

No. 693,452.

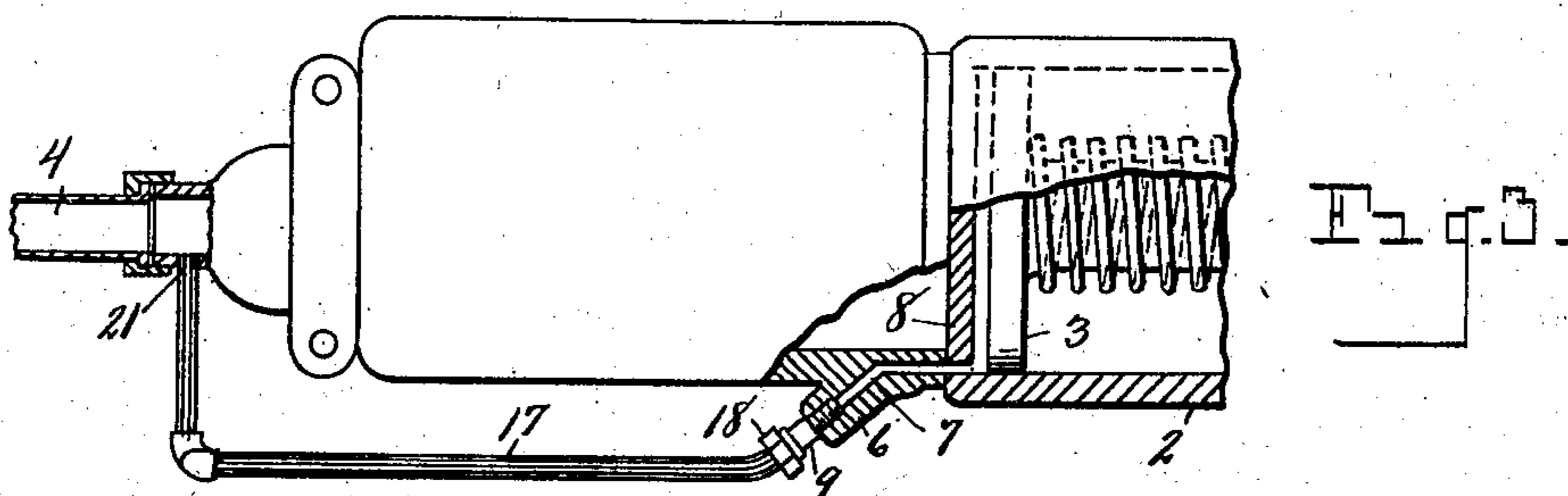
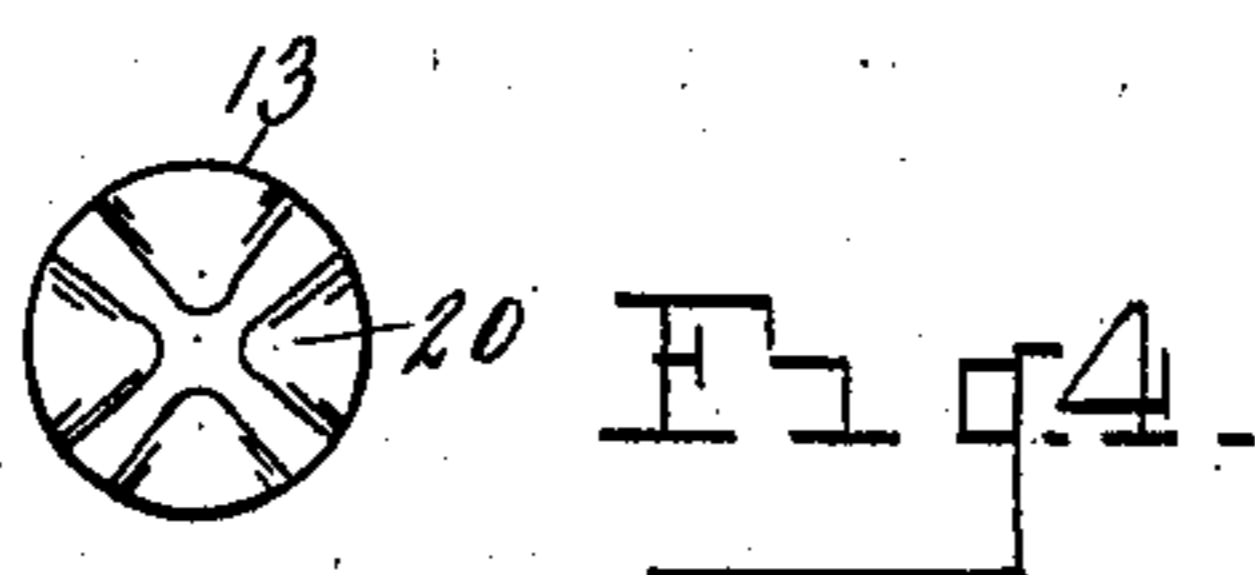
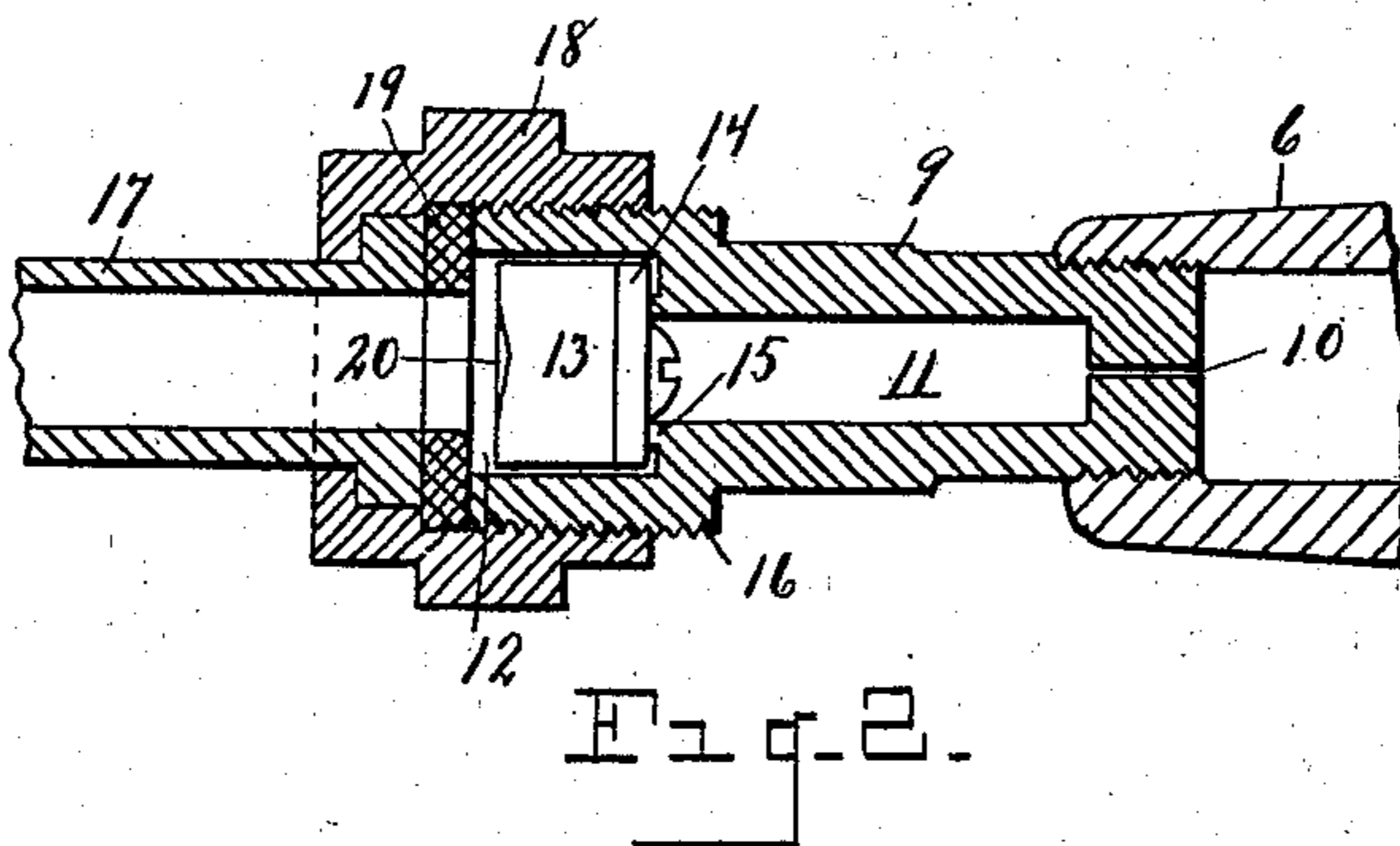
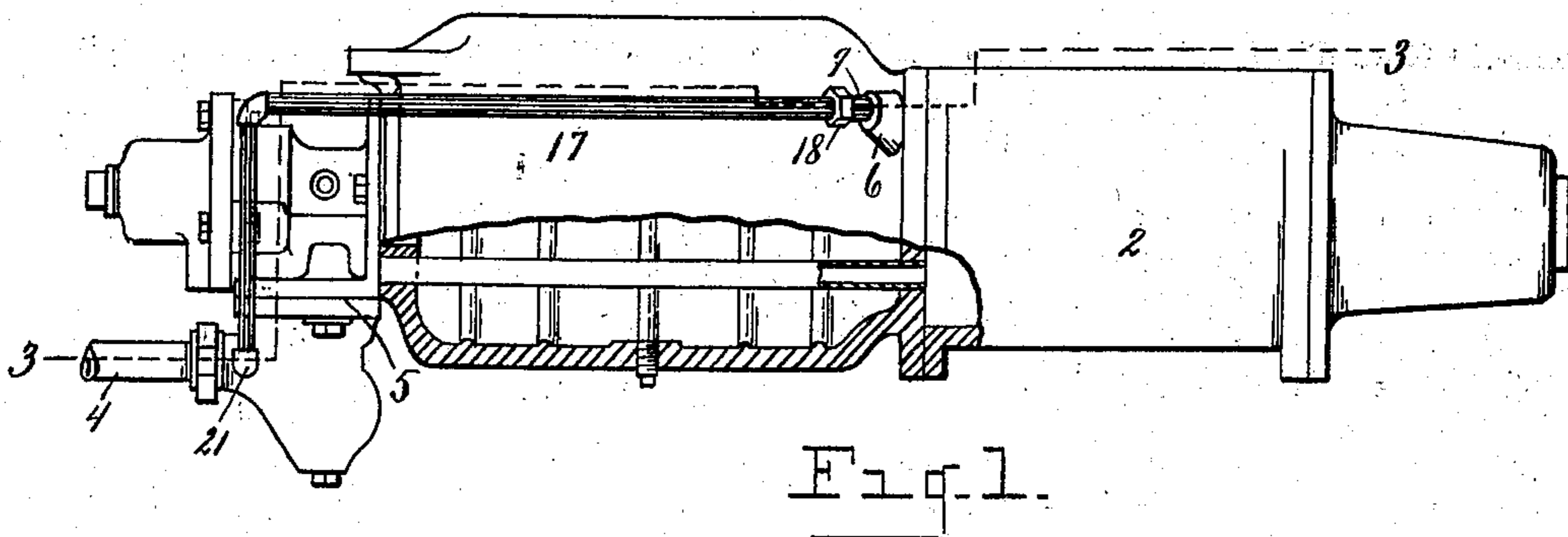
Patented Feb. 18, 1902.

G. B. SEWELL.

AUTOMATIC RELEASE FOR BRAKE CYLINDERS.

(Application filed Apr. 13, 1901.)

(No Model.)



WITNESSES.

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# UNITED STATES PATENT OFFICE.

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## AUTOMATIC RELEASE FOR BRAKE-CYLINDERS.

SPECIFICATION forming part of Letters Patent No. 693,452, dated February 18, 1902.

Application filed April 13, 1901. Serial No. 55,619. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE B. SEWELL, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented a new and useful Improvement in Automatic Releases for Brake-Cylinders; 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.

This invention relates to an automatic release-valve for brake-cylinders especially designed for use in connection with air-brake systems; and it consists in the construction and arrangement of parts hereinafter fully set forth, and pointed out particularly in the claims.

The object of the invention is to provide a release-valve in connection with the brake-cylinder adapted to be automatically operated upon the discharge of the air from the train-pipe or a diminution of pressure therein to permit an escape of air from the brake-cylinder and effect a release of the brakes.

The above object is attained by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a view in elevation of an auxiliary reservoir and a brake-cylinder having my improved release-valve connected therewith and also connected with the train-pipe through which the auxiliary reservoir is charged. Fig. 2 is an enlarged longitudinal section through the plug containing the release-valve and a union-coupling connecting said plug with a pipe which leads to the train-pipe. Fig. 3 is a plan view of Fig. 1, parts appearing in section to show construction and arrangement thereof. Fig. 4 is a plan view of the valve proper, showing concavities in its outer face.

In the ordinary use of the air-brake system compressed air from the main reservoir (not shown) is conveyed to the auxiliary reservoirs of the several cars of the train through the train-pipe from the auxiliary reservoirs to the several brake-cylinders by way of the

triple valve, whose operations need not be here explained, but whose function is such that a diminution of pressure in the train-pipe will actuate said triple valve to allow the air contained in the auxiliary reservoir to pass into the brake-cylinder and actuate the piston thereof to operate the brakes in a manner well understood. The air-pressure in the train-pipe is so ordinarily under control of the engineer as to enable him to apply and release the brakes at will when the engine is connected to the train. It is sometimes necessary, however, to disconnect the engine from the train after the train has entered the yards, and the act of disconnecting the engine results in a setting of the brakes through the escape of the air from the train-pipe or a diminution of pressure therein. When the brakes are so set, it is impossible to do any switching with the train until all the brakes have been released, which operation on long freight-trains requires some time, as it is necessary to operate each of the release-valves connected with the brake-cylinders by hand and hold them in release position until all the air has escaped. This manual operation of the release-valves is overcome by the use of my invention, for in its application the air is automatically released from the brake-cylinders upon the escape of the air from the train-pipe.

Referring to the characters of reference, 1 designates the auxiliary reservoir, to which is connected the brake-cylinder 2, having therein the piston 3, adapted to be connected with the brake mechanism (not shown) in a manner well understood in the art. Train-pipe 4 leads to the auxiliary reservoir through the triple valve 5, whereby the auxiliary reservoir becomes supplied with the requisite pressure of air. Projecting from one end of the auxiliary reservoir is a boss 6, through which extends a passage-way 7, leading through the head 8 of the cylinder into the interior thereof. Screwed into said boss is a plug 9, having a minute aperture 10 in the inner end thereof and provided with an enlarged aperture 11, leading therefrom. In the outer end of the plug 9 is a valve-chamber 12, in which is located an annular valve 13, having a compressible face 14 and adapted to

seat upon the margin of the opening 11, as at 15. The valve 13 nearly fills the diameter of the valve-chamber, allowing only sufficient space between its sides and the wall of said chamber for the passage of the air.

The outer end of the plug 9 is threaded at 16 and is connected to a pipe 17 by means of a union-coupling 18. The washer or gasket 19, employed to make a tight joint between the end of the pipe 17 and the end of the plug 9, stands adjacent to the outer end or face of the valve 13. For this reason the outer face of the valve is provided with concavities 20, extending radially through its perimeter to prevent the valve from being forced outward against the gasket 19 and seating thereon, so as to prevent the escape of air into the pipe 17. The opposite end of pipe 17 is connected into the train-pipe 4 at or adjacent to the connection of said pipe with the triple valve, as shown at 21 in Figs. 1 and 3, so that the pressure carried in pipe 17 corresponds at all times with that carried in the train-pipe, whereby the valve 13 under ordinary conditions is held on its seat and an escape of air from the brake-cylinder is prevented. When, however, the engine is disconnected from the train and the air allowed to escape from the train-pipe, the excess of pressure in the brake-cylinder will unseat valve 13 and allow the air in the cylinder to escape through the minute aperture 10 in the plug 9, whereby the brake becomes automatically released. The opening 10 through the plug 9 is so small that in the ordinary operation of the brakes the setting and releasing of the brakes is not interfered with; but when the engine is detached from the train and the air exhausted from the train-pipe the brakes which have been automatically set will become automatically released in a short space of time, so as to allow of the switching of the train without the necessity of manually releasing each of the brake-cylinders.

45 Having thus fully set forth my invention,

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

1. In an automatic release-valve, for brake-cylinders, the combination with the brake-cylinder, of the train-pipe communicating with said cylinder having an air-valve therein which controls the passage of air to said cylinder, means connected with the train-pipe and the brake-cylinder independently of said controlling-valve operated automatically by a diminution of pressure in the train-pipe to release the air from the brake-cylinder.

2. In an automatic release-valve for brake-cylinders, the combination of a brake-cylinder, an auxiliary reservoir connected thereto, a train-pipe to supply air under pressure to said auxiliary reservoir, an air-valve controlling the passage of air from the train-pipe to said reservoir, means connected with the train-pipe and with said cylinder independently of said air-controlling valve, said means being automatically actuated by a discharge of air from the train-pipe to allow of a gradual escape of air from the brake-cylinder and effect a release of the brakes.

3. In an automatic release for brake-cylinders, the combination of a brake-cylinder, a train-pipe for supplying air to said cylinder, a valve controlling the passage of air to the cylinder from the train-pipe, an auxiliary pipe connecting the brake-cylinder and train-pipe, a valve located at the cylinder end of said auxiliary pipe, the chamber of said valve communicating at one end with said auxiliary pipe through an opening of relatively large area and at the other end communicating with the cylinder through an opening of greatly restrictive area.

In testimony whereof I sign this specification in the presence of two witnesses.

GEORGE B. SEWELL.

Witnesses:

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