

(No Model.)

2 Sheets—Sheet 1.

A. P. MASSEY.
EJECTOR FOR VACUUM BRAKES.

No. 428,621.

Patented May 27, 1890.

Fig. 1

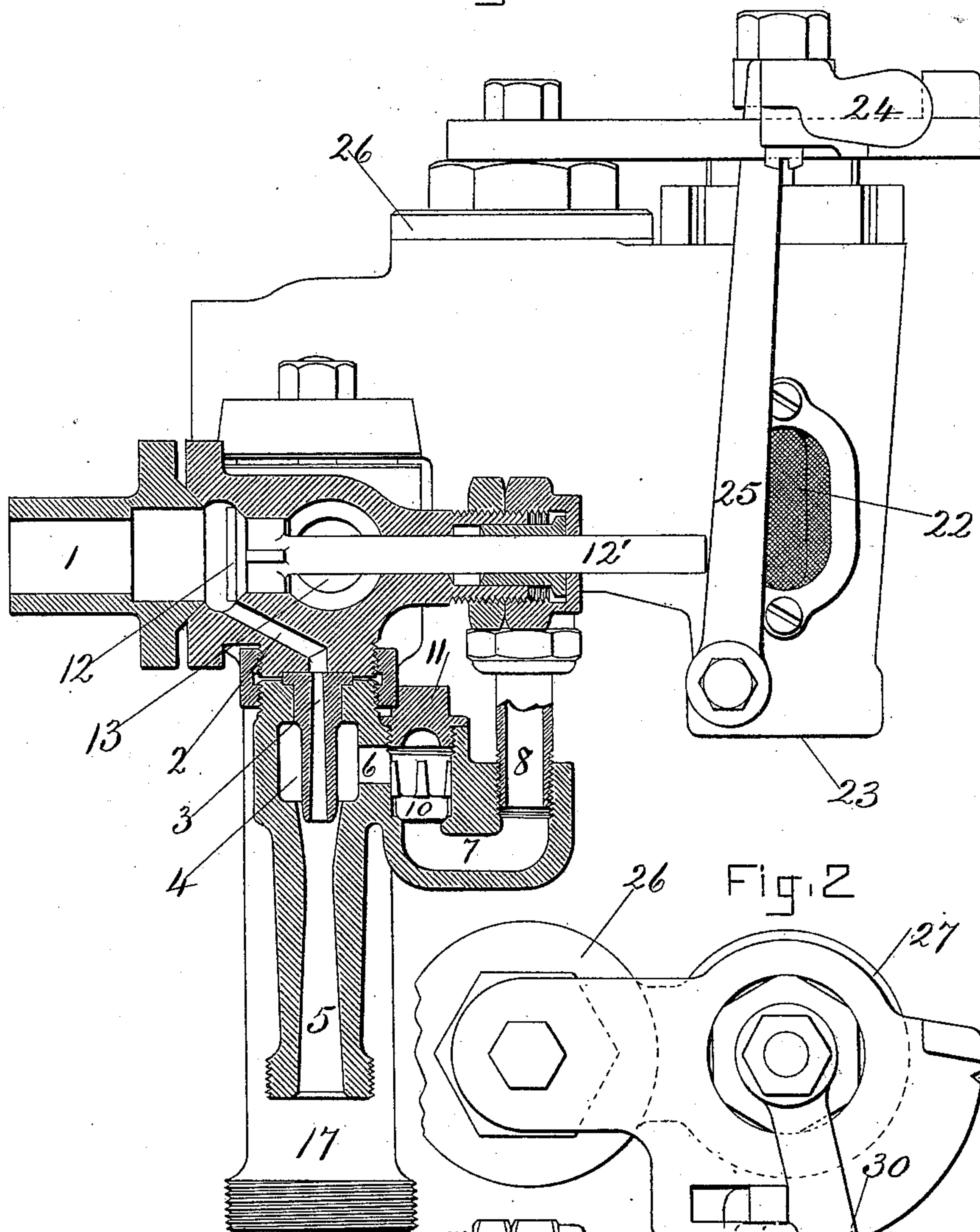
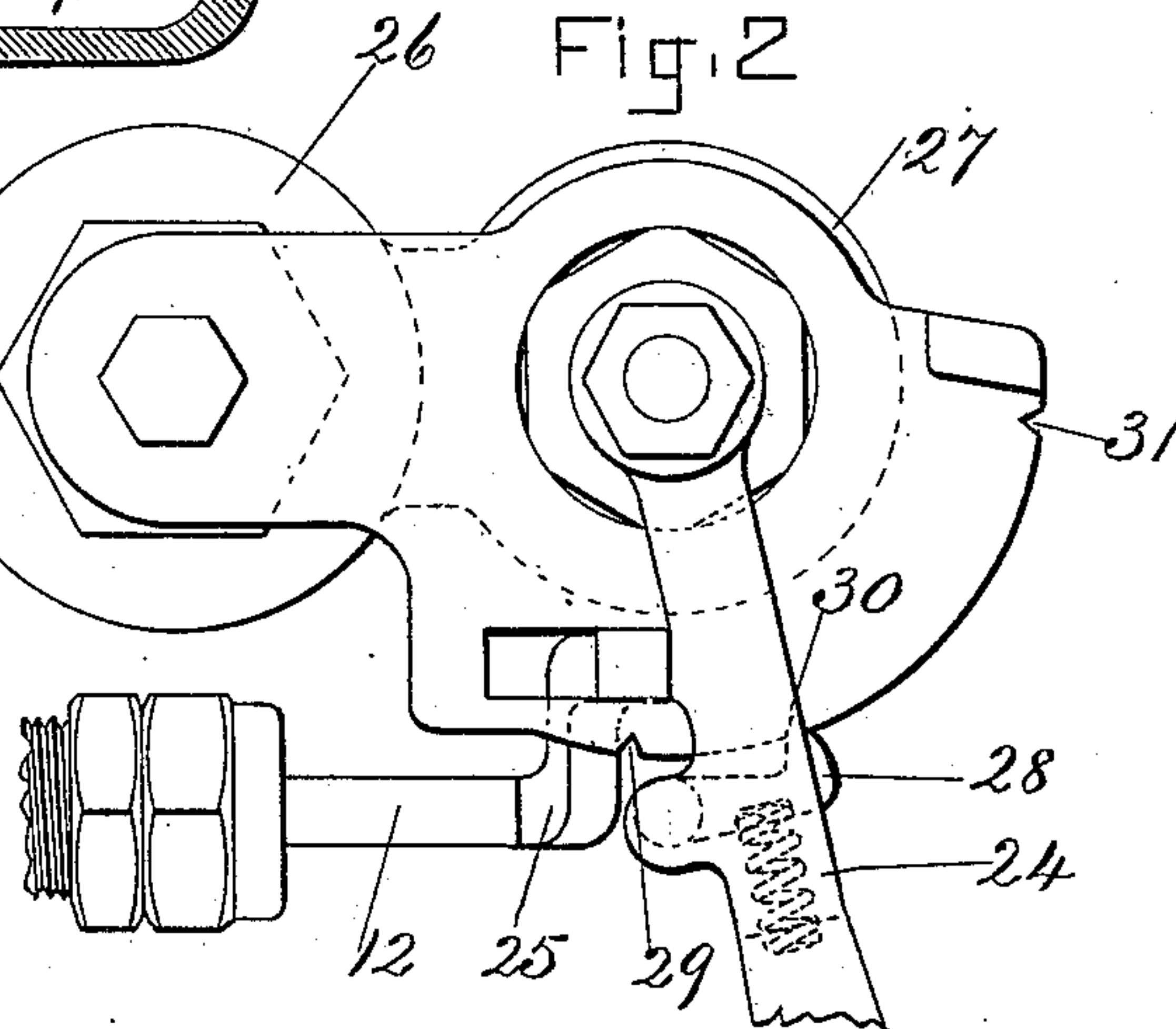


Fig. 2



WITNESSES
Clifton and
F. L. Massey.

INVENTOR
Albert P. Massey

(No Model.)

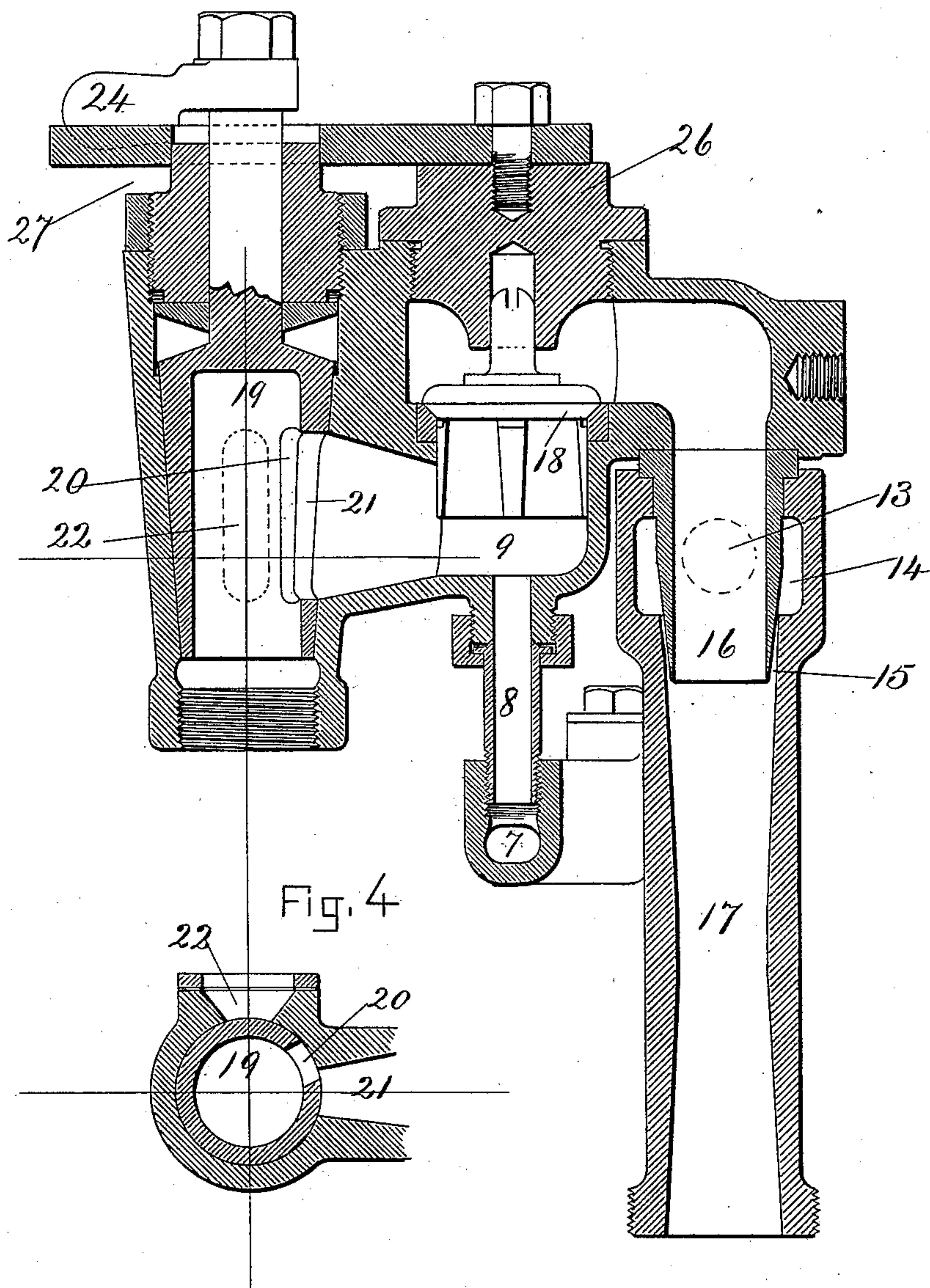
2 Sheets—Sheet 2.

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Fig. 3



WITNESSES
Lieftinck
J. L. Massey.

INVENTOR
Albert P. Massey

UNITED STATES PATENT OFFICE.

ALBERT P. MASSEY, OF WATERTOWN, NEW YORK.

EJECTOR FOR VACUUM-BRAKES.

SPECIFICATION forming part of Letters Patent No. 428,621, dated May 27, 1890.

Application filed January 10, 1890. Serial No. 336,559. (No model.)

To all whom it may concern:

Be it known that I, ALBERT P. MASSEY, a citizen of the United States, residing in the city of Watertown, in the county of Jefferson and State of New York, have invented certain new and useful Improvements in Ejectors, of which the following, taken in connection with the accompanying drawings, is a specification.

The object of my invention is to make a duplex ejector for vacuum-brakes that shall be more simple in construction and more efficient in action than those heretofore in use.

Figure 1 is a view of the left side of the ejector with the smaller jet in section. Fig. 2 is a plan view showing the arrangement of the operating-handle. Fig. 3 is a sectional view of the right side of the ejector, showing a section through the larger jet and the operating-valve. Fig. 4 is a sectional view of the ports connected with the operating-valve.

The construction is as follows:

1 is a pipe connected with a locomotive-boiler for the purpose of applying steam for actuating the ejector.

2 is a port through which steam passes to the smaller jet 3, which exhausts the air from the annular chamber 4 and discharges it through nozzle 5. The port 6 7 8 connects the annular chamber 4 with a chamber 9, Fig. 3. In this port 6 7 8 is located a check-valve 10, which allows air to flow from chamber 9, but prevents any flow in the other direction.

11 is a plug to give ready access to valve 10.

12 is a valve which when open admits steam to port 13, and thence to annular chamber 14, Fig. 3, from which it issues in a fine annular jet 15 and ejects air from tube 16, which it discharges through the nozzle 17.

Tube 16 is connected with chamber 9 through check-valve 18, so that air may flow from chamber 9, but cannot return.

12' is the stem of valve 12, extending through an ordinary steam-tight packing to the lever 25.

19 is a conical valve having one port 20, which may be opened to chamber 9 through port 21 or to the atmosphere through port 22, or may be closed to both ports. The bottom part of this valve is open to the train-pipe, which is connected at 23. This conical valve

is actuated by the handle 24. The steam-valve 12, Fig. 1, is actuated by the same handle through the intermediate lever 25. The plug 26, Fig. 3, is to give access to valve 18, and the plug 27 gives access to valve 19.

The operation of the apparatus is as follows: When steam is admitted to the steam-pipe 1, it presses valve 12 on its seat, but passes freely through port 2 to jet 3 and expels the air from the chamber 4, port 6 7 8, and chamber 9; Fig. 3. This jet is in constant action, and therefore maintains a vacuum in chamber 9. If the port in valve 19 is open to chamber 9, a vacuum will also be produced and maintained in the train-pipe. This is the normal condition of the apparatus when a train is in service. In order to apply the brakes, it is necessary to reduce or destroy the vacuum in the train-pipe. This is done by turning the actuating-valve 19 until the port admits the atmosphere at 22, when more or less air may be admitted. To release the brakes, the valve 19 is turned to connect its port with chamber 9, whereupon the air from the train-pipe would be exhausted through channel above described if sufficient time were allowed; but in order to release the brakes very quickly the larger jet 15 16 is brought into action by opening the steam-valve 12. This jet is of great capacity and quickly ejects the required quantity of air. The valve 12 is actuated by the lever 25, which in turn is moved by the handle 24. In the running position the latch 28 is in notch 30; but the handle is moved to notch 29 to put the large jet in action, and is returned to notch 30 as soon as the brakes are released. When latch 28 is in notch 31, the port 20 is open to the atmosphere and the brakes would be set hard.

All of the air-valves are covered by screwed caps, so that they may be examined or removed without disturbing any of the connections of the ejector.

What I claim as new, and desire to secure by Letters Patent, is—

In an apparatus for actuating and controlling vacuum-brakes, the combination of the following parts: a small central jet-ejector in constant action to maintain a vacuum in a chamber, a large annular jet controlled by steam-valve 12, which, when brought into ac-

tion, exhausts air from the same chamber,
the air-valve 19, connecting the train-pipe
either with said chamber or with the atmos-
phere, the steam-valve 12, and lever 25, com-
5 bined with and actuated by handle 24, which
actuates the air-valve 19, substantially as set
forth.

In testimony whereof I have signed my

name to this specification, in the presence of
two subscribing witnesses, on this 7th day of 10
January, A. D. 1890.

ALBERT P. MASSEY.

Witnesses:

HENRY W. BOYER,
GEO. B. MASSEY.