Nov. 28, 1950 F. H. SMITH 2,531,923

HYDRO JET SPRINKLER

Filed Jan. 27, 1947 2 Sheets-Sheet 1

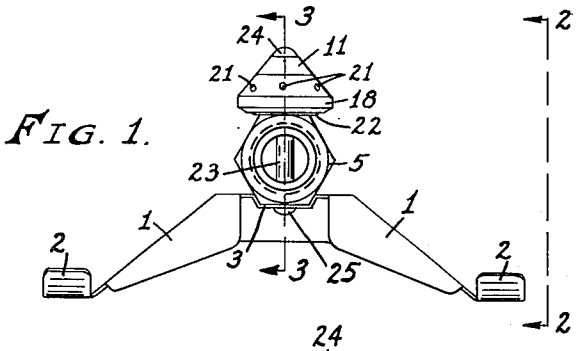


FIG. 1.

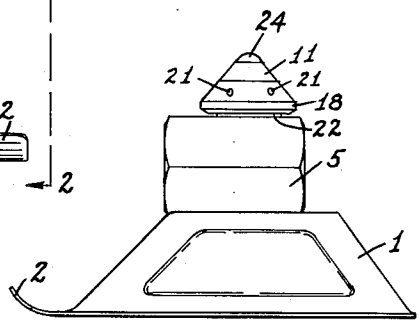


FIG. 2.

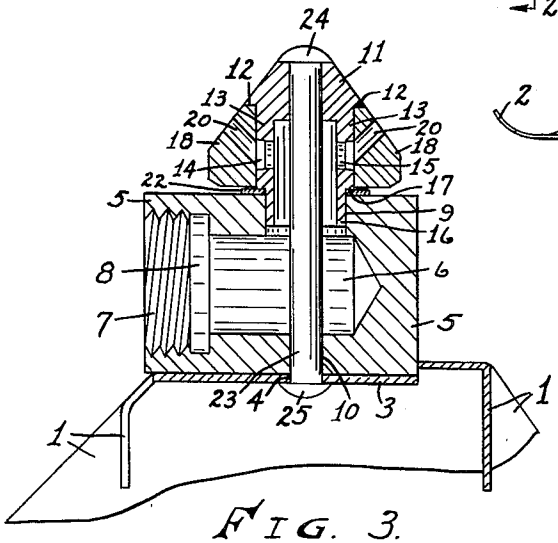


FIG. 3.

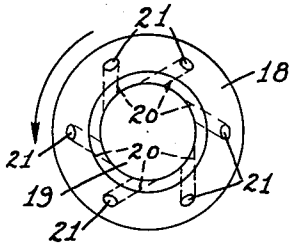


FIG. 4.

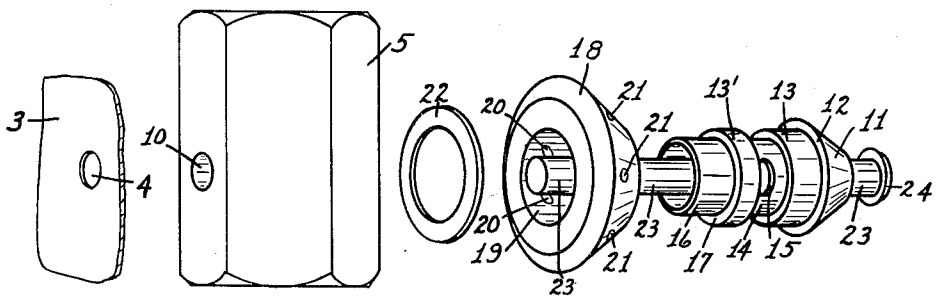


FIG. 5.

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HYDRO JET SPRINKLER

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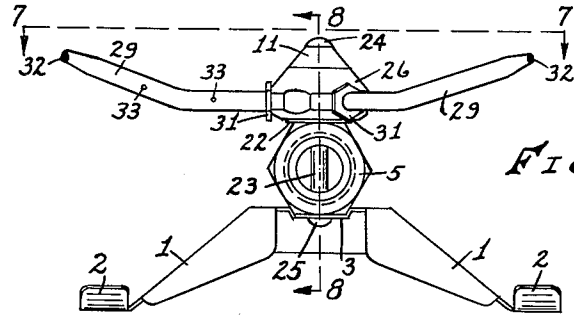


FIG. 6.

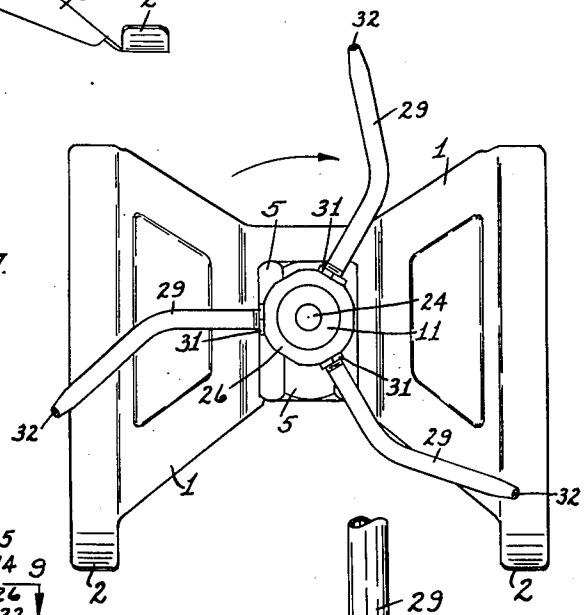


FIG. 7.

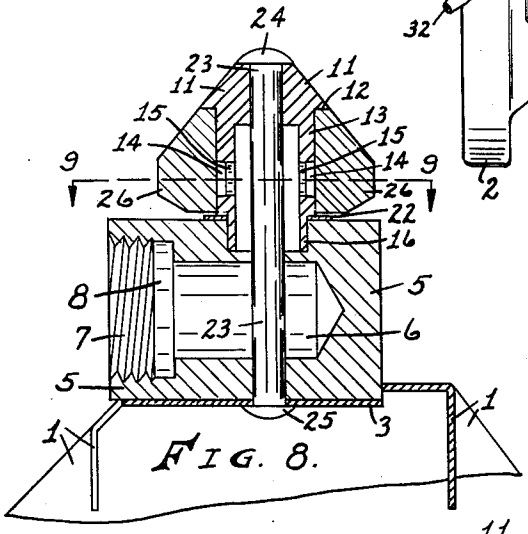


FIG. 8.

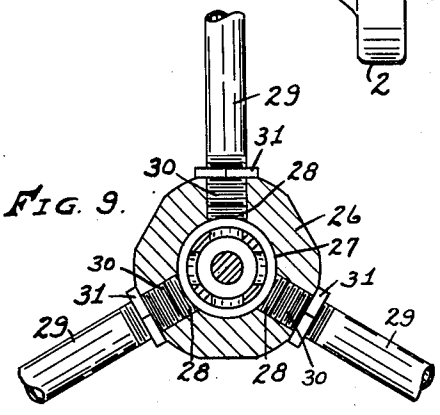


FIG. 9.

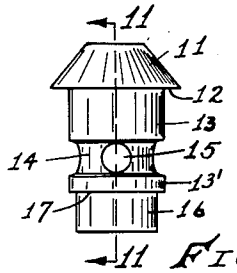


FIG. 10.

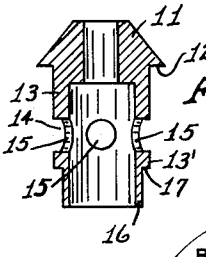


FIG. 11.

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Patented Nov. 28, 1950

2,531,923

UNITED STATES PATENT OFFICE

2,531,923

HYDRO JET SPRINKLER

Frederick H. Smith, Richmond, Ind.

Application January 27, 1947, Serial No. 724,555

4 Claims. (Cl. 299—69)

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The principal object of the invention is the provision of a sprinkler which will provide means evenly distributing the sprays of water forced therefrom and distributed thereby.

A second object is the provision of a sprinkler device which is easy of assembly, and which requires no adjustment of the assembled parts.

Another object is the provision of an efficient sprinkler device which is easy and economical of manufacture, and which may be sold at a nominal price.

Other objects and particular advantages of the invention will suggest themselves in the course of the following description, and that which is new will be pointed out in the appended claims.

The most satisfactory means of carrying out the principles of the invention in a practical manner is shown in the accompanying two sheets of drawings, in which:

Figure 1 is a front elevation of the sprinkler device embodying the features of the invention.

Figure 2 is a side elevation of the sprinkler, as taken from line 2—2 of Figure 1.

Figure 3 is a detail vertical section through the device, as taken on line 3—3 of Figure 1, and showing the parts thereof in assembled condition.

Figure 4 is a top plan view of the revolving head member of the device.

Figure 5 is an isometric detail view of the device showing the sequence of assembling the various parts of the device.

Figure 6 is a detail front elevation similar to that shown in Figure 1, but with a modification of the revolving head member being shown therein.

Figure 7 is a top plan view of the device as shown in Figure 6, and as taken from line 7—7 of Figure 6.

Figure 8 is a detail vertical section taken through the device on line 8—8 of Figure 6.

Figure 9 is a detail section through the revolving head member, as taken on line 9—9 of Figure 8.

Figure 10 is a detail elevation of the bearing member of the device.

Figure 11 is a detail vertical section through the bearing member, taken on line 11—11 of Figure 10.

Like characters of reference designate like parts throughout the several views.

In order that the advantages of the invention may be more fully understood and appreciated, I will now take up a detailed description thereof in which the same will be more fully set forth.

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Referring now to the drawings in detail, the device is provided with a base member 1 which has a pair of forwardly projecting lugs formed thereon, with the same being turned upwardly to form runners for the base when the same is being pulled from one sprinkling position to another. The central portion of the base is slightly depressed and forms a seat 3 into which the sprinkler is rigidly secured through aperture 4.

The body 5 of the sprinkler is preferably formed of hexagon-shaped stock having a central bore 6 extending partially therethrough, with the outer end of the bore being enlarged and with threads 7 being formed therein and providing means for securing the sprinkler to the threaded end connection of a hose. A further relieved portion 8 is formed between bore 6 and threads 7, and provides for the reception of a gasket washer member (not shown). The upper portion of body 5 is provided with an aperture 9. The lower portion of the body has aperture 10 formed therethrough, with the aperture 10 being in alignment with aperture 9.

The device is provided with a centrally located upwardly projecting bearing member 11, with the same having a shoulder 12 formed below the upper portion thereof. The body portion of the bearing member extends downwardly from shoulder 12, with same forming portion 13, and with portion 13' being separated from portion 13 by the channelled recess 14. A plurality of water outlet apertures 15 are formed through the wall of the recessed channel portion 14. The bearing member is further provided with a downward extension 16 which is of lesser diameter than portion 13' and forming a shoulder 17, the purpose of which will be hereinafter more fully set forth.

A revolving head member 18, having a centrally-located bore 19 formed therethrough, is adapted to fit against shoulder 12 of bearing member 11, and with the bore 19 fitting in revolving relation on portions 13 and 13'. A plurality of passages 20 are formed through the revolving head member 18, with the outer ends of the passages terminating in the apertures 21. It will be noted, by reference to Figure 4, that the passages 20 are formed at oblique angles with relation to the outer and inner surfaces of the revolving head 18. The inner ends of passages 20 register with the recessed channel 14 of the bearing member.

It will be noted, by reference to Figures 3 and 8, that the shoulder 17 extends slightly below the under side of revolving head member 18, and

with a washer member 22 being positioned on the extension 16 and located between the shoulder 17 and the upper surface of body 5, as shown more clearly in Figures 3 and 8.

The device is provided with a centrally located rivet 23 having a head 24 formed on the upper end thereof, with the rivet extending downwardly through the bearing member, the body member, and through aperture 4 formed in portion 3 of the base member, and with a lower head portion 25 being formed thereon. Members 11, 22, 5, and the base member are tightly secured together by means of rivet 23, and with revolving head member 18 being freely revolvable on the portions 13 and 13', and between shoulders 12 and 17.

The members of the device shown in Figures 6, 7, 8, and 9, except the revolving head member 26, conduits 29, and jam nuts 31, are like the same members shown in Figures 1 through 5 and Figures 10 and 11.

Referring now especially to Figures 6, 7, 8, and 9, a modified form of revolving head member is shown, the same being designated by numerals 26. A bore 27 is formed vertically through the head 26 and through which the bearing member extends. Threaded apertures 28 are formed through the wall of the head member with the inner ends of the apertures registering and communicating with the channelled recess 14 of the hub member. Conduits 29, having threads 30 formed on the inner ends thereof, are rigidly secured in the threaded apertures 28 by means of the jam nuts 31. Each of the conduits 29 has a communicating passage 32 formed longitudinally thereof, and with a plurality of comparatively small apertures 33 being formed in the trailing side thereof. It will be further noted, by reference to Figure 7, that the outer end portions of conduits 29 are formed at a rearward angle with relation to the inner ends thereof, with the angularity thereof providing means, with the passage of water under pressure therethrough, to rotate the head member 26 on bearing 11 in the direction indicated by the arrow in Figure 7. Apertures 33 further provide means serving to rotate the head member by the passage of water therethrough.

It will also be obvious that water under pressure passing through the angularly-disposed passages 20 of head member 18 causes the head to rotate on its bearing member 11 in the direction indicated by the arrow in Figure 4.

In the assembly of the device, as more clearly shown in Figure 5, the bearing member is placed on the rivet member with the upper end portion of the bearing member being in contacting relation with the under side of head 24. The revolving head is then placed on the bearing member with the upper end of the revolving head being set against the shoulder 12. Washer 22 is placed on extension 16 and set against shoulder 17, after which the body member is placed on extension 16 and against washer 22, and with the lower end of the rivet 23 extending through aperture 10 of the body member. The lower end of rivet 23 is extended through aperture 4 of the base member, after which head 25 is formed on the lower end of rivet 23, and tightly securing the base, the body, washer 22, and bearing 11 together. The revolving head member is free to revolve on the bearing member between shoulder 12 and washer 22.

Instead of head 25 being formed on the lower end of rivet 23, the lower end portion thereof may have threads formed thereon, and with a nut being tightened thereon to rigidly hold the members together.

It is to be understood that I am not to be limited to the exact forms and positions of the various members of the device, but that minor changes may be made therein, insofar as the changes thereto may fall within the scope of the appended claims.

Having now shown and described the invention, what I claim, is:

1. In a sprinkler device, a base member, a body member mounted on the base member, a bore formed in said body member, a bearing member extending into the body member, a bore formed in the bearing member and communicating with the bore of the body member, a recessed channel formed around the bearing member, a plurality of apertures formed through the wall of the bearing member and located in the recessed channel, a revolving head member positioned on the bearing member, passages formed through the wall of the head member at oblique angles rearwardly with relation to the direction of rotation thereof, with the inner ends of the passages communicating with the recessed channel of the bearing member, a rivet securing the bearing member to the body member and to the base member and extending therethrough, and with the angularity of the passages with relation to the head member providing means rotating the head member upon passage of water therethrough under pressure.

2. In a sprinkler device, a base member, a body member mounted on the base member, a bore formed in said body member, a bearing member extending into the body member, a bore formed in the bearing member and communicating with the bore formed in the body member, a recessed channel formed around the bearing member, a plurality of apertures formed through the wall of the bearing member and located in the recessed channel, a head member revolvably positioned on the bearing member, a rivet securing the bearing member to the body member and to the base member and extending therethrough, passages formed through the wall of the head member at oblique angles rearwardly with relation to the rotation of the head member, and with the angularity of the passages with relation to the head member providing means rotating the head member upon the introduction of water therethrough under pressure.

3. In combination with a base member, a bearing member, a hollow body member having an inlet aperture formed in one end thereof and having an outlet aperture formed therein intermediate the ends with the inlet and outlet apertures communicating with the hollow portion of the body, a hollow bearing member having one end thereof extending into the outlet aperture of the body member, a head member rotatably positioned on the central portion of the bearing member and rotatable therearound, a plurality of apertures formed at oblique angles through the wall of the rotatable head member with the apertures being formed outwardly and rearwardly with relation to the direction of rotation of the head member, with the base member, the body member, and the bearing members being secured together by means of a rivet extending therethrough, and with the angularity of the apertures of the head member providing means rotating the head member upon passage of water therethrough under pressure.

4. In a sprinkler device, the combination of a

base, a hollow body member having a bearing member secured thereto, said body member having an inlet aperture and an outlet aperture formed therein and communicating with the hollow portion of the body, an aperture formed in the central portion of the bearing member and communicating with the outlet aperture of the body member, outlet apertures formed through the wall of the bearing member and communicating with the central portion thereof, a recessed channel formed around the outer periphery of the bearing member and communicating with the outer ends of the outlet apertures thereof, a revolvable head member encircling the bearing member and having a plurality of apertures formed at oblique angles rearwardly with relation to the direction of rotation of the head member with the inner ends of the apertures being in alignment with the recessed channel of the bearing member, with the base, the body, and the bearing being rigidly secured together by

means of a rivet extending therethrough, and with the angularity of the apertures of the head member providing means rotating the head member upon the passage of water under pressure therethrough.

FREDERICK H. SMITH.

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