Nov. 1, 1932. C. H. BILLS ET AL 1,885,219

SPRAY HEAD

Filed Jan. 20, 1930

Fig. 3.

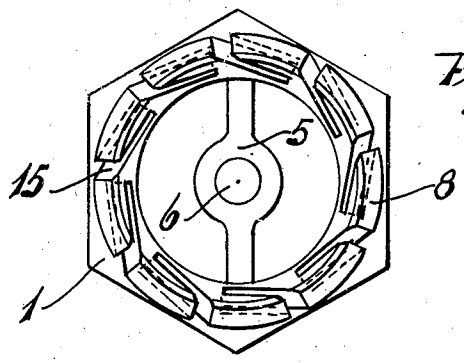


Fig. 2.

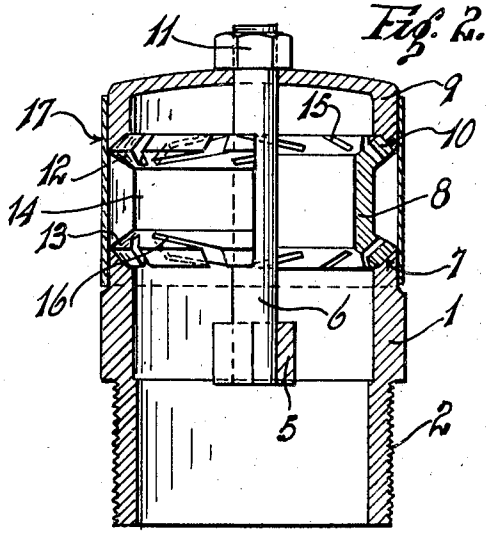


Fig. 1.

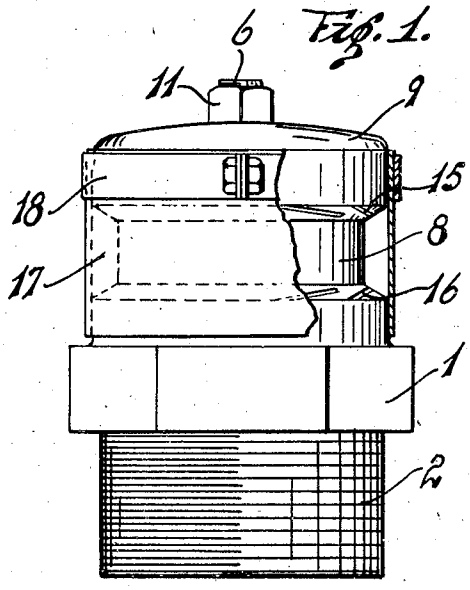
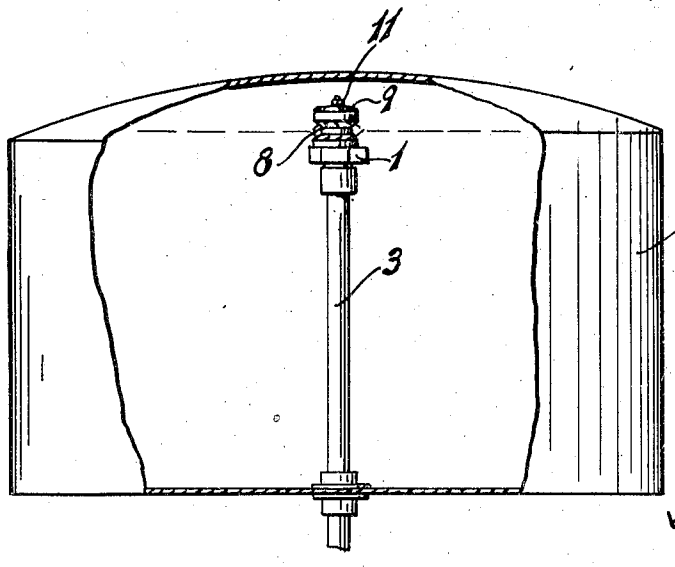


Fig. 4.



INVENTORS.
CLAUD H. BILLS.
GLENN G. GRISWOLD.
by W. A. Druckman
ATTORNEY.

Patented Nov. 1, 1932

1,885,219

UNITED STATES PATENT OFFICE

CLAUD E. BILLS, OF LA HABRA, AND GLENN G. GRISWOLD, OF PICO, CALIFORNIA

SPRAY HEAD

Application filed January 20, 1930. Serial No. 422,060.

This invention relates to a spray head through which liquid is adapted to be forced, and which liquid is divided in the head into a fine spray so that a fire is more effectively extinguished.

An object of our invention is to provide a spray head which will atomize the liquid prior to the depositing of the liquid in the fire area, thus more effectively extinguishing the fire.

Another object is to provide a spray head which can be effectively used in an oil tank to extinguish a possible fire in the tank.

A feature of our invention is that the liquid is deposited on the oil in the tank without agitating the oil, and without aerating the surface layer of oil, thus more effectively and quickly extinguishing a fire.

A further object is to provide a novel means of preventing vapors from passing into the nozzle and into the pipe line leading thereto.

Still another object is to provide a novel spray head which can be quickly and easily cleaned or repaired when necessary.

In the drawing

Figure 1 is a side elevation of our spray head with the fusible metal band partly broken away.

Figure 2 is a longitudinal, sectional view of our head.

Figure 3 is a plan view of our head with the cap removed.

Figure 4 is a side elevation of our head installed in a tank, the tank being broken away to show the head.

Referring more particularly to the drawing, the numeral 1 indicates the main body of our spray head, the lower portion of which is threaded as at 2 so that it may be coupled to a pipe 3 which may rise through the bottom of a tank 4, as shown in Figure 4. There is a distinct advantage in the arrangement shown in Figure 4 in that if the cover or top of the tank should be blown off as a result of the fire in the tank, the fire extinguishing equipment will not be damaged. Installations heretofore in use extended into the tank through the top thereof, which is detrimental for the reasons specified above.

The pipe 3 extends to a pump (not shown) which pump is only operated when a fire occurs in the zone about the head. The body 1 is provided with an integrally cast spider 5, and a stem 6 rises from the spider 5. The operation of this stem will be further described. A tapered seat 7 is formed on the top of the body 1 and on this seat we position a spray ring 8. The lower surface of the ring 8 is tapered to correspond with the seat 7 on the body. A cap 9 rests on the top of the ring 8, and the cap is provided with a tapered seat 10 which rests upon a tapered seat formed on the top of the ring. A nut 11 screws on to the stem 6 against the cap, thus securely holding the body, ring and cap together. It will be evident that by simply removing the nut 11, the cap and ring 8 can be removed for cleaning or replacement purposes.

The ring 8 is tapered outwardly at the top and bottom thereof as at 12—13. There being a central annular recess 14 between the tapered portions 12—13. In the tapered edges 12—13 we provide a plurality of outlet slots or openings 15—16 respectively through which the liquid passes. The liquid in passing through these openings under pressure, is brought together midway between the edges 12—13 in a horizontal sheet, and is finely atomized or broken up due to the impact of the opposite streams of liquid. The fine spray of liquid settles down upon the ignited surface and due to the large liquid surface thus created, absorbs a greater quantity of heat which results in extinguishing the fire.

When used in connection with an oil tank, it is desirable that vapors be excluded from the head, and the communicating pipe line, and for this purpose we provide a fusible or breakable band 17. This band encircles the head between the cap 9 and the body 1 completely covering the openings 15—16, and thus excluding any vapors. A ring 18, or similar expedient, serves to hold the band 17 in position.

In the installation as shown in Figure 4, the head is above the normal level of the oil in the tank. However, if the level should be

accidentally raised to above normal, the band 17 will prevent the oil from flowing into the head and pipe 3.

The ring 8 is perfectly symmetrical as to the upper and lower rings 12—13 so that either end thereof can be seated upon the body 1 and will fit perfectly thereon. Also due to the fact that the tapered surfaces 7 and 10 are annular, it is not necessary to position the ring in any particular way.

The stem 6 may be integrally formed with the spider 5 or may be cast therein as a separate part, as desired.

Having described our invention, we claim:

1. A spray head comprising a body, a pipe coupling means on the body, a spray ring removably seated on the body, a cap removably seated on the ring, means securing said body and cap together and said spray ring having a plurality of liquid openings therein, said ring being formed with oppositely inclined surfaces, said openings extending through both of said surfaces and oppositely arranged whereby the streams therethrough impinge to form a spray.

2. A spray head comprising a body, pipe coupling means on the body, a spray ring removably seated on the body, a cap removably seated on the ring, means securing said body and cap together and said spray ring having a plurality of liquid openings therein, said openings being positioned adjacent the top and the bottom of the ring and directed towards each other whereby liquid forced through the openings is brought together in a sheet, thus finely dividing the liquid.

3. A spray head comprising a body, a spider in the body, a bolt rising from said spider, a spray ring removably seated on the body, a cap removably seated on the ring, said bolt extending through the cap, a nut screwed on to the bolt against the cap whereby the cap, ring and body are held together, said ring having a plurality of openings therein through which the liquid is forced, said ring being formed with oppositely inclined surfaces, said openings extending through both of said surfaces and oppositely arranged whereby the streams therethrough impinge to form a spray.

4. A spray head comprising a body, a spider in the body, a bolt rising from said spider, a spray ring removably seated on the body, a cap removably seated on the ring, said bolt extending through the cap, a nut screwed on to the bolt against the cap whereby the cap, ring and body are held together, said ring having a plurality of openings therein through which the liquid is forced, said ring being formed with inclined ribs at the top and bottom thereof, said openings extending through the ribs thereby directing the stream through the openings against each other to form a finely divided sheet of liquid.

5. A spray head comprising a body, a spider in the body, a bolt rising from said spider, a spray ring removably seated on the body, a cap removably seated on the ring, said bolt extending through the cap, a nut screwed on to the bolt against the cap whereby the cap, ring and body are held together, said ring having a plurality of openings therein through which the liquid is forced, said ring being formed with inclined ribs at the top and bottom thereof, said openings extending through the ribs thereby directing the stream through the openings against each other to form a finely divided sheet of liquid, and a fusible ring surrounding said head and enclosing the openings in the ring.

6. For use in producing a liquid spray, a hollow cylindrical head member having enlarged portions at each end provided with oppositely disposed faces having oppositely disposed inclined outlet ports therein so arranged that the jets therefrom impinge upon each other to discharge a spray substantially normal to the axis of said head.

In testimony whereof, we affix our signatures.

CLAUD H. BILLS.
GLENN G. GRISWOLD.