I. CORNELIUSSEN.

FIRE EXTINGUISHING SYSTEM.

APPLICATION FILED SEPT. 17, 1909.

983,606.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 1.

Fig. 1.

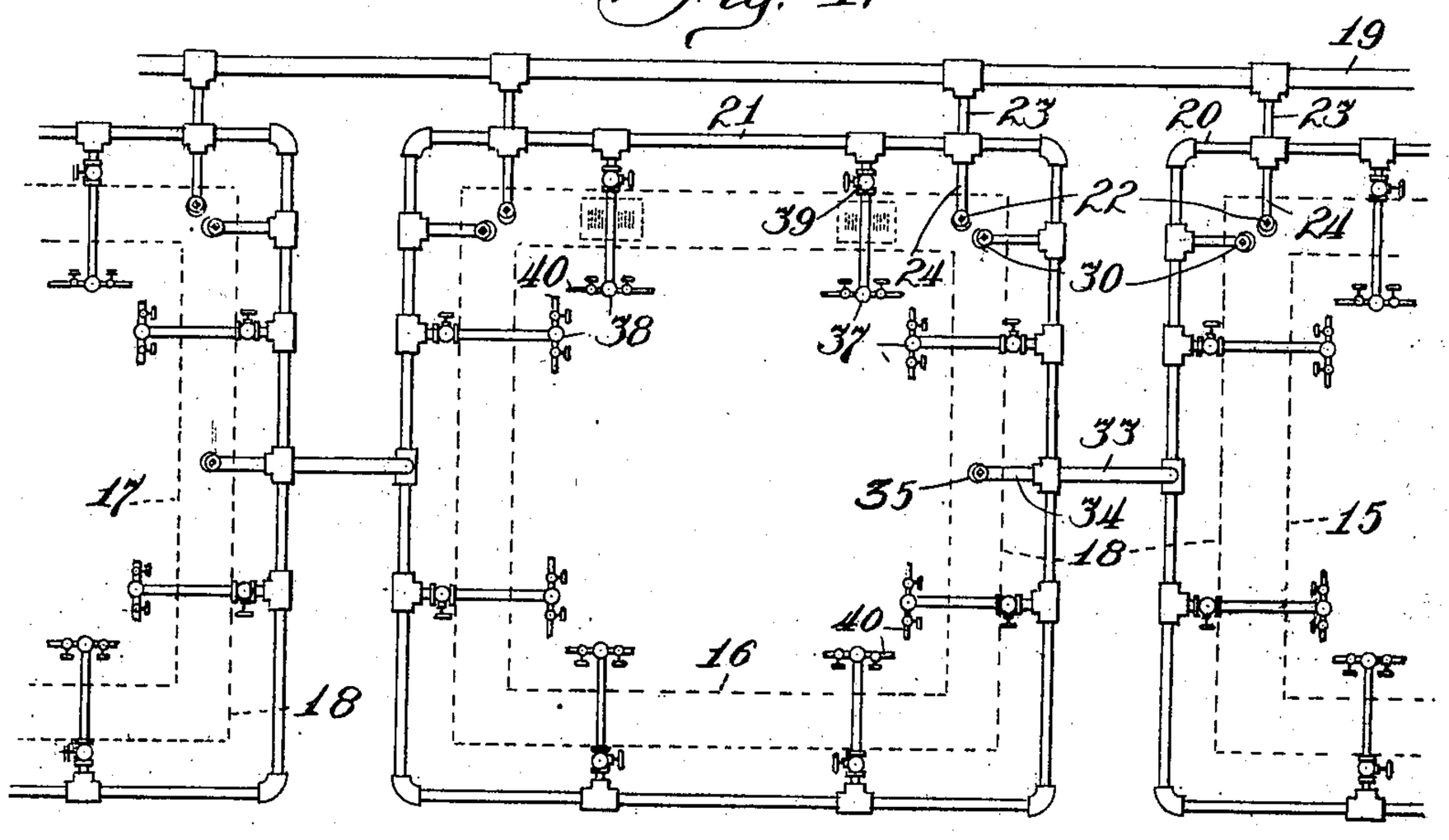


Fig. 2.

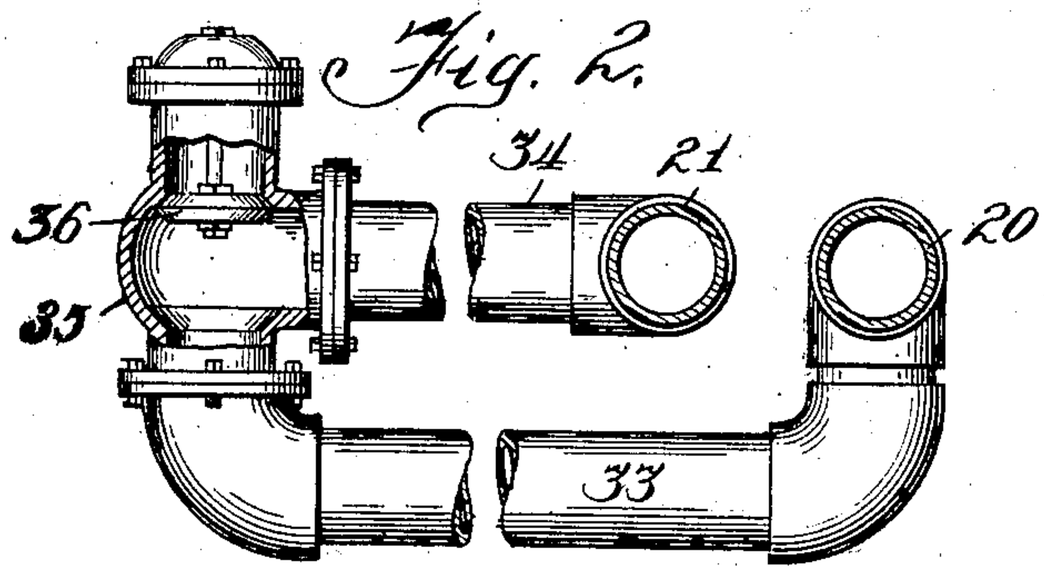


Fig. 3.

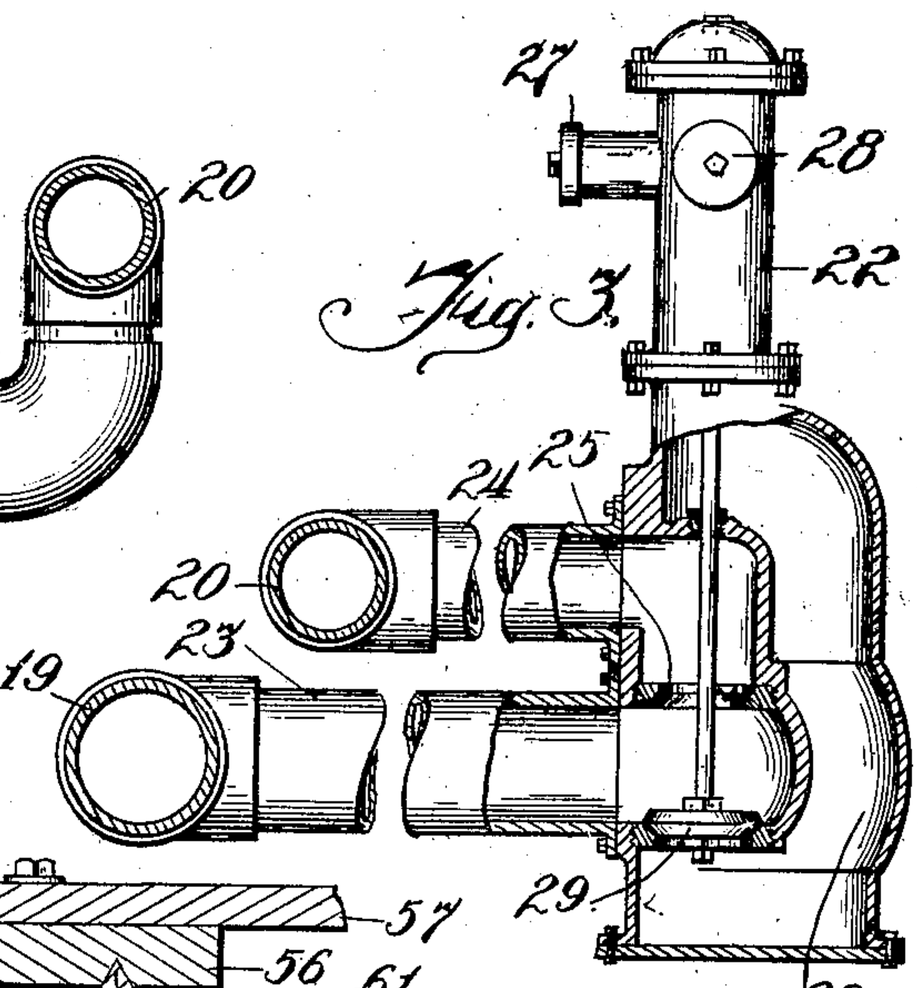
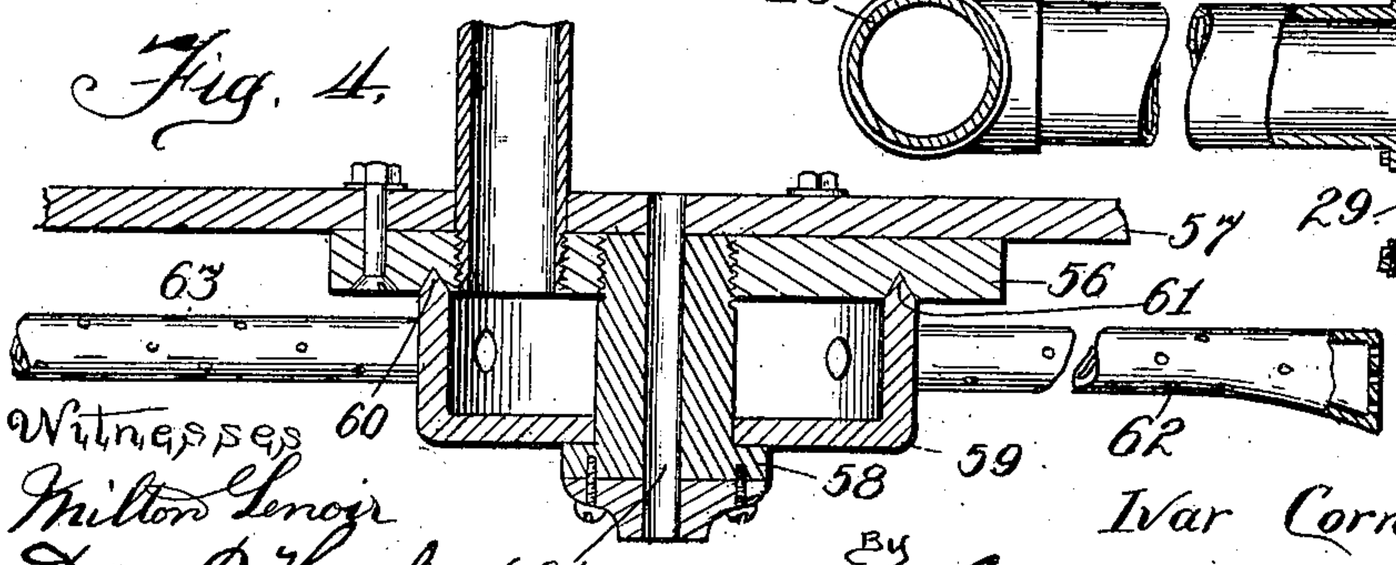


Fig. 4.



Witnesses

Milton Lenoir

Daisy F. Hughes

Inventor

Ivar Corneliussen.

By Gillson & Gillson

Attorneys.

I. CORNELIUSSEN.

FIRE EXTINGUISHING SYSTEM.

APPLICATION FILED SEPT. 17, 1909.

983,606.

Patented Feb. 7, 1911.

2 SHEETS—SHEET 2.

Fig. 6.

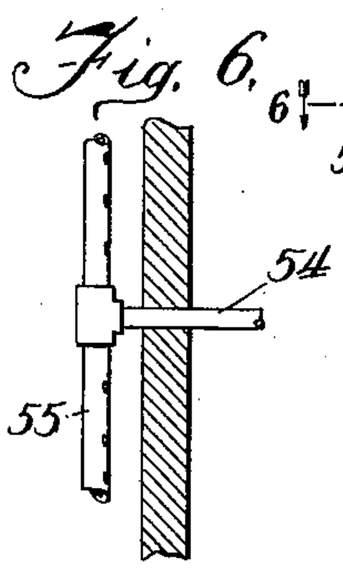


Fig. 5.

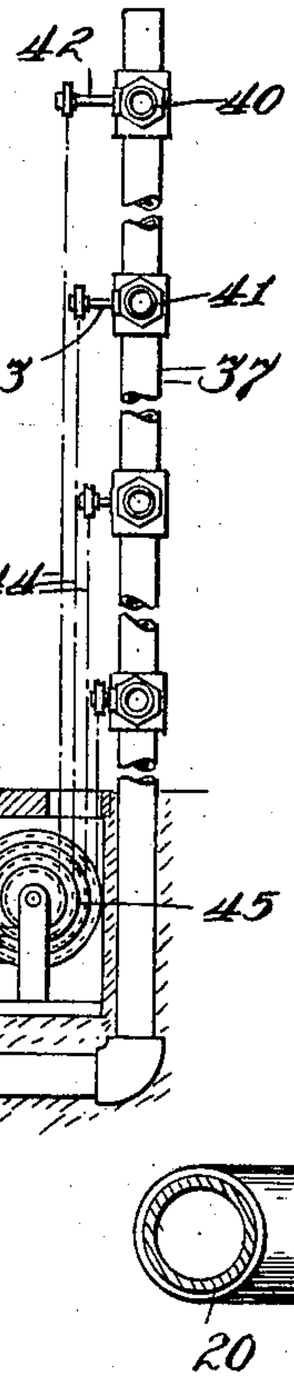


Fig. 7.

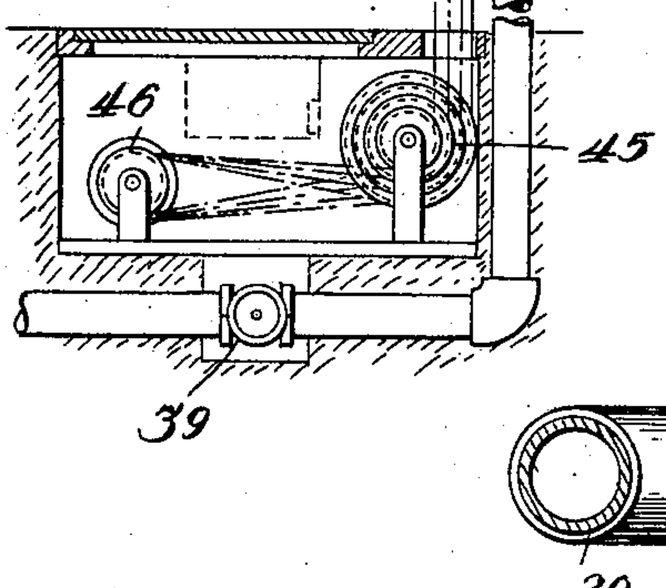
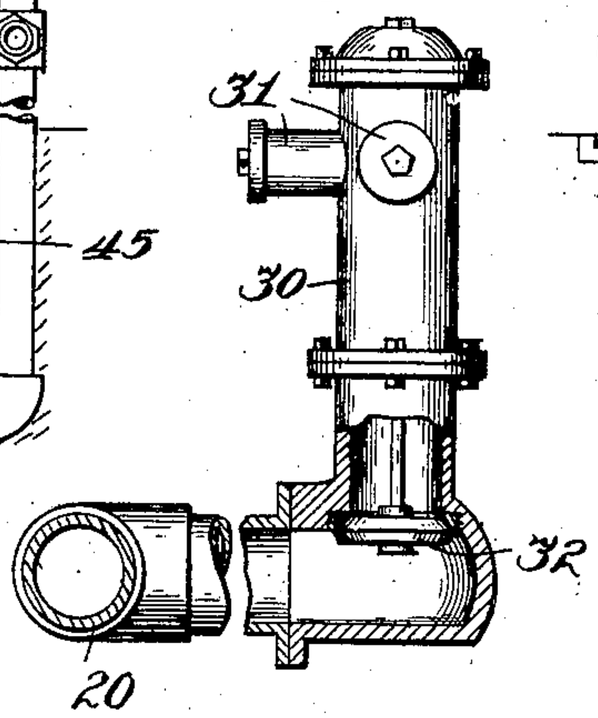


Fig. 9.



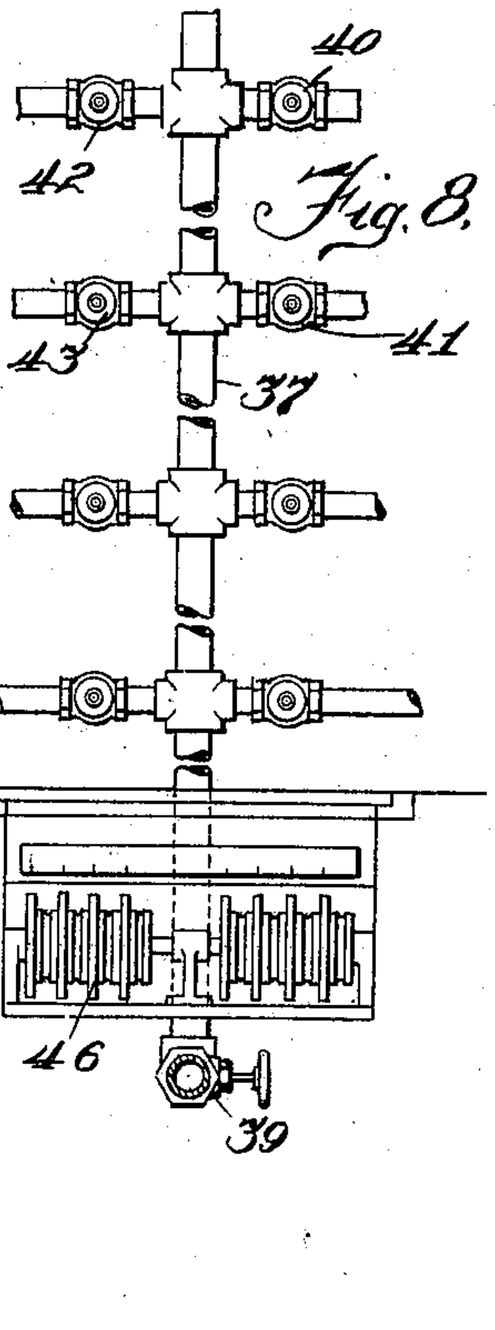


Fig. 8.

Witnesses

Milton Leroix

Daisy F. Hughes.

Inventor:

Ivar Corneliussen.

By Gillson & Gillson

Attorneys.

UNITED STATES PATENT OFFICE.

IVAR CORNELIUSSEN, OF GALVESTON, TEXAS.

FIRE-EXTINGUISHING SYSTEM.

983,606. Specification of Letters Patent. **Patented Feb. 7, 1911.**

Application filed September 17, 1909. Serial No. 518,158.

To all whom it may concern:

Be it known that I, IVAR CORNELIUSSEN, a citizen of the United States, and resident of Galveston, county of Galveston, and State of Texas, have invented certain new and useful Improvements in Fire-Extinguishing Systems, of which the following is a specification, and which are illustrated in the accompanying drawings, forming a part thereof.

The invention relates to the systems for distributing water for extinguishing fires in buildings, its object being to provide improved means for delivering water to the various parts of a series of buildings when arranged in blocks, or series of blocks, and it consists in the parts and arrangement of parts as hereinafter described and illustrated in the accompanying drawings, in which—

Figure 1 is a detail diagrammatic view of a series of business blocks and of the ground plan of the piping used in connection therewith; Fig. 2 is a detail, part in section and part in elevation, of the connection between the piping relating to adjacent blocks; Fig. 3 is a detail elevation, part in section, of the hydrant for connecting the street main with the piping system of a block of buildings; Fig. 4 is a sectional detail through the ceiling of a building and a sprinkler head adapted to be used in connection with the improved system; Fig. 5 is a diagrammatic vertical sectional view of a building showing the application of piping thereto; Fig. 6 is a sectional detail on the line 6—6 of Fig. 5; Fig. 7 is a diagrammatic sectional detail showing a standpipe for carrying water upwardly into a building and a means for controlling the several valves therein; Fig. 8 is a similar view taken 90° from the point of view of Fig. 7; and Fig. 9 is an elevation, partly in section, of a hydrant for delivering water from an engine to the piping system of the block.

Referring to Fig. 1, the dotted line 15, 16, 17, represents the outer lines of block of buildings, the outer edge of the sidewalk surrounding such block being indicated by the dotted lines 18, and the space between the lines 18 and adjacent blocks indicating the street between curbs.

At 19 there is shown an ordinary water main as is in common use for distributing water to the various parts of a city. Each block of buildings is surrounded by an auxiliary water main as 20, 21, preferably laid in the street and outside of the curb line. Each of the auxiliary mains is connected with the main 19, by a hydrant 22, in communication with the main 19, through a pipe 23, and with the auxiliary main through a pipe 24, this hydrant preferably being located just inside of the curb line.

The hydrant 22 is of special form, having one passage 25 for bringing the pipes 23 and 24 in communication, and another passage 26, leading to the usual nipples 27, 28, to which the pipes of a fire engine may be attached; and there being a valve 29 for cutting off the passages 25, 26 in alternation. A hydrant 30 (Fig. 9) having hose-attaching nipples 31, communicates with the auxiliary main as 21, and is provided with an inwardly opening valve 32 for cutting off communication with the nipples, pressure within the main auxiliary tending to hold the valve to its seat.

Adjacent auxiliary mains, as 20, 21, are united by means of pipes 33, 34, in communication through a valve casing 35 within which there is housed a valve 36 for closing such communication.

Standpipes as 37, 38, lead upwardly into each block of buildings from the auxiliary mains as 21, such standpipes being as numerous as may be required, and each preferably being provided with a controlling valve as 39, located at its base. From each standpipe, as 37, there are lateral leads, as 40, 41, for the several floors or the several rooms of a building, and each of these laterals is controlled by means of a valve, as conventionally shown at 42, 43, such valves being operated by means of cables 44, turning about sheaves 45, and controlling pulleys 46, preferably located within a manhole under the sidewalk.

In Fig. 5 there is shown a building having a single story, in which case the standpipes are controlled by means of valves conventionally shown at 47, at their lower ends, such valves being controlled by means of cables 48, leading to a controlling wheel 49 in a manhole outside of the building. At the outer ends of the standpipes, as 50, used in such a building, there may be located spraying pipes of any desired form as represented at 51, and there is also shown spraying pipes 52, located above the roof 53 of the building and in communication with the standpipes. Pipes as 54, may also lead from the upper ends of the standpipes 50, through

the vertical walls of the building, and carry at their outer ends lateral spraying pipes 55, for discharging water upon the outer surfaces of such walls.

In stores, residences or other similar buildings there is preferably used a rotary sprinkler, as shown in Fig. 4, such sprinkler comprising a plate 56, secured to the ceiling 57, a hub member 58 projecting downwardly from such plate and carrying a rotatable casing 59, having bearings, as shown at 60, 61, upon the plate 56. Spraying nipples as 62, 63, radiate from the casing 59, and may be so shaped as to cause the rotation of this casing by the discharge of the water from their openings.

Water may be supplied to each auxiliary main as 21, from the street main 19, through the hydrant 22, the valves of the latter being set in the position shown in Fig. 3, thus affording an initial supply of water available to the occupants of the building upon the breaking out of fire. The arrangement of standpipes and controlling valves is such that from the exterior of the building the water thus delivered from the main may be directed to the point to which it is needed for use and one or more compartments may be thoroughly flooded.

Should the fire be uncontrollable by this means, fire engines may be called into service. The valve 29 is now shifted to close the passage 25, the suction pipe of a fire engine is attached to one of the nipples as 27, of the hydrant 22, and its delivery pipe to the nipple 31 of the hydrant 30, thereby providing for the flooding of the building through its piping system through the agency of the fire engine which ordinarily would provide a much higher pressure than is used in the street main. The hydrant 22 may be provided with as many nipples as desired, as may also the hydrant 30, thereby providing for the use of a plurality of fire engines.

Should the fire be of such extent that the engines cannot be worked in the immediate vicinity of the building or block, they may be attached to hydrants of adjacent or even remote buildings or blocks, the water being delivered therefrom through the connections 33, 34, uniting the various auxiliary mains. This arrangement also provides for the use, if necessary, of a much larger number of engines, all delivering water cumulatively through the piping system of the building where the fire is in progress.

Any desired form of spraying devices may be employed in connection with the system, though with my present experience I would prefer the forms herein shown and described.

When pumping engines are employed for delivering water at high pressure from the main 19 to the auxiliary pipes 20, 21, at any of the places provided for that purpose, the direct connections between the main and the same auxiliary pipe or any other auxiliary pipe which may be in communication therewith through the connecting pipes 33, 34, is preferably closed, for otherwise the high pressure created in the auxiliary pipe by the pumping engine would be lost by a return of water into the main 19. Similarly the pipes 33, 34, leading from the auxiliary as pipe 20, with which engines are connected to the next auxiliary pipe more remote from the location of the fire, but not having engines connected to it, are closed, thus limiting the area within which high pressure is to be maintained by the pumping engines. While I have illustrated hydrants for the connection of pumping engines at the corners of the building blocks only, obviously the number of engines which may be used for increasing the pressure of any auxiliary pipe or series of auxiliary pipes may be increased through the use of a greater number of these hydrants, as by locating them at intervals intermediate the ends of the building blocks.

In the form of spraying device shown in Fig. 4 of the drawings, the hub member 58 about which the rotatable casing 59 turns, is provided with a central aperture 64, through which the wires or pipes leading to a chandelier secured to the lower end of the hub member and supported thereby may pass.

I claim as my invention:

1. In a fire extinguishing system, in combination, a water supply main serving a plurality of blocks of buildings, a continuous pipe extending around each of the blocks of buildings, a plurality of independent valve-controlled service pipes leading into the several buildings of the corresponding block from each of the said continuous pipes, valve-controlled direct connection between the water supply main and each of the said continuous pipes, hydrants each having a hose-attaching nipple and valve-controlled connection with one of the said continuous pipes, and hydrants each having a hose-attaching nipple, a passage communicating with the main and with the nipple, a passage communicating with one of the continuous pipes, and a valve for connecting said passages and cutting off connection with the nipple in alternation, whereby each of the continuous pipes is adapted to be connected to the water supply main through a pumping engine when the corresponding direct connection between the continuous pipe and the water supply main is closed.

2. In a fire extinguishing system, in combination, a water supply main serving a series of blocks of buildings, an auxiliary pipe surrounding each of the blocks of buildings, a plurality of independent valve-controlled service pipes leading into the several buildings of the corresponding block from each of the said auxiliary pipes, valve-controlled

connection between adjacent auxiliary pipes, a hydrant upon each of the auxiliary pipes, and hydrants upon the water supply main whereby each of the said auxiliary pipes is adapted to be connected with the water supply main through a pumping engine.

3. In a fire extinguishing system, in combination, a water supply main serving a series of blocks of buildings, an auxiliary pipe surrounding one of the blocks of buildings, a standpipe having valve-controlled connection with the auxiliary pipe at its base entering a building of the block, independent service pipes having valve-controlled connection with the standpipe delivering to the several floors of the building, means adjacent the foot of the standpipe for operating the service pipe valves independently, valve-controlled direct connection between the water supply main and the auxiliary pipe, a hydrant on the auxiliary pipe and having a hose-attaching nipple, and a hydrant on the water supply main having a hose-attaching nipple, a passage communicating with the main and with the nipple, a passage communicating with the auxiliary pipe, and a valve for connecting the two passages and cutting off connection with the nipple in alternation, whereby the auxiliary pipe and the water supply main may be connected directly or through a pumping engine.

IVAR CORNELIUSSEN.

Witnesses:
LOUIS K. GILLSON,
CHARLES B. GILLSON.