C. J. JENNE.

PNEUMATIC ELECTRIC FIRE ALARM.

APPLICATION FILED DEC. 28, 1914.

1,168,506. Patented Jan. 18, 1916.

FIG. 1

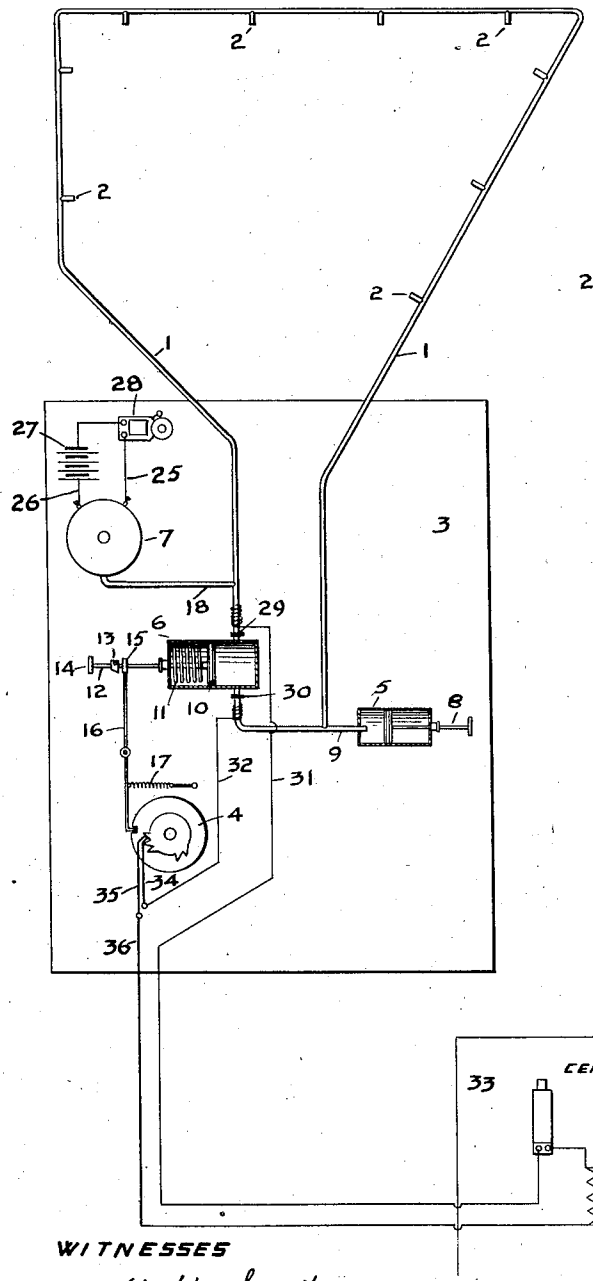


FIG. 2

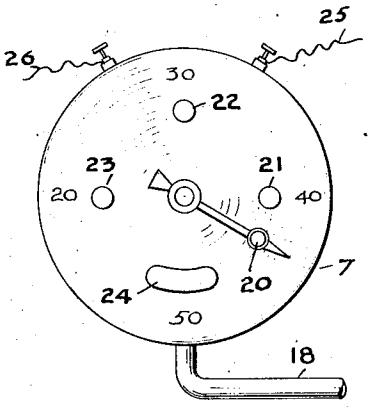
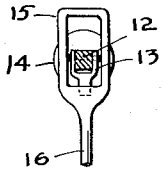


FIG. 3



WITNESSES

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UNITED STATES PATENT OFFICE.

CHRISTIAN JOHN JENNE, OF SAN FRANCISCO, CALIFORNIA.

PNEUMATIC ELECTRIC FIRE-ALARM.

1,168,506. Specification of Letters Patent. Patented Jan. 18, 1916.

Application filed December 28, 1914. Serial No. 879,314.

To all whom it may concern:

Be it known that I, CHRISTIAN J. JENNE, a citizen of the United States, residing at San Francisco, in the county of San Francisco, State of California, have invented a new and useful Pneumatic Electric Fire-Alarm, of which the following is a specification in such full and clear terms as will enable those skilled in the art to construct and use the same.

This invention relates to an automatic fire alarm system embodying electric and pneumatic features so combined as to enable trouble to be located without sending in an alarm which will necessitate sending out the fire apparatus on a useless errand.

Another object of the invention is to provide means whereby the subscriber's apparatus will indicate to the subscriber its condition, thereby enabling him to either look for trouble, in the apparatus or line, or to look for the fire as may be indicated by the alarm.

Other features of the invention will appear as the description proceeds.

An embodiment of the invention is shown in the drawing in which the same reference numeral is applied to the same portion throughout, but I am aware that there are many modifications thereof.

Figure 1 is a diagrammatic view illustrating the complete system, Fig. 2 is a detailed view of the pressure gage used in conjunction with the subscriber's apparatus, and Fig. 3 is a detailed view of a circuit wheel releasing apparatus.

The numeral 1 indicates a small metallic tube which extends throughout the building to be protected, said tube having outlets 2 closed by means of a fusible metal plug such as is common in the art, said fusible metal plugs being placed at such points as may be necessary.

The tube 1 leads to the subscriber's instrument board 3 on which is installed the circuit wheel 4 and air pump 5, the alarm release plunger and cylinder 6 and pressure gage 7. The air pump has a plunger 8 and is connected by means of a tube 9 with the tube 1 to enable said tube to be maintained at the desired air pressure. The ends of the tube 1 are connected with the cylinder 6, which cylinder has a plunger 10 therein on which a spring 11 acts to set off the alarm when the pressure therein runs down.

The piston rod 12 connected with the plunger 10 carries a loose pawl 13 and a cross head 14. The pawl is so set that as soon as it touches the ring 15 of the lever 16 that it will disengage the lower end of said lever from the wheel 4, which wheel is a slowly running wheel. The lever 16 is normally held with its lower end engaged with the circuit wheel 4 by means of the spring 17 and as soon as the pawl 13 passes through the ring 15 said spring will pull the lever 16 against the rim of the wheel 4 and will stop it when it has made one round, unless the cross head 14 moves fast enough to engage the ring 15 before the wheel 4 makes one complete round. If the cross head 14 moves against the ring 15 the lever will be completely disengaged from the wheel and will permit it to make such a number of revolutions as the apparatus connected therewith allows.

The tube 18 connects the tube 1 with the pressure gage 7, which pressure gage may be of any suitable type having an indicating hand 19 and contact pin 20, which contact pin is adapted to strike the contacts 21, 22, 23 or 24 as the pressure in the tube is reduced. The contact points 21 to 24 inclusive are suitably connected with a wire 25 while the indicating hand 19 is suitably connected to the wire 26 leading to the battery 27 and alarm bell 28.

The tube 1 is insulated from the plunger cylinder 6 at 29 and 30 and the wires 31 and 32 are electrically connected with said tube so that it completes the electric circuit to the central station 33. The wire 32 is connected with the spring contact 34, while a spring contact 35 has a wire 36 leading to the central station 33. The central station has apparatus of a well known form which operates on the closed circuit system, but which forms no part of the present invention and is, therefore, not illustrated.

The operation of the apparatus is as follows: If a fire occurs at any one of the fusible plugs 2 the air pressure in the tube will blow out the fusible plug and the plunger 10 will be quickly seated thereby releasing the circuit wheel 4 and setting off the alarm in precisely the same manner as though the alarm was set off by hand. At the same time the indicator hand 19 will return to zero and will set off the alarm bell 28, thereby notifying the subscriber of the fire. However, if the line is merely out of order to such an extent as to be unable to retain the air pressure the plunger 10 will be

seated slowly while the indicator hand 19 will fall slowly. In this way, the circuit wheel will be released once and then stopped while the alarm bell 28 will ring intermittently several times thereby notifying both the central station and the subscriber that the pressure in the line has fallen to such an extent as to either require replenishment from the air pump 5 or to require some attention by way of repairs. If it should happen that the tubing 1 is severed at any point the pressure will be released, but at the same time, the electric circuit completed thereby will be broken and therefore, it will not be possible for the released time wheel to send in its usual alarm, but the subscriber's bell 28 will ring thereby notifying him of trouble in the line and the fact that the subscriber's line has been opened will, of course, be notified to the central station, so that circuit trouble instead of fire will be looked for thereby saving the fire department many useless runs.

Having thus described my invention what I claim as new and desire to secure by Letters Patent of the United States, is as follows, modifications within the scope of the claims being expressly reserved:

1. A fire alarm system comprising a tube extending throughout the structure to be protected, a pressure cylinder and a pressure gage connected with said tube, means to supply said tube with air under pressure above that of the atmosphere, a local alarm, an electric circuit connected with the pressure gage to set off said local alarm on the falling of the pressure within the tube, a central station, an electric circuit including the tube, a piston in the pressure cylinder, and means operated by the piston upon the falling of the air pressure in the tube to set off the central station alarm.

2. A fire alarm system comprising a tube extending throughout the building to be protected, fusible metal plugs carried thereby, a pressure cylinder and a pressure gage connected with said tube, means to supply said tube with air under pressure above that of the atmosphere, means operated by the pressure gage to set off a local alarm on the reduction of pressure within the tube, a central station, and means operated by the pressure cylinder to set off the alarm at the central station upon the falling of the air pressure in said tube.

3. A fire alarm system comprising a tube extending throughout the structure to be protected, fusible metal plugs carried thereby, means to supply said tube with air under pressure above that of the atmosphere, a pressure cylinder, a central station, means operated by the slow falling of the pressure in the tube to set off a partial alarm at the central station, and means to set off the complete alarm at the central station upon the final reduction of pressure in said tube to that of the atmosphere.

4. A fire alarm system comprising a tube extending throughout the structure to be protected, fusible metal plugs carried thereby, a pressure cylinder and a pressure gage connected with said tube, a local alarm, means operated by the pressure gage to set off said local alarm intermittently upon the slow falling of pressure in said tube, means to set off, a final alarm connected with said pressure gage upon the complete falling of pressure in said tube, and means connected with the pressure cylinder to set off an alarm at the central station on the falling of pressure in the tube.

In testimony whereof I have hereunto set my hand this 21" day of December A. D. 1914, in the presence of the two subscribed witnesses.

CHRISTIAN JOHN JENNE.

Witnesses:
HENRY B. LISTER,
A. H. KEPHART.