

(No Model.)

2 Sheets—Sheet 1.

R. M. DIXON.
GAS HOLDER.

No. 567,764.

Patented Sept. 15, 1896.

Fig. I.

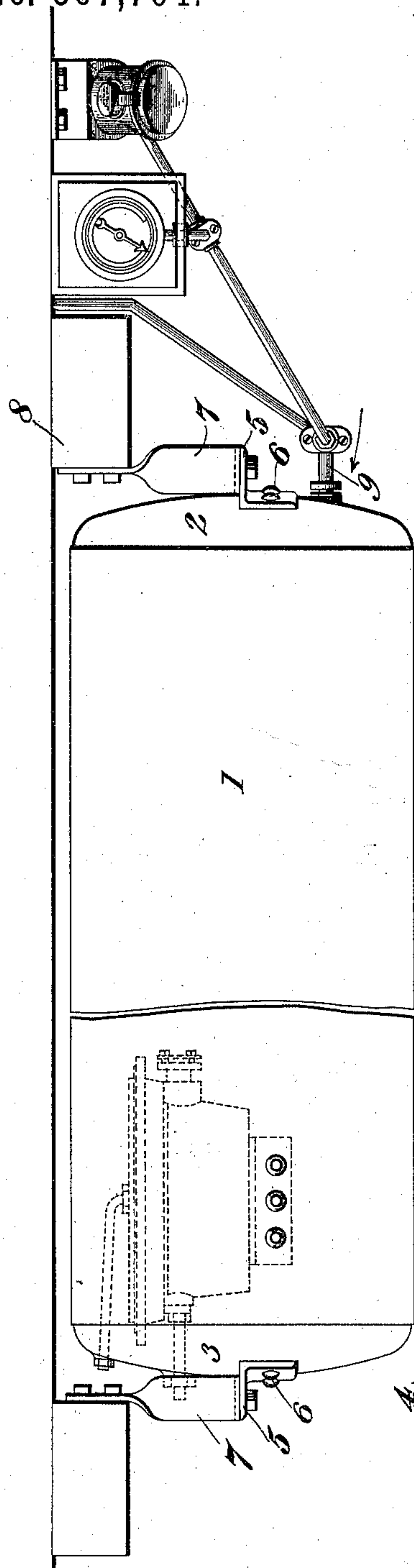


Fig. III.

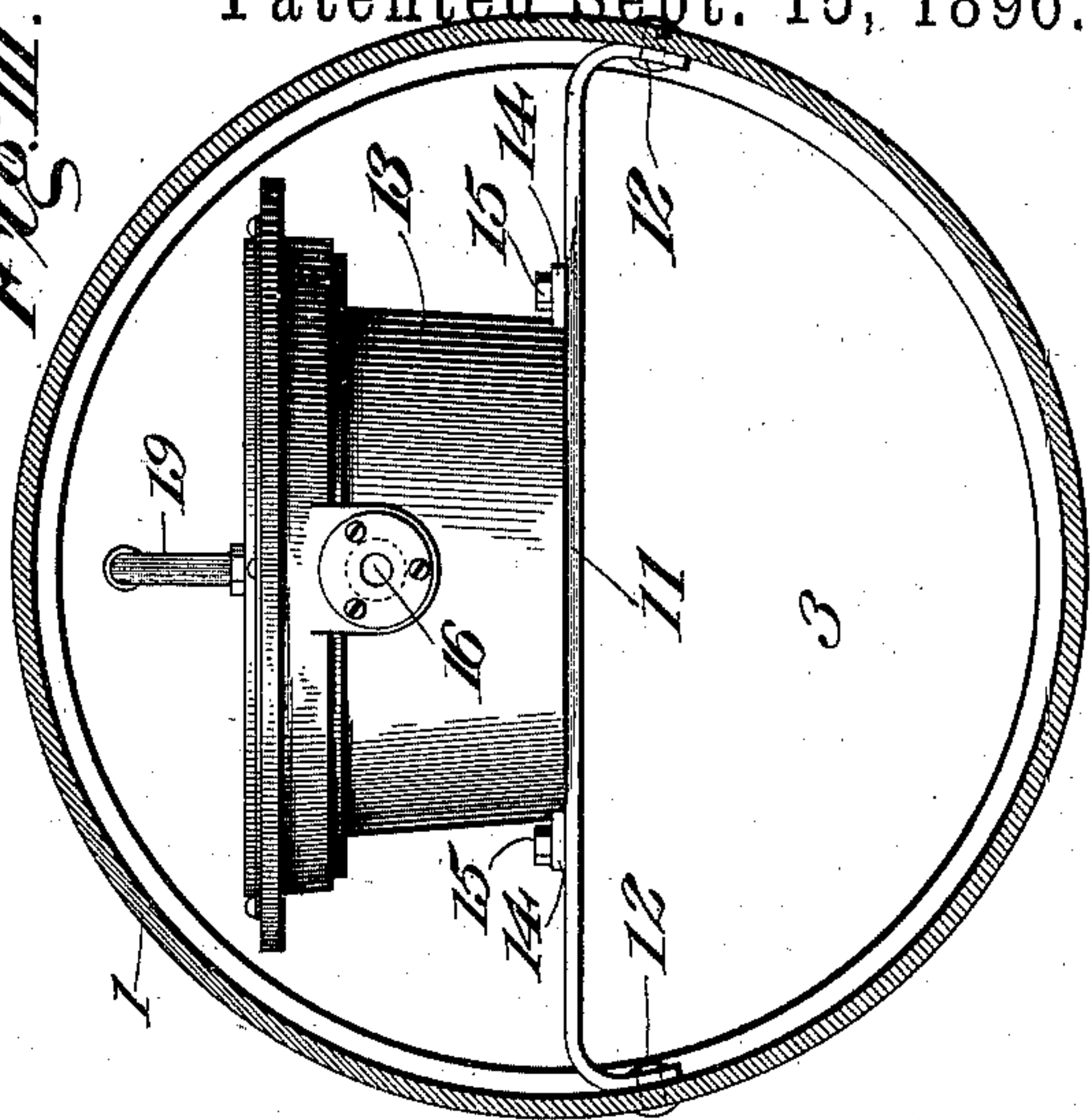
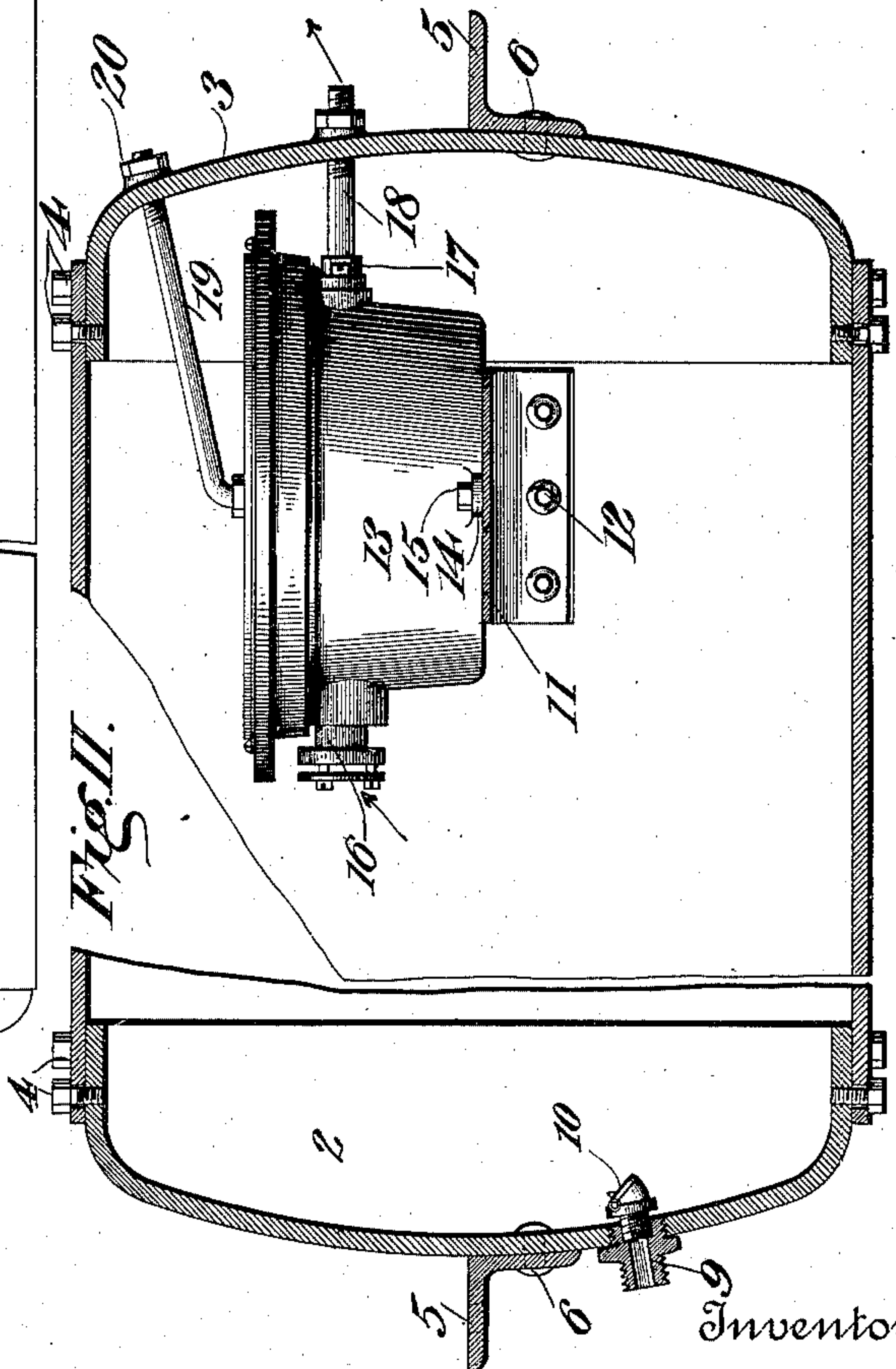


Fig. II.



Witnesses

M. E. Fowler
Snackes

Inventor

Robert M. Dixon
By Joseph L. Starnes
Attorney

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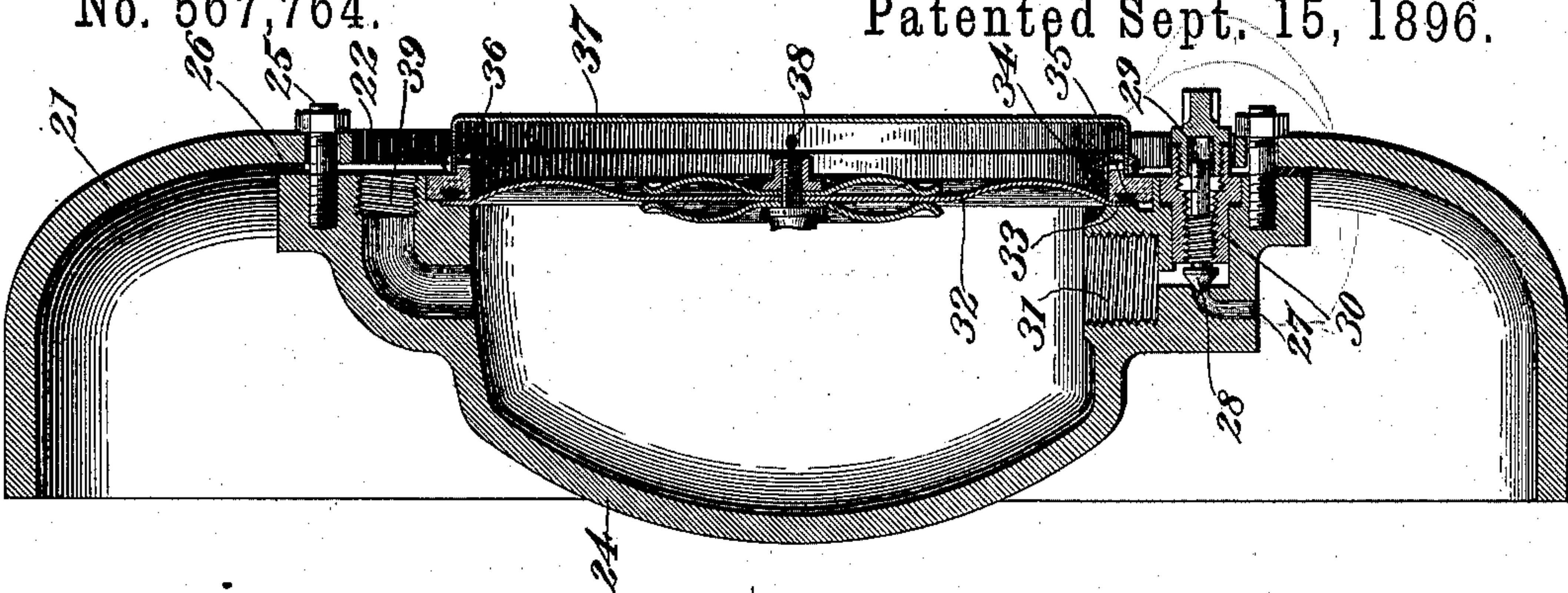


Fig. V.

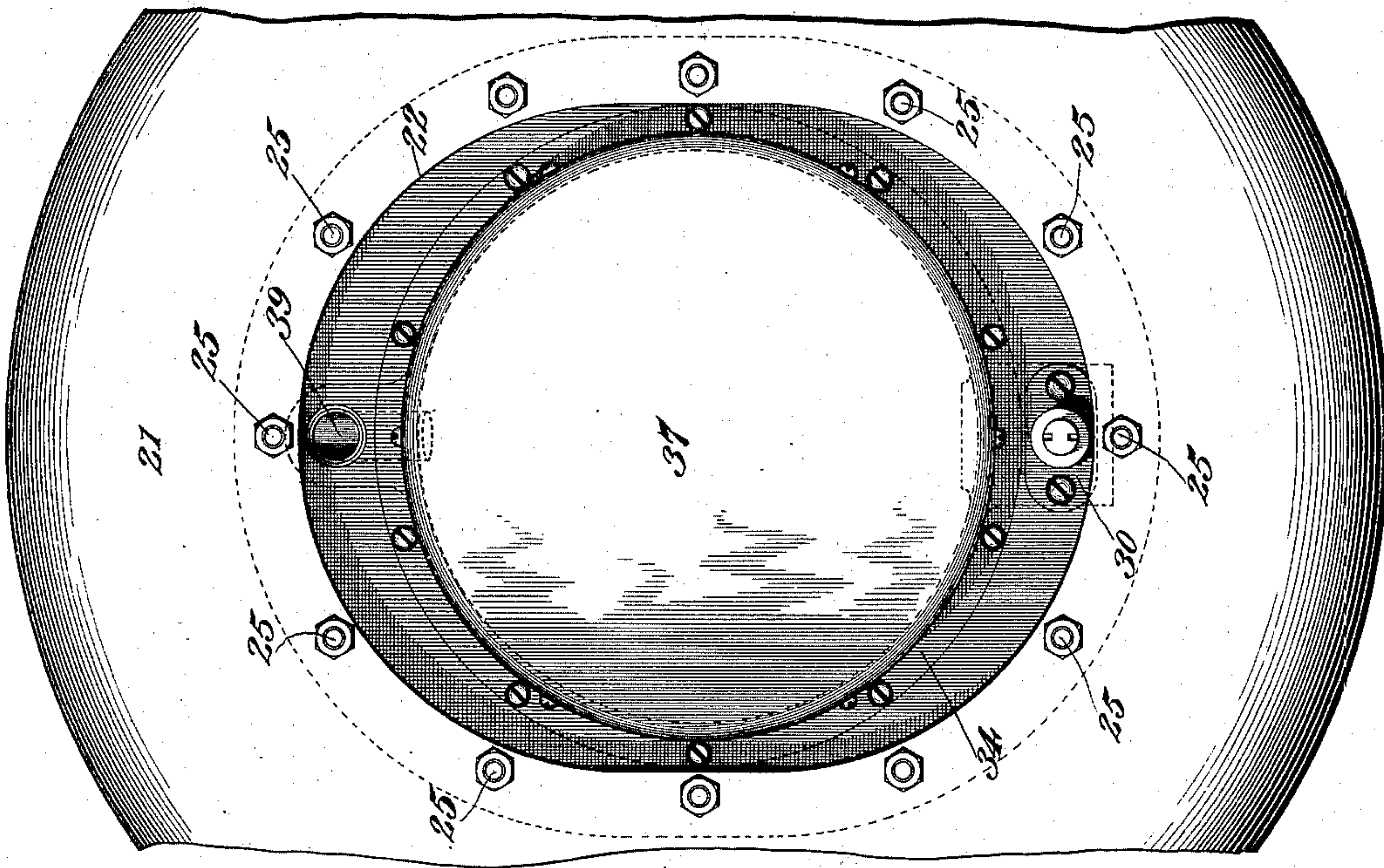


Fig. IV.

Witnesses
McFowler
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Inventor
Robert M. Dixon
By *Joseph L. Atkins* Attorney

UNITED STATES PATENT OFFICE.

ROBERT MUNN DIXON, OF EAST ORANGE, NEW JERSEY, ASSIGNOR TO THE
SAFETY CAR HEATING AND LIGHTING COMPANY, OF NEW JERSEY.

GAS-HOLDER.

SPECIFICATION forming part of Letters Patent No. 567,764, dated September 15, 1896.

Application filed January 7, 1896. Serial No. 574,576. (No model.)

To all whom it may concern:

Be it known that I, ROBERT MUNN DIXON, of East Orange, county of Essex, State of New Jersey, have invented certain new and useful
5 Improvements in Gas-Holders for Railway-Cars or the Like, of which the following is a specification, reference being had to the accompanying drawings.

The object of my invention is to produce
10 certain improvements in gas-lighting systems especially designed for railway service in which the gas to be utilized is stored under high pressure until required for use. In systems of this description it is necessary to re-
15 duce the high-pressure gas to a pressure low enough to render it available in the usual burners, for example. This reduction of pressure is usually accomplished by what is known in the art as a "regulator."

20 Heretofore where regulators for railway-car service have been employed they have been connected to the receiver by pipes, for example.

Broadly stated, my invention consists in
25 the incorporation of a regulator into a receiver, thereby dispensing with much of the piping now employed, in that way simplifying the system and at the same time completely protecting the regulator by the heavy
30 walls of the receiver and making it impossible in an ordinary accident for any gas to issue from the receiver except under low pressure, in which state it is comparatively harmless.

35 The specific features of my invention, as distinguished from its generic form, will be hereinafter defined in the specification and succinctly set forth in the appended claims.

In the accompanying drawings, Figure I is
40 a side elevation of a portion of a car, with one of my receivers attached. Fig. II is a central vertical section of one end of a receiver with the regulator shown in elevation. Fig. III is a transverse section thereof, look-
45 ing toward the regulator. Fig. IV is an end view of a modified form of my invention. Fig. V is a transverse section thereof, taken through the regulator, with the operative parts of the regulator, except the flexible dia-
50 phragm, omitted.

Referring to the figures on the drawings, 1

indicates the body part of the receiver, being preferably a cylinder of heavy plate metal.

2 indicates one head thereof, and 3 the other, the heads being secured to the body
55 part, as by tap-bolts 4, serving to securely unite the heads to the body part by gas-tight joints:

5 indicates brackets secured to the heads by rivets 6, by means whereof the receiver
60 may be secured to hangers 7, that suspend it from the under side of the car-body 8.

9 indicates a gas-supply inlet, the outflow from which is controlled by any suitable valve mechanism, as, for example, an ordinary
65 gravity check-valve 10.

11 indicates a bridge secured, as by rivets 12, to the opposite sides of the cylinder 1 near the head 3.

13 indicates any suitable gas-regulator,
70 which may be provided with lugs 14, by means whereof bolts 15, extending through openings in the same and screwing into the bridge 11, may firmly secure the regulator in place within the receiver.

The details of the regulator, being perfectly
75 understood in the art and constituting no part of my invention, are not illustrated. It is deemed sufficient for the present purpose to specify that the regulator is provided with
80 the usual regulator-inlet 16 and low-pressure outlet 17, the regulator-inlet opening directly into the receiver, while the low-pressure outlet communicates, as by a pipe 18, passing
85 through the wall of the head 3, with the lamp system or other pipe system (not illustrated) of the car.

19 indicates a pipe communicating at one end with the interior of the regulator above the diaphragm and extending through air-
90 tight connection 20 at the other end to the outside of the head 3, and which serves to insure atmospheric pressure only on the upper side of the diaphragm, thereby securing the proper automatic regulation of the degree of
95 pressure through the low-pressure outlet 17 and pipe 18.

Let it be observed in this connection that the regulator is entirely surrounded and pro-
100 tected at all points by the heavy walls of the receiver.

If it should become necessary to repair the

regulator in any wise, the bolts 4 may be unscrewed and the head 3 taken out for that purpose.

In Figs. IV and V of the drawings I illustrate a modified form of apparatus. In these figures the head of the receiver (indicated by 21) is provided with a circular opening 22, concentric with the axis of the cylindrical receiver. Within this is a concave or dish-shaped head 24, secured as by bolts 25, an annular gasket 26 being secured between the edge of the head 24 and the head 21 to insure a tight joint. The wall of the head 24 being of equal thickness with that of the head 21 the strength of the receiver is unimpaired, and on account of its shape the regulator located within it is entirely protected by it. The annular wall of the head 24 is preferably cast thick enough to accommodate a high-pressure inlet 27, that is controlled by a conical valve 28, whose stem 29 may be turned by a wrench from the outside of the receiver, as required. A bushing 30 may be employed between the metal of the head 24 and the valve-stem 29.

31 indicates an internally-screw-threaded socket within which the nipple of the regulator-valve mechanism (not illustrated) may be screwed. The valve mechanism of the regulator proper is, as above suggested, purposely omitted, the only portion thereof which is shown being the well-known flexible diaphragm 32, that is secured against the annular face 33 of the head 24, as by a ring 34, and its intermediate gasket 35. The ring 34 preferably carries a rim 36, to which may be screwed a cap 37, the cap 37 being provided with an air-hole 38, corresponding in office to the pipe 20 above mentioned.

By the employment of the dish-shaped head 24 and the cap 37 the regulator is entirely incorporated within the receiver and is as fully protected thereby as in the form of embodiment of my invention shown in Figs. I to III, inclusive. I prefer the form shown in Figs. IV and V, however, because of the facility with which access to the interior of the regulator may be gained for repairing or adjusting the mechanism.

39 indicates the low-pressure outlet, which establishes communication between the interior of the regulator and the lamp or pipe system, supplying gas from the former to the latter under low pressure.

What I claim is—

1. The combination with a gas-receiver, of a pressure-regulator incorporated within the same and protected by the walls thereof,

substantially in the manner and for the purpose specified.

2. The combination with a gas-receiver, of a pressure-regulator inclosed within the same, and having its exterior pipe connections embodied within the walls of the receiver, substantially as set forth.

3. The combination with a gas-receiver, and pressure-regulator contained therein, of a high-pressure gas-inlet communicating with the regulator and opening directly into the receiver, without an intervening connection of any kind, substantially as set forth.

4. The combination with a gas-receiver head and opening therein, of a dish-shaped head, means for securing said parts together, and pressure-regulating mechanism carried within the dish-shaped head, substantially as set forth.

5. The combination with a gas-receiver head, dish-shaped head secured thereto, and pressure-regulating mechanism therein, of a low-pressure outlet opening from the face of the dish-shaped head, a high-pressure inlet formed in the wall thereof, a valve controlling the high-pressure inlet, and mechanism for operating said valve on the outside of the dish-shaped head, substantially as set forth.

6. The combination with a gas-receiver head, and dish-shaped head secured thereto, of a high-pressure inlet and low-pressure outlet in the wall of said dish-shaped head, and a flexible diaphragm secured across the face of the dish-shaped head, substantially as set forth.

7. The combination with a gas-receiver head and dish-shaped head secured thereto, of a high-pressure inlet and low-pressure outlet in the wall of said dish-shaped head, a flexible diaphragm secured across the face of the dish-shaped head, and a cap secured to the wall of the head and covering the diaphragm, substantially as set forth.

8. The combination with a receiver-head, dish-shaped head secured thereto, and a high-pressure inlet and low-pressure outlet in the walls thereof, of an annular face upon the dish-shaped head, a ring, means for securing the ring to the face, a flexible diaphragm secured between the ring and the annular face, and a cap secured to the ring, substantially as set forth.

In testimony of all which I have hereunto subscribed my name.

ROBERT MUNN DIXON.

Witnesses:

E. W. BULKLEY,
C. P. LAWTON.