(No Model.) 3 Sheets—Sheet 1.

J. E. PRUNTY.

FIRE EXTINGUISHING APPARATUS, &c.

No. 396,710. Patented Jan. 22, 1889.

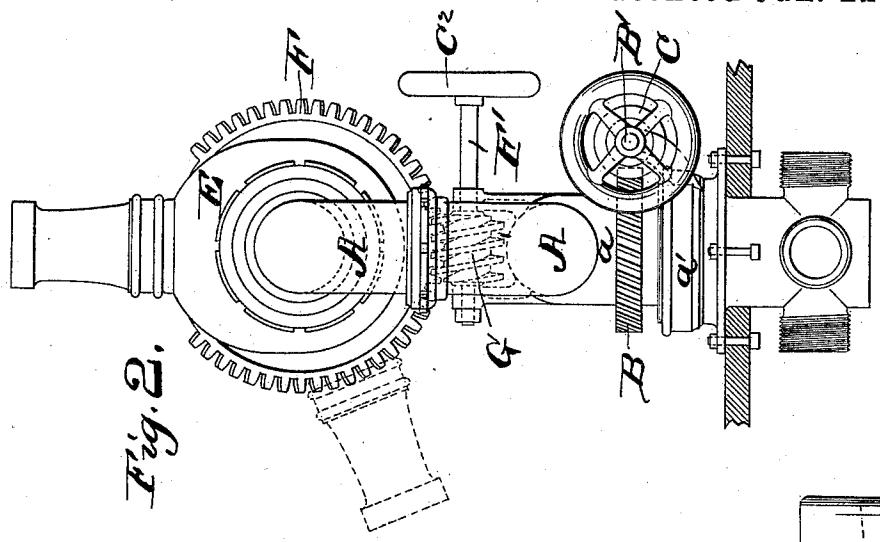


Fig. 2.

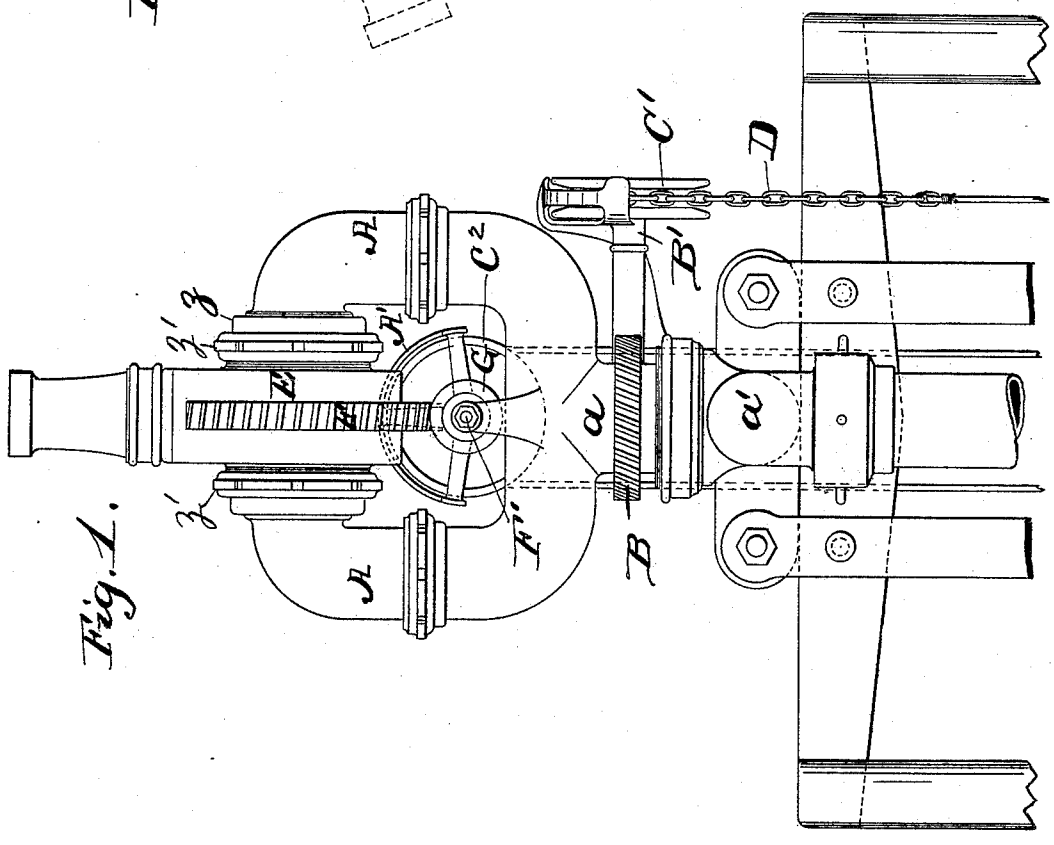


Fig. 1.

Witnesses.

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By his Attorney

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(No Model.) 3 Sheets—Sheet 2.

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Fig. 4.

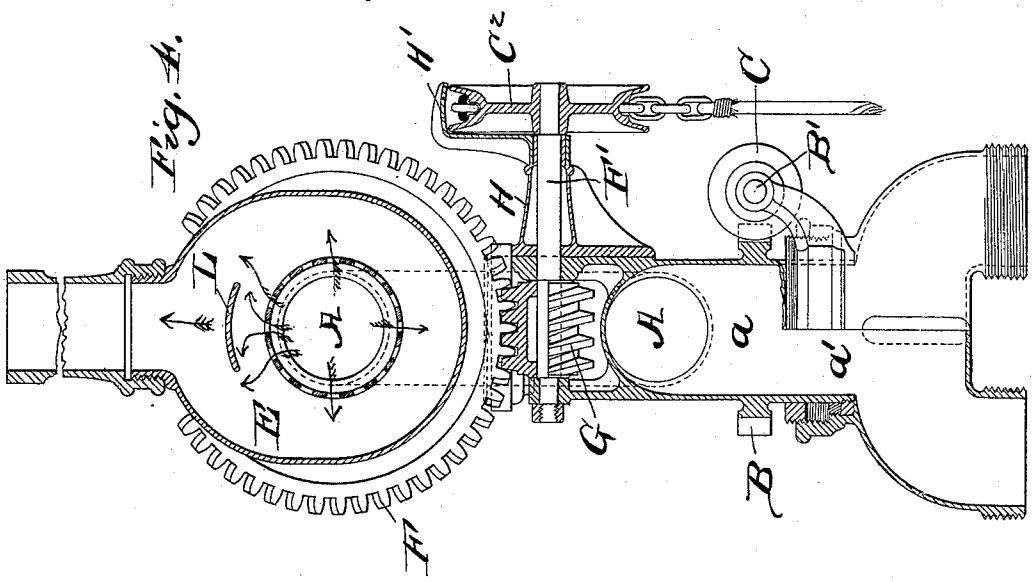
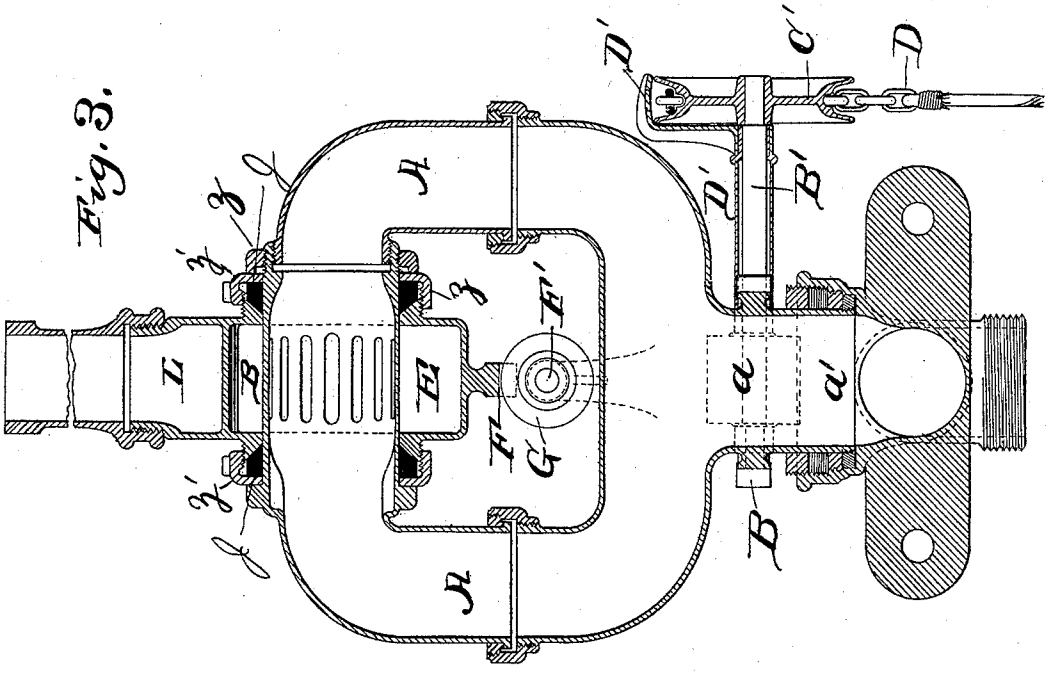


Fig. 3.



Witnesses.

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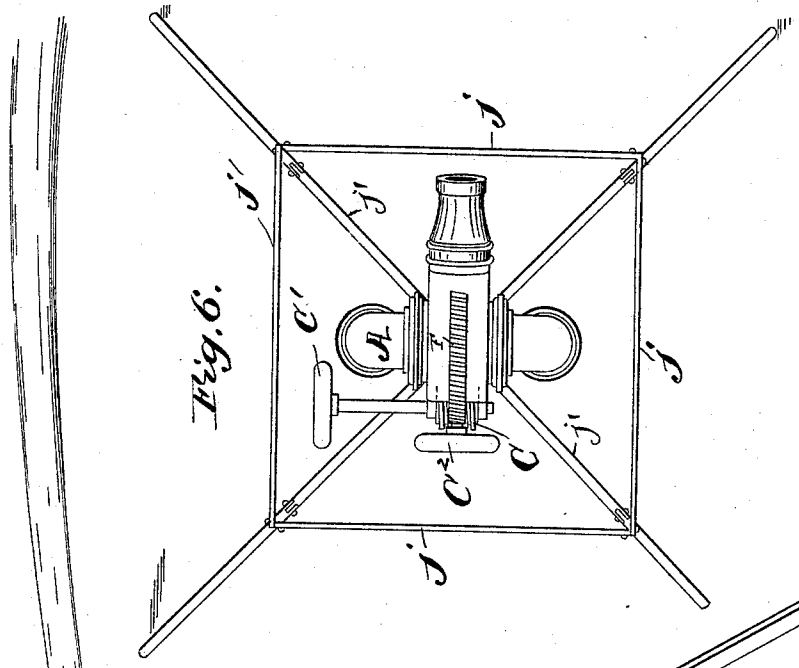
N. PETERS. Photo-Lithographer. Washington. D. C.

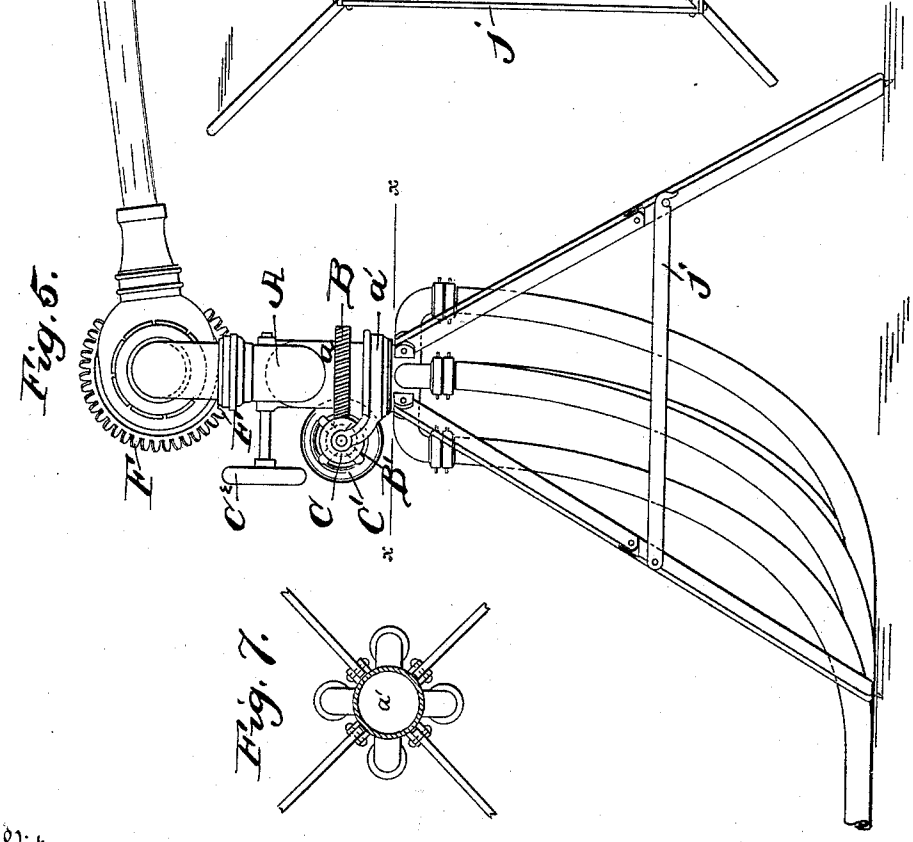
(No Model.) 3 Sheets—Sheet 3.

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Witnesses

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UNITED STATES PATENT OFFICE.

JOHN E. PRUNTY, OF BALTIMORE, MARYLAND.

FIRE-EXTINGUISHING APPARATUS, &c.

SPECIFICATION forming part of Letters Patent No. 396,710, dated January 22, 1889.

Application filed April 30, 1888. Serial No. 272,328. (No model.)

To all whom it may concern:

Be it known that I, JOHN E. PRUNTY, of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Fire-Extinguishing Apparatus, or Apparatus for the Manipulation of a Hose Pipe or Nozzle; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

My invention relates to a fire-extinguishing apparatus and apparatus for the efficient and convenient manipulation of a hose pipe or nozzle of any required size in positions and under circumstances where such use has been heretofore difficult or impracticable, especially for the purpose of rendering practicable the use of large streams under great pressure and at considerable elevations. It may be used in connection with water-towers, stand-pipes, fire ladders or trucks, which latter can be provided with this apparatus, in addition to their ordinary equipment, with little additional weight or inconvenience, and greatly add to their efficiency and service in case of fire.

Much difficulty has heretofore been experienced in the handling and manipulation of hose pipes and nozzles from the recoil or retroactive force of the water driven through hose at such pressure as is necessary for effective fire-service, this recoil or retroactive force being generally proportioned to the amount of divergence from a direct line of the hose pipe or nozzle. This is particularly experienced in cases where the hose pipe or nozzle has been used at any considerable elevation from the ground, as o i the tops of ladders, water-towers, &c.

The object of my invention is to neutralize or counteract the force of this recoil or retroactive force, and thereby enable firemen to use their fire apparatus to reach places now practically inaccessible in time of great conflagrations—such as the interior of high and deep buildings—and also to regulate, control, and direct the stream of water from the hose pipe or nozzle with ease and certainty. I propose to accomplish these objects by the use of a pipe or a system of pipes, through which the water from the fire-engines or other sources is carried, and from which the water is radially ejected through slots or orifices therein on all sides thereof into an auxiliary chamber rotating freely upon such pipe and covering or embracing all of said slots or orifices, such auxiliary chamber being also supplied with a nozzle leading therefrom and through which the water is discharged, said auxiliary chamber being movable and controlled by screws, as shown in the drawings, or other equivalent means, said auxiliary chamber being also supplied with a baffle-plate located near the opening from said chamber into the nozzle, to equalize the pressure in said chamber in all directions.

My invention further consists in certain novel features of construction and combinations of parts, more fully described hereinafter, and particularly pointed out in the claims.

Referring to the accompanying drawings, Figure 1 is a side elevation of the device as attached to a stand-pipe. Fig. 2 is an edge elevation of the same. Fig. 3 is a vertical longitudinal section. Fig. 4 is a vertical section taken on a plane at right angles to the plane of the section in Fig. 3. Fig. 5 is a side elevation of the apparatus carried by a tripod or suitable standards, the apparatus, when mounted and constructed in this manner, being adapted for street purposes. Fig. 6 is a top plan of the form shown in Fig. 5; and Fig. 7 is a horizontal section taken on line $x\,x$ of Fig. 5.

In the drawings, the reference-letter A indicates a continuous pipe or conduit located at the top of a stand-pipe, water-tower, ladder, or the like, and provided with a short hollow neck or chamber, a, which extends centrally and downwardly from the lower side of the pipe or conduit, and at its lower end is jointed or swiveled in the upper end of the main hollow base a', which is divided at its lower end into any desired number of branches to communicate with the water hose or pipes. It will be seen that the water passes from the hollow base into the hollow neck a, and from thence

it passes into the pipe or conduit, where its volume is divided, and passes upwardly in two equal streams which unite at the center of the upper horizontal portion of the pipe or conduit, and is discharged radially through a series of slots and apertures in said conduit into the auxiliary chamber E.

The downwardly-extending neck *a* is connected with the hollow base *a'*, to form a tight joint, and to allow the supporting-neck *a* and the pipe or conduit A, supported by the same, to freely turn or rotate horizontally. Between the bottom side of the pipe or conduit and the upper end of the hollow base *a'* the supporting-neck *a* is provided with gearing B, horizontally surrounding its outer periphery.

A shaft or spindle, B', is horizontally journaled, opposite the gearing B, in suitable brackets. Said shaft is provided with a screw or worm, C, adapted to mesh with the gearing surrounding the supporting-neck *a* of the pipe or conduit A. One end of the shaft B' is extended beyond the brackets in which it is journaled, and is provided with a chain or hand wheel, C', as desired, and according to whether the apparatus is placed a distance from the ground or near the ground within easy reach of an operator. When the nozzle-directing apparatus is located a distance from the ground, the chain-wheel is used, and is operated by a chain, D, or other suitable means, engaging the same and extending downwardly, and by which the apparatus can be rotated horizontally from the ground, and the chain-wheel and shaft are protected by a casing and shield, D', carried by said brackets, and surrounding the shaft and extending over the wheel. An auxiliary chamber E surrounds the upper horizontal portion of the pipe or conduit A, having a discharge pipe or nozzle opening or extending therefrom. Said auxiliary chamber surrounds, embraces, and forms an annular chamber around the slotted or perforated portion of said pipe or conduit; hence the water from the pipe or conduit is radially discharged in all directions into the annular or auxiliary chamber, and from said chamber the water is discharged through its nozzle, which may be of any desired form or kind. The outer periphery of said auxiliary chamber is provided with vertical gearing or a segment, F, as shown.

A horizontal shaft, F', is journaled in the open center of the pipe or conduit in suitable lugs or bearings extending upwardly from the upper side of the lower horizontal portion of pipe or conduit A, and so that its longitudinal axis will fall in the vertical plane of the auxiliary chamber E. The shaft F' is provided with a screw or worm, G, adapted to mesh with the segment F, and one of its ends is extended beyond the bearings of the shaft, and is provided with a chain or hand wheel, C^2, as desired, and the shaft and wheel are protected with a casing and shield, H H', in a similar manner with the shaft and wheel for horizontally turning the apparatus, and the wheel is provided with a chain extending downwardly, whereby the auxiliary chamber, when at any elevation, can be vertically adjusted from the ground; or when the apparatus is mounted upon standards and adapted for street purposes, as shown on Sheet 3 of the drawings, the chain is dispensed with, and the wheels for vertically and horizontally operating the nozzle can be operated by hand.

The auxiliary chamber E freely rotates or turns upon the upper horizontal portion of the pipe or conduit when the shaft F' and connecting-gearing are operated, and a water-tight joint between the conduit and chamber is effected by the packing-rings J, embracing the conduit and bearing against the adjoining portions of the chamber and conduit, and said packing-rings are held securely and tightly in position by the adjustable retaining-rings Z', embracing the conduit and adjustably secured to the chamber. Z indicates a ring adjustably embracing the conduit and adapted to be adjusted to or away from said chamber to prevent lateral motion of the chamber and take up wear of the parts.

A baffle-plate, L, extends transversely across the interior of the auxiliary chamber E and between the slotted or perforated portion of the pipe or conduit and the inner end of the discharge-nozzle leading from the auxiliary chamber, the object thereof being to equalize the pressure of the water in the auxiliary chamber.

In Figs. 5, 6, and 7 the apparatus is shown mounted upon suitable hinged and jointed standards, *g g'*, pivoted at their upper ends to the hollow base *a'*, and each of said standards is preferably formed in two sections pivoted together, and the standards are held together by the braces or hooks *j'*, pivoted to each leg and provided with a hook portion engaging a lug or pin on an adjoining leg. Thus it will be seen that when it is desired to transport the device the standards or legs can be folded in together and in a small compass. The nozzle, when mounted in this manner, is especially adapted for manipulating and throwing large streams of water.

The great advantages and further operation of my device will be fully obvious to those expert in the art to which it relates.

It is clearly evident that numerous slight changes might be resorted to in the form and arrangement of the various parts described without departing from the spirit and scope of my invention; hence I do not wish to limit myself strictly to the precise construction herein set forth; but consider myself entitled to all such slight changes.

It should be observed that the terms "vertical continuous" are used for convenience, as the supply-conduit can be of any desirable shape or size to permit of a rotary adjustment and form a bearing for the rotary chamber into which the water is discharged.

I do not herein broadly claim the combination, with a revoluble cylinder having a de-

livery-tuyere, of two pipes having their delivery ends arranged opposite to each other and in axial line of and forming the bearing for said cylinder, or of one pipe forming a bearing for said cylinder and provided with a series of equally-spaced peripheral outlet-ports opening into the same and supply-pipe connected respectively to the opposite ends of said pipe.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with an adjustable pipe or conduit, of an annular or auxiliary chamber provided with a radially-extending discharge-nozzle, said chamber tightly embracing a portion of the pipe or conduit and capable of turning upon the same to direct and hold the nozzle pointing in any direction, and a baffle-plate extending across the interior of the auxiliary chamber between the periphery of the pipe or conduit and the inner end of the discharge-nozzle.

2. The combination, with a continuous horizontally-adjustable pipe or conduit provided with a series of discharge-ports around its upper horizontal portion, of an auxiliary chamber embracing the horizontal portion of said conduit and forming an annular chamber around the discharge-ports in the same, a discharge-nozzle extending radially from said chamber, the same being adjustable around the pipe to direct and hold the nozzle in any direction, and a baffle-plate within the chamber between the inner end of the discharge-nozzle and the ports in the pipe or conduit, whereby the pressure is equalized and the retroactive force of the water overcome.

3. A pipe and a nozzle adjustably mounted on the same and provided with an annular or auxiliary chamber at its rear end, into which the water is centrally and radially discharged, in combination with the herein-described baffle-plate located in said chamber at the inner or induction end of the nozzle, for the purpose set forth.

4. The combination of a vertical approximately annular conduit provided with a central rigid hollow neck at its lower portion, through which the water is received and by which the conduit is swiveled to turn horizontally, said conduit being provided with a series of discharge-ports around its upper horizontal portion, an auxiliary chamber embracing and adjustable around the horizontal part of the conduit and forming an annular chamber around said discharge-ports, a discharge-nozzle extending radially from said chamber, whereby the nozzle can be directed in any direction, gearing for horizontally adjusting the apparatus upon said central hollow neck as a pivot, and separate and independent gearing for vertically adjusting the nozzle around the upper horizontal portion of said conduit.

5. The combination of a vertical approximately annular conduit provided with a central neck extending downwardly from its lower portion, and through which the water is received and by which the conduit is swiveled to turn horizontally, horizontal gearing encircling the periphery of said neck, a shaft provided with a screw or worm meshing with said gearing, and by which the device is rotated horizontally, an auxiliary chamber in communication with, embracing, and forming an annular chamber around the upper horizontal portion of said conduit, a discharge-nozzle extending from said chamber, said chamber, and hence the nozzle, being adjustable in a vertical plane, gearing around the outer periphery of the chamber, and a shaft located in the open center of said conduit and provided with a screw meshing with said gearing and by which said nozzle is vertically adjusted.

6. The combination of a vertical approximately annular conduit provided with a series of eduction-ports around its upper horizontal portion, a central hollow neck rigidly secured to or cast with the lower horizontal portion of said conduit and extending downwardly from the same and journaled in a suitable base, to allow the conduit to be horizontally adjusted, an auxiliary chamber embracing the upper horizontal portion of said conduit and forming an annular chamber around the eduction-ports in the same, whereby the water is radially discharged from the conduit into the annular chamber, and a discharge-nozzle extending from said chamber, said auxiliary chamber being capable of rotation upon the conduit, whereby the nozzle can be vertically adjusted.

7. In combination, the hollow base, the vertical continuous conduit capable of rotatory adjustment in a horizontal plane, the central downwardly-extending neck provided with peripheral gearing, a suitably-journaled shaft connected with said gearing, a chain extending to or near the ground and operating said shaft, a nozzle having an auxiliary chamber mounted upon the upper horizontal portion of said conduit, vertical gearing on the periphery of said chamber, a shaft connected with the same, and a chain extending to or near the ground and operating said shaft.

8. In a portable fire-extinguishing apparatus, the combination of a hollow base to which the water-pipes are secured, a vertical approximately annular conduit journaled on said base to render the conduit capable of rotatory adjustment in a horizontal plane, a nozzle rotatable in a vertical plane and provided with a chamber embracing and mounted upon the upper horizontal portion of said conduit, and the herein described and shown folding and jointed standard pivoted to said base and supporting the device.

9. The combination of a supply pipe or conduit, the auxiliary chamber embracing and rotating upon the same, packing and retaining rings at the junction of pipe and chamber to make a water-tight joint, and a

ring embracing the pipe and adjustable to and away from said chamber to prevent lateral play or motion of the same.

10. In a fire-extinguishing apparatus, the combination of a hollow base, a vertical approximately annular conduit journaled in said base to render the conduit rotatable in a horizontal plane, and a nozzle rotatable in a vertical plane and provided with an auxiliary chamber journaled upon and embracing the upper horizontal portion of said conduit and into which the water from the conduit is radially discharged.

11. The combination, with the hollow base, of the vertical approximately annular conduit, a central hollow neck journaled in said base and extending from the lower horizontal portion of the conduit, and rendering the same capable of rotatory adjustment in a horizontal plane, gearing around the periphery of said neck, a suitably-journaled shaft provided with a worm meshing with said gearing, and by which the conduit is rotated, and the nozzle journaled upon the upper horizontal portion of said conduit and rotatable thereon in a vertical plane.

In testimony that I claim the foregoing as my own I affix my signature in presence of two witnesses.

JOHN E. PRUNTY.

Witnesses:
MURRAY HANSON,
WILLIAM H. BERRY.