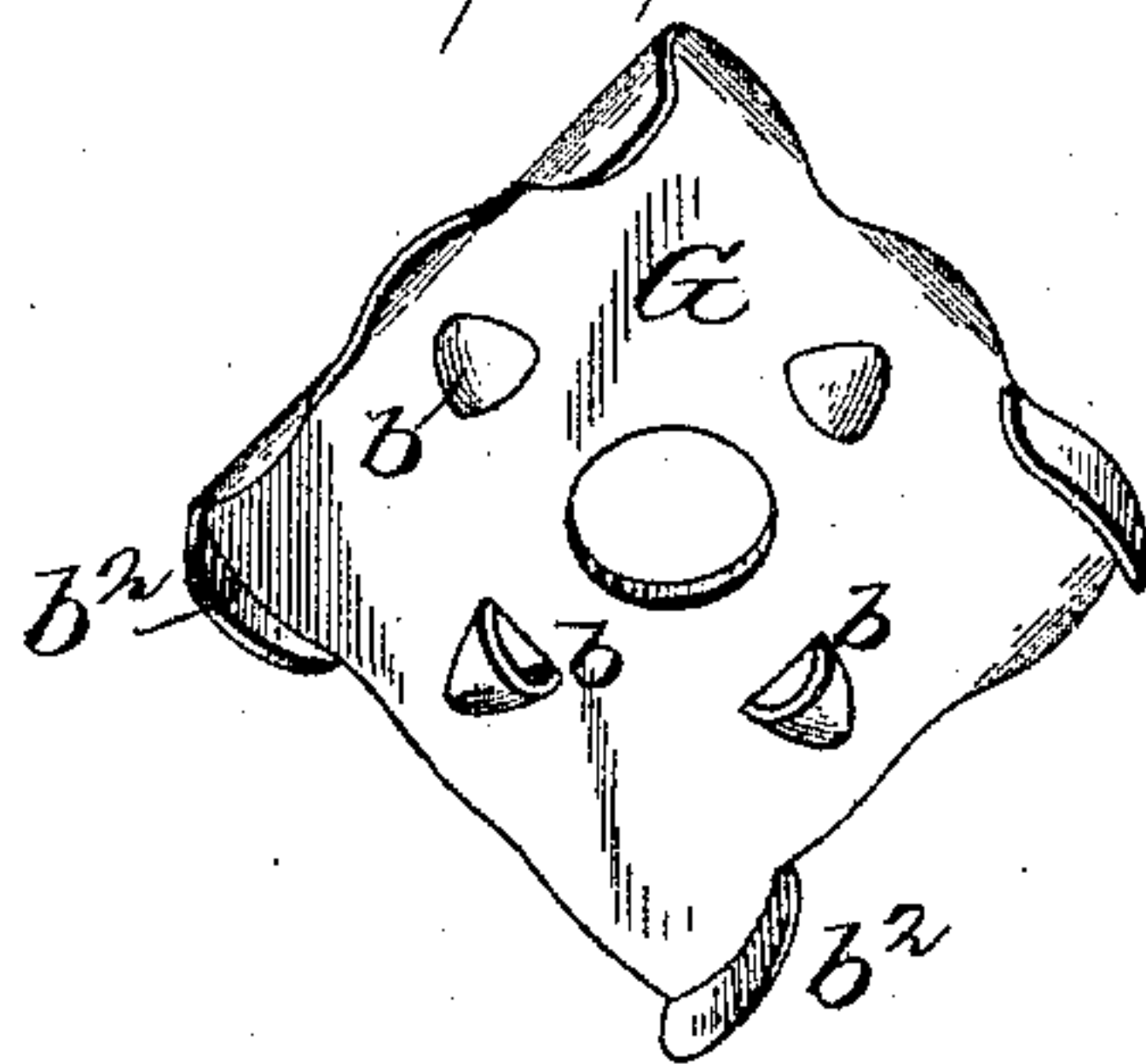
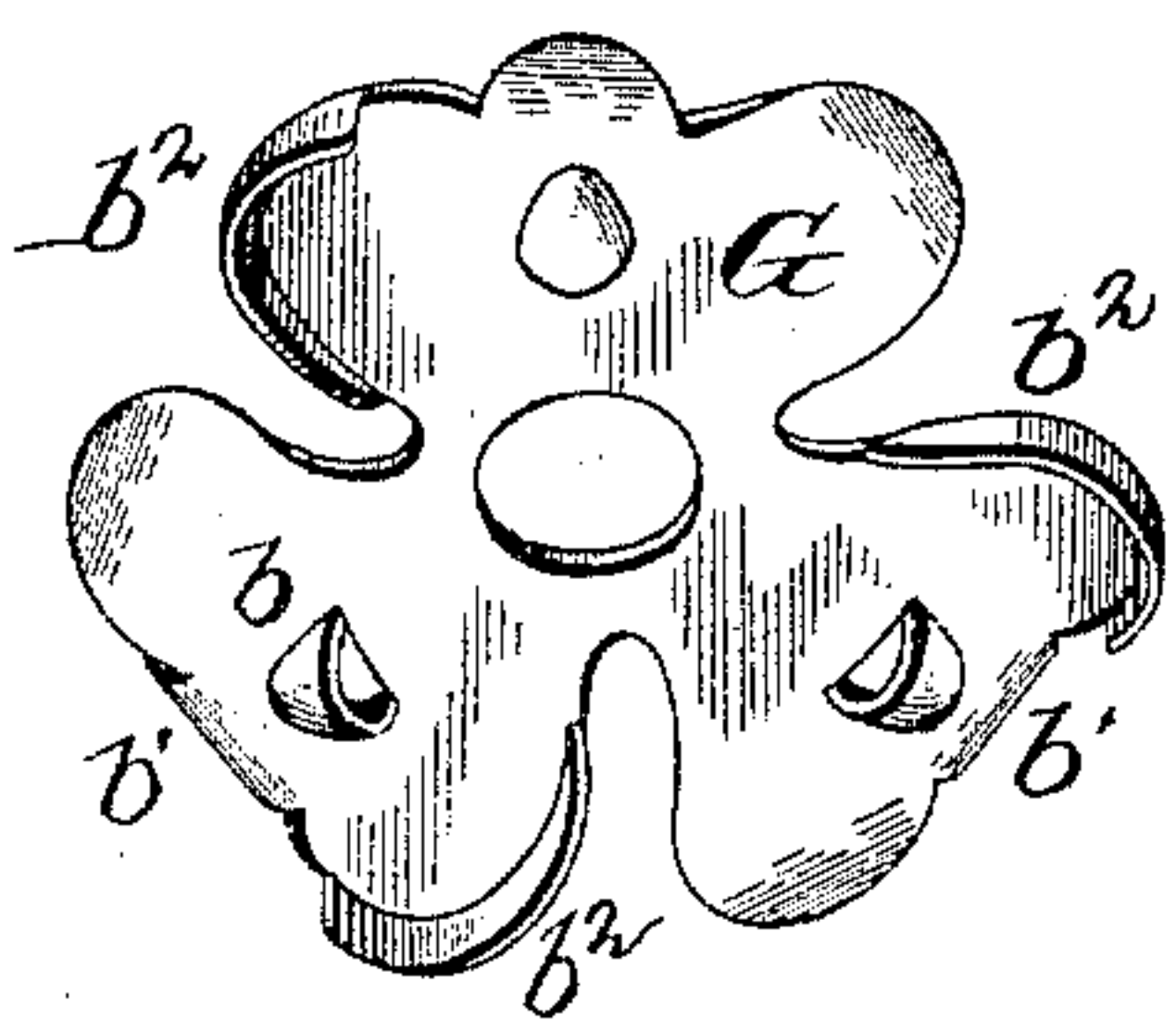
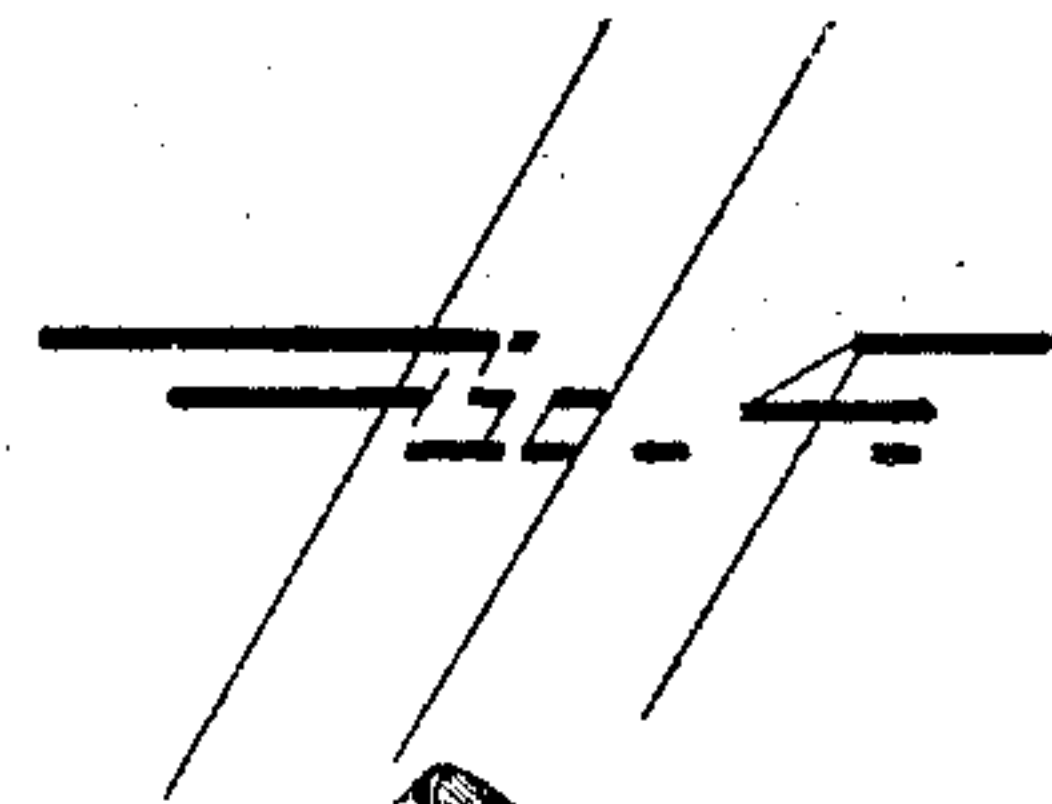
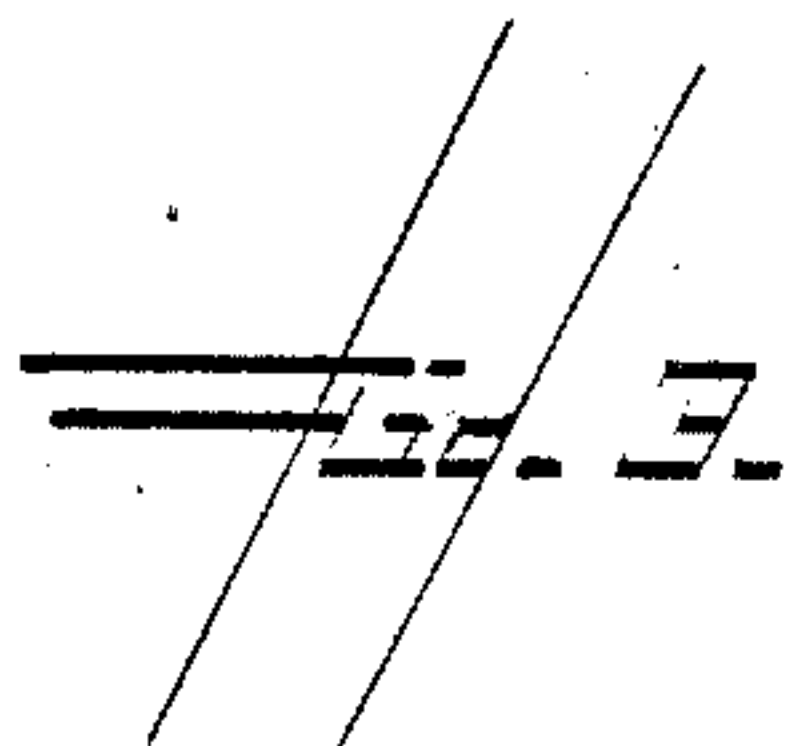
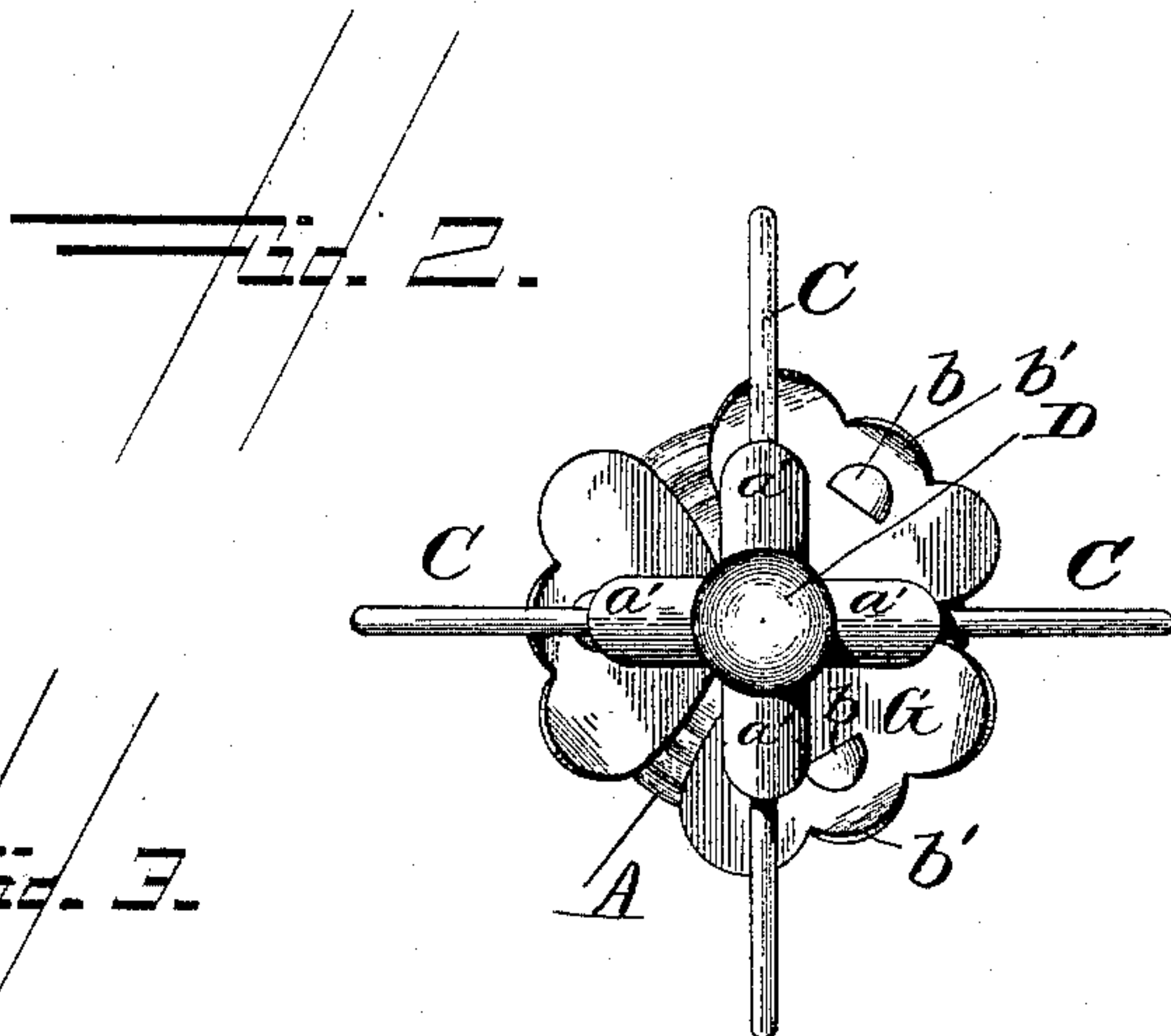
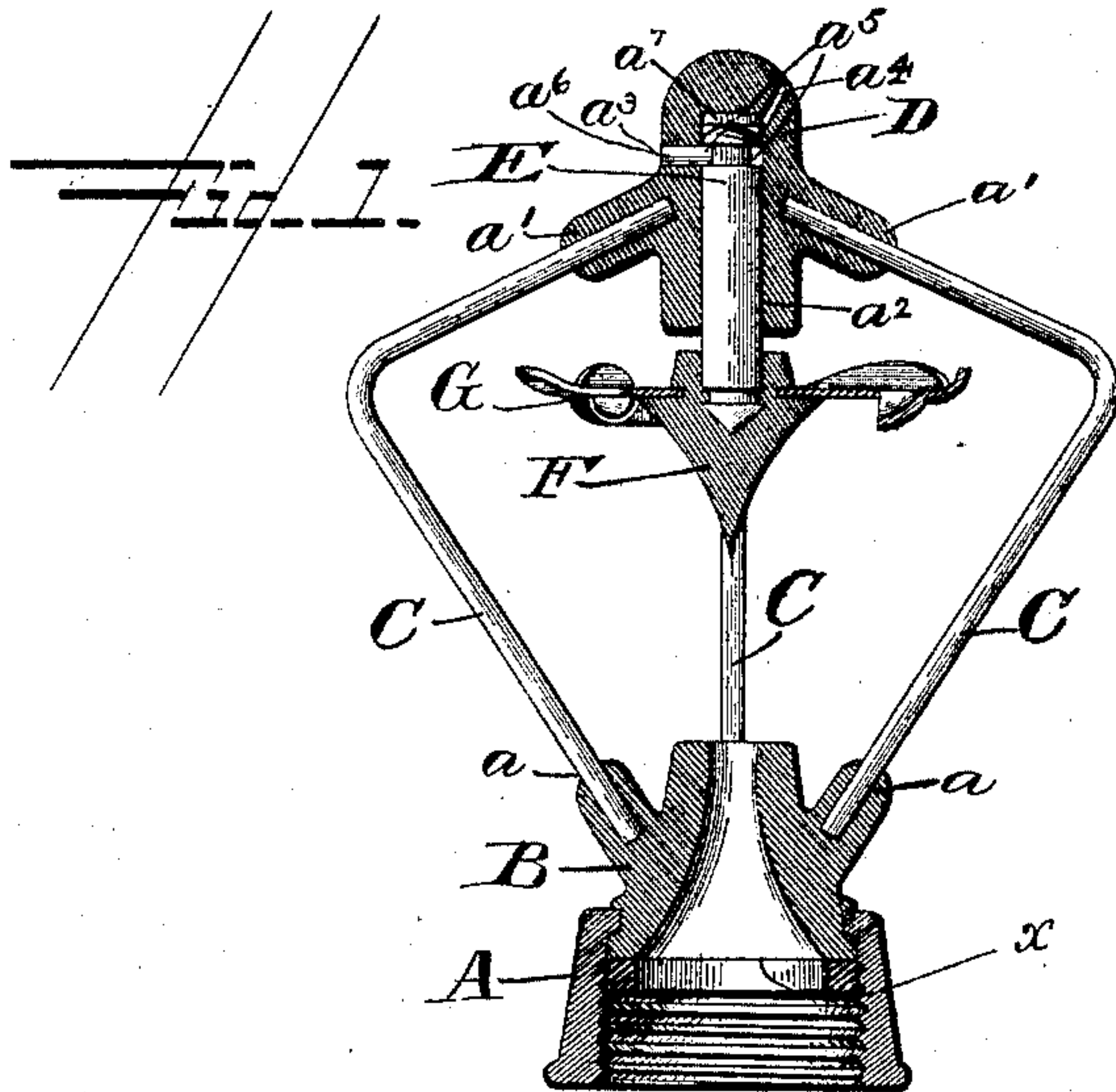


(No Model.)

W. F. WARE.  
ROTARY LAWN SPRINKLER.

No. 453,055.

Patented May 26, 1891.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

WILLIAM FRANCIS WARE, OF BRIDGETON, NEW JERSEY.

## ROTARY LAWN-SPRINKLER.

SPECIFICATION forming part of Letters Patent No. 453,055, dated May 26, 1891.

Application filed October 16, 1890. Serial No. 368,373. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM FRANCIS WARE, a citizen of the United States, residing at Bridgeton, in the county of Cumberland and State of New Jersey, have invented certain new and useful Improvements in Rotary Lawn-Sprinklers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as 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 a part of this specification.

This invention relates to that class of rotary sprinklers used in connection with garden-hose for sprinkling purposes; and it consists, essentially, in providing a rotary deflecting-plate removed some distance from the discharge end of the nozzle, and so constructed that the rotations of the deflector-plate are not liable to be interfered with or stopped by the sand or other sediment that may be in the water passing through the nozzle, as in other inventions of this class.

In the drawings, Figure 1 shows a sectional elevation of the invention; Fig. 2, a top view of the same; Fig. 3, a view of the lower side of the deflector-plate, and Fig. 4 a view of a modified form of deflector-plate.

A, Fig. 1, represents the base-piece, provided on its inner circumference with screw-threads for the purpose of attaching the invention to the end of the hose or branch pipe.

B, Fig. 1, represents the nozzle, cast or otherwise secured into the base-piece A. The base of the nozzle within the base-piece forms a shoulder  $\alpha$ , upon which may rest a rubber washer to prevent leakage. The nozzle has also on its outer circumference arms  $a$ , extending in an upward direction at an angle of about sixty degrees with a horizontal line. These arms  $a$  have an opening in each of them for purposes hereinafter described. The base-piece A and the nozzle B may be cast in one piece, if desired.

C, Figs. 1 and 2, represents the standards, made, preferably, of spring-wire. These standards are bent at right angles in order to provide sufficient space between them for the deflector-plate. The lower ends of these standards are rigidly secured in the openings in the

arms  $a$  of the nozzle B, and the upper ends rigidly secured in the openings of the arms  $a'$  of the cap D, thus supporting the cap in its proper position.

D, Figs. 1 and 2, represents the cap or top of the invention. This cap is also cast with arms  $a'$  on its outer circumference similar to the arms  $a$  on nozzle B, but extending in a downward direction at an angle of about thirty degrees with a horizontal line. These arms  $a'$  have an opening in each of them. This cap is also provided with a large central cylindrical opening  $a^2$ , passing nearly through the cap in a vertical direction, a small opening  $a^3$ , passing through one side of the circumference of the cap in a horizontal direction, and an opening  $a^4$  for the purpose of admitting oil to the spindle E passing from the circumference of the cap to the base of the central opening  $a^2$ . The purpose of these openings will be described hereinafter.

E, Fig. 1, represents the spindle, made of any suitable and hardened metal and having a rounded head, as shown, which bears against a hardened disk  $a^7$ . This spindle has a circumferential groove  $a^5$  near its upper end for the purpose of receiving a pin  $a^6$ , passing through the opening  $a^3$  of the cap. By means of the pin  $a^6$ , engaging with the groove  $a^5$ , the spindle is secured in its proper position in the large central opening  $a^2$  of the cap and permitted to rotate around its axis, but has no motion in the direction of its axis.

G, Figs. 1 and 3, represents the deflector-plate, having the cone-shaped deflector F rigidly secured to its under side and removed from the discharge-opening of the nozzle, the plate and cone deflector being rigidly secured to the lower end of the spindle E in any well-known manner. This plate G is trifoliate in shape, as shown in Fig. 3, each cusp of which has near its center a depressed cup-shaped opening  $b$ , the edges of the cusps being turned up and down, respectively, as shown in Fig. 3, thereby forming lips or flanges.

The water passing through the nozzle B unobstructed and striking the cone on the under side of the plate is so deflected that the under side of the plate receives the full volume of water equally distributed over its entire under surface, and by means of the pe-



culiar construction of the plate the water is thrown in all directions. The water passing through the cup-shaped depressions  $b$  strikes against the flange  $b'$  turned up, and is thrown  
 5 in an upward direction. The water striking the under side of the plate and the turned-down flanges  $b^2$  is thrown in a downward direction. The force of the water against these flanges  $b^2$   $b^2$   $b^2$  gives to the spindle and its at-  
 10 tachments a rapid rotary movement, spraying the water equally over the ground.

I do not confine myself entirely to this described form of plate, neither to the modified form shown in Fig. 4, but may use plates of  
 15 various forms having the cone-shaped deflector on the under side of the plate.

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

20 1. In a rotary sprinkler, the combination of the following elements: the base-piece A, the nozzle B, the standards C, the cap D, and the spindle E, having the cone-shaped deflector and the trifoliate-shaped deflector-plate rigidly secured thereto, as described.  
 25

2. In a rotary lawn-sprinkler, the combination of the base-piece A, nozzle B, having obliquely-extended recessed arms  $a$ , the cap D, having obliquely-extended recessed arms  $a'$ ,  
 30 the angular standards secured to the respective arms  $a$ , so as to support the cap D, the spindle E, the cone-shaped deflector F, and trifoliate deflector-plate G, substantially as and for the purposes specified.

35 3. In a rotary lawn-sprinkler, the cap D, pro-

vided with openings  $a^2$ ,  $a^3$ , and  $a^4$ , as described, in combination with the spindle E, fitting loosely into the opening  $a^2$  of the cap and secured therein by means of a pin  $a^6$  passing through the opening  $a^3$  and engaging with a  
 40 groove  $a^5$  at the upper end of the spindle, the spindle having rigidly secured to its lower end the cone-shaped deflector and the trifoliate deflector-plate, for the purpose described.

4. In a rotary lawn-sprinkler, the combination of the nozzle B, provided with upwardly-extending arms  $a$ , with openings to receive the lower ends of the standards, the cap D, with downwardly-extending arms  $a'$ , with openings to receive the upper ends of the  
 50 standards, and the standards C, of spring-wire, bent at right angles for the purpose of providing sufficient space for the rotation of the deflector-plate G, and cone-shaped deflector F, secured to the lower end of the spindle, as  
 55 described.

5. The cone-shaped deflector and the trifoliate deflector-plate rigidly secured to the lower end of the spindle E and secured in its removed position above the discharge end of  
 60 the nozzle B by means of the pin  $a^6$  passing through the opening  $a^3$  of the cap D and engaging with the circumferential groove  $a^5$  of the spindle E, as and for the purpose set forth.

In testimony whereof I affix my signature in  
 65 presence of two witnesses.

WILLIAM FRANCIS WARE.

Witnesses:

P. KENNEDY REEVES,

HENRY A. JAUVIER.