

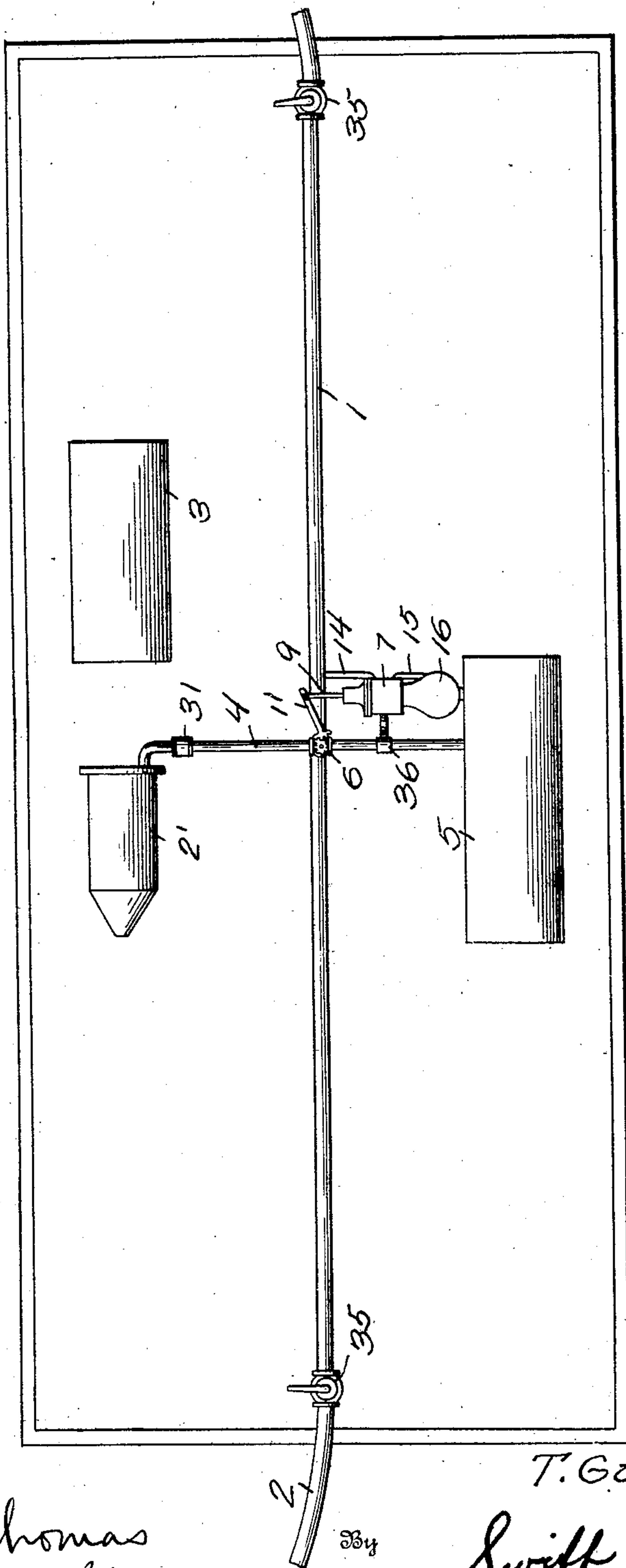
No. 861,588.

PATENTED JULY 30, 1907.

T. GUNDERSON.
AUTOMATIC FLUID BRAKE.
APPLICATION FILED JAN. 21, 1907.

3 SHEETS—SHEET 1.

Fig. 1.



Inventor

T. Gunderson

Witnesses

G. R. Thomas
M. O. Bowling

By

Swift & Co.

Attorneys

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3 SHEETS—SHEET 2.

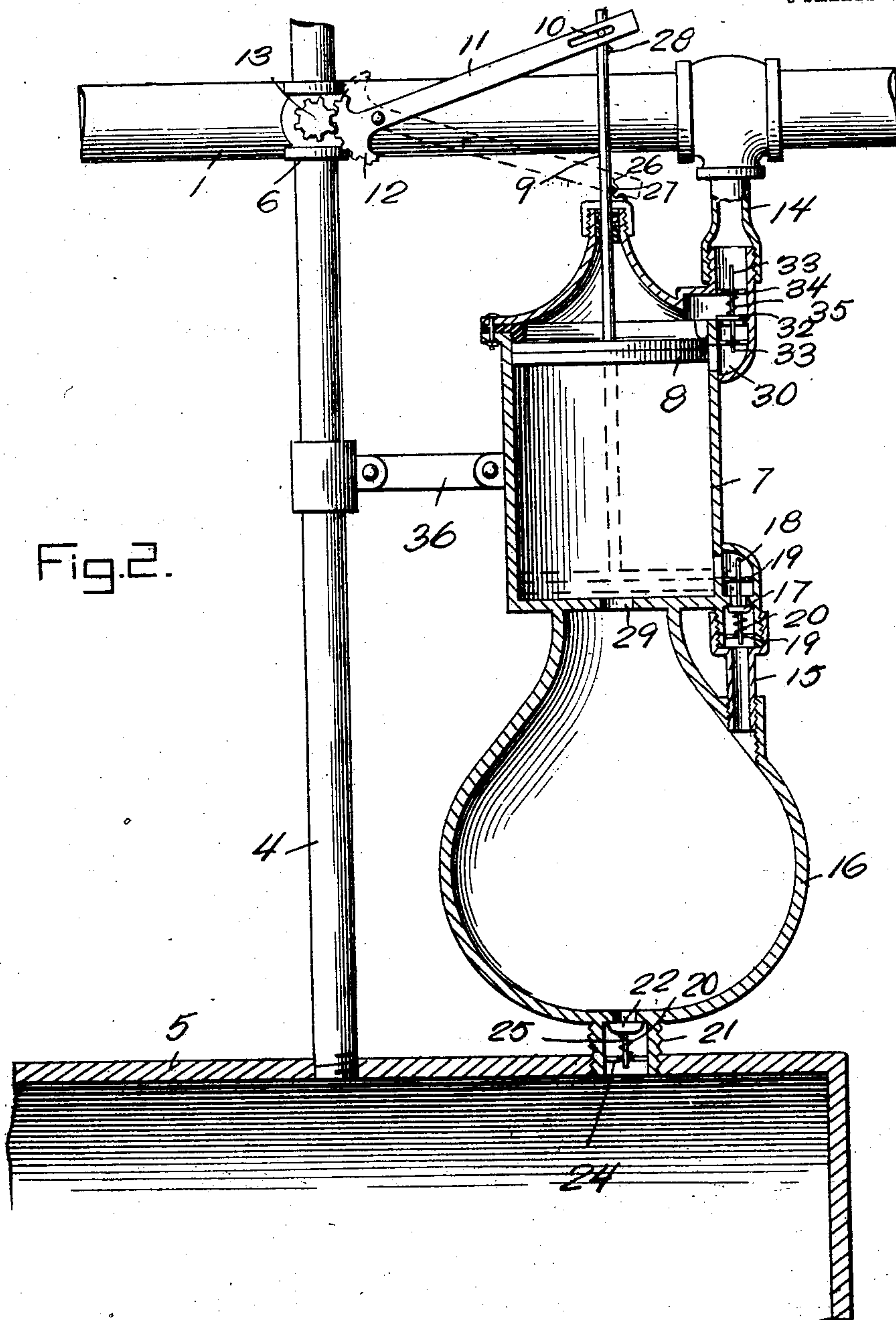


Fig. 2.

Inventor

T. Gunderson

Witnesses

Witnesses
G. R. Thomas
M. C. Bowling.

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Swift & Co.

Attorneys

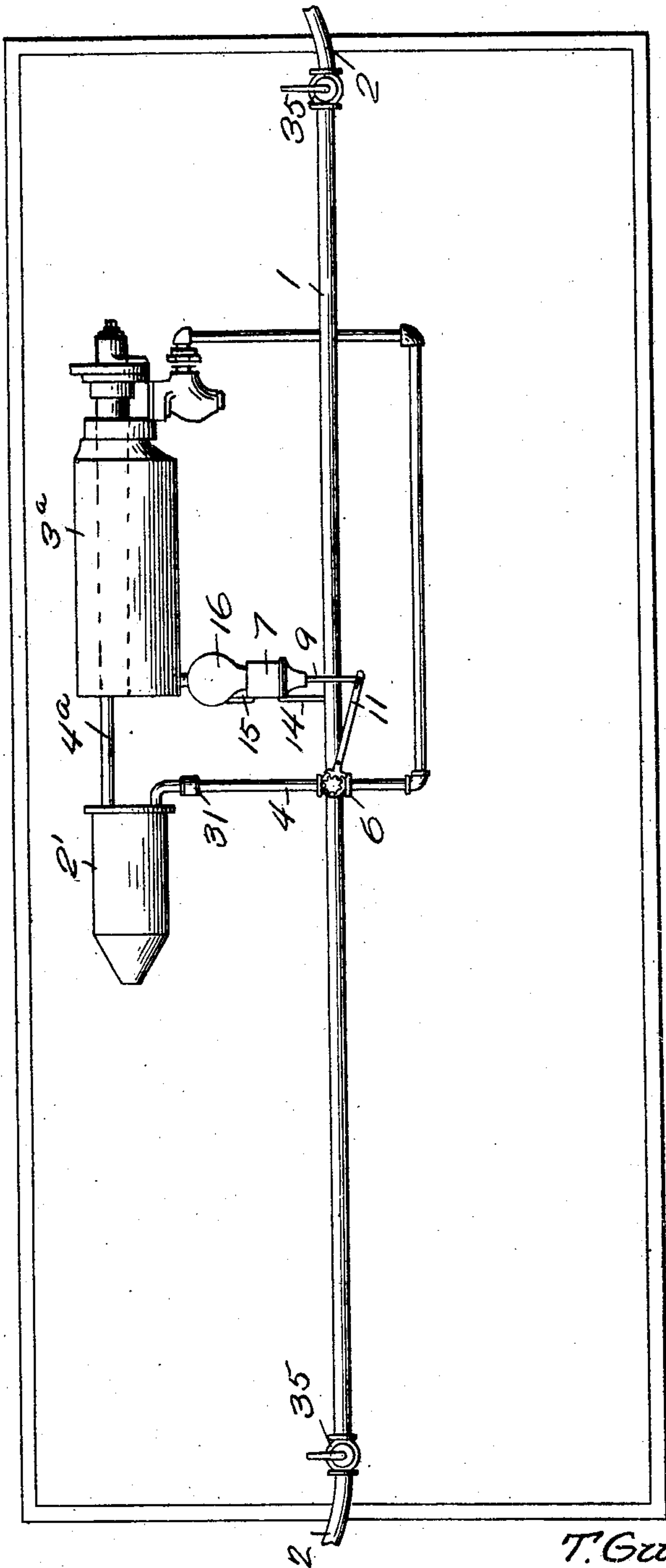
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3 SHEETS—SHEET 3.

Fig. 3.



Inventor

T. Gunderson

Witnesses

G. R. Thomas
m. O. Bowling.

By

Swift & Co.

Attorneys

UNITED STATES PATENT OFFICE.

THOMAS GUNDERSON, OF McINTOSH, MINNESOTA, ASSIGNOR OF ONE-HALF TO HERMAN HELGESON, OF McINTOSH, MINNESOTA.

AUTOMATIC FLUID-BRAKE.

No. 861,588.

Specification of Letters Patent.

Patented July 30, 1907.

Application filed January 21, 1907. Serial No. 353,268.

To all whom it may concern:

Be it known that I, THOMAS GUNDERSON, a citizen of the United States, residing at McIntosh, in the county of Polk and State of Minnesota, have invented a new and useful Automatic Fluid-Brake; and I do hereby 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.

10 This invention relates to automatic fluid brakes.

The object of this invention is to provide a mechanism which will automatically supply fluid to the ordinary fluid brake cylinder whenever there is a reduction of pressure in the main pipe, due to the breaking of connection between any two cars.

15 With this and other objects in view, the invention consists of the parts and the combinations of parts hereinafter described, more particularly pointed out in the appended claims, and shown in the accompanying drawings.

20 In the drawings, Figure 1, is a bottom plan view of the car with all parts removed except those to which the invention relates. Fig. 2 is an enlarged sectional view of the invention. Fig. 3 is a sectional view of another embodiment of the invention showing the device connected to the usual air tank.

25 Referring more particularly to the drawings, 1 indicates the usual main pipe extending longitudinally of the car and provided with the usual flexible couplings 2 at its ends; 2' indicates the usual cylinders and 3 the usual air tanks.

30 Connected to the brake cylinder 2 by a piping 4 is a second air tank 5 said piping containing a check valve 31 unseating under pressure from said air tank 5, and also a turning valve 6. Also arranged below the car is a valve-operating cylinder 7 which contains a piston 8 having a piston rod 9 connected by a pin and slot connection 10 with a lever 11 to permit a straight movement of the piston. This lever 11 is pivoted near its opposite end and is provided at this latter end with a toothed sector 12 which meshes with a pinion 13 on the stem of the valve 6. When the piston is in the position shown in full lines, the valve 6 is open, and when in the position shown in dotted lines, the valve is closed.

45 To move the piston to close the valve 6, the cylinder 7 is connected to the main pipe 1 by a short connection 14 which delivers to the cylinder, the fluid compressed in the usual manner and supplied to main pipe 1. As the fluid enters the cylinder 7, the piston moves to the position shown in dotted lines, thereby permitting the compressed fluid to escape through passageway 15 at the opposite end of the cylinder to an air reserve tank 16. In passing through passageway 15, the fluid unseats valve 17 which has a stem 18, projecting from op-

posite faces thereof, and guided in spiders or cross arms 19, a spring 20 serving to hold the valve to its seat and prevent back pressure through the passageway 15.

From the air reserve tank 16, the fluid passes through a passageway 21 to the second main air tank 5, said passageway containing a check valve 22 which unseats under pressure from the air reserve tank 16, and which is provided with a stem 23 guided in a spider 24 and pressed to its seat by a spring 25.

As long as pressure is maintained within the main pipe 1 the piston will be maintained in the position shown in dotted lines. To hold the piston in this position and prevent its being moved upon any slight reduction of pressure in the main pipe due to leakage, the cylinder carries a spring latch 26 provided with a notch 27 to engage a projection 28 on the piston rod. When, however, the pressure in the main pipe drops, due to the breaking of connection between any two cars, the fluid in reserve tank 16, will pass through passageway 29 into the cylinder 7 and force the piston to the position shown in full lines, the fluid then passing through a passageway 30 to connection 14 and thence escaping by way of main pipe 1. To prevent fluid passing through passageway 30 when the main tank 5 is charged, a check valve 32 is provided and has a valve stem 33 projecting from opposite faces thereof. The stem is guided in cross arms or spiders 34 and the valve is held to its seat by a coil spring 35. As the piston moves to this position, the valve 6 is opened thereby supplying fluid from the second main tank 5 to the brake cylinder which causes the operation of the brakes in any suitable manner. Fluid under pressure is held in the brake cylinder by check valve 31 until the brakes are released, in the usual manner.

In Fig. 3 instead of providing a second air tank 5, the reserve tank 16 is connected to the usual air tank 3^a and a connection 4^a leads from this air tank to the brake cylinder 2'.

To permit the cars to be switched, each main pipe is provided at each end of a car with a valve 35 which may be operated in any suitable manner such as by manually operable means. These valves may be closed before a car is detached and when the car has reached its proper position may be opened, thus causing the brakes to act.

The cylinder 7 may be connected to piping 4 by a brace 36.

Having thus described my invention, what I claim and desire to secure by Letters-Patent is:

1. The combination with a brake cylinder, an air tank and a main pipe, of a connection between the air tank and the brake cylinder, means controlling said connection comprising a cylinder connected to the main pipe, a piston therein and a reserve tank connected to the cylinder, connection between the reserve tank and the air tank, and a

check valve in the connection between the air tank and the reserve tank said check valve unseating to supply the air tank through the reserve tank.

2. The combination with a brake cylinder, an air tank, 5
and a main pipe, of a connection between the air tank and the brake cylinder a valve in said connection, and means controlling said valve, comprising a cylinder connected with the main pipe a piston in the cylinder, connected to the valve and a reserve tank receiving pressure from the 10
cylinder when the piston is in position to hold the valve closed, having a connection with the cylinder to move the piston to open the valve, and have communication with the air tank.

3. The combination with a brake cylinder, an air tank, 15
and a main pipe, of a connection between the air tank and the brake cylinder a valve controlling said connection and means controlling said valve comprising a piston, a connection between the cylinder and the main pipe, a reserve tank, connection between the cylinder and the reserve tank 20
when the piston is in position to hold the valve closed, and connection between the cylinder and the reserve tank to cause the piston to be moved to open the valve when the pressure is reduced in the main pipe.

4. The combination with a brake cylinder, an air tank, and a main pipe, of a connection between the air tank and 25
the brake cylinder, a valve in said connection, a reserve tank supplying pressure in such manner as to cause the opening of the valve when pressure is reduced in the main pipe, a connection between the air tank and the reserve tank by which the air tank is supplied through the reserve 30
tank and a check valve in said connection, unseating to admit air from the reserve tank to the air tank.

5. A means for controlling air to brake cylinders comprising a cylinder having a main pipe connection and a 35
valved exhaust passageway communicating with the main pipe connection, a piston working in the cylinder and a reserve tank having two communications with the cylinder, one of said communications with the cylinder being provided with a check valve.

In testimony whereof I have signed my name to this 40
specification in the presence of two subscribing witnesses.

THOMAS GUNDERSON.

Witnesses:

C. M. BERG,

K. K. HOFFARD.