

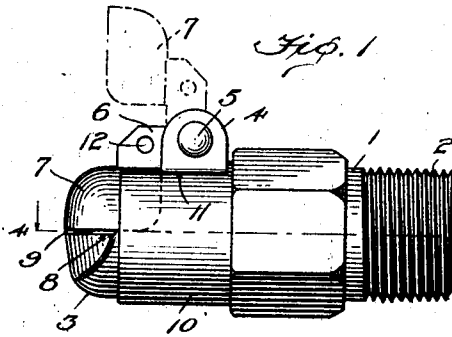
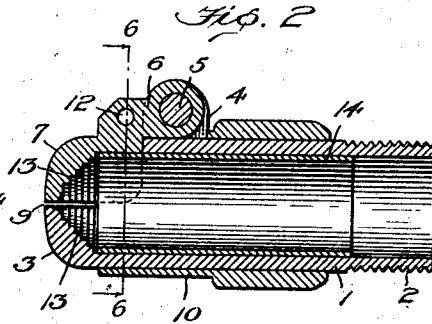
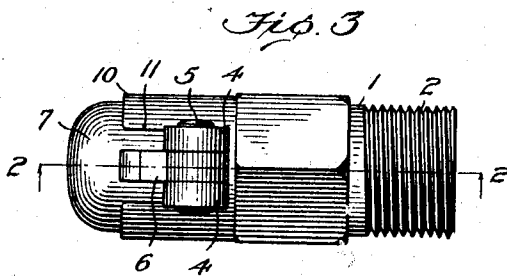
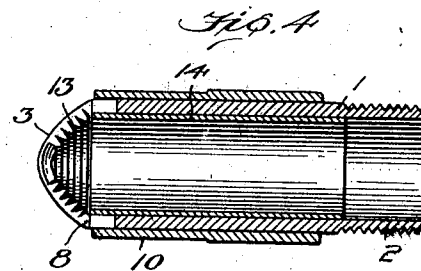
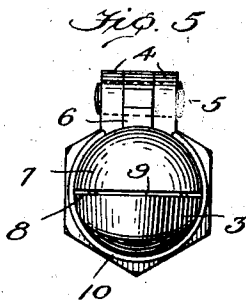
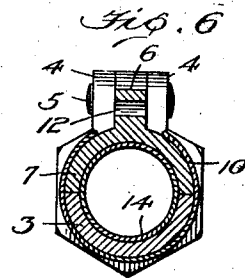
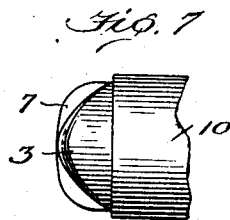
Oct. 8, 1929.

W. J. KRUSE

1,730,664

NOZZLE

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NOZZLE

Application filed November 27, 1928. Serial No. 322,210.

My invention relates to sprays or nozzles, and particularly to an improved nozzle for the application to a roadway of asphalt or similar bituminous material, when heated to a liquid state. These materials are commonly solid at ordinary temperatures, but when applied to a road under construction or repair are liquefied by raising to higher temperatures, which in the case of asphalt is about 375° F., and then sprayed under pressure over the previously prepared road base.

It is desirable that the liquid thus used be projected onto the road in a relatively wide, flat sheet or spray so as to cover a maximum area with a suitable depth of material at a single traverse of the spray. The nozzle employed to effect this object must also be one which is readily cleanable, since, as a result of cooling or the presence of impurities in the stream, the orifice of the nozzle tends to become clogged, whereupon the issuing stream either ceases altogether or assumes an inefficient form and volume.

It is an object of the present invention to provide a nozzle capable of projecting a spray of efficient size and form, and so constructed as to be readily opened for purposes of cleaning.

With these and other objects in view, the invention consists, in one form of embodiment, in the novel combination of parts illustrated in the drawings, and which will now be particularly described and claimed.

In the accompanying drawings which form part of this application for Letters Patent, and whereon like reference characters indicate corresponding parts in the several views,

Figure 1 is a side elevation of my improved nozzle;

Fig. 2 is a vertical, longitudinal, central section taken along the line 2—2 of Fig. 3;

Fig. 3 is a top plan view;

Fig. 4 is a horizontal, longitudinal, central section taken along the line 4—4 of Fig. 1;

Fig. 5 is a front elevation;

Fig. 6 is a cross section taken along the line 6—6 of Fig. 2; and

Fig. 7 is a bottom plan view of the fore part of the nozzle.

Referring to the drawings, 1 is the nozzle

body, consisting of a short, stout length of tubing, preferably of steel, provided with an outside thread 2 at its rear end for engagement with a suitable hose coupling, threaded pipe or other conduit for conducting the liquid to the nozzle. At its forward end the upper half of the nozzle body is cut away, the lower half terminating in an integral, closed lower jaw or lip 3, which is substantially V-shaped in plan. The upper surface of the nozzle body immediately behind the cut-away portion is provided with a pair of parallel upstanding ears 4, 4, perforated to carry a pin 5, which constitutes a journal for the perforated arm 6 of the upper jaw or lip 7.

This upper jaw 7 is substantially U-shaped in plan, as best shown in Fig. 7. It will be apparent that by the arrangement described, the upper jaw is hinged by means of its arm 6 to the ears 4, 4, so that it may be lifted away from the lower jaw, as shown in dotted lines in Fig. 1, or dropped down into operative position upon the lower jaw, as shown in the other figures. The rear edge of the upper jaw is shaped to fit snugly within the cut-away portion of the nozzle body, and the forward edge of the lower jaw is slightly depressed, as at 8, so that the upper jaw may be brought into snug engagement with the lower, except over the depressed forward edge of the lower, thus providing a narrow orifice 9 through the entire front of the adjacent jaw surfaces.

In order to secure the upper jaw down upon the lower, against the tendency of the flowing liquid to raise it, I provide a slidable sleeve 10, which fits snugly over the nozzle body, and which is slotted at 11, so that it may be slid forward around the ears 4, 4, thus holding the jaws 3 and 7 together. This sleeve is conveniently of such a length that, when pushed to its forward position, it extends from the front edge of the arm 6 back to the beginning of the threaded portion 2 of the nozzle body, so that when the sleeve is in its forward, or jaw-locking position, and the nozzle is screwed onto the pipe or hose with which it is to be used, the sleeve will be secured in position and the jaws locked shut. When, however, it is desired to open the nozzle for

cleaning, the nozzle is unscrewed from the pipe or hose, the sleeve 10 slid back, and the upper jaw raised. In order to facilitate this raising, in case the jaws 3 and 7 are stuck together by solidification of the liquid, the over-
 5 hanging part of the upper jaw may be pushed up from the lower jaw by the fingers of an operator, or a hook may be inserted through the hole 12 in the arm 6.

10 In order to increase the width of spread of the liquid issuing from the orifice 9, the interior surfaces of the jaws are faced with a stepped series of concentric, right-angled ledges 13. When the flowing liquid im-
 15 pinges against the vertical faces of these ledges it is in part deflected to the sides of the jaws, and therefore issues from the side portions of the orifice with a force greater than would be attainable if the interior of the
 20 jaws were smooth. In this way a wider stream is achieved, and a greater ground area covered.

An internal sleeve 14 is fitted inside the nozzle body and secured by force of friction, by soldering or otherwise, so that it extends
 25 forward to a point beyond the line of juncture of the rear edge of the upper jaw and the cut-away portion of the nozzle body. The function of this internal sleeve 13 is to seal
 30 the juncture of the upper jaw and the cut-away portion of the nozzle body, so that even when the liquid is forced through the nozzle under considerable pressure none will issue except through the orifice 9.

35 It is to be understood that the embodiment described constitutes but one form of my present invention. Other embodiments will readily suggest themselves to persons skilled in the art to which this invention relates,
 40 and are therefore to be considered within the scope of the appended claims.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:

45 1. A nozzle comprising a nozzle body and a pair of jaws at one end thereof adapted to together define an orifice when closed upon each other, a hinge connecting the jaws, and a sleeve mounted upon the body and slid-
 50 able longitudinally thereof to engage the jaws between the hinge and the orifice to lock the jaws in closed relation.

2. A nozzle comprising a nozzle body, a lower jaw at one end thereof, an upper jaw
 55 hinged to the body and having a rear portion adapted to seat against the rear portion of the lower jaw and a forward portion adapted to coact with the forward portion of the lower jaw to define an orifice, in combina-
 60 tion with a sleeve mounted upon the body and slidable longitudinally thereof to embrace the outer faces of the jaws and lock the same in seated relation.

3. A nozzle comprising a nozzle body, a
 65 lower jaw at one end thereof, a pair of up-

standing ears mounted upon the body, an upper jaw hinged to the ears and adapted to define with the lower jaw an orifice when closed thereupon, in combination with a sleeve mounted upon the body, having a slot
 70 to receive the ears, and slidable longitudinally of the body to engage and lock the jaws in closed relation.

4. A nozzle comprising a nozzle body, a lower jaw at one end thereof, an upper jaw
 75 hinged to the body and adapted to define with the lower jaw an orifice when closed upon the lower jaw, and a sleeve mounted upon the body and slidable longitudinally thereof to engage the jaws between their
 80 hinged connection and the orifice to lock the jaws in closed relation and retractable from said locking position to permit the upper jaw to be lifted out of engagement with the lower jaw.

5. A nozzle comprising a body cut away at one end to form a lower jaw, an upper jaw
 85 hinged to the body and adapted, when closed upon the lower jaw, to define therewith an orifice and to fit snugly into the cut-away portion of the body, and a sleeve inside of the body adapted to seal the line of juncture of the jaws in the rear of the orifice.

6. A nozzle comprising a body cut away at one end to form a lower jaw, an upper jaw
 90 hinged to the body and adapted, when closed upon the lower jaw, to define therewith an orifice and to fit snugly into the cut away portion of the body, a sleeve inside of the body adapted to seal the line of juncture of the jaws in the rear of the orifice, and a sleeve
 95 slidable on the outside of the body adapted to hold the jaws in closed relation.

7. A nozzle comprising a tubular body portion terminating in a pair of jaws adapted to be brought into closed relation to define an
 100 orifice, said jaws being provided on their interior surfaces with a stepped series of ledges, concentric with the body portion, both ends of each ledge terminating in the orifice, together with means for holding said
 105 jaws in closed relation.

8. A nozzle including a tubular body portion provided with an orifice at one end thereof, the inner surface of the body portion being provided with a stepped series of curved
 110 ledges, both ends of each ledge terminating in the orifice.

9. A nozzle including a tubular body portion provided with a relatively long and narrow orifice at one end thereof, the inner surface of the body portion being provided with a stepped series of ledges concentric with the body portion, both ends of each ledge terminating in the orifice.

In testimony whereof I affix my signature.
 120
 125

WILLIAM JOHN KRUSE.