

(No Model.)

H. L. LUFKIN, Dec'd.

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FIRE EXTINGUISHING APPARATUS.

No. 578,606.

Patented Mar. 9, 1897.

Fig. 1.

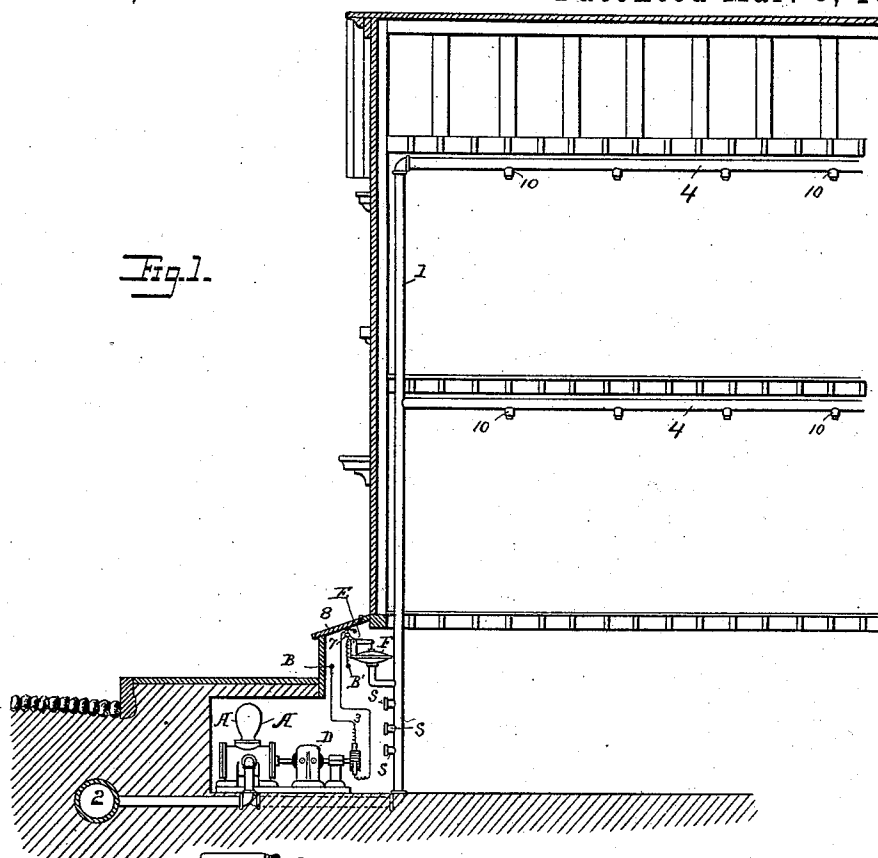
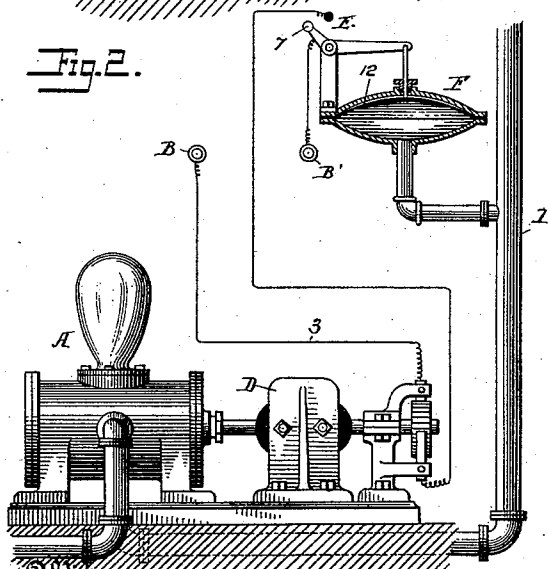


Fig. 2.



Witnesses

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HARVEY LAMB LUFKIN, OF NEW YORK, N. Y.; MARY D. LUFKIN ADMINISTRATRIX OF SAID HARVEY LAMB LUFKIN, DECEASED.

FIRE-EXTINGUISHING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 578,606, dated March 9, 1897.

Application filed February 10, 1890. Serial No. 339,865. (No model.)

To all whom it may concern:

Be it known that I, HARVEY LAMB LUFKIN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Fire-Extinguishing Apparatus, of which the following is a specification.

In those places where the water-supply, while sufficiently abundant for use in case of fire, is under a very low head it is necessary to use portable engines, which are carried to each point where conflagration occurs and there connected with the mains from which the water is received and pumped by the power generated in the separate engines. This method of extinguishing fires is attended with serious objections, the chief of which is the time lost between the discovery of the fire and the arrival and getting in operation the pumping apparatus, for the loss of a few minutes' time will often permit the flames to reach a mass of highly-combustible materials, causing a disastrous conflagration, which might have been avoided if water had been thrown upon the flames a few minutes sooner. Efforts have been made to obviate these objections by extending branch pipes, connected with the street-mains, to the different apartments of buildings and providing them with fusible plugs or other means for unsealing discharging-nozzles automatically by the increase of temperature resulting from the heat of a fire; but such appliances cannot effectively be employed except where the head of water is sufficient to discharge the stream at whatever point the nozzle is unsealed. Attempts to obviate this difficulty by the use of separate pumping-engines in connection with separate buildings or districts have necessitated the use of separate generators in connection with the different engines, maintaining different sources of motor-power constantly in effective condition, with generators in operation at different points.

In order to obviate the above-set-forth objections and effectively apply the water from the mains to the fires whatever may be the elevated position of the latter, and when the head of water is insufficient to raise it alone to such position, and in order to avoid the necessity of using the generating power at

different points and the use of separate generators for such purposes, I make use of the system which I will now describe and which is illustrated in the accompanying drawings, 55 in which—

Figure 1 is a sectional elevation of one of a series of buildings, showing the arrangement of pump, water-pipes, conductors, and cut-off when an electrical generator is used. 60 Fig. 2 is an enlarged view of the parts shown in Fig. 1 directly connected with the pump.

Each building which it is desired to protect is provided with a conducting-pipe 1, extending from the basement to the top of the building, and from which, if desired, branch pipes 4 are extended to different points, and with this pipe 1 and with the water-main 2 in the street communicates a pump A, of any suitable construction, the operation of which 70 will force the water from the main to the highest and most distant part of the pipe system in the building.

The motor-power for operating the pumps of all the various edifices is derived from one single source of supply at any central or suitable station and is conveyed to the various pumps through a main conductor B and branch conductors 3, the character of which will depend upon the motor-power employed. 80

If the motor-power be compressed air or steam or water under high pressure (which may practicably be employed to operate the few apparatus that must be moved at any one time for extinguishing fires, while it would 85 not be sufficient for supplying the entire district under pressure) the conductor B may be in the form of a pipe, but where the motor-power is electricity the conductor may be in the form of a wire or bar of proper dimensions, the generator in one case being a steam-generator, pump, or air compressor and in the other a dynamo or other source of electric energy.

Whatever motive power is employed it is necessary to have a cut-off of suitable character whereby the motor fluid may be directed to each motor only when the connected pump is to be put into operation, and this cut-off may be arranged to be operated automatically by any suitable thermostat. Thus in 100 Figs. 1 and 2, which illustrate an electromo-

tor for operating the pump A, the cut-off E is in the form of a circuit-breaker or switch 7, inclosed within a case 8 outside of the building and provided with a movable lid or door which may have a lock and key, so as only to be opened by proper parties, as for the purpose of inspection, &c.

In order to limit the application of the water to those portions of the building only in which the fire occurs and also in order to render the application of the water automatic, I prefer to provide the water pipes or branches with nozzles 10, closed by fusible plugs, or controlled by a thermostatic device, so that only those nozzles adjacent to and affected by the heat of the fire will be unsealed, so that when the water is turned onto the main supply-pipe 1 it will flow or be discharged only at points adjacent to the fire. To render this application of power to the pump automatic, the cut-off may be thrown into position to direct the motor fluid into the motor as a result of the unsealing of the nozzles. Thus a Clarke governor F may be in communication with the pipe 1, so that the pressure of the water normally sealed in the said pipe and its branches may maintain the diaphragm 12 of the governor in one position, said diaphragm being connected with the switch 7 or other cut-off device, so as to maintain it normally in position to cut off the flow of motor fluid. When any of the nozzles are unsealed, the reduction of pressure in the pipe 1 and governor F causes the diaphragm 12 to take a reverse position and moves the cut-off so as to complete the circuit and admit the current to the motor and set the pump in operation.

The diaphragm, it will be understood, is such as is normally maintained in a central position within its case or shell, so that just as soon as pressure is relieved therefrom at the under side it will tend to be restored to such normal position and the switch will at the same time be operated. During the time

the pump is forcing water up through the pipe 1 and the outlets of the pipe are open, there will not be sufficient pressure to lift the diaphragm, and hence there is no tendency of the water to open the switch.

If desired, each pump may be provided with one or a number of nozzles s s s for the attachment of hose.

Without limiting myself to the precise construction and arrangement of parts shown, I claim—

1. The combination with a series of water-conducting pipes arranged within a building and connected with the street, said pipes provided with nozzles constructed to be unsealed by heat, a pump for such series of conducting-pipes, and a conductor extending from the pump to a source of motive power, of a cut-off connected with the pump, and a diaphragm connected to automatically operate said cut-off on unsealing the nozzles to start the pump into operation upon the occurrence of a fire in the building supplied by said pump, substantially as described.

2. The combination of a series of buildings each provided with a water-conducting pipe having branches and nozzles and means for unsealing said nozzles by the action of heat, a water-main and series of pumps for pumping water therefrom through the conducting-pipes, a motor for each pump, a central source of power for all the motors, and an automatic cut-off connected with each motor for shutting off the motor-fluid on the opening of said nozzles and arranged in a position accessible from the outside of the building, substantially as described.

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

HARVEY LAMB LUFKIN.

Witnesses:

STANLEY DWIGHT,
J. B. SAUNDERS.