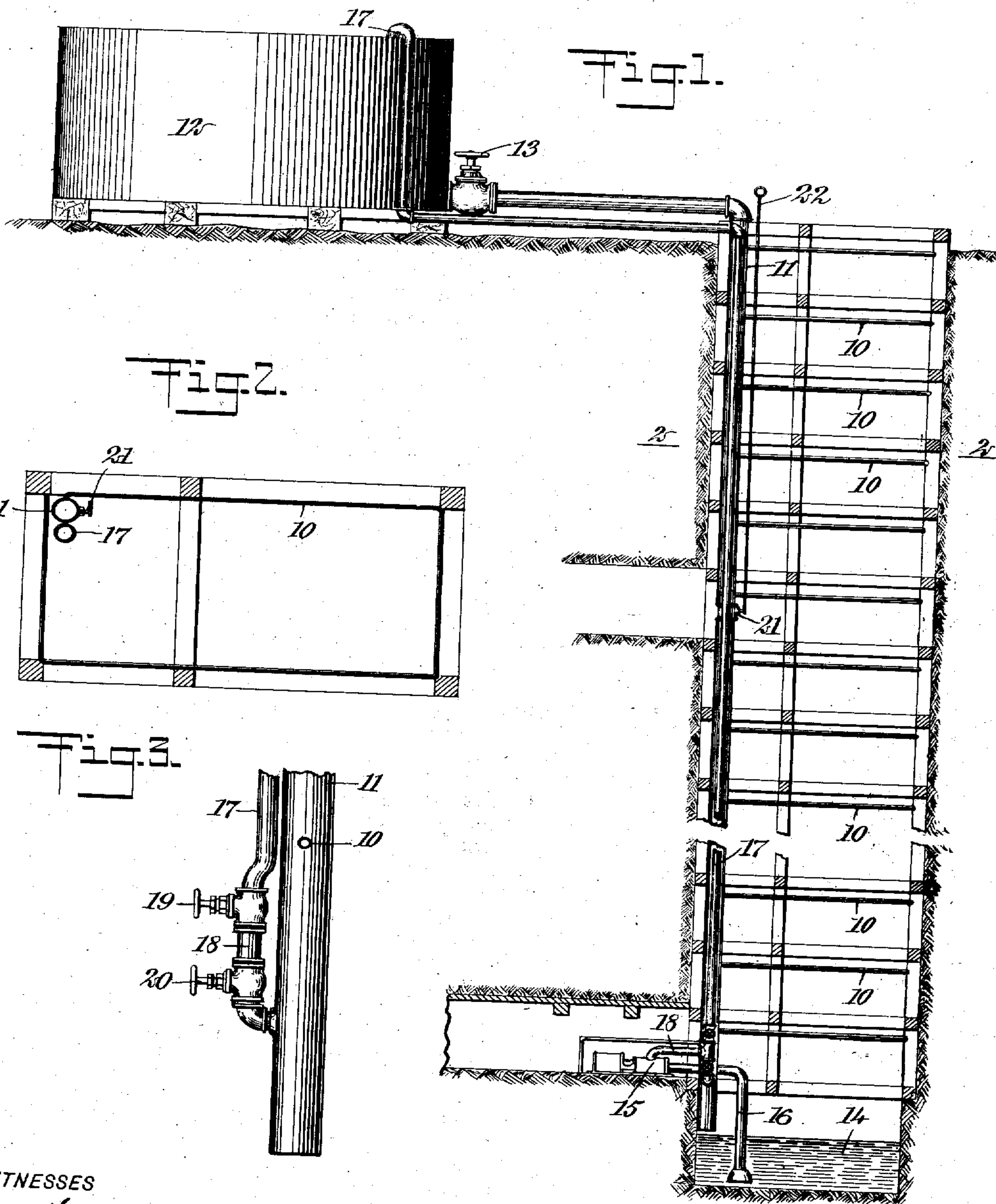


C. T. ROBERTS.  
FIRE EXTINGUISHING SYSTEM.  
APPLICATION FILED SEPT. 11, 1908.

925,230.

Patented June 15, 1909.



WITNESSES

*Ben J. Goff*  
*G. W. Fairbank*

INVENTOR

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ATTORNEYS



# UNITED STATES PATENT OFFICE.

CHRISTOPHER T. ROBERTS, OF TUCSON, ARIZONA TERRITORY, ASSIGNOR OF ONE-HALF TO  
LOUIS ZECHENDORF, OF NEW YORK, N. Y.

## FIRE-EXTINGUISHING SYSTEM.

No. 925,230.

Specification of Letters Patent.

Patented June 15, 1909.

Application filed September 11, 1908. Serial No. 452,550.

*To all whom it may concern:*

Be it known that I, CHRISTOPHER T. ROBERTS, a citizen of the United States, and a resident of Tucson, in the county of Pima and Territory of Arizona, have invented a new and Improved Fire-Extinguishing System, of which the following is a full, clear, and exact description.

This invention relates to certain improvements in fire extinguishing systems, and more particularly to sprinkling systems for mine shafts, although it is evident that the system might be utilized equally as well in various other localities.

The object of the invention is to so construct the sprinkling system that the water may be delivered thereto in such a manner as to prevent the burning of the woodwork of the shaft and prevent the passage of flames from one level to another.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures, and in which—

Figure 1 is a vertical section through a mine shaft provided with my improved sprinkling system; Fig. 2 is a transverse section on the line 2—2 of Fig. 1; and Fig. 3 is a detail side elevation showing one form of pipe connections.

In my improved system, I provide a plurality of small sprinkling pipes 10, disposed substantially horizontally at intervals throughout the height of the shaft and preferably substantially encircling the shaft, so as to spray water upon all of the walls thereof. All of the sprinkling pipes are connected to a main header 11, extending vertically of the shaft at one side thereof and held in place in any suitable manner. The sprinkling pipes are arranged closely adjacent the timbers of the shaft, and when the water is turned on, said pipes keep these timbers so moistened that they cannot catch fire. The upper end of the main delivery or stand pipe 11 is connected to a storage tank 12 above the upper end of the shaft, and a suitable valve 13 is provided for controlling the flow of water from the tank to the stand pipe 11.

At the lowermost portion of the mine, preferably directly below the main shaft, is arranged the sump 14, in which all of the drainage waters from the mine collect, particularly all water discharged from the spray

pipes 10. A suitable pump 15 is provided for withdrawing water through a suction pipe 16 extending into the sump, and delivering said water through a second stand pipe 17 leading to the upper end of the shaft and delivering into the storage tank 12. The lower end of the stand pipe 11 is closed and the lower end of the stand pipe 17 is connected thereto. A branch pipe 18 leading from the pump to the stand pipe 17, connects with the latter intermediate two valves 19 and 20, either one of which may be closed. With the valve 19 open and the valve 20 closed, the pump may withdraw water from the sump and deliver the same to the storage tank 12. With the valve 19 closed and the valve 20 open, the pump may force water up the stand pipe 11 and to the spray pipes. Intermediate the ends of the stand pipe 11, I provide a valve 21, which may be controlled by a cord, wire, or rod 22 extending to the upper end of the shaft.

In case the fire occurs in the upper portion of the mine shaft, the valve 21 may be closed and the valve 13 opened, so that only the spray pipes in the upper portion of the shaft will be supplied with water. If the fire occurs in the lower portion of the shaft, the valve 13 may remain closed, the valve 21 may be closed, and the valve 20 opened, so that the pump may withdraw water from the sump and force it up into the lower portion of the discharge main 11 and out into the lower spray pipes. The pump at any time may be used for withdrawing water from the sump 14 and delivering it to the storage tank 12 or to any other desired point at the upper end of the shaft. In case it is desired to sprinkle the entire height of the shaft, the valves 13, 21 and 20 may be opened and the valve 19 closed. Upon starting the pump, water will be forced upwardly in the lower portion of the stand pipe 11, and will tend to counteract the downflow of water in the upper portion of the pipe 11. Thus, all of the spray pipes will be provided with the maximum amount of water, but a portion of this water will be withdrawn from the sump, and, therefore, the minimum amount of water will be drawn from the storage tank. A saving is thus effected and the sprinkling system may be maintained in full operation for an indefinite length of time.

To install my improved system, the ordinary mine pump employed for removing the



water from the mine, may be employed, and the stand pipe 17 may be the ordinary pipe employed as a discharge pipe from the pump. It is thus necessary to provide only the stand pipe 11, the spray pipes 10 and the necessary couplings and connections.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

- 10 1. The combination with the shaft and the sump, of a plurality of spray pipes arranged adjacent to the sides of the shaft, two stand pipes within the shaft, one of the pipes being connected with the spray pipes, a tank at the upper end of the shaft, and connected to both of the stand pipes, and a pump at the lower end of the shaft having an inlet pipe leading to the sump, and means whereby the pump may be connected with either of the stand pipes, the stand pipe connected with the spray pipe being provided with a valve at

approximately the center thereof, and means connected with the valve, and extending to the top of the shaft for opening and closing the same. 25

2. In a device of the class described, a plurality of spray pipes, a tank, a plurality of stand pipes, one of which is connected with the spray pipes, and both of which are connected with the tank, a pump, and means whereby the pump may be connected with either of the stand pipes, the stand pipe connected with the spray pipes being provided with a valve at approximately the center thereof for the purpose set forth. 30 35

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

CHRISTOPHER T. ROBERTS.

Witnesses:

JAMES DUNSEATH,  
W. A. KELLEY.

Correction in Letters Patent No. 925,230.

It is hereby certified that the name of the assignee in Letters Patent No. 925,230, granted June 15, 1909, upon the application of Christopher T. Roberts, of Tucson, Arizona Territory, for an improvement in "Fire-Extinguishing Systems," was erroneously written and printed "Louis Zeckendorf" whereas said name should have been written and printed *Louis Zeckendorf*; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 3rd day of August, A. D., 1909.

[SEAL.]

F. A. TENNANT,  
Acting Commissioner of Patents.

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