swing the free arm of the angle away from the other arm of the angle.

In witness whereof, I, have hereunto set my hand and seal at Columbus, Indiana, 20 this tenth day of December, A. D. one thousand nine hundred and nine.

HARRY C. CLAY. [L. s.]

Witnesses:

J. EDWARD COMFORT,  
J. H. BACHTEL.