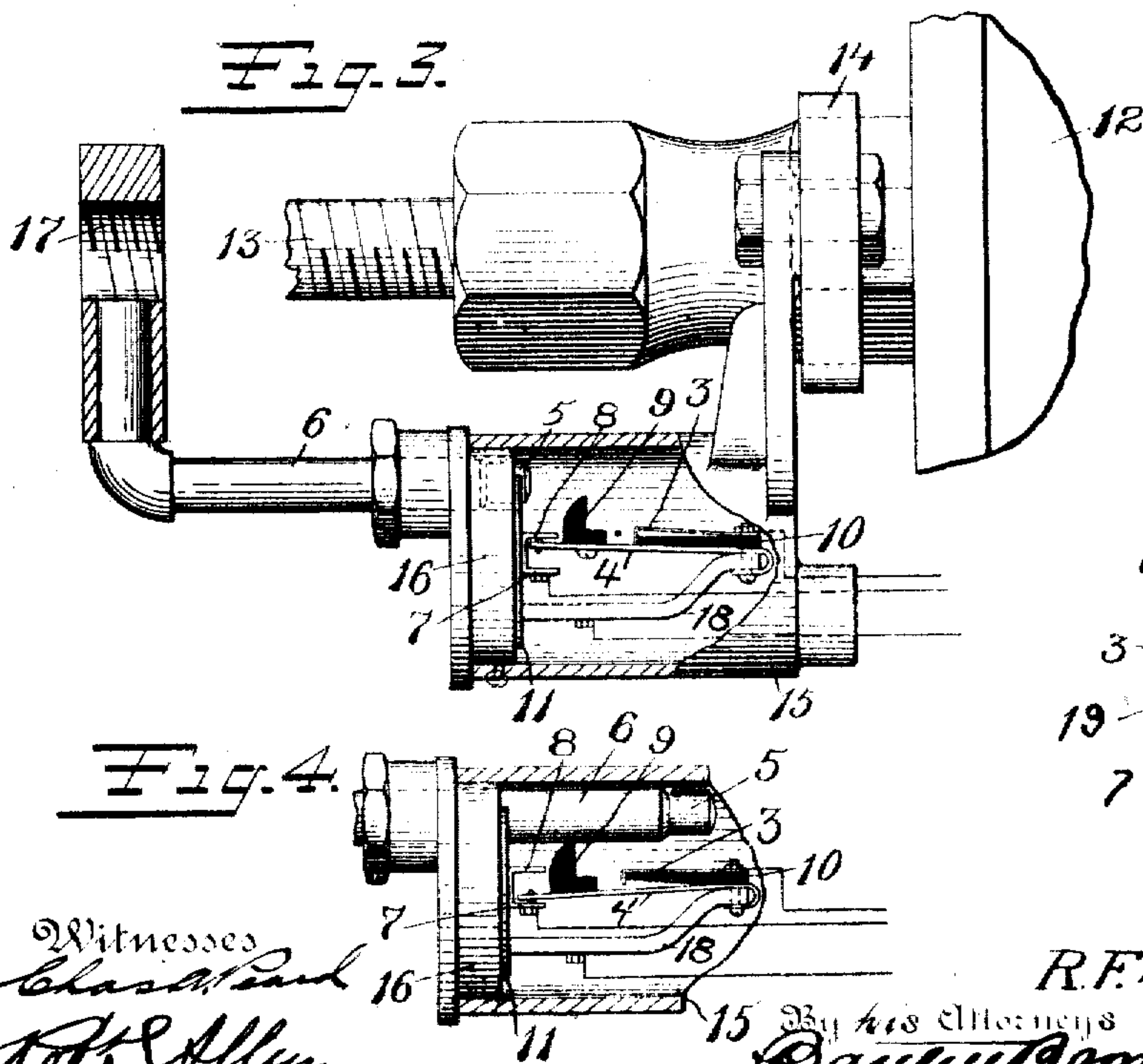
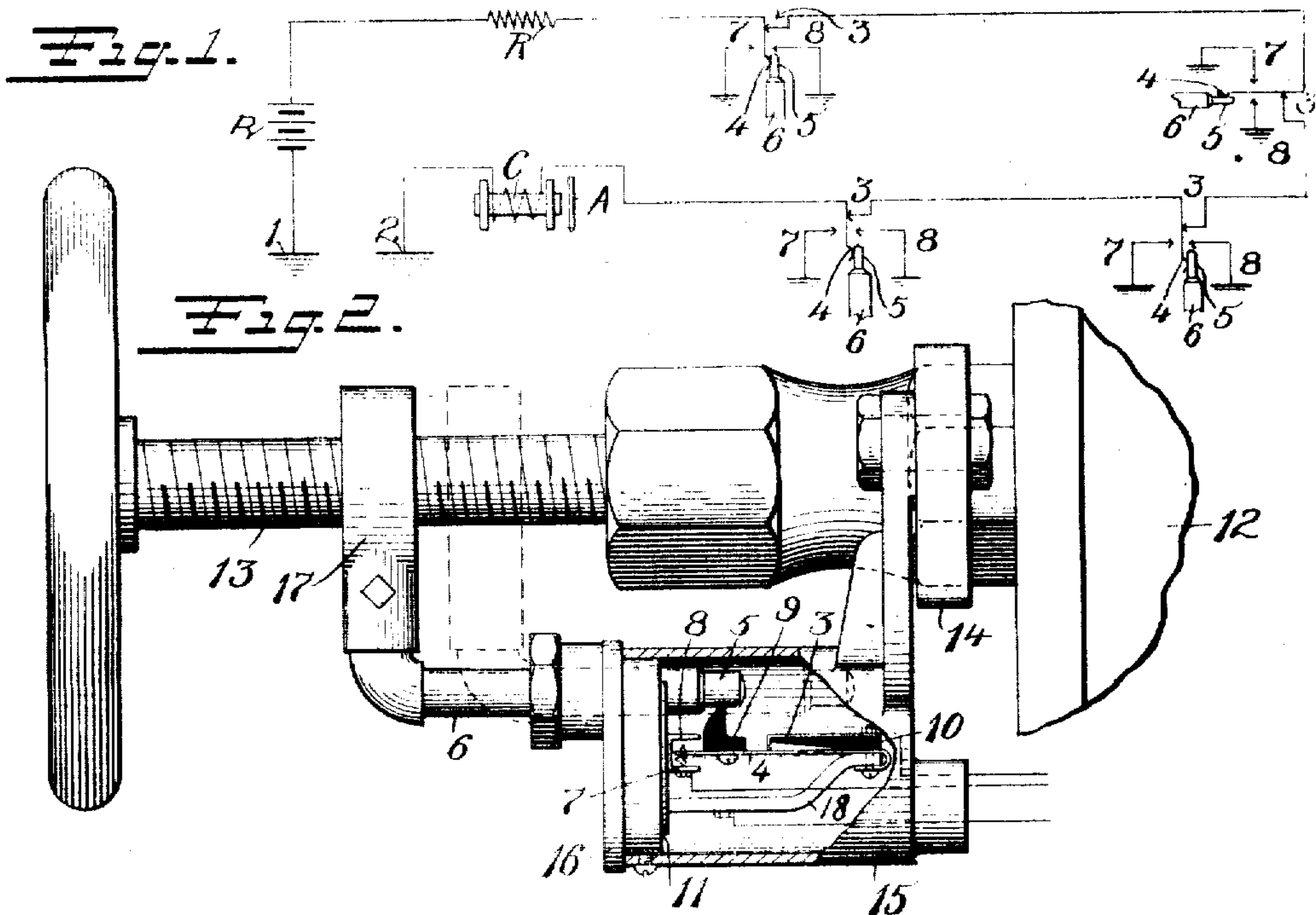


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VALVE ALARM ATTACHMENT.
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VALVE ALARM ATTACHMENT.

No. 912,432.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, RICHARD F. SPAMER, a citizen of the United States, residing at Chicago, Cook county, Illinois, have invented certain new and useful Improvements in Valve Alarm Attachments, of which the following is a full, clear, and exact description.

My invention relates to improvements in alarm system apparatus and particularly to an attachment for valves in water service or sprinkler systems.

The object of the invention is to start an alarm whenever the normal condition of any shut-off valve in the building is in any way disturbed.

The invention consists in improvements, the principles of which are illustrated in the accompanying sheet of drawings. Briefly, a local circuit extends through the territory or building which it is desired to protect, which circuit includes a device or apparatus of my invention attached to or connected with each shut-off valve or its operating device so that the circuit conditions are changed and an alarm started whenever the valve is tampered with.

Figure 1 is a diagrammatic view of a circuit illustrating the installation of the improvements of my invention. Fig. 2 is a side view and partial section illustrating the mechanism of my invention when the valve stem and contacts are in their normal position. Fig. 3 is a fragmentary view in partial section illustrating the contacts in the position which they would occupy when the valve is open. Fig. 4 is a fragmentary view showing the contacts in the position which they would occupy if the operating handle were advanced beyond its normal position. Fig. 5 is a cross-section of the mechanism showing the contacts and casing therefor.

1 and 2 represent the grounds of a normally energized local circuit containing the battery B, resistance R, and magnet C of a signal transmitter.

A is the armature of the magnet, whose movement controls the signal wheel.

An alarm starting attachment of my invention is provided for each valve in the sprinkler or fire service pipe.

3 and 4 are two spring arm contacts normally forming parts of the closed local circuit.

5 is the tip of an operator plug 6.

7 and 8 are two branches of a terminal connected to ground.

9 is an insulating button or projection carried by the contact arm 4 normally engaged by the tip 5.

10 is an insulating block on which the spring contact 3 is mounted.

11 is an insulating block on which the terminals 7 and 8 are mounted.

12 indicates the body of a gate valve.

13 is a stem for moving the valve shut or open.

14 is a yoke rigidly carried by the body of the valve.

15 is a casing detachably secured to the yoke 14 of the body and extending alongside of the stem of the valve. The rear end of the casing has an opening for the wires leading to the contacts 3, 4 and 7-8.

16 is the outer end or head of the casing 15, which is preferably removably secured therein and supports the terminal members. It also has an opening for the passage of the plug 6.

17 is a collar having a screw-threaded portion engaging the stem 13 of the valve and carrying plug 6. The insulating block 11 is secured to the head 16 and carries the post 18 from which contacts 3 and 4 project. The contacts 7 and 8 are electrically connected with the head 16 by a screw 19. This stem 13 in the embodiment shown is of the type which effects the closing and opening of the valve by a rotary movement. The pitch of the cooperating threads on the stem and in the collar 17 is such as to cause the collar to travel relatively to the valve casing or body, whether the stem, when it is rotated, has a longitudinal movement or not.

The full lines in Fig. 2 show the parts in their normal position. Since some valves are normally open and some normally closed, this may indicate the normal condition of any valve, the local circuit being closed through the contacts 3 and 4. If the valve is closed by rotating the stem 13 in one direction so as to draw the collar 17 to the right, as seen in Fig. 2, the enlarged diameter of the plug 6 forces the contact 4 into the position shown in Fig. 2, opens the local circuit between contacts 3 and 4, and then grounds it through contact 7. The current flowing through the transmitter magnet is thus cut off and the transmitter is started. Any attempt to electrically effect the at-

attachment without moving the gate valve will ground the casing and start an alarm. Rotation of the valve stem in the opposite direction will retract the plug 6 and permit the contact 4 to engage contact 8 and ground the attachment and start an alarm. An attempt to remove the head 16 of the casing without touching the valve stem will ground the circuit through contact 7. The grounding of the circuit through contact 7 will de-energize the magnet C whenever the gate is moved in either direction from its normal position. The magnet C will also be de-energized when the circuit is broken at the contact 3.

What I claim is:

1. An attachment for valves comprising a casing, a removable head therefor, and three contacts carried by said head normally protected by said casing, two of the contacts adapted to be connected in a local circuit and the other contact adapted to be grounded.
2. An alarm attachment for valves comprising a casing having an outlet for the circuit wires, a movable plug projecting into said casing, two line contacts and a ground contact located within said casing controlled by the movement of said plug for affecting the local circuit.
3. An alarm attachment for a gate valve comprising a detachable casing, a screw-threaded collar, a plug carried thereby and extending into said casing, and contact members within said casing controlled by the movement of said plug.
4. An alarm attachment for a gate valve comprising a movable plug two normally closed contact members, one of said members being movable and the other member being grounded and adapted to be engaged by said movable member, said movable member being controlled by the movement of said plug.
5. An alarm starting attachment for a gate valve comprising a spring arm normally connected in one line of the local circuit, a grounded terminal having two branches between which the end of the

spring arm normally stands, and a plug holding the spring arm in its normal position, and adapted to operate substantially as described, for connecting the spring arm to the ground upon movement of the plug in either direction.

6. In an attachment for a valve, the combination of a normally energized magnet, a source of current, a circuit connecting one terminal of said magnet to one terminal of said source, the other terminals of said magnet and source being grounded, two separable contacts in said circuit normally completing the same and located between said source and said magnet, and means actuated by said valve for separating said contacts and grounding said circuit between said magnet and said source of current.

7. In an attachment for a valve, the combination of a normally energized magnet, a source of current, a circuit connecting one terminal of said magnet to one terminal of said source, the other terminals of said magnet and source being grounded, two separable contacts in said circuit normally completing the same and located between said source and said magnet, and means moving with said valve for separating said contacts and grounding said circuit between said magnet and said source of current upon a movement of said valve in either direction.

8. The combination of a conductor grounded at both ends, a source of current and a normally energized magnet in series with said conductor and with one another, a plurality of valves, a plurality of sets of separable contacts located between said source and said magnet and in series therewith and with one another, each set being controlled by one of said valves, means actuated by said valves respectively for separating said contacts and grounding said circuit between said source and said magnet when any of said valves is moved from normal position.

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Witnesses:

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