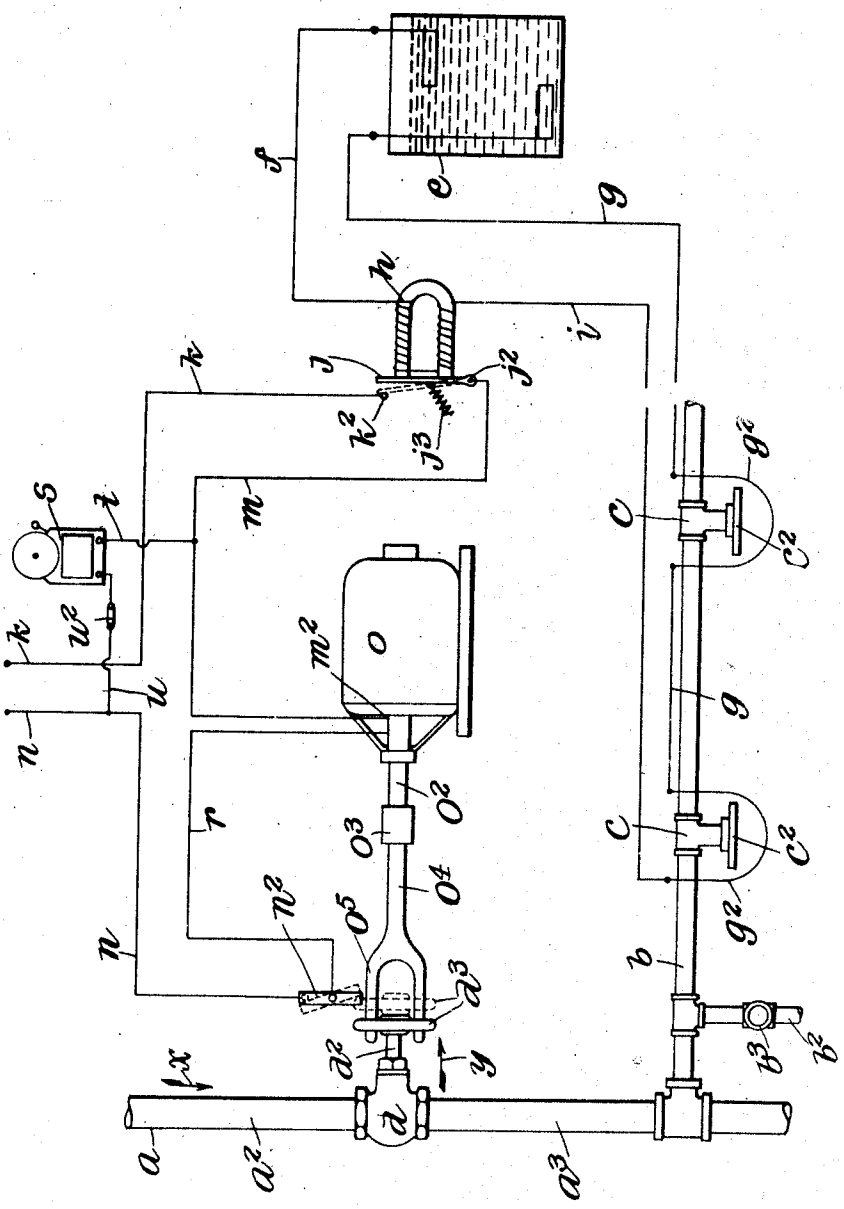
A. A. ARVINTZ.

SPRINKLER SYSTEM.

APPLICATION FILED MAR. 1, 1918.

1,308,974.

Patented July 8, 1919.



Inventor

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SPRINKLER SYSTEM.

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Application filed March 1, 1918. Serial No. 219,784.

To all whom it may concern:

Be it known that I, ABRAHAM A. ARVINTZ, a citizen of the United States, and residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Sprinkler Systems, of which the following is a specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to what are known as fire sprinkler systems such as are usually employed in stores, factories and other business places; and the object thereof is to provide an improved system of this class in which the water distributing pipes through which the water passes to the sprinklers are normally empty and water admitted thereto only in case of fire, and when it is desired that the sprinklers should operate; and the invention consists in the application to the main water supply pipe and the water distributing pipes of an apparatus whereby the flow of water from the main supply pipe to the water distributing pipe or pipes is normally cut off, but operated in case of fire to admit the water to the water distributing pipe or pipes and the sprinklers connected therewith; a further object being to provide an improved electrical apparatus of the class specified which is simple in construction and operation, and which will be automatically operated to produce the desired result in the case of fire as hereinafter described.

The invention is fully disclosed in the following specification, of which the accompanying drawing forms a part, said drawing being a diagrammatic view of an apparatus involving my invention.

In the drawing forming part of this specification I have shown at a a main water supply pipe of a water sprinkling system of the class under consideration, and at b a water distributing pipe which is connected with the pipe a, and which is provided with sprinkling devices c of the usual or any preferred construction, and it will be understood that any desired number of water distributing pipes b may be employed, and also any desired number of the sprinkling devices c.

The sprinkling devices c are provided with fusible heads or caps c^2 which are melted in the case of fire, and when the heat reaches a predetermined degree, and the water is discharged through said sprinkling devices, under the above conditions in the usual manner, and the details of the construction of these sprinkling devices form no part of my invention, and are therefore not shown and described.

In the operation of the apparatus water is supposed to enter the main supply pipe a and pass therethrough in the direction of the arrow x, and said pipe is provided at a predetermined point with a valve device d comprising the usual valve casing in which is mounted a valve provided with a stem d^2, and the valve device is of the gate type or provided with an inwardly and outwardly movable closure device, and when the stem d^2 is rotated in one direction said valve and stem both move in the direction of the arrow y, and the head d^3 with which the stem d^2 is provided will move outwardly into the position indicated in dotted lines.

In the accompanying drawing I have shown a battery e preferably of the gravity cell type and provided with circuit wires f and g. The circuit wire g extends parallel with the distributing pipe b and is divided at intervals, where the sprinkling devices are located, and connected therewith are lead wire loops g^2 which are preferably arranged so as to inclose the sprinkling devices but which may be arranged in any desired manner.

I also provide a magnet h with which the circuit wire f is connected and another wire i is also connected with the magnet h and with the wire g, or with one of the lead wire loops g^2.

The magnet h is provided with an armature j which is pivoted at j^2 and another wire k is connected with a binding post or contact device k^2 in connection with which the armature j operates, and another wire m is connected with the armature j, and a spring j^3 is connected with the armature j and normally holds said armature in the position shown in dotted lines.

The wire k constitutes one of the main circuit wires of the system or apparatus and another main circuit wire n is also employed, and these main circuit wires may be supplied from any suitable source of electric supply.

The main circuit wire n connects with a switch device n^2 located adjacent to the head d^3 of the valve stem d^2 and an electric motor

o is also employed, in the construction shown, and this motor is provided with a shaft o^2 having a coupling o^3 with which is connected a supplemental shaft or rod o^4, having a forked head o^5, the arms of which pass loosely through the head d^3 of the valve stem d^2.

The wire m connects with the motor o at m^2 and another wire r connects said motor with the switch device n^2, and I also preferably employ an electric gong or other signal device s which is connected with the wire m by a wire t and with the wire n by a wire u in which is placed a switch device u^2.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawing and the following statement.

Under normal conditions the main water supply pipe a, or the part a^2 thereof will be filled with water up to the valve device d, but the part a^3 of said pipe and the distributing pipe or pipes b will be empty. If, under these conditions, a fire should originate in a place provided with my improved apparatus and the temperature should rise to a point or degree at which the heads of the sprinkling devices c will be fused or melted, the wire loop members g^2 would also be fused or melted at the same time, and the circuit through the magnet h would be broken and the other circuit completed through the armature j and the wires k and m, the signal device s and the motor o, and the shaft o^2 of said motor would be operated. This operation of the shaft o^2 would rotate the supplemental shaft o^4 and the valve in the valve device d would be turned by the forked head o^5 of the shaft o^4, the arms of which pass loosely through the head d^3 of the valve stem d^2, and said valve stem and its head d^3 would be moved outwardly into the position shown in dotted lines and the water would rush into the pipe a, or the part a^3 thereof and into the distributing pipe or pipes b and into and through the sprinkling devices c in the usual manner. When the valve in the valve device d and its stem d^2 is operated, in the manner above described, and the head d^3 of said valve stem moves into the dotted line position, it will operate the switch n^2 and the circuit through the wires r and n and through the signal device s and the motor o will be broken, but the flow of water will continue until the connection between the shafts o^2 and o^4 is broken and the valve or valve device d returned to its normal position, or the flow of water through the part a^2 of the pipe a is cut off which may be done by hand at any desired point.

With my apparatus it will be seen that there will be no water in the distributing pipe or pipes b nor the sprinkling devices c, and this as is evident will prevent the freezing and bursting of such pipes in extremely cold weather and thus prevent great loss and damage as will be readily understood and, as here stated, water is only admitted to the distributing pipe or pipes b and the sprinkling devices c when the valve d is opened.

It also sometimes happens when sprinkling apparatus of the class herein considered is employed that the heads or caps c^2 of the sprinkling devices are accidentally broken off and this, of course, if the distributing pipes were full of water would also result in great loss and inconvenience, all of which is obviated by my improvement.

While I have shown and described the form of construction which I prefer in carrying my improvement into effect, my invention is not limited to the exact details of construction herein shown and described, and various changes therein and modifications thereof may be made, within the scope of the appended claims, without departing from the spirit of my invention or sacrificing its advantages.

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an electric motor placed in an open electric circuit, means for placing the motor shaft in operative connection with said valve device, and another electric circuit normally closed by fusible connections, and means whereby the melting or breaking of one of said fusible connections will open said last named circuit and close the motor circuit to put said motor into operation to open the valve device to admit water to the distributing pipe and the sprinkling devices thereof.

2. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an electric motor placed in an open electric circuit, means for placing the motor shaft in operative connection with said valve device, and another electric circuit normally closed by fusible connections, means whereby the melting or breaking of one of said fusible connections will open said last named circuit and close the motor circuit to put said motor into operation to open the valve device to admit water to the distributing pipe

and the sprinkling devices thereof, and means for breaking the motor circuit to stop said motor when the valve device is fully opened.

3. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an electric motor placed in an open electric circuit, means for placing the motor shaft in operative connection with said valve device, and another electric circuit normally closed by fusible connections, means whereby the melting or breaking of one of said fusible connections will open said last named circuit and close the motor circuit to put said motor into operation to open the valve device to admit water to the distributing pipe and the sprinkling devices thereof, and an alarm device in said motor circuit.

4. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an open electric circuit, means in said circuit and in operative connection with said valve device for operating the same when said circuit is closed, another electric circuit normally closed by fusible connections, means in said last named circuit adapted to close said first named circuit when one of said fusible connections is melted or broken to operate the means in said first named circuit to open the valve device and permit the flow of water to said distributing pipe and sprinkling devices thereof.

5. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an open electric circuit, means in said circuit and in operative connection with said valve device for operating the same when said circuit is closed, another electric circuit normally closed by fusible connections, means in said last named circuit adapted to close said first named circuit when one of said fusible connections is melted or broken to operate the means in said first named circuit to open the valve device and permit the flow of water to said distributing pipe and the sprinkling devices thereof, and means for breaking the first named circuit when the valve device is fully opened.

6. In a sprinkling apparatus of the class described, a main water supply pipe, a water distributing pipe connected therewith, sprinkling devices connected with said distributing pipe, a valve device mounted in the supply pipe and adapted to control the flow of water to the distributing pipe and the sprinkling devices thereof, an open electric circuit, means in said circuit and in operative connection with said valve device for operating the same when said circuit is closed, another electric circuit normally closed by fusible connections, means in said last named circuit adapted to close said first named circuit when one of said fusible connections is melted or broken to operate the means in said first named circuit to open the valve device and permit the flow of water to said distributing pipe and sprinkling devices thereof, an alarm device in said first named circuit, and means for breaking the first named circuit when the valve device is fully opened.

In testimony that I claim the foregoing as my invention I have signed my name in presence of the subscribing witnesses this 26th day of February 1918.

ABRAHAM A. ARVINTZ.

Witnesses:
C. E. MULREANY,
H. E. THOMPSON.