

(No Model.)

C. DOELGER & O. KIRSTEN. SPRINKLER.

No. 486,667.

Patented Nov. 22, 1892.

Fig. 3.

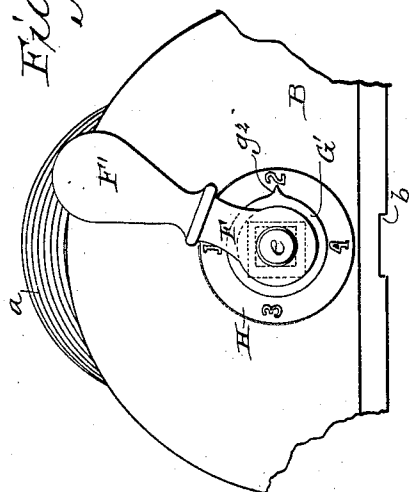


Fig. 6.

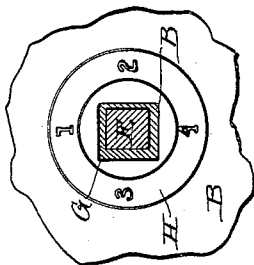
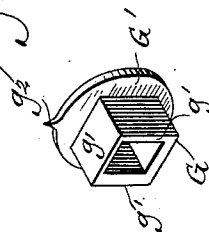


Fig. 4.

Fig. 5.

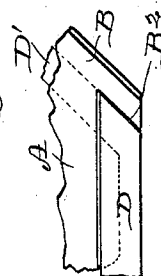


Fig. 1.

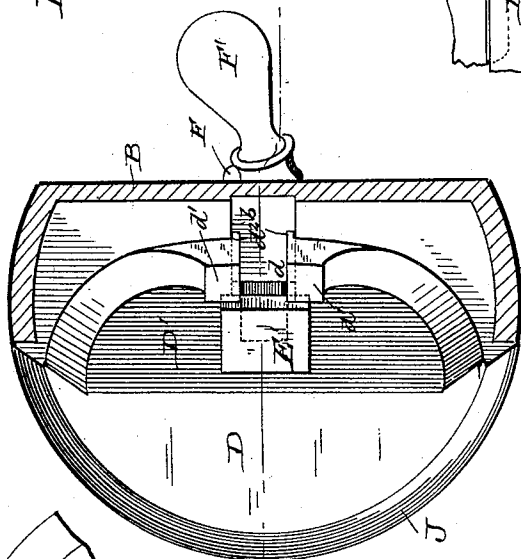
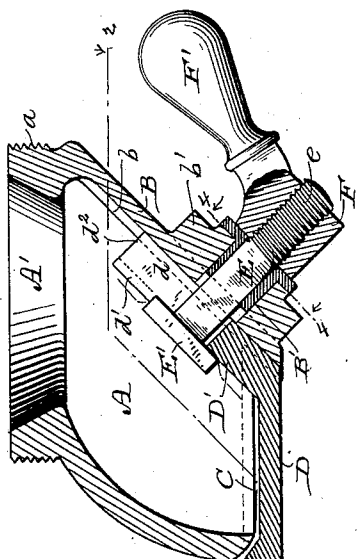
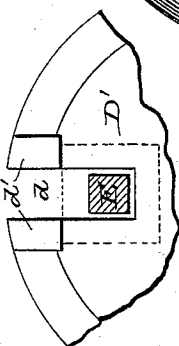


Fig. 2.

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Fig. 7.



UNITED STATES PATENT OFFICE.

CHARLES DOELGER AND OSCAR KIRSTEN, OF MILWAUKEE, WISCONSIN.

SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 486,667, dated November 22, 1892.

Application filed April 21, 1892. Serial No. 430,067. (No model.)

To all whom it may concern:

Be it known that we, CHARLES DOELGER and OSCAR KIRSTEN, citizens of the United States, and residents of Milwaukee, in the county of Milwaukee, and in the State of Wisconsin, have invented certain new and useful Improvements in Sprinklers; and we do hereby declare that the following is a full, clear, and exact description thereof.

Our invention relates to new and useful improvements in sprinklers; and it consists in the matters hereinafter described, and pointed out in the appended claims.

The several features of our invention will be hereinafter described in detail with reference to the accompanying drawings, in which—

Figure 1 is a central vertical sectional view of a sprinkler constructed in accordance with our invention, said section being taken on line 1 1 of Fig. 2. Fig. 2 is a horizontal sectional view of the same, taken on line 2 2 of Fig. 1. Fig. 3 is a face view of the oblique rear side of the device. Fig. 4 is a detail sectional view taken on line 4 4 of Fig. 1. Fig. 5 is a fragmentary view, in side elevation, of one portion of the device. Fig. 6 is a detail perspective view of one of the parts. Fig. 7 is a detail elevation of the upper part of the adjustable plate for regulating the size of the opening for the discharge of liquid.

In said drawings, A represents the sprinkler-head, preferably provided with a screw-threaded neck *a* for attaching the device to the end of a suitable pipe and having an inlet passage or throat A' for liquid, as shown. The rear wall of the head is conveniently made oblique, as at B, and is provided on its inner surface with a groove *b*, and upon its outer surface with a projecting boss *b'*, having a square aperture B' therein, which registers with the groove *b*.

C represents the discharge-opening of the head, and D an adjustable plate for regulating the discharge of liquid therefrom. The plate D is conveniently provided with an oblique upwardly-extending portion D', arranged to slidably engage with the inner surface of the oblique rear wall B of the head A, said oblique portion D' being provided with a slot *d*, extending downwardly from its upper edge and adapted to admit the squared

part of a bolt E, shoulders *d'* *d'* being formed upon the upper ends of the side walls of the slot *d* and arranged to engage with the head E' of the bolt. A rib *d*² is formed upon the surface of the part D' of the plate D and is arranged to engage with the groove *b* in the inner surface of the oblique wall B of the head A, so as to guide the said plate in its movements upon the said wall.

The bolt E is arranged to project through the aperture B' in the wall B of the head A and is screw-threaded upon its outer end, as at *e*, and adapted for engagement with a suitable nut F, which is conveniently provided with an operating-handle F'. The aperture B' is of considerably larger size than the squared part of the bolt E, as shown, and a bushing G, of a size and contour to conform to said aperture and provided with a squared aperture *g*, adapted to fit snugly around the squared portion of the bolt, is arranged to be inserted in said aperture and is provided with an annular flange G', adapted to engage with the nut F when the latter is screwed down upon the threaded end of the bolt E so as to crowd the bushing firmly into the aperture B'. The walls *g'* *g'* of said bushing are made of different thicknesses upon the several sides of the aperture *g*, as shown more particularly in Figs. 4 and 6, for a purpose to be presently explained. Upon the surface of the projecting boss *b'* and arranged at intervals around the aperture B' is provided a suitable scale H of designating figures or characters, as shown in Figs. 3 and 4, and the annular flange G' on the bushing G is provided with an index finger or point *g*², adapted to register with one or another of said designating figures or characters, according to the position of the bushing within the aperture B'.

The lower edge B² of the oblique rear wall B of the head is prolonged below the lower edges of the side walls of the same, and the horizontal portion of plate D is arranged to occupy a position immediately below said side walls, the rear edge of the same being fitted to the lower part of said oblique wall and arranged to slide thereon. The said horizontal part of the plate is constructed in substantially a semicircular form, and the side walls of the head are correspondingly-shaped, as

shown. The lower edge of the semicircular wall of the head is preferably rounded inwardly and downwardly, as at I, and the curved edge of the plate D is provided with a straight beveled upturned lip J, adapted to come just beneath the edge I of the wall of the head A.

Adjustment of the plate D to regulate the size of the outlet for liquid is effected in the following manner: The plate D being supported in position by the engagement of the shoulders d' d' with the head E' of the bolt E, it follows that if the bolt E be dropped lower down in the aperture B' the plate D will be moved away from the lower edge of the semicircular wall of the head to a corresponding extent so as to give an increased opening for the discharge of the liquid, or vice versa. By the arrangement of the bushing G with the walls g' g' of different thicknesses, as before described, the position of the bolt E with respect to the aperture B' may be changed by simply loosening the nut F, removing the bushing G, and inserting it again in the aperture with another one of its side walls uppermost. If the said upper wall is thicker, the bolt will obviously be crowded downwardly, and if it be thinner the bolt will be moved upwardly within the aperture, thereby serving to adjust the plate D to give the desired amount of opening for the discharge of liquid. By the arrangement of the plate D, as described, to be held in its adjusted position by the engagement of the shoulders d' d' with the head of the bolt it is obvious that said plate may be readily detached by simply loosening the nut sufficiently to permit the bolt to be pushed inwardly sufficiently to free it from engagement with the shoulders d' d' , when said plate may be easily and quickly removed.

A great advantage is gained by our improvements in this respect over the ordinary forms of devices of this character by reason of the ready removal of the plate, as in case of any accumulation of dirt in the sprinkler-head, which would operate to prevent proper operation of the device, it is only necessary to slightly unscrew the nut and remove the plate to afford access to the inside of the device for cleaning.

By the construction of the head A with the rear wall B inclined toward the front or discharge side, as shown, a forward direction is given to the liquid as it descends through the head and it is caused to discharge with greater force from the outlet-aperture than would be the case were the wall B made vertical.

A further advantage is gained by the construction of the edges I and J of the side wall of the head and the forward edge of the plate D, respectively, in the form of semicircles from the fact that the liquid is caused to spray over a large surface, this feature being especially desirable in the use of sprinklers upon sprinkling-carts. Furthermore, by the construction

of the lower edge of the semicircular wall of the head with an oblique or rounded surface and the edge of the plate D with the straight beveled upturned lip, as shown and described, the liquid in escaping from the discharge-opening is given an upward direction so as to cause it to spread over a larger surface and spray more evenly over the same than would be the case if the liquid were permitted to escape in a horizontal direction.

As shown in the drawings, we prefer to make the handle F' of the nut F of considerable size and weight and to construct the threads upon the bolt E and in said nut, so as to cause the handle F' to stand at an angle, as shown more particularly in Fig. 3, when the nut has been screwed down upon the bolt, so that any jarring or vibration which the device may be subjected to will only tend to tighten the nut in position upon the bolt.

Having thus described our invention, what we claim as new, and desire to secure by Letters Patent of the United States, is—

1. A sprinkler-head comprising a chambered casing having an oblique rear wall and open at its bottom and a plate arranged horizontally below the opening in said casing and provided with an oblique portion adapted for adjustable engagement with the oblique wall of said casing, substantially as set forth.

2. A sprinkler-head comprising a chambered casing having an oblique rear wall and an opening in its bottom, a plate arranged below said opening and provided with an oblique portion adapted to adjustably engage with the oblique rear wall of the casing, an aperture through said oblique wall, a bolt extending therethrough and arranged to engage with the oblique portion of said plate, and means for adjusting said bolt within said aperture to effect a vertical adjustment of the horizontal part of said plate, substantially as set forth.

3. A sprinkler-head comprising a chambered casing having an oblique rear wall, a substantially-semicircular front wall and an opening in its bottom, a plate arranged horizontally below said opening and provided with an angular portion adapted to adjustably engage with the oblique rear wall of said casing, a slot in said angular portion of the plate, an aperture in said oblique wall, a bolt extending through said slot and said aperture, shoulders upon said angular portion of the plate arranged to engage with the head of the bolt, means for loosening said bolt to release said plate, and means for adjusting the bolt within said aperture to raise or lower said plate, substantially as set forth.

4. A sprinkler-head comprising a chambered casing having an oblique rear wall and opened at its bottom, a plate arranged to extend horizontally below said opening and provided with an angular portion adapted to engage with said oblique wall, an angular aperture in said oblique wall, a bolt passed therethrough

and engaged with the angular portion of said
plate within the casing, a nut for securing
said bolt in position, and an angular bushing
having an eccentric aperture for the bolt and
5 fitted at its outside to the contour of the
aperture in said wall, substantially as and for
the purpose described.

In testimony that we claim the foregoing we

have hereunto set our hands, at Milwaukee, in
the county of Milwaukee and State of Wis- 10
consin, in the presence of two witnesses.

CHARLES DOELGER.

OSCAR KIRSTEN.

Witnesses:

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JOHN E. WILES.