A. SCHMIDT.

ROTARY NOZZLE.

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903,788.

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Fig. 1.

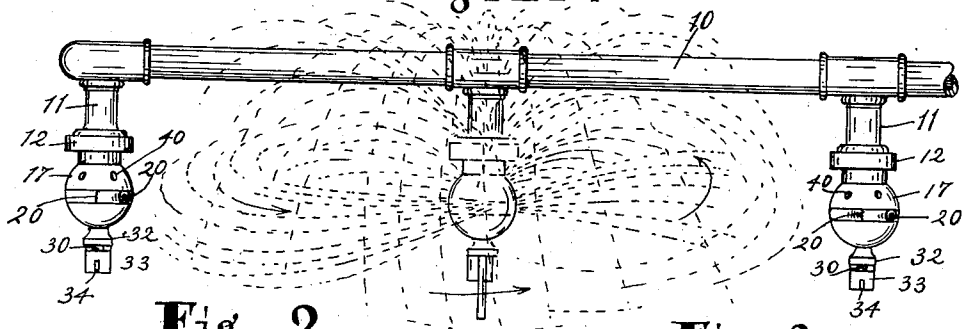


Fig. 2.

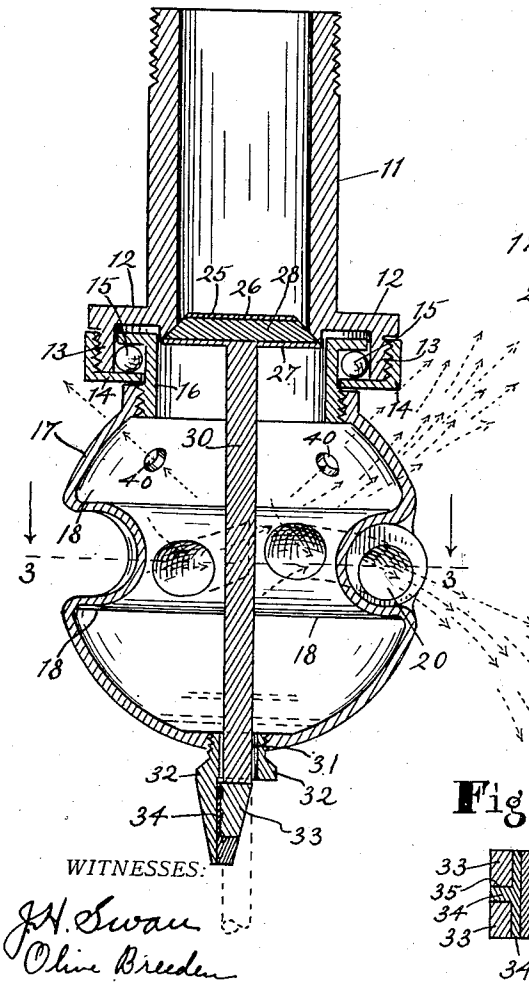


Fig. 3.

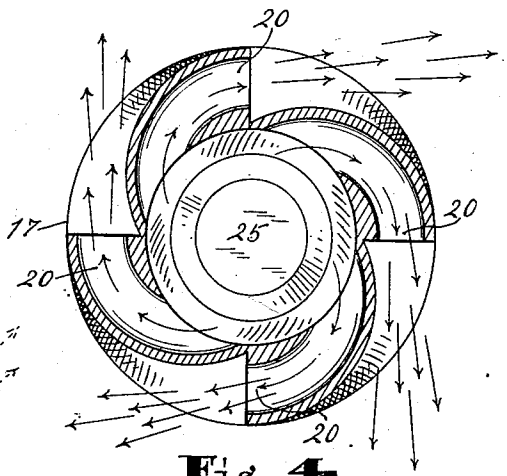


Fig. 4.

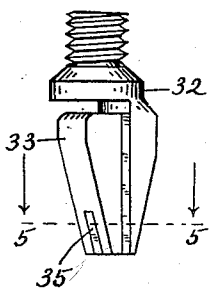


Fig. 5.

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ROTARY NOZZLE.

No. 903,788. Specification of Letters Patent. Patented Nov. 10, 1908.

Application filed March 7, 1908. Serial No. 419,312.

To all whom it may concern:

Be it known that I, AUGUSTUS SCHMIDT, of Indianapolis, county of Marion, and State of Indiana, have invented a certain new and useful Rotary Nozzle; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which like letters refer to like parts.

The object of this invention is to provide a simplified, unobjectionable and effective automatic fire extinguishing water spraying mechanism to be connected with public water service pipes or other pipes in which water is kept or may be introduced under pressure and which is set in operation by the heat caused by a fire.

The chief feature of the invention consists in mounting in connection with the pipe containing the water under pressure a rotary spraying device globular in form provided with tangentially arranged outlets embedded so as not to project beyond the spherical wall of the nozzle and, therefore, not liable to be broken or to be interfered with in rotation. Heretofore, devices of the kind have had projecting nozzles which, when the fire would occur would often be interfered with by some object accidentally or purposely stationed near the apparatus so that the same could not rotate and the same was liable to be broken from the body of the nozzle.

Another feature of the invention consists in so forming annular recesses in the globular nozzle or spraying means that the grit, sand, gravel and like substances would accumulate in the recesses during the operation of the device and not, therefore, lodge in or interfere with the discharge openings.

Another feature of the invention consists in providing a means for positively holding the valve closed normally which means is firmly secured to the structure by a metal, that firmly holds it and yet is fusible at a relatively low degree of temperature, say 160 degrees Fahrenheit, so that in case of a fire, the valve will be released as soon as the heat becomes sufficient to fuse said valve holding means.

Another feature of the invention consists in forming a valve with its inner and outer surfaces made of brass or other corrosive material and the intermediate portion formed of non-corrosive material, whereby the valve will not corrode.

Another feature of the invention consists in so forming the bearing between the rotary spraying device and the stationary pipe that sand, grit and gravel cannot enter the bearing so as to prevent the operation of the device.

The full nature of my invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 shows a side elevation of a series of said fire extinguishers, the middle one being shown in operation. Fig 2 is a vertical central section through the extinguisher in its normal condition in full lines but the operative condition being shown by dotted lines. Fig. 3 is a central cross section on the line 3—3 of Fig. 2, showing the issue of water from the rotary spraying device. Fig. 4 is a side elevation of the fusible valve holding means. Fig. 5 is a section on the line 5—5 of Fig. 4.

In the drawings 10 represents a water pipe running into a building in which water is maintained or introduced under pressure. There can be any number of fire extinguishers attached to said pipe. A short pipe 11 is connected with said main pipe 10, preferably extending downwardly therefrom and having an outwardly extending annular collar 12 and on said collar there is an externally threaded flange 13 to receive a ball bearing ring 14 for holding bearing balls 15. A sleeve 16 is rotatably mounted in said ball bearing arrangement and has an upper outwardly extending annular flange and to its lower end a spherical spraying device 17 is screwed. This spraying device is centrally depressed or contracted to form annular recesses 18 on each side of said contracted portion so that the lower and upper walls of said contracted portion will be substantially horizontal. The function of these recesses is to provide for the accumulation of grit, sand and gravel or other material in the water and hold the same during the operation of the spraying device. This arises from the effect of centrifugal force on said materials, and the formation and arrangement of the recesses. The spherical spraying device herein shown is provided with four tangentially disposed outlets 20 which lead from the contracted portion of the sphere and are wholly embedded within the spherical outline of the spraying device, so that they do not project. The water is

normally shut off from the spraying device by a valve 25. The periphery of the valve is tapering and the major portion composed of non-corrosive material. As herein shown it is formed of an upper brass plate 26, a lower brass plate 27, and an intermediate body of non-corrosive metal 28. Said valve is beveled to fit an annular seat so that said non-corrosive material normally engages the seat. By reason of this construction the injurious effects of corrosion are avoided. The valve has a stem 30 that projects down centrally through the spherical spraying device with its lower end extending loosely into an opening 31 in the plug 32 that screws into an opening in the lower part of said spherical spraying device and the valve is held seated by a plate or block 33 that is secured against the lower end of the valve stem and secured to the plug 32 by a metal composition 34 that is fusible at a relatively low temperature. For this purpose the plug 32 has a downwardly extending portion to one side of the opening of said plug and the said plate 33 is secured immediately below the opening through the plug to make the union of the part 33 with the part 32 by the fusible material very strong, and this effectively holds the valve closed against considerable water pressure. The lower end of the plate 33 is provided with a slot 35 into which said securing material 34 is filled and projects, as shown in Figs. 2, 4 and 5. On the occasion of a fire, when the temperature rises to 160 degrees Fahrenheit, the adhering material 34 melts, whereupon the pressure of the water in the pipes 10 and 11 acting against the valve, through the valve stem, forces the valve-holding plate 33 from its place, whereupon the valve is forced downwardly to the dotted line position in Fig. 2. Then the spraying apparatus operates until the water is shut off, after which the parts are replaced in their normal condition.

The invention is not necessarily limited to use in connection with a pipe in which water is maintained all the time under pressure, for it can be used also with the so called "dry system", wherein the pipe to which the extinguishers are connected is empty except when the fire takes place. With a series of my fire extinguishers with such a pipe only the extinguisher which is close enough to the fire to be influenced thereby will be put in operation and the rest will not operate, so that the damage done by the water will be confined to the location of the fire.

For the purpose of spraying or throwing the water upwardly apertures 40 are provided in the upper part of the spherical spraying device 17.

What I claim as my invention and desire to secure by Letters Patent is:

1. The combination with means to contain fluid under pressure, and a spraying device rotatably mounted on the end thereof adjacent the outlet, of a tapering valve for closing said outlet, the tapering surface of said valve having an intermediate filling of non-corrosive material and a layer of brass or the like on each side thereof, whereby the portion of said valve that engages said seat will be non-corrosive.

2. The combination of stationary means adapted to contain fluid under pressure, a spraying device rotatably mounted on the end thereof adjacent the outlet from said means, and a valve for closing said outlet that is mounted in connection with said spraying device.

3. The combination of a pipe adapted to contain fluid under pressure with an outwardly extending collar at the outlet end thereof which carries an externally threaded flange, a spraying device with an upwardly extending tubular portion having an outwardly extending collar and adapted to fit within said collar and flange on said pipe, a ring that screws on said collar for forming a ball race between said flanges and said ring, balls in said ball race, and a valve for closing the outlet opening from the pipe.

4. The combination of a pipe adapted to contain water under pressure, a spraying device rotatably mounted in connection therewith, a valve for closing the outlet from said pipe, and means fusibly connected to the spraying device for holding the valve normally closed.

5. The combination of a pipe adapted to contain water under pressure, a spraying device rotatably mounted in connection therewith, a valve for closing the outlet from said pipe to said spraying device that has a stem extending through the spraying device, and means fusibly mounted against the lower end of the valve stem for holding the valve closed, whereby when the stem holding means escapes under the influence of heat, the water pressure can drive said valve downwardly in the spraying device and out of the path of the water.

6. The combination of a pipe adapted to contain water under pressure, a spraying device rotatably mounted in connection therewith with a hole in its lower end, a valve for closing the outlet from said pipe to the spraying device with a stem extending through said hole, and a fusibly mounted plate bearing against the external end of said stem so that when said plate escapes by the influence of heat the stem of the valve can pass through said hole and permit the opening movement of the valve.

7. A fire extinguishing apparatus including a cylindrical spraying device rotatably mounted with an annular depression in the wall thereof, tangential outlets located in said depression, whereby the outlets will not

extend beyond the periphery of said spraying device.

8. A fire extinguishing apparatus including a spherical spraying device rotatably mounted and centrally provided with an annular depression provided with tangential outlets that do not extend beyond the spherical outline of the spraying device, said depression being so formed as to provide an annular recess within the spraying device for the accumulation of sand and other substances during the operation of the device.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

AUGUSTUS SCHMIDT.

Witnesses:
OLIVE BREEDEN,
V. H. LOCKWOOD.