(No Model.)

M. C. PIERCE.

DEFLECTOR.

No. 452,081. Patented May 12, 1891.

Fig. 1.

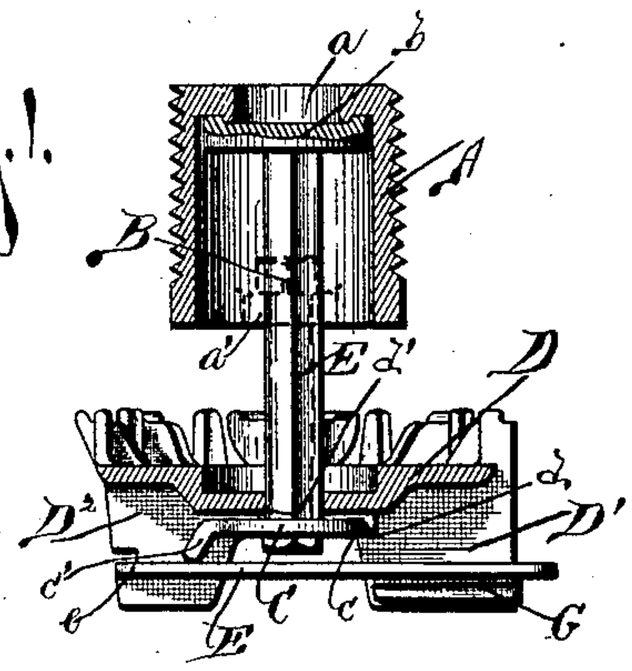


Fig. 2.

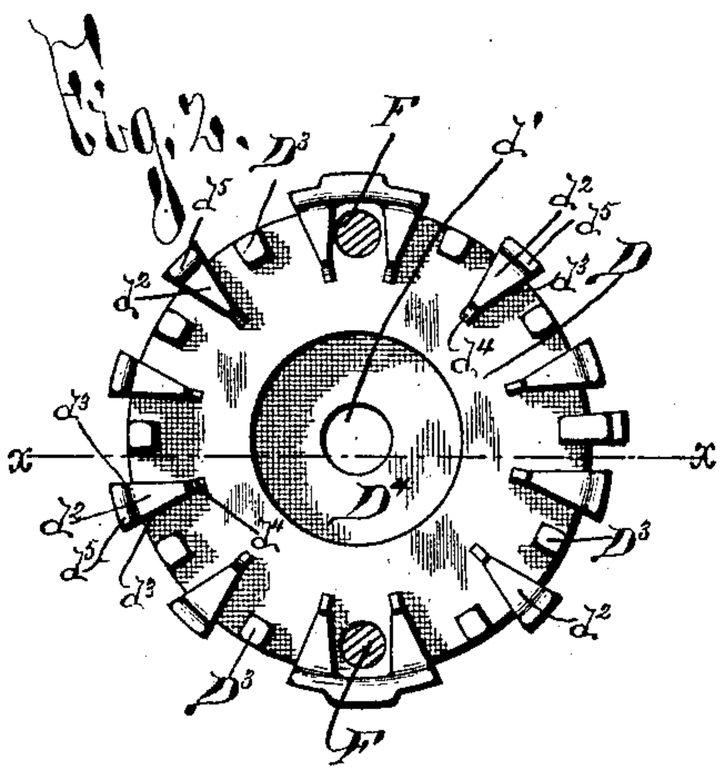
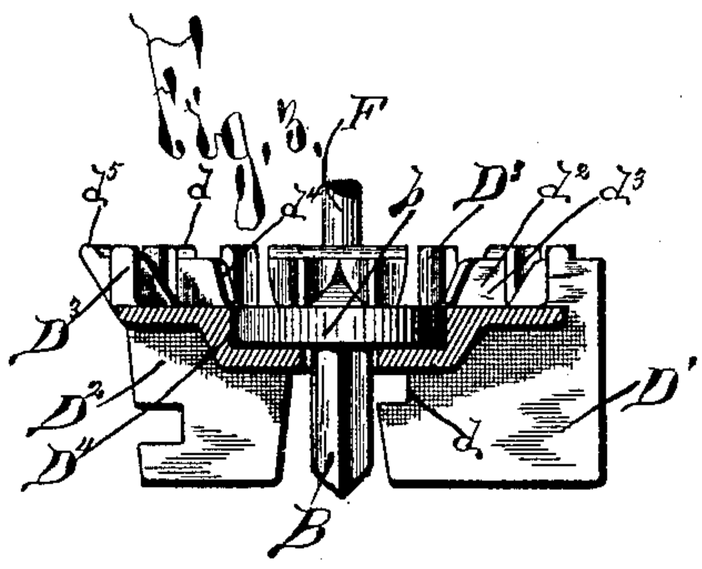


Fig. 3.



WITNESSES:

C. E. Tomlinson.

H. C. Parsons.

INVENTOR

Marsh C. Pierce

BY George H. Hey

ATTORNEY.

UNITED STATES PATENT OFFICE.

MARSH C. PIERCE, OF SYRACUSE, NEW YORK, ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE MANUFACTURERS' AUTOMATIC SPRINKLER COMPANY, OF SAME PLACE.

DEFLECTOR.

SPECIFICATION forming part of Letters Patent No. 452,081, dated May 12, 1891.

Application filed February 25, 1889. Serial No. 301,091. (No model.)

To all whom it may concern:

Be it known that I, MARSH C. PIERCE, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Deflectors, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

My invention relates to an improved deflector or spreader for cutting up and spreading into an evenly-distributed fine spray a current of water thrown or striking thereon, and is especially adapted for use in automatic fire-extinguishers, wherein a drop-bolt having its upper end adapted to close the outlet of a water-pipe is securely held in position by fusible solder, which, when melted by the generation of an unusual amount of heat, allows the drop-bolt to fall through the deflector and opens the outlet of the water-pipe, whereupon a stream of water is thrown or falls thereupon and is evenly divided into a spray.

To this end it consists, essentially, in a disk having its deflecting or upper surface provided with projecting points or distributers preferably extending upward for a short distance and provided with faces adapted to cut up the stream of water into a fine spray as the same rebounds from the face of the deflector or spreader, thus throwing the water outwardly therefrom in a fine spray, which scatters over a large surface and greatly facilitates the action of the water.

It furthermore consists in the detail construction and arrangement of the parts, all as hereinafter more particularly described, and pointed out in the claims.

In specifying my invention reference is had to the accompanying drawings, forming a part of this specification, in which like letters indicate corresponding parts in all the views.

Figure 1 is a longitudinal vertical section of my improved deflector or spreader in operative position upon one of the usual forms of automatic fire-extinguishers. Fig. 2 is a top plan view of the deflector, illustrating the construction and arrangement of the projections or teeth provided thereupon for the purpose of cutting up the stream of water into a fine spray; and Fig. 3 is a section taken on line $x\,x$, Fig. 2, showing the drop-bolt in the position assumed when the support therefor is withdrawn by the melting of the fusible solder for retaining the same in its normal position.

A represents the automatic fire-extinguisher, which may be of any desirable construction.

a represents an outlet of a system of pipes closed by means of the valve b, provided upon the drop-bolt B, which is securely retained in position by the plate C.

The deflector D is composed of a plate having thereon projections of novel and peculiar form, and is securely held beneath the discharge a, and may be supported in its desired position by means of bolts F, passed through the deflector and secured to lugs a', provided upon the discharge end a.

One extremity c of the plate C is supported in a notch d, provided upon a downwardly-extending lug D′, formed or provided upon the deflector D. The opposite extremity of the plate C straddles a projection D^2, also provided upon the deflector D, and is provided with a downwardly-extending end c', resting upon the plate E and securely held in position thereby. One extremity e of the plate E is supported in a notch provided in the lug D^2, and the opposite extremity straddles the lower extremity of the lug D′, and is retained in position thereon by a plate G, secured to said extremity of the lug D′ by means of fusible solder.

When heat is generated in the building or room containing the sprinkler-head, which is sufficient to melt the fusible solder securing the plate G, it will be seen that by means of gravity the same falls from the lug D′, and thereby the plate E and the plate C also fall from their supported position upon the lugs D′ and D^2, allowing the drop-bolt B to readily pass through the apertures d', provided in the deflector and opening the discharge a of the sprinkler-head. The water is then thrown against the top surface of the deflector D and is reflected therefrom and thrown against the separate surfaces of the projection d^2, arranged around the periphery of the

said deflector. These projections d^2 are preferably formed with their opposite sides or edges d^3 tapering toward each other and disposed in planes substantially parallel to lines drawn through the center of said deflector and midway between said projections. The inner front edge d^4 is much narrower than the outer, and preferably inclines downward from the top face of the projection toward the face of the deflector, upon which the water strikes. As the stream of water is reflected from the upper face of the deflector the projections d^2 cut the same up into small streams, which are reflected or thrown upward from the upper face of the deflector, and the water is thereby spread out so as to cover a large surface. To further aid these projections in spreading or distributing the stream of water or other liquid, the outer edges thereof are provided at their top with the slight projection or roll d^5, which forms a stop for the water striking against the top faces of said projections and causes the same to be rolled or spread from the top thereof.

Arranged alternately with the projections d^2 are the projections D^3, of tapering form, with the base slightly larger than the top for the purpose of forming a wedge, which shall cut up the stream of water, which would otherwise be distributed from between the projections D^2 without being cut up or spread thereby. Upon reference to the drawings it will be noted that the projections D^3 are of less length than the former projections d^2, and it will be understood that this arrangement greatly aids the perfect operation of my improved deflector.

The top face of the deflector is preferably provided with a recess D^4, which is of sufficient size to receive the valve b of the drop-bolt B and cause the top face of the same to be on the same line or plane as the upper face of the deflector, thus forming a smooth surface, which will reflect the water upward evenly against the distributing projections provided thereon. The top face of the deflector and valve of the drop-bolt are preferably disposed in a horizontal plane; but it will be understood that said plane might be made concaving without changing the operation of my deflector.

It will be understood that I do not limit my deflector to its use in the precise form of fire-extinguisher herein described, since this is only one form of construction, which has been described merely for the purpose of showing the operation of the deflector, and the same might be substituted by one of different construction, whereas the operation of the deflector would be precisely the same. It will also be understood that considerable change may be made in the relative construction and arrangement in the described form of deflector, which is merely the preferable construction of the same, and might be greatly altered in the relative construction and arrangement of its parts without departing from the spirit of my invention.

I am aware of the devices set forth in the patents to J. Hill, No. 329,311, issued October 27, 1885, and to W. Neracher, No. 361,175, issued April 20, 1887, and I do not herein claim the construction of deflector set forth in said patents.

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

1. The herein-described deflector for automatic sprinklers, the same consisting of a plate, and projections d^2 rising above said plate and formed with an upper face, and projections d^5 elevated above said upper face, substantially as specified.

2. The herein-described deflector for automatic sprinklers, the same consisting of a plate, projections d^2, rising above said plate and formed with an upper face, and projections d^5 above said upper face, and a second series of projections of less length than the former series alternately arranged with said former series, substantially as and for the purpose set forth.

In testimony whereof I have hereunto signed my name in the presence of two attesting witnesses, at Syracuse, in the county of Onondaga, in the State of New York, this 23d day of February, 1889.

MARSH C. PIERCE.

Witnesses:
CLARK H. NORTON,
A. E. PARSONS.