

No. 668,439.

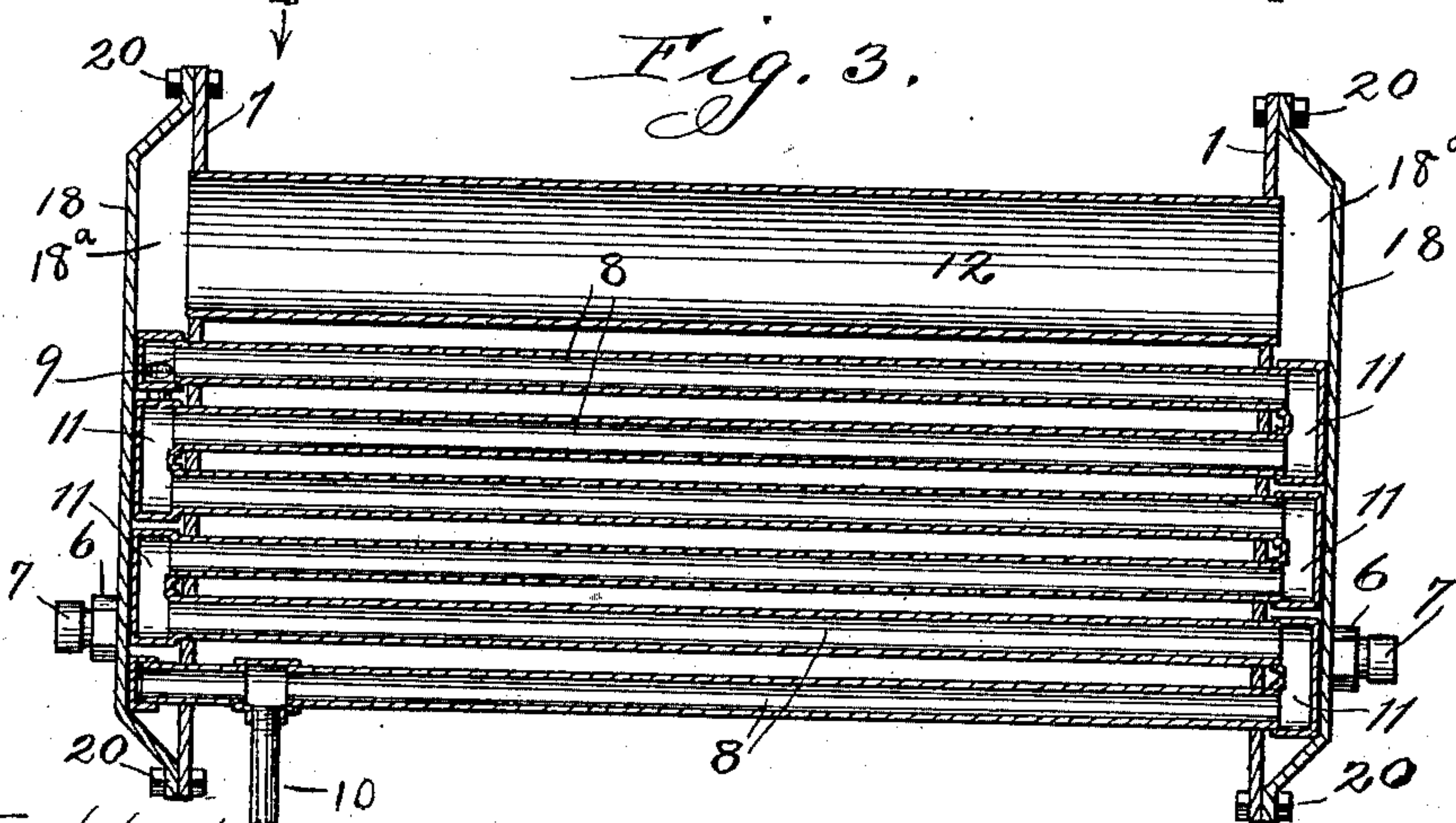
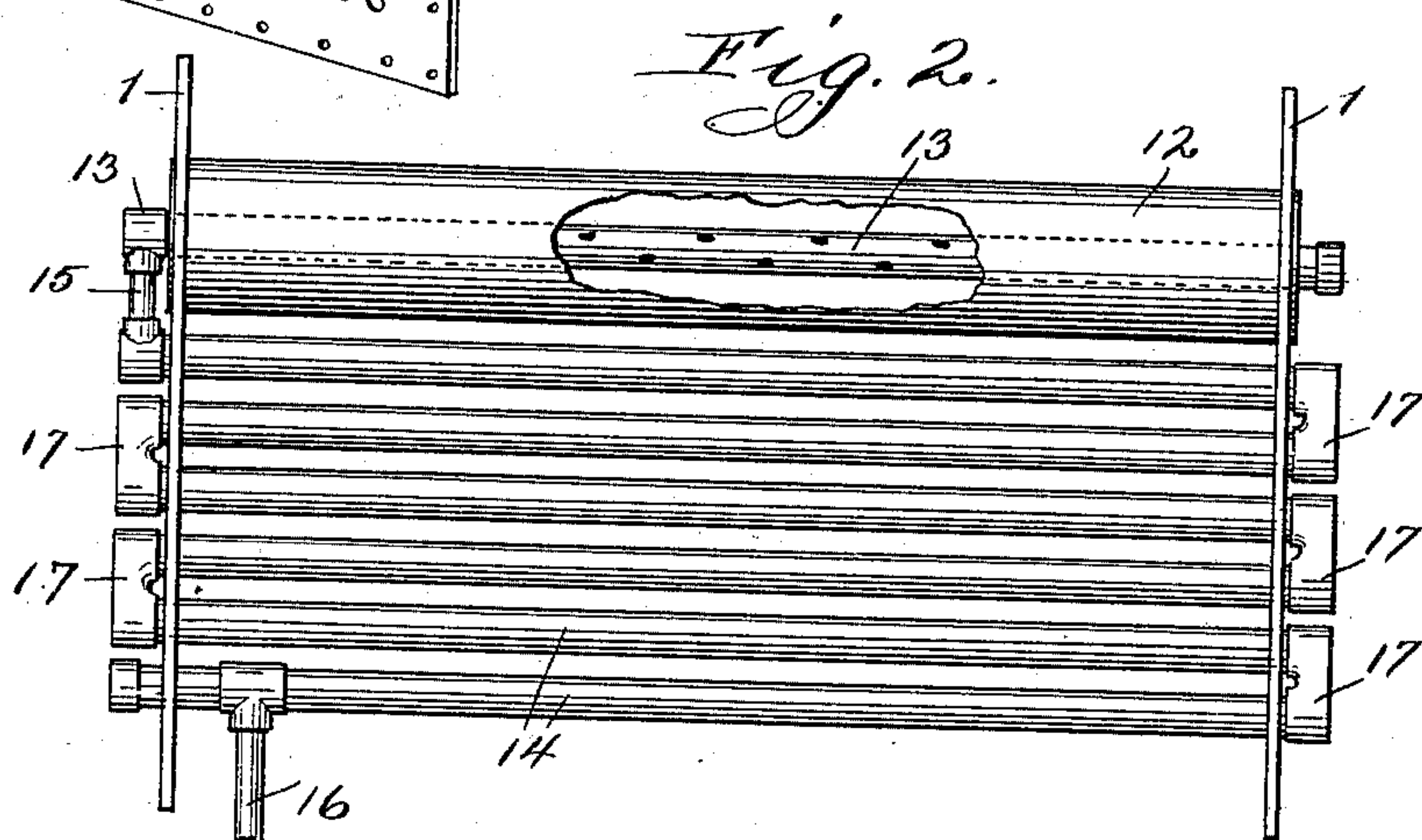
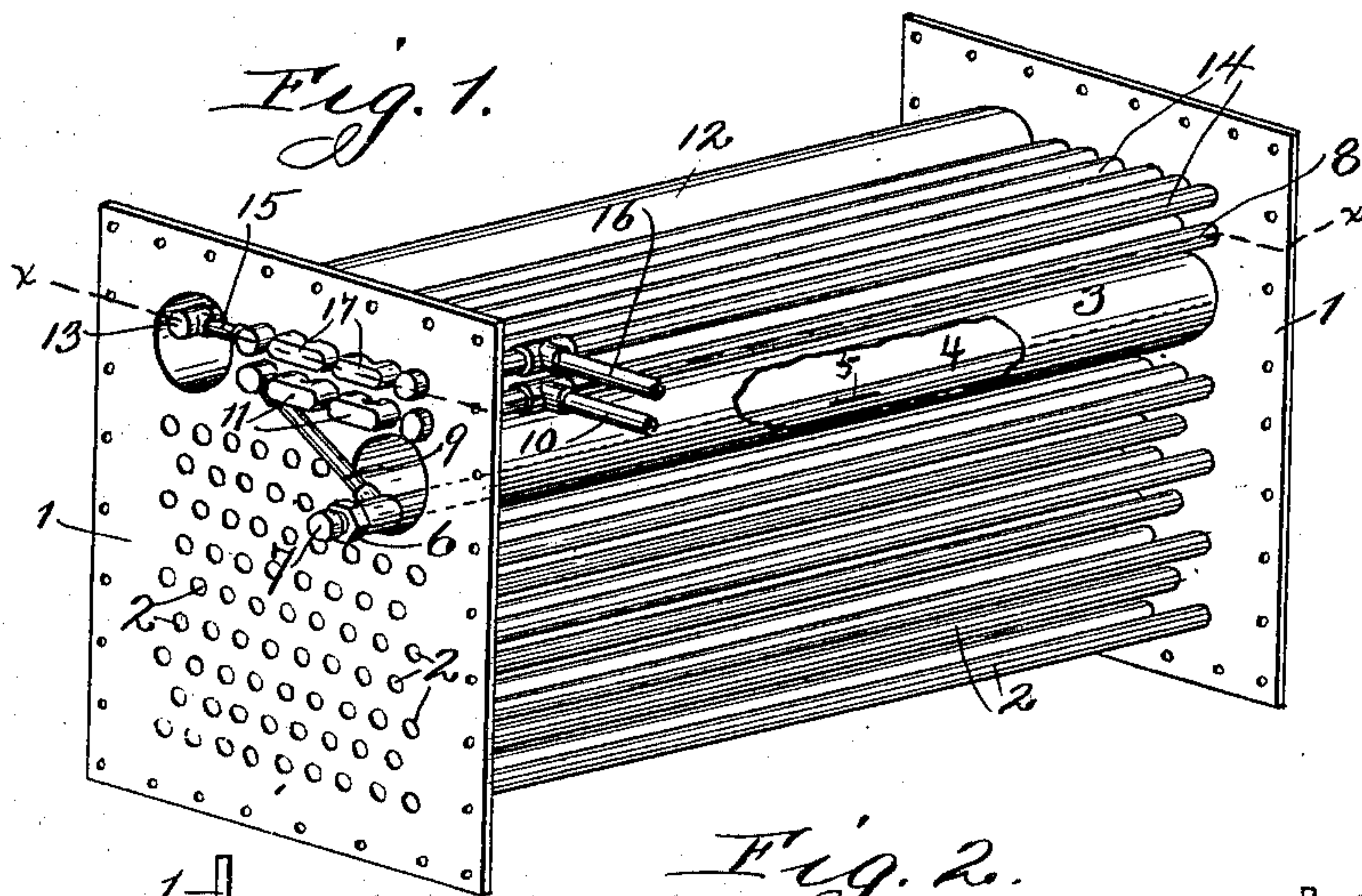
Patented Feb. 19, 1901.

M. H. DETRICK.
BOILER FOR AUTOMOBILES.

(No Model.)

(Application filed Sept. 25, 1900.)

2 Sheets—Sheet 1.



Witnesses:
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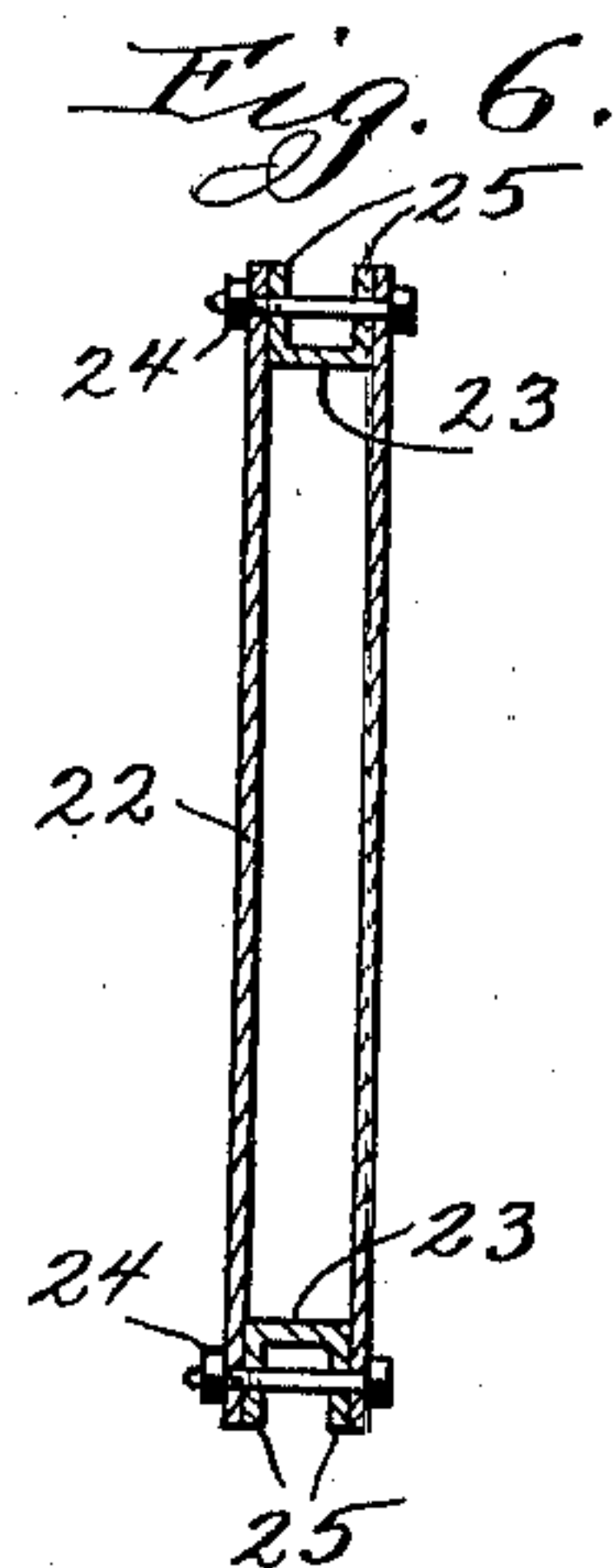
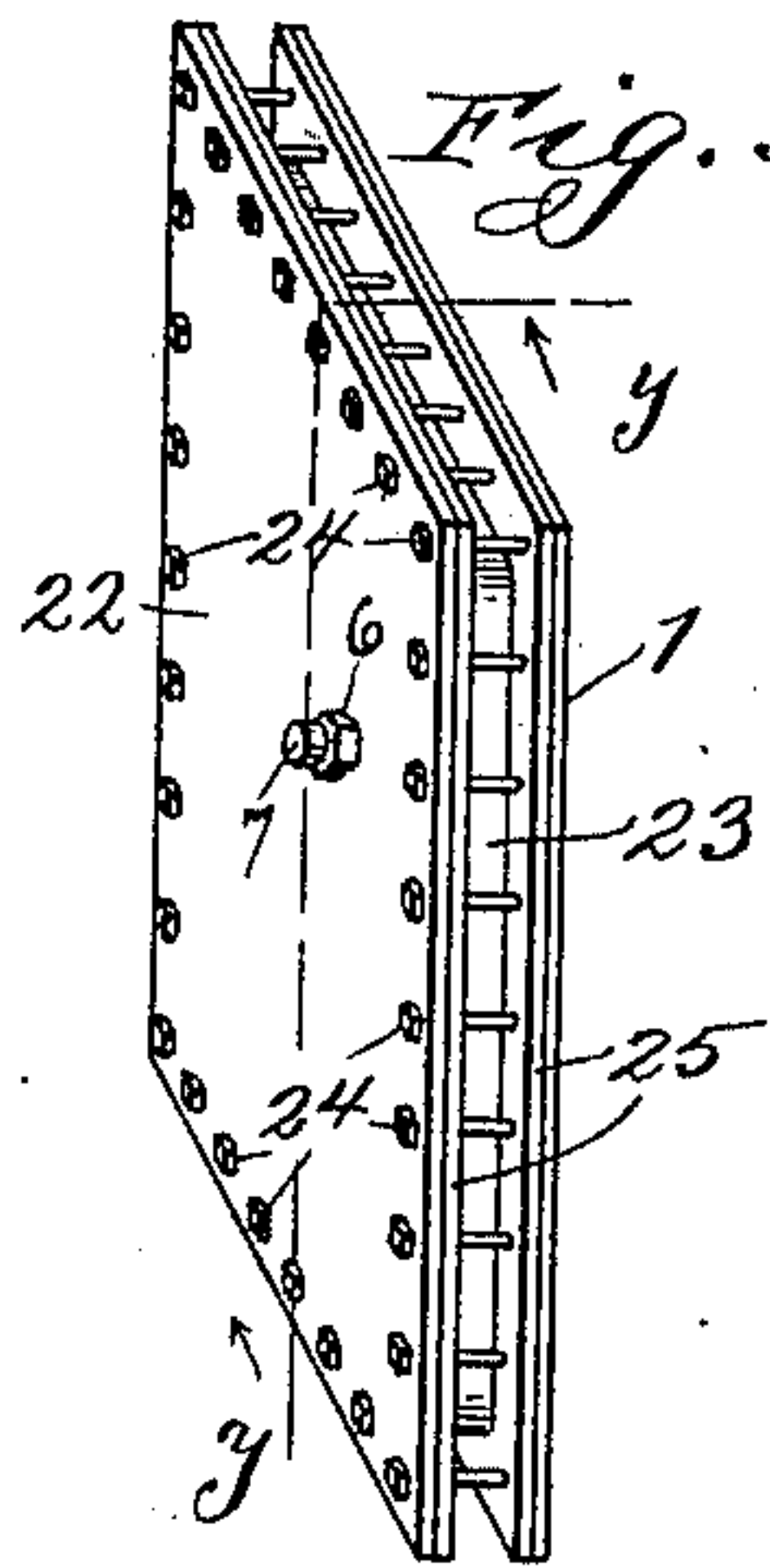
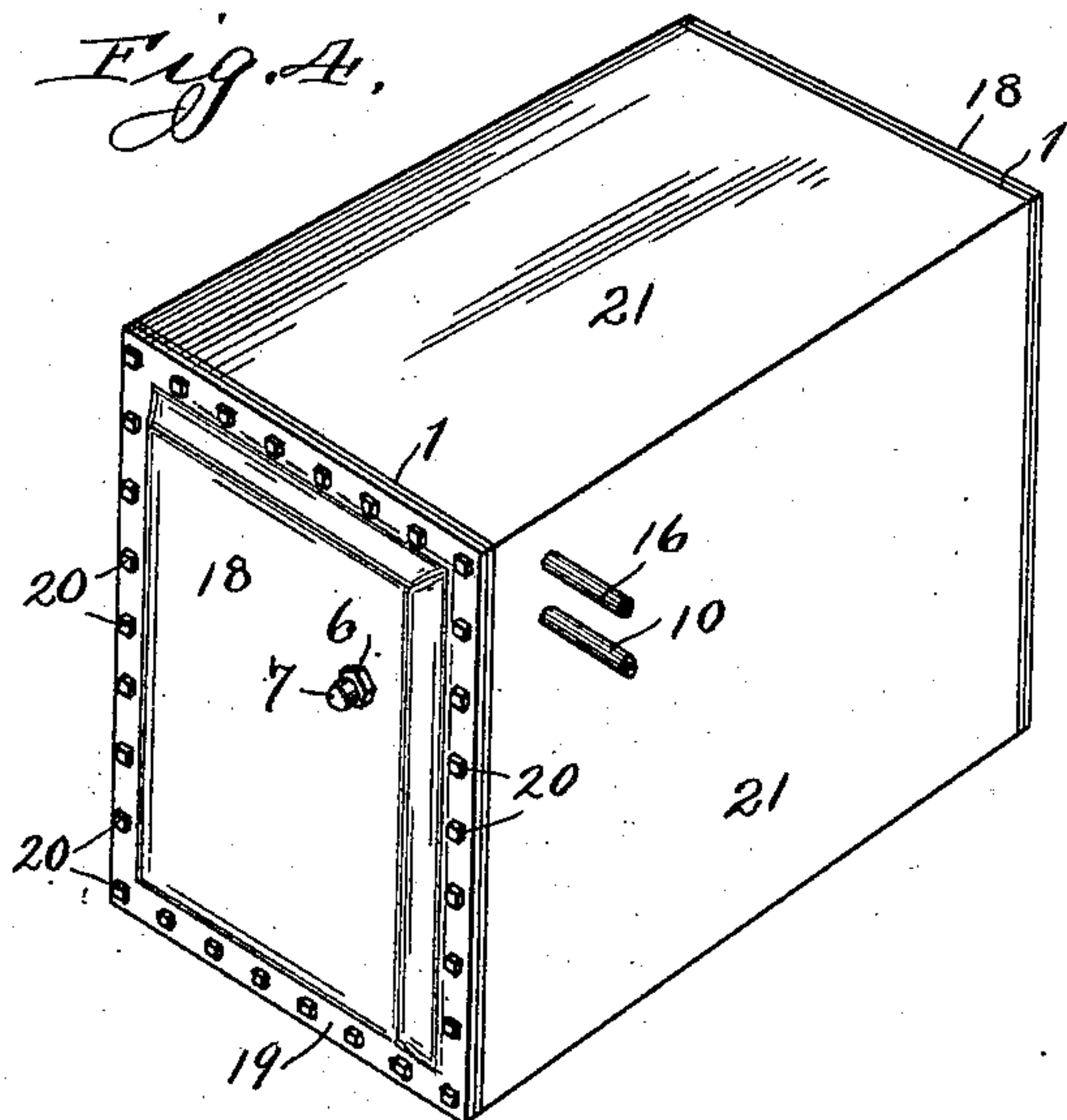
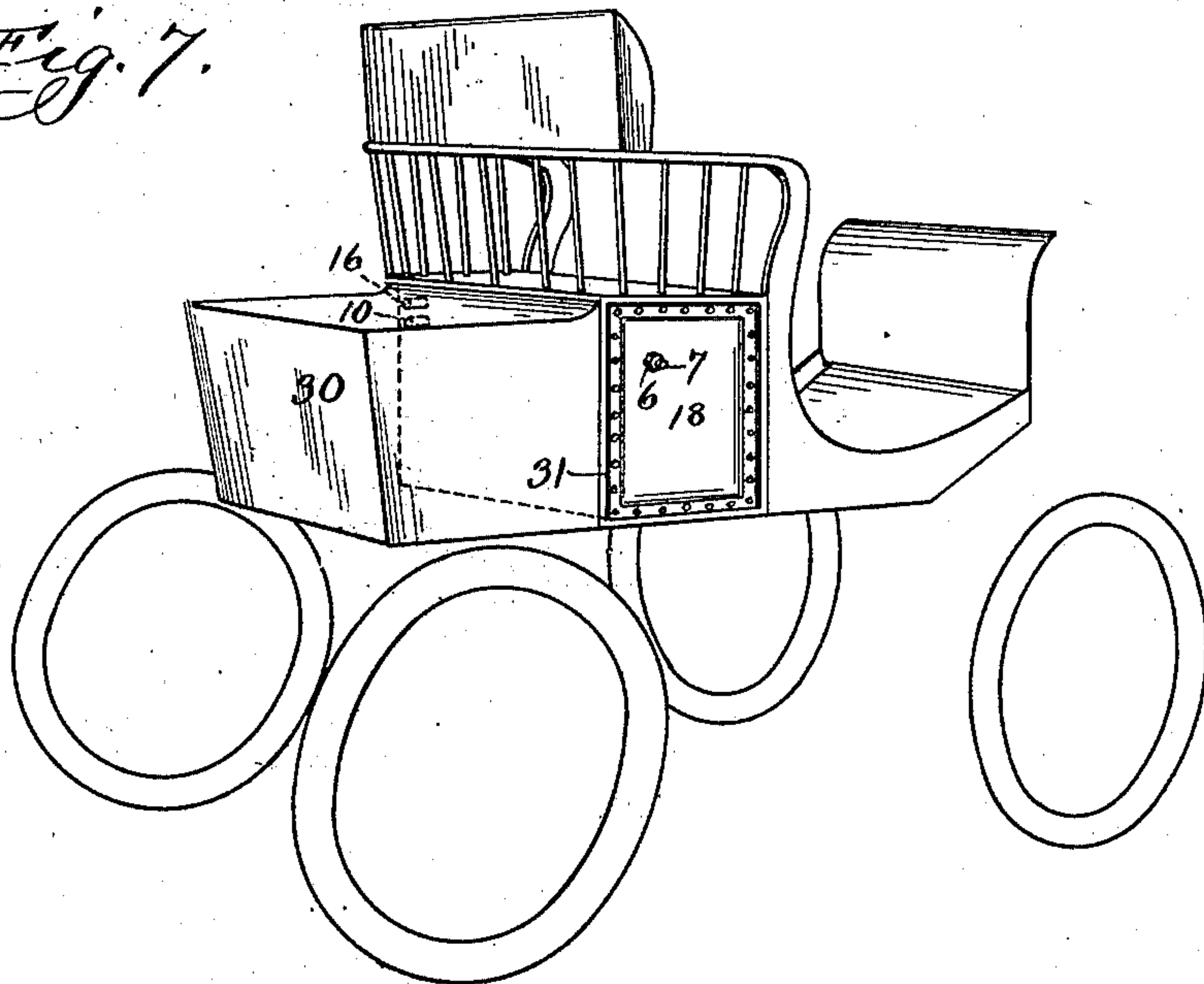


Fig. 7.



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UNITED STATES PATENT OFFICE.

MYRON H. DETRICK, OF STERLING, ILLINOIS.

BOILER FOR AUTOMOBILES.

SPECIFICATION forming part of Letters Patent No. 668,439, dated February 19, 1901.

Application filed September 25, 1900. Serial No. 31,044. (No model.)

To all whom it may concern:

Be it known that I, MYRON H. DETRICK, a citizen of the United States, residing at Sterling, in the county of Whiteside and State of Illinois, have invented certain new and useful Improvements in Boilers for Automobiles; and I do 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, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention relates to automobiles, necessarily pertaining to that class of such vehicles which are propelled by steam.

My device is of horizontal type, compactly built and comprising novel features whereby the water is heated before entering the boiler and the steam is relieved of all moisture before leaving same.

My invention is constructed with detachable boiler-heads, which are easily removed without disturbing the other mechanism, permitting the cleaning or repairing of the internal mechanism. This is greatly facilitated by reason of my device being designed to set transversely of the vehicle, whereby the boiler-heads are easily accessible at the sides thereof.

In machines of this class now in use the construction of the boiler is such that in cleaning same or making repairs thereof a great deal of time and labor is required in taking the mechanism apart and putting it together again, whereas in my device the operation is comparatively simple, and a great amount of time and labor is saved.

In the drawings, Figure 1 is a perspective of my device with boiler heads and shell removed and a portion of the water-drum cut away. Fig. 2 is a plan view thereof. Fig. 3 is a horizontal section in the line xx of Fig. 1. Fig. 4 is a perspective showing boiler head and shell in position. Fig. 5 shows a modified construction of the boiler-head in perspective. Fig. 6 is a vertical section in the line yy of Fig. 5. Fig. 7 is an outline of an automobile in perspective, showing location of my invention therein.

Similar numbers refer to similar parts throughout the drawings.

1 1 are end plates of the boiler, into which are expanded several parallel rolls of horizontal boiler-tubes 2 2. If desired, the boiler-tubes can be inclined slightly to facilitate the circulation of water therein.

3 is an enlarged boiler tube or drum also extended into the end plates 1, the function of which drum is to insure a greater volume of water in the boiler. Running through the drum 3 is a water-feed pipe 4, closed at each end and provided midway of its length with an opening or slot 5. On account of convenience of cleaning I prefer to use for the pipe 4 a hollow stay-bolt passing through the boiler-head at each end and provided at each end with a nut 6 and cap 7 on the outside thereof.

Just above drum 3 is a series of water-pipes 8; extending slightly beyond plates 1 at each end, the inner pipe 8 communicating with the water-pipe 4 by means of a small pipe 9 and the outer pipe 8 being closed at that end nearest the pipe 9 and communicating at or near such end with a water tank or reservoir (not shown) through the pipe 10. By means of return connections 11 the water is caused to pass alternately through the series of pipes 8 from the outer one of such pipes to the inner one and thence to the drum 3 through the pipe 9 and feed-pipe 4. The connections 11 are tightly secured to the ends of the pipes 8 and are held firmly in place by the boiler-heads, hereinafter described, when such heads are in position. In passing through the system of water-pipes 8 the water is subjected to the influence of the heat in the boiler and the temperature thereof raised considerably by the time it enters the water-drum.

12 is a steam-drum tightly secured in the end plates 1 at a height normally above the water-line in the boiler and having extending therethrough the steam dry-pipe 13.

Just above the water-pipes 8 is a series of steam-pipes 14, the inner one of such pipes connecting with the dry-pipe 13 by means of a small pipe 15, and the outer one of such pipes 14 connecting with the engine by means of a pipe 16. The outer pipe 14 is closed at that end nearest the pipe 15, the pipe 16 con-

necting therewith nearest such closed end. By means of return connections 17, similar to the connections 11, the steam after being conducted through dry-pipe 13 and pipe 15 to the inner steam-pipe 14 is caused to pass alternately through the series of steam-pipes and from the outer one thereof to the engine. The steam is thus subjected to the action of the superfluous heat in the boiler.

The boiler is provided at each end with a head 18, having flanges 19, through perforations in which bolts 20 pass through corresponding perforations in the end plates 1, securing the heads 18 thereto. By this construction a water and steam compartment 18^a is formed in each end of the boiler, with which the boiler-tubes, the water-drum, and the steam-drum have free communication. Any usual means of calking or packing may be employed to render the boiler-heads water and steam tight. The boiler, water, and steam pipes are incased on the top and sides by a metallic shell 21.

Figs. 5 and 6 show a boiler-head formed of a metallic plate 22, separated from the end plate 1 by a channel-iron collar 23, having bolts 24 passing through the end plate 1, head 22, and flanges 25 of the channel-iron. The inner flange 25 may be riveted or otherwise permanently secured to the end plate 1, so that by releasing the bolts 24 the boiler-head can be separately removed. By this construction the space in the end of the boiler is of uniform depth, not being encroached upon by the boiler-head, and more space is secured for the boiler-tubes 2, permitting the use of a larger number thereof. The heat is applied by means of an ordinary burner beneath the boiler-tubes. The water passes through the series of water-pipes 8, thereby becoming heated to some extent, passing from thence to the drum 3 and boiler-tubes, where it is converted into steam which fills the steam-drum 12 and passes through the dry-pipe 13 and steam-pipes 14 to the engine, any moisture which might remain in the steam at the time of leaving the drum 12 being removed while passing through the series of steam pipes or superheater.

Fig. 7 shows a vehicle having a body 30, provided with opening 31 in each side thereof, and my invention is located transversely of such wagon-body, so that the boiler-heads are accessible through the openings 31. These

openings may be normally closed by suitable panels or doors.

The water being conveyed to the boiler at the side thereof and the steam removed in the same way, nothing interferes with the removal of the boiler-head (aside from the bolts securing same in position) but the cap and nut on the feed-pipe or hollow stay-bolt 4. To clean or repair the boiler the side of the vehicle is opened, (or both sides, if desired,) the cap 7 and nut 6 removed, the bolts 20 released, and the head 18 removed through the opening 31, rendering the internal mechanism easily accessible. While the boiler-heads are removed, if it is desired to give any attention to the water-pipes 8 or steam-pipes 14 the return connections of either system can be easily removed and replaced.

The use of my invention is not limited to automobiles, but it may be employed for any work of light character.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. In a boiler for automobiles, adapted to set transversely of the vehicle, a system of boiler-tubes; a water-drum; a steam-drum; a system of water-pipes, and system of steam-pipes; all of said tubes, drums, and pipes extending lengthwise of the boiler; and detachable boiler-heads adapted to be removed through the sides of the vehicle; substantially as set forth.

2. In a boiler for automobiles; the combination of the end plates 1, boiler-heads 18, secured thereto; boiler-tubes 2, steam-drum 12, dry-pipe 13, steam-pipes 14; connected with dry-pipe 13 through pipe 15; return connections 17, and means of communication from outer pipe 14 to the engine; substantially as described.

3. In a boiler for automobiles, the combination of the end plates 1, boiler-tubes 2, water-drum 3, steam-drum 12, channel-iron collar 23, secured to the plate 1, and boiler-head 22, detachably secured to the collar 23; substantially as shown and described.

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

MYRON H. DETRICK.

Witnesses:

I. L. WEAVER,
E. L. HENDRICKS.