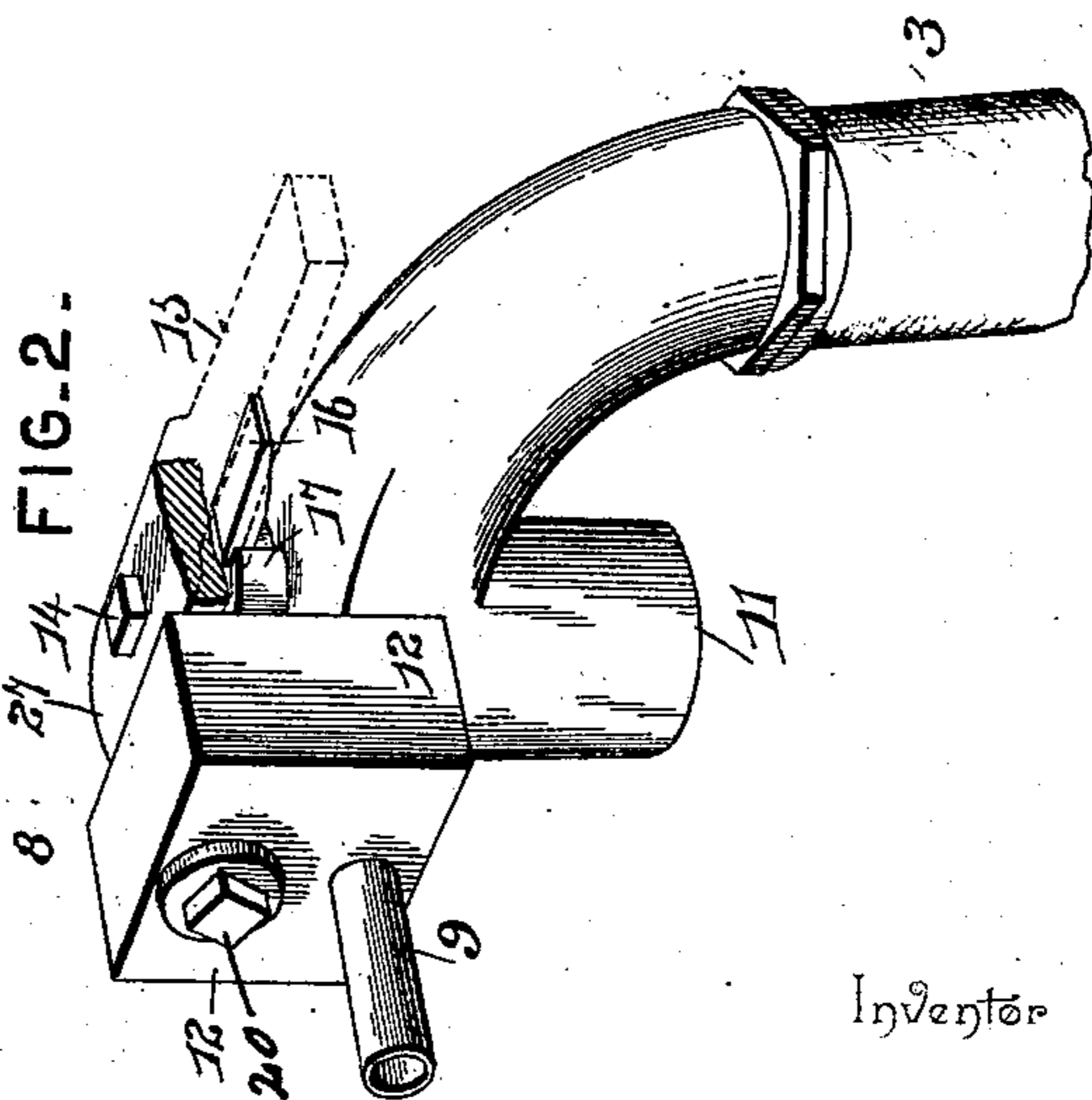
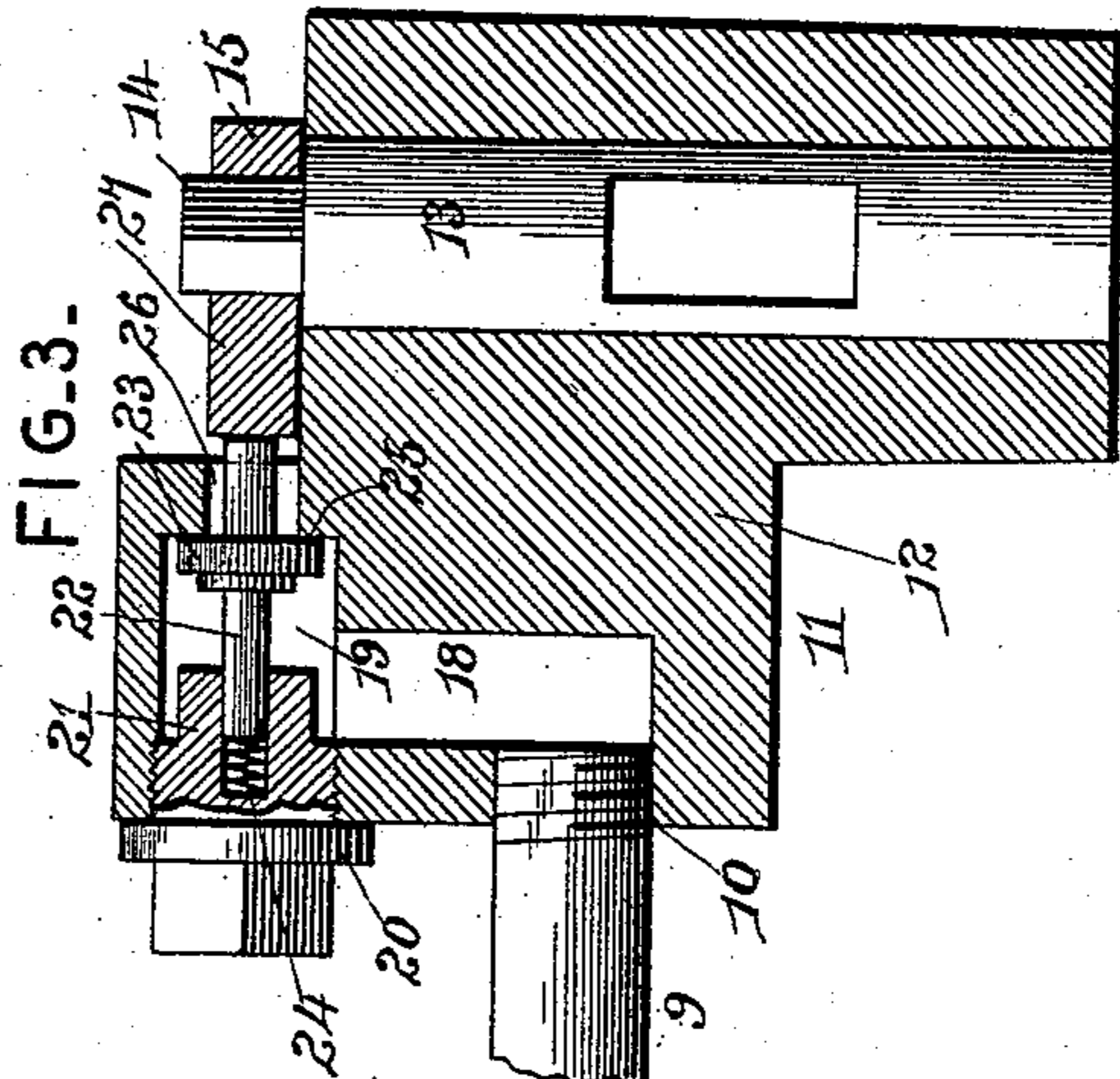
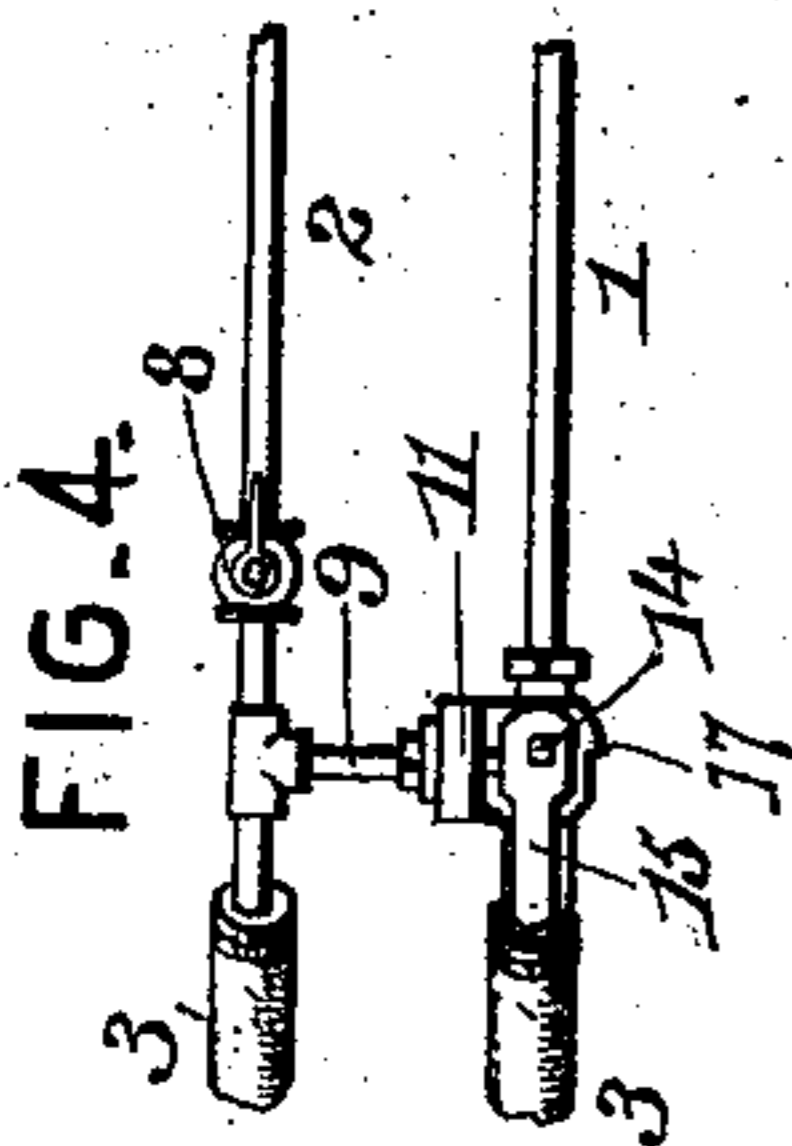
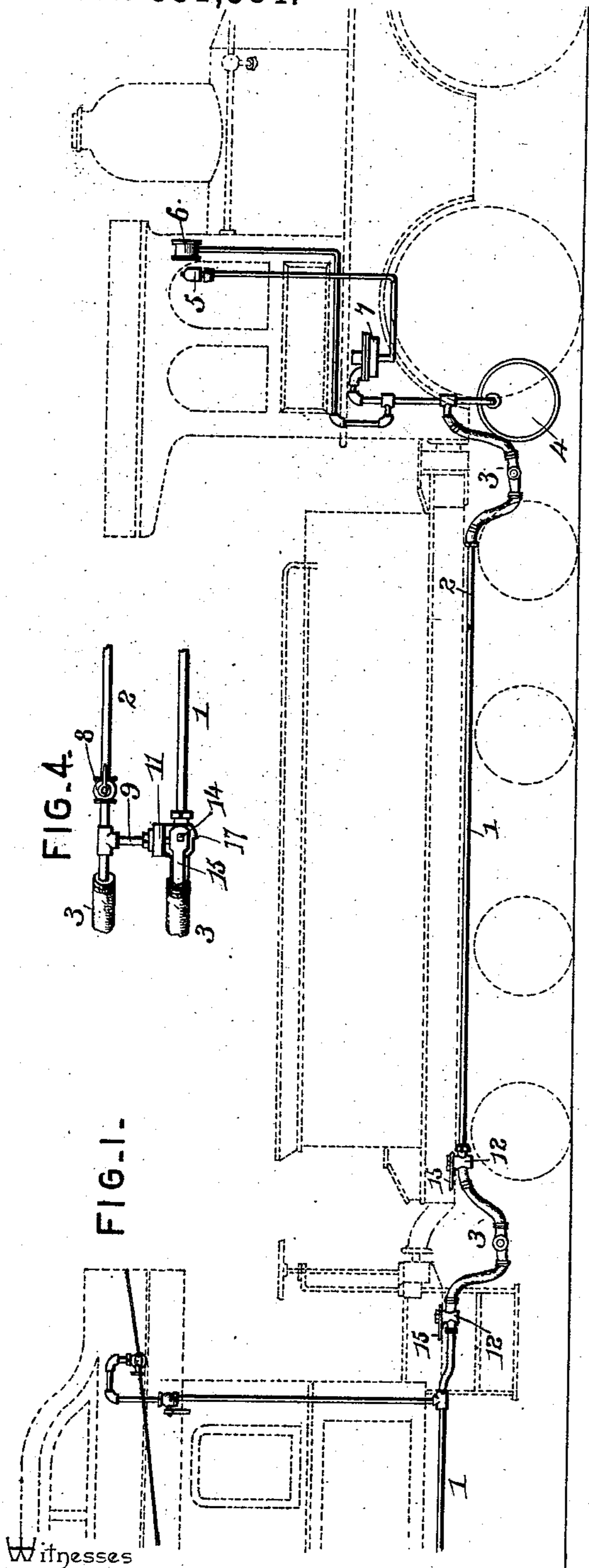


(No Model.)

E. P. BISHOP, Jr.
SIGNAL APPARATUS FOR AIR BRAKES.

No. 531,584.

Patented Dec. 25, 1894.



Witnesses
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E. P. Bishop Jr.

By *his* Attorneys.

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UNITED STATES PATENT OFFICE.

EDWARD PAYSON BISHOP, JR., OF BIRMINGHAM, ALABAMA.

SIGNAL APPARATUS FOR AIR-BRAKES.

SPECIFICATION forming part of Letters Patent No. 531,584, dated December 25, 1894.

Application filed March 13, 1894. Serial No. 503,440. (No model.)

To all whom it may concern:

Be it known that I, EDWARD PAYSON BISHOP, Jr., a citizen of the United States, residing at Birmingham, in the county of Jefferson and State of Alabama, have invented a new and useful Signal Apparatus for Air-Brakes, of which the following is a specification.

My invention relates to air-brakes, and particularly to signaling apparatus therefor, and is designed especially for use in connection with such brake systems as Westinghouse; and it has for its object to provide a simple and direct means whereby the closing of a brake-pipe stop-cock causes the operation of a signal-device or indicator located in the engine cab in convenient position to be seen by the engineer.

It frequently happens that the brake-pipe stop-cocks are closed through accident or by the jarring of the train, thus cutting off one or more cars from the control of the engineer and occasionally causing accidents.

I attain the above object by a connection between the signal-pipe and the brake-pipe at the ends of each car, such connection being under the control of the brake-pipe stop cock, whereby when the latter is closed to cut off communication between the parts of the brake-pipe, the outlet from the signal-pipe is opened, thereby reducing the pressure in such signal-pipe, and this change of pressure is indicated by a gage located in the cab of the engine.

My invention is more fully described hereinafter in connection with the accompanying drawings, and the novel features thereof are particularly pointed out in the appended claims.

In the drawings:—Figure 1 is a partial side view of an engine, tender, and a car, showing a brake mechanism provided with a signaling apparatus embodying my invention. Fig. 2 is a perspective view of a portion of the brake-pipe, with the brake-pipe stop-cock and connections. Fig. 3 is a vertical section of the same taken transversely. Fig. 4 is a detail plan view of part of the brake and signal pipes.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The brake-pipe is shown at 1, the signal-pipe at 2, the couplings between the signal-pipe and the brake-pipe sections at 3, the main reservoir at 4, and the usual signal whistle at 5.

6 represents a pressure gage, preferably arranged in the cab of the engine and connected with the signal-pipe between the main reservoir and the signal-valve 7, the construction of this gage forming no part of my invention and being of any preferred construction, whereby the reduction of pressure in the signal-pipe will be indicated.

The signal-pipe is connected to the brake-pipe between the signal-pipe stop-cock 8 and the signal-pipe connecting hose by a short branch-pipe 9, which communicates with a cavity 10 in the casing 11 of the brake-pipe stop-cock 12. The plug 13 of this brake-pipe stop-cock is of the ordinary construction, and its stem 14 is provided with a handle 15 having a depending lug 16 adapted to engage stops 17 on the casing to limit its movement.

The chamber 10 with which the signal-pipe connects communicates by a vertical passage or bore 18 with a valve chamber 19, which is open at its inner end adjacent to the stop-cock plug, and is closed at its outer end by a removable cap 20. This cap is provided with a tubular extension or socket 21, in which is fitted one end of the stem 22 of a check-valve 23, and a coiled spring 24 is arranged in said socket to normally hold the check-valve pressed inward and in contact with the seat 25 surrounding the opening at the inner end of the valve-casing. The other end of the stem of the check-valve projects through the opening or outlet 26 in the inner end of the valve casing in the path of a rounded or cam faced portion 27 of the stop-cock operating handle, whereby when said handle is turned across the line of the brake-pipe to close the latter its cam face engages the projecting terminal of the stem of the check-valve, and by repressing the same unseats the check-valve and allows the escape of air from the signal-pipe. This reduction of pressure, however slight, is indicated by the pressure gage before described.

It is obvious that various changes in the form, proportion, and the minor details of

construction may be resorted to without departing from the principle or sacrificing any of the advantages of the invention.

Having described my invention, what I claim is—

1. In an air brake, the combination with a brake-pipe, a signal-pipe, and pressure-indicating devices connected with the signal-pipe, of a brake-pipe stop-cock having a plug, a spring-seated check valve controlling an outlet which is in communication with the signal-pipe, and means for communicating motion from the stop-cock plug to the check valve, whereby when the stop-cock is closed the check valve is unseated, substantially as specified.

2. In an air-brake, the combination with a brake-pipe, a signal-pipe, and pressure indicating devices connected with the signal-pipe, of a brake-pipe stop-cock provided in its casing with a chamber in communication with said signal-pipe, and a check-valve closing an outlet from said chamber, and connections having a stem in position to receive pressure from the stop-cock plug to unseat the valve, substantially as specified.

3. In an air-brake, the combination with a brake-pipe, a signal-pipe, and pressure indicating devices connected with the signal-pipe, of a brake-pipe stop-cock provided in its casing with a chamber in communication with the signal-pipe, and a spring-pressed check-

valve arranged to close an outlet from said chamber and provided with a stem arranged in the path of a cam face upon the handle of the brake-pipe stop-cock, substantially as specified.

4. The herein described brake-pipe stop-cock having its casing provided with a transverse chamber adapted to be connected with an air-brake signal-pipe and having its casing further provided with a superjacent valve casing having an outlet contiguous to the plane of the stop-cock plug, a cap fitted removably in the outer end of said valve casing and provided with a tubular extension, a check valve having its stem fitted in said tubular extension of the cap and adapted to engage a seat surrounding said outlet, an actuating spring in operative relation with the check-valve to normally hold it seated, and a cam carried by the operating handle of the brake-pipe stop-cock plug and adapted to contact with the outer extremity of the check-valve stem when said operating handle is turned to close the stop-cock, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

EDWARD PAYSON BISHOP, JR.

Witnesses:

CARLOS VIETCH,

J. N. DIDLAKE.