

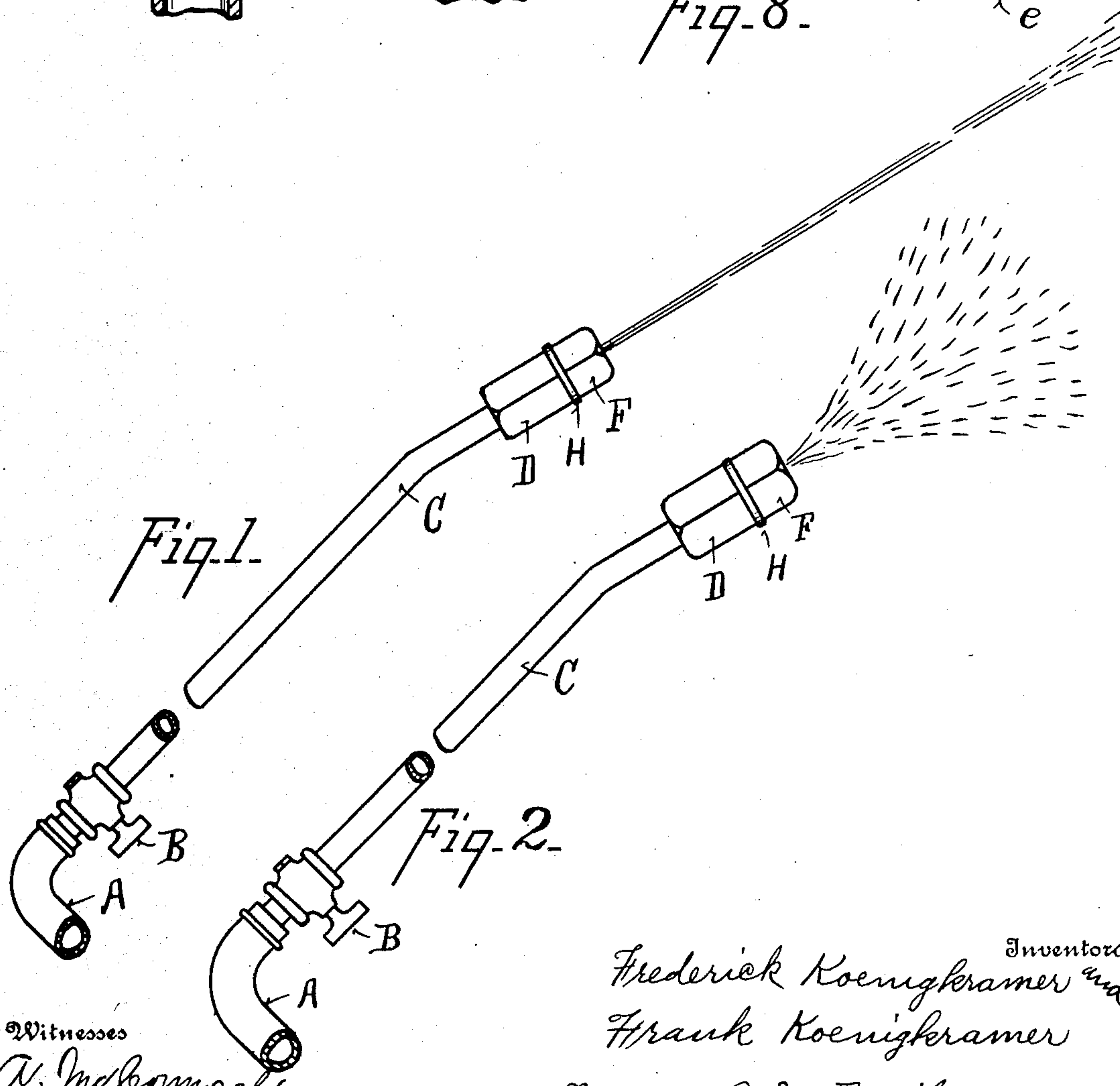
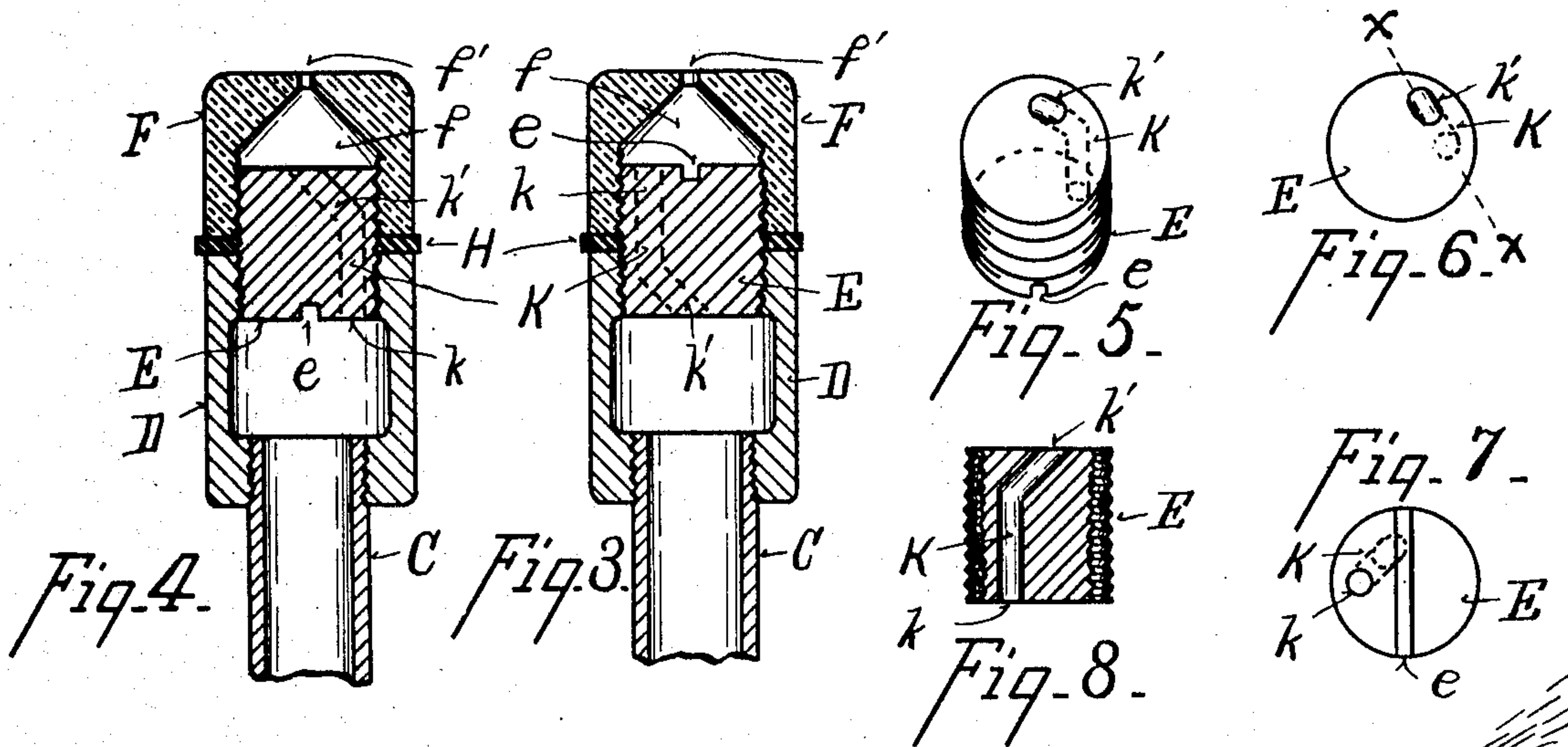
FRANK KOENIGKRAMER & FREDERICK KOENIGKRAMER.

SPRAYING NOZZLE.

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912,691.

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# UNITED STATES PATENT OFFICE.

FRANK KOENIGKRAMER AND FREDERICK KOENIGKRAMER, OF CINCINNATI, OHIO.

## SPRAYING-NOZZLE.

No. 913,691.

Specification of Letters Patent.

Patented Feb. 16, 1909.

Application filed July 16, 1908. Serial No. 443,831.

*To all whom it may concern:*

Be it known that we, FRANK KOENIGKRAMER and FREDERICK KOENIGKRAMER, citizens of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Spraying- Nozzles, of which the following is a specification.

Our invention relates to improvements in spraying nozzles.

One of its objects is to provide a nozzle adapted to spray white-wash and chemicals of a gritty and corrosive nature without material injury to the nozzle therefrom.

Another object is to provide an improved nozzle by means of which the character of the spray may be readily changed.

Another object is to provide a simple and reliable device for the above purpose.

It further consists in certain details of form, combination and arrangement, all of which will be more fully set forth in the description of the accompanying drawings, in which:

Figure 1 is a side elevation of our improved spraying nozzle delivering a jet of spray adapted to reach a considerable distance from the nozzle. Fig. 2 is a similar view showing the nozzle delivering a finer spray adapted to cover a large surface at a shorter distance from the nozzle. Fig. 3 is an enlarged central vertical section through the nozzle arranged to deliver the character of spray indicated in Fig. 1. Fig. 4 is a similar view showing the arrangement of the nozzle parts to deliver the character of spray indicated in Fig. 2. Fig. 5 is a perspective view of the central plug detached. Fig. 6 is a top plan view of the plug as shown in Fig. 5. Fig. 7 is a bottom plan view of the plug as shown in Fig. 5. Fig. 8 is a section on line  $x-x$  of Fig. 6.

In the accompanying drawings, A represents a flexible hose supplying the material to be sprayed under pressure.

B represents a valve or cock controlling the supply to the nozzle. We preferably provide a section of pipe C between the valve B and the nozzle, which pipe may be straight or bent, as shown in Figs. 1 and 2. This pipe serves to prevent the operator being splashed with the spray, and permits the nozzle to be brought closer to the objects to be sprayed when desired.

The nozzle in its preferred form consists

of a sleeve or supply member D which is threaded at one end to the end of pipe C and at the other end is internally threaded to receive one end of the plug E. An orifice or cap member F is internally threaded at one end to receive the opposite end of the plug E, the opposite end of the cap member forming a conical chamber  $f$  and terminating in a small exit orifice  $f'$  through which the material to be sprayed issues. A packing washer H is interposed between the abutting ends of members D and F to seal the joint and prevent leakage, said washer being preferably of leather or rubber. The plug member E serves to unite the members D, F, being partly threaded into each, and is adapted to be reversed or turned end for end to change the nature of the spray. The spraying material passes through the plug by means of a passage K formed by boring two holes  $k$   $k'$  from opposite ends of the plug so as to intersect. The hole  $k$  is bored parallel with the longitudinal axis of the plug and at one side of the axis, and the hole  $k'$  is bored at one side of the center of the plug and at an angle to the face of the plug so that the two holes produce a bent or angular passage K through the body of the plug.

When the plug is arranged relative to the members D F as indicated in Fig. 3, a comparatively long compact jet such as indicated in Fig. 1 is produced, which finally breaks into a fine spray. When the plug is arranged as indicated in Fig. 4, the spraying material issuing from the passage  $k'$  is given a rotary motion within chamber  $f$  by the direction of the current issuing from passage  $k'$  which causes a widely diffused and very fine spray to issue from the orifice  $f'$ . A seat  $e$  in one end of the plug E for a screw-driver enables the plug to be conveniently inserted and detached.

The arrangement of the angular passage K through the body of the plug prevents any wear from gritty or corrosive substances on the threaded parts of the nozzle, and the arrangement herein illustrated and described reduces the wear at the orifice  $f'$  to a minimum, and provides a ready and convenient means for renewal of the parts when worn.

We preferably provide a polygonal exterior for the member F to serve as a wrench seat if required to unite or separate the nozzle parts. The member D may also be pro-



vided with a polygonal exterior as indicated in Figs. 1 and 2, or may be provided with a cylindrical exterior if desired.

The mechanism herein illustrated and described is capable of considerable modification without departing from the principle of our invention.

Having described our invention, what we claim is:

10 1. In a mechanism of the character indicated; a reversible plug member having a passage for the spraying material through the body thereof at one side of its center, a supply member having threaded engage-  
15 ment with one end of said plug member, and adapted to supply the spraying material thereto, and a cap member having an exit orifice for the spray, said cap member having threaded engagement with the opposite  
20 end of said plug member.

2. In a mechanism of the character indicated, a reversible plug member having an angular passage for the spraying material through the body thereof at one side of its  
25 center, a supply member adapted to supply the spraying material to said plug, and a cap member having an exit orifice for the spray, said supply and cap members being adapted to be interchangeably connected to  
30 opposite ends of said plug member.

3. In a mechanism of the character indicated, a reversible plug member having a passage for the spraying material at one side of its center, said passage terminating  
35 at opposite ends at different angles relative to the faces of said plug.

4. In a mechanism of the character indicated, a reversible plug member externally threaded and provided with a passage for

the spraying material through the body  
thereof at one side of its center, said pas- 40  
sage emerging at opposite ends at different angles, a supply member engaging the threads at one end of said plug, and a cap member provided with a chamber and an  
45 exit orifice, and engaging the threads at the opposite end of said plug.

5. In a mechanism of the character indicated, a reversible plug member externally threaded and provided with a passage for  
50 the spraying material through the body thereof at one side of its center, said passage emerging at opposite ends at different angles, a supply member engaging the threads at one end of said plug, a cap mem-  
55 ber provided with a chamber and an exit orifice, and engaging the threads at the opposite end of said plug; and an angular packing member encircling said plug member and interposed between the meeting  
60 faces of said supply and cap members.

6. In combination with a supply member and a cap member having an exit orifice for the spray, a reversible plug member adapted to connect said supply member and cap  
65 member together, said plug member being provided with a passage for the spraying material through the body thereof, said passage being located at one side of the center of the plug and emerging at opposite ends of  
70 the plug at different angles.

In testimony whereof we have affixed our signatures in presence of two witnesses.

FRANK KOENIGKRAMER.

FREDERICK KOENIGKRAMER.

Witnesses:

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