The present invention relates generally to the building art, and more particularly to a novel combination sprinkling and fire extinguishing apparatus, and guttering for use with residences, public buildings and other types of structures.

It is well known in the art to mount water pipes above the roof of a building in order to direct streams of water onto the roof in order to cool the building and/or extinguish a fire. However, in all of the known constructions, the water flows into the guttering and down a drain pipe to the ground, or else it flows down the outer walls of the building to the ground.

It is an object of the present invention, therefore, to provide a novel combination sprinkling and fire extinguishing apparatus, and guttering in which the water which flows from the roof, is re-circulated. More particularly, it is an object to provide such an apparatus which includes means for receiving the water from the roof and re-circulating it through the sprinkler system whereby only a small amount of make-up water is required.

Another object is to provide a novel combination sprinkling and fire extinguishing apparatus, and guttering for directing water upon the roof of the building and for also sprinkling the ground areas contiguous with the buildings. More particularly it is an object to provide an apparatus of the described type which includes two sets of sprinkler heads and means for selectively directing the water through either one of the heads.

Another object is to provide a novel combination sprinkling and fire extinguishing apparatus, and guttering in which the water conduits are formed integral with the eavestrough of the guttering.

Further objects and advantages of the present invention will be readily apparent from the detailed description which follows, reference being had to the accompanying drawings wherein preferred embodiments of the invention are shown.

Briefly, the invention comprises an eavestrough for attachment to a building adjacent the edge of the roof and which contains two water conduits. One set of sprinkler heads is provided in communication with one conduit in position to direct water onto the roof, and a second set of sprinkler heads is provided in communication with the other conduit in position to direct water onto the ground areas adjacent the building for irrigation purposes. A downspout which is connected with the eavestrough functions as a reservoir to collect the water which runs off of the roof, and means are provided for recirculating the collected water through the roof sprinklers.

In the drawings;
Fig. 1 is a somewhat schematic perspective view of a building provided with a combination sprinkling and fire extinguishing apparatus embodying the teachings of the present invention.
Fig. 2 is an enlarged vertical transverse sectional view taken on the line 2—2 in Fig. 1.
Fig. 3 is a fragmentary view taken from the right side of Fig. 2.
A short nipple 40 connects the valve 38 with a two position valve 42.

In the construction shown in Fig. 5, one outlet of the valve 42 is connected directly to the pipe 34 and the other outlet is connected to the pipe 32 through a pipe 43 and a Venturi-like fitting 143 so as to produce a vacuum below the fitting 143. The lower end of the pipe 32 is connected into the downsput 28 through a one-way valve 44 which permits water to flow from the downsput 28 into the pipe 32, but prevents flow in the reverse direction.

To use the control shown in Fig. 5 for sprinkling the ground area, the valve 42 is turned so as to connect the pipe 40 with the pipe 34. Then, when the valve 38 is opened, water under pressure flows from pipe 36, through pipe 40 and pipe 34 into the conduit 22, and thence into the sprinkler head 26.

To use the apparatus (Fig. 5) for sprinkling the roof in order to extinguish a fire or for cooling purposes, the valve 42 is turned to connect the pipe 40 with the pipe 43. Thus, when the valve 38 is opened, water under pressure flows into the pipe 43 and upwardly in pipe 32, through conduit 20 and into the sprinkler heads 24. The upward movement of the water through the fitting 143 causes a vacuum above the valve 44, whereby the water in the downsput 28 flows into the pipe 32 and is carried upwardly by the stream of water from the pipe 43.

Obviously, the water from the sprinklers 24 flows off of the roof, into the gutter 14, and down the downsput 28 so as to be available for re-circulation through the apparatus.

If the loss of water in sprinkling the roof area is not very great, as for example may occur when the roof sprinklers are used for cooling on a relatively cool day, the amount of make-up water to be supplied from the pipe 36 may be insufficient to force the water up to the roof. In such instances, it would be necessary to use the controls shown in Fig. 6 wherein an electrically driven pump 46 is connected in the pipe 32 above the pipe 43 and the one-way valve 44.

As mentioned hereinabove, the valve 30 at the lower end of the downsput 28 prevents the water from draining from the downsput 28 under normal operating conditions of the roof sprinklers. However, during a rain or when too much water is entering the system from the roof pipe 36 so as to raise the water level in the downsput above the preselected point, the valve 30 is automatically opened by the float control 31 so as to reduce the level of the water in the downsput 28.

If desired, the operation of the valve 38 can be made responsive to the operation of the valve 30 in the installation in Fig. 6, whereby the valve 38 will be closed when the water level in the downsput 28 is too high so as to cause the valve 30 to open. However, in most installations the amount of make-up water which is required can be determined by trial and error and the handle of valve 38 adjusted accordingly.

Thus, it is apparent that there has been provided a novel combination sprinkling and fire extinguishing apparatus which fulfills all of the objects and advantages sought therefor.

The device can be used for sprinkling ground areas adjacent the building or for directing water onto the roof of the building to extinguish a fire or to cool the building by evaporation.

The water from the roof is automatically recirculated and it is only necessary to add sufficient water to replace the relatively small amount which is lost by evaporation, and this can be accomplished automatically if desired.

The conduits for the sprinkler heads can be formed integral with the eavestrougethr for new installations, and in existing installations, the conduits can be fastened to the wall of the eavesstrogethr or positioned in the bottom thereof.

It is to be understood that the foregoing description and accompanying drawings have been given only by way of illustration and example, and that changes and alterations in the present disclosure, which will be readily apparent to one skilled in the art, are contemplated as within the scope of the present invention which is limited only by the claims which follow.

What is claimed is:

1. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavesstrogethr for attachment to the building adjacent an edge of the roof; two water conduits supported by the eavesstrogethr and extending longitudinally thereof; at least one sprinkler head in communication with one of said conduits and positioned to spray water on the roof area of the building; at least one sprinkler head in communication with the other conduit and positioned to spray water on the ground area adjacent the building; and means for selectively introducing water under pressure into said conduits.

2. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavesstrogethr for attachment to the building adjacent an edge of the roof, said eavesstrogethr having an outer wall; a housing containing two water conduits formed integral with said outer wall and extending longitudinally thereof; at least one sprinkler head mounted on the housing in communication with one conduit and positioned to spray water on the roof area; at least one sprinkler head mounted on the housing in communication with the other conduit and positioned to spray water on the ground area; and means for selectively introducing water under pressure into said conduits.

3. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavesstrogethr of general U-shaped cross section for attachment to the building adjacent an edge of the roof; two water pipes positioned in the bottom of the eavesstrogethr so as to extend longitudinally thereof; at least one sprinkler head in communication with one of said pipes and positioned to spray water on the roof area of the building; and means for selectively introducing water under pressure into said pipes.

4. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavesstrogethr for attachment to the building adjacent an edge of the roof; two water conduits supported by the eavesstrogethr and extending longitudinally thereof; at least one sprinkler head in communication with one of said conduits and positioned to spray water on the ground area adjacent the building; a downsput connected to the eavesstrogethr and depending therefrom; a valve adjacent the lower end of the downsput for controlling the flow of water therefrom; a first pipe connected to the conduit in communication with the ground sprinkler; a second pipe connected to the conduit in communication with the roof sprinkler, the other end of said second pipe being in communication with the interior of the downsput adjacent the lower end thereof and above the valve; means for introducing water under pressure into the first pipe; and means for introducing water under pressure into the second pipe through a Venturi-like connection to produce a vacuum in the lower part of the second pipe in communication with the interior of the downsput.

5. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavesstrogethr for attachment to the building adjacent an edge of the roof; two water conduits supported by the eavesstrogethr and extending longitudinally thereof; at least one sprinkler head in communication with one of said conduits and positioned to spray water...
praising an eavestrough for attachment to the building adjacent an edge of the roof; two water conduits supported by the eavestrough and extending longitudinally thereof; at least one sprinkler head in communication with one of said conduits and positioned to spray water on the roof area of the building; at least one sprinkler head in communication with the other conduit and positioned to spray water on the ground area adjacent the building; a downsout connected to the eavestrough and depending therefrom; a first pipe connected to the conduit in communication with the ground sprinkler; a second pipe connected to the conduit in communication with the roof sprinkler, the other end of said second pipe being in communication with the interior of the downsout adjacent the lower end thereof and above the valve; a one-way valve in the lower end of the second pipe to prevent water from flowing from said second pipe into the downsout; means for introducing water under pressure into the first pipe; and means for introducing water under pressure into the second pipe through a Venturi-like connection to produce a vacuum in the lower part of the second pipe in communication with the interior of the downsout.

8. A sprinkling apparatus for use with a building having a roof area and a ground area adjacent thereto, comprising an eavestrough for attachment to the building adjacent an edge of the roof; two water conduits supported by the eavestrough and extending longitudinally thereof; at least one sprinkler head in communication with one of said conduits and positioned to spray water on the roof area of the building; at least one sprinkler head in communication with the other conduit and positioned to spray water on the ground area adjacent the building; a downsout connected to the eavestrough and depending therefrom; a valve adjacent the lower end of the downsout for controlling the flow of water therefrom and responsive to the level of the water in the downsout so as to remain closed when the water level is below a preselected amount and to open when the water level rises above said preselected amount; a first pipe connected to the conduit in communication with the ground sprinkler; a second pipe connected to the conduit in communication with the roof sprinkler, the lower end of said second pipe being in communication with the interior of the downsout above the valve; a one-way valve in the lower end of the second pipe to prevent water from flowing from said second pipe into the downsout; means for introducing water under pressure into the first pipe; and means for introducing water under pressure into the second pipe through a Venturi-like connection to produce a vacuum in the lower part of the second pipe in communication with the interior of the downsout.

9. A sprinkling apparatus for use with a building having a roof area, comprising an eavestrough for attachment to the building adjacent an edge of the roof; a water conduit supported by the eavestrough and extending longitudinally thereof; at least one sprinkler head in communication with said conduit and positioned to spray water on the roof area of the building; a downsout connected to the eavestrough and depending therefrom; a valve adjacent the lower end of the downsout for controlling the flow of water therefrom and responsive to the level of the water in the downsout; a pipe having the upper end thereof connected to the conduit and the lower end thereof in communication with the interior of the downsout adjacent the lower end thereof and above the valve; a second valve in the lower end of the pipe to permit the flow of water from the downsout into the pipe but to prevent the reverse flow thereof; and means for introducing water under pressure into the pipe above the second valve through a Venturi-like connection to produce a vacuum in the lower part of the pipe.

10. A sprinkling apparatus for use with a building having a roof area, comprising an eavestrough for attachment to the building adjacent an edge of the roof; a water conduit supported by the eavestrough and extending longitudinally thereof; at least one sprinkler head in communication with said conduit and positioned to spray water on the roof area of the building; a downsout connected to the eavestrough and depending therefrom; a valve adjacent the lower end of the downsout for controlling the flow of water therefrom responsive to the level of the water in the downsout, a pipe having the upper end thereof connected to the conduit and the lower end thereof in communication with the interior of the downsout adjacent the lower end thereof and above the valve; a second valve in the lower end of the pipe to permit the flow of water from the downsout into the pipe but to prevent the reverse flow thereof; and means for introducing water into the pipe above the second valve; and pump means connected to the pipe for increasing the pressure of the water flowing to the sprinkler head.

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