

July 14, 1953

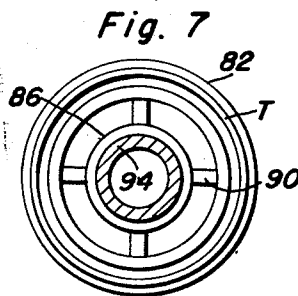
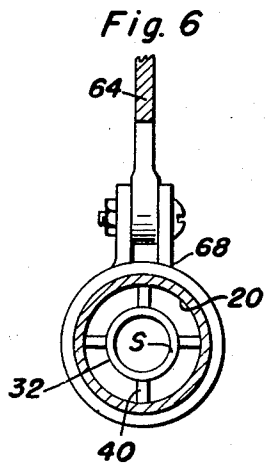
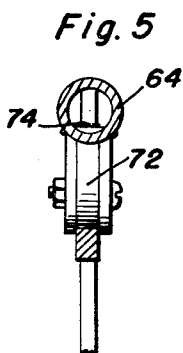
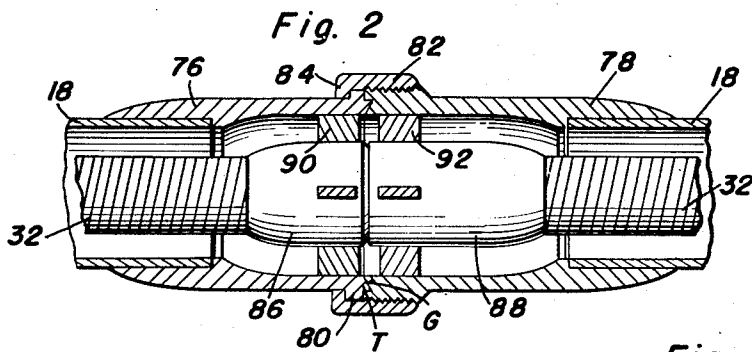
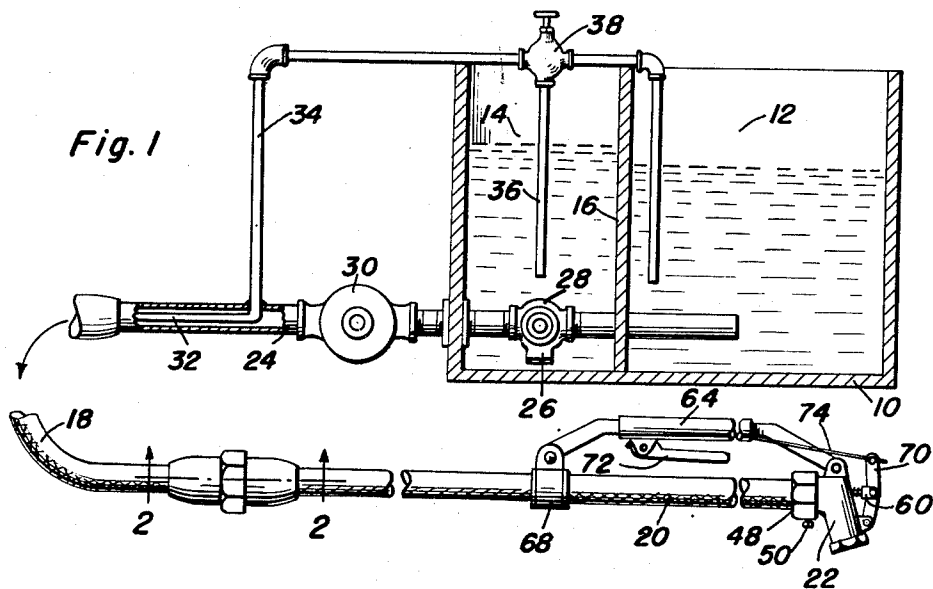
K. C. KELLY

2,645,524

ROOFING ASPHALT SPRAY SYSTEM

Filed Sept. 1, 1950

2 Sheets-Sheet 1



Kennett C. Kelly
INVENTOR.

BY *Almon A. O'Brien*
and *Harvey B. Jackson*
Attorneys

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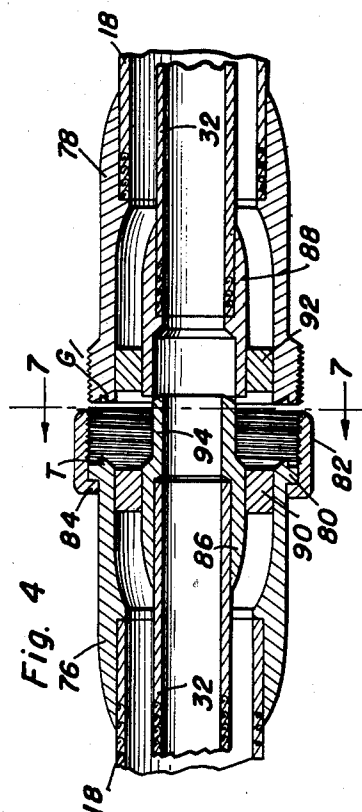
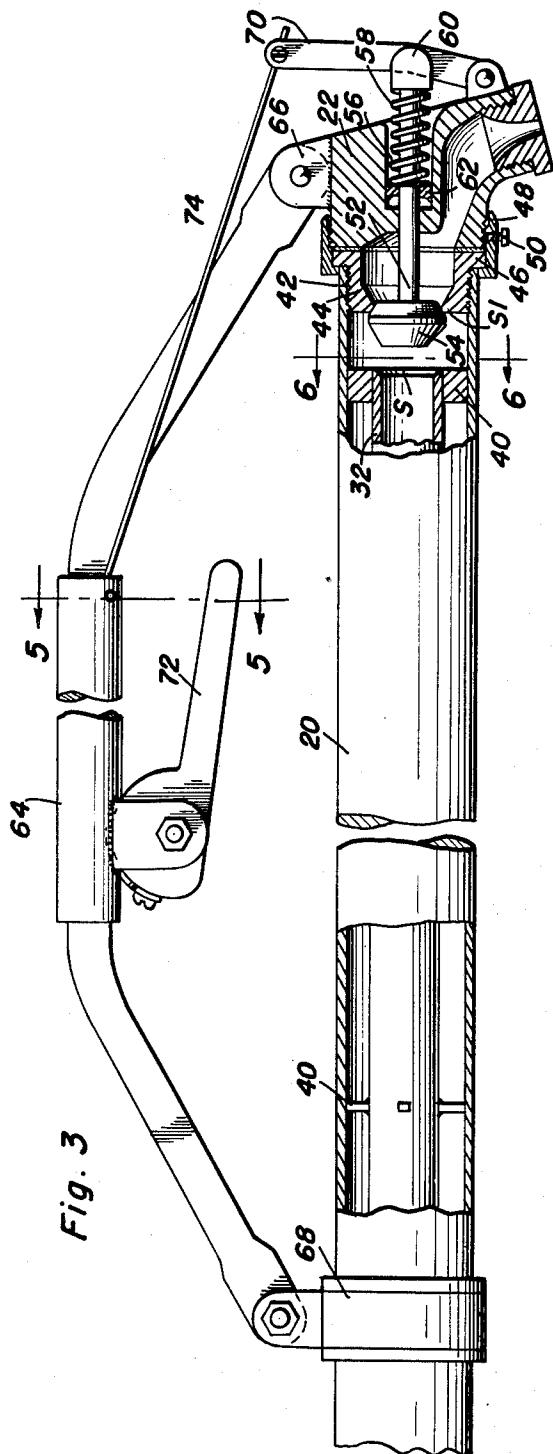
K. C. KELLY

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ROOFING ASPHALT SPRAY SYSTEM

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Kennett C. Kelly
INVENTOR.

BY *Alance A. O'Brien*
and *Harvey B. Jackson*
Attorneys

UNITED STATES PATENT OFFICE

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ROOFING ASPHALT SPRAY SYSTEM

Kennett C. Kelly, San Francisco, Calif.

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8 Claims. (Cl. 299—58)

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This invention relates to new and useful improvements in spraying devices and the primary object of the present invention is to provide an apparatus for spraying asphalt on roofs and the like.

Another important object of the present invention is to provide a spray system including a flexible conduit adapted to receive a hot asphalt and a novel and improved means for cleaning and flushing the conduit to prevent the accumulation of asphalt or the like upon the inner walls of the conduit or a nozzle attached to the conduit.

Yet another object of the present invention is to provide a spray system of the aforementioned character wherein the flushing means includes an inner tube mounted within the conduit and having an end disposed adjacent the nozzle, together with a valve for closing and opening the said end of the tube and for also closing and opening a passage from the outer conduit to the nozzle.

A further object of the present invention is to provide a spray system composed of inner and outer concentric conduits each composed of sections and a novel and improved coupling for detachably connecting adjacent sections of the conduit whereby the device may be quickly and readily assembled or disassembled for storing, transporting, cleaning or repair.

A still further aim of the present invention is to provide a spray system that is simple and practical in construction, strong and reliable in use, efficient and durable in operation, inexpensive to manufacture, and otherwise well adapted for the purposes for which the same is intended.

Other objects and advantages reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is a diagrammatic view of the instant apparatus;

Figure 2 is an enlarged sectional view taken substantially on the plane of section line 2—2 of Figure 1;

Figure 3 is an enlarged view of the discharge end of the device and with parts broken away for the convenience of explanation;

Figure 4 is a view similar to Figure 2 but showing the inner and outer conduit sections separated and with parts of the inner coupling sleeves broken away;

Figure 5 is a sectional view taken substantially on the plane of section line 5—5 of Figure 3;

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Figure 6 is a sectional view taken substantially on the plane of section line 6—6 of Figure 3; and, Figure 7 is a sectional view taken substantially on the plane of section line 7—7 of Figure 4.

Referring now to the drawings in detail, wherein for the purpose of illustration, there is disclosed a preferred embodiment of the present invention, the numeral 10 represents a tank that is divided into an asphalt chamber 12 and a solvent chamber 14 by a partition 16.

A flexible outer conduit 18 includes an outer rigid end portion 20 that supports a nozzle 22 and an inner rigid end portion 24 that extends through the tank 10 and terminates in the chamber 12. The end portion 24 also includes a branch pipe 26 that enters the chamber 14. A valve housing 28 forms a unitary part of the end portion 24 and receives therein a three-way valve that is manually adjustable to permit fluid from either chamber to be forced into the outer conduit or whereby a fluid in the outer conduit may be directed into a selected chamber. A pump 30, of any suitable reversible type, is interposed in or communicates with the end portion 24.

An inner flexible conduit 32 extends axially through the conduit 18 and includes an end portion 34 that terminates within the chamber 12 and a branch pipe 36 that enters the chamber 14. A housing 38 in the portion 34 contains a three-way valve that is manually adjustable to permit fluid to exit from the conduit 32 to the chamber 12 or the chamber 14.

The conduits 18 and 32 are preferably of metallic construction and the conduit 32 is of a diameter considerably smaller than the conduit 18 to permit fluid passing through the conduit 18 without appreciable obstruction from the conduit 32. Suitable spacers or spiders 40 may be mounted in the conduit 18 to support the conduit 32 from the walls of the conduit 18.

The outer internally threaded end 42 of rigid metallic section 20 receivably engages the threaded end 44 of a collar 46 that is connected to the nozzle 22 by a coupling ring 48. The ring 48 is threaded to the nozzle 22 and supports a set screw 50 for retaining the nozzle in a selected rotated position.

A valve 52 is slidably carried by the nozzle 22 and includes a head 54 for selectively engaging a valve seat S at the outer end of the conduit 32 and a valve seat S' at the inner end of the collar 46. The nozzle 22 is provided with a recess 56 that receives the valve 52 and a spring 58 about the valve 52. The outer bifurcated end 60 of the valve 52 extends outwardly from the nozzle

22 and constitutes an abutment for one end of the spring 58. A washer 52 fitted in the recess 56 constitutes an abutment for the other end of the spring 58. The spring 58 normally urges the head 54 against the seat S1.

One end of a carrying bale or hand grip 64 is attached to an ear 66 on the nozzle 22 by a suitable fastener and the other end of the bale 64 is attached to the portion or section 20 by a clamping bracket 68.

An arm 70 is pivoted to the nozzle 22 and engages the bifurcated end 60 of the valve 52. A hand grip 72 is pivoted to the bale for movement toward and away from the section 20. A flexible connector 74 joins the arm 70 and hand grip 72. As the hand grip 72 is moved toward the bale 64 and away from the section 20, the valve head 54 will be urged against the seat S.

The conduits 18 and 32 are composed of at least two separable sections that are connected by a coupling that is shown best in Figures 2 and 4 of the drawings. The adjacent ends of the sections for the outer conduit 18 rigidly support an outer pair of sleeves 76 and 78. The sleeve 76 is provided with an external rib 80 and the sleeve 78 is externally threaded to receive a threaded collar 82 having a flange 84 that engages behind the rib 80. The sleeves 76 and 78 have an inter-fitting engagement in the form of a tongue and groove T and G.

An inner pair of sleeves 86 and 88 are secured on the adjacent ends of the sections of the conduit 32 and are centered within the sleeves 76 and 78 by spiders 90 and 92. The sleeve 86 is provided with a reduced extension 94 that will enter the sleeve 88 as the sleeves 76 and 78 are joined by the collar 82.

In practical use of the invention, the chamber 12 is filled with asphalt and the chamber 14 is filled with a hot solvent. The pump 30 is started with valve 28 opened to branch pipe 26 so that the hot solvent may be directed through the outer conduit. The valve 54 is disposed against seat S1 so that the hot solvent passing through conduit 20 can enter the outer end of conduit 32 and pass through the conduit 32. Valve 38 is opened to branch pipe 36, whereby the hot solvent passing through conduit 32 and toward the tank 10 may enter the chamber 14. After the hot solvent has heated the conduits 18 and 32, the valve 28 is opened to the portion of conduit 18 extending in the chamber 12 and valve 54 is moved against seat S so that hot solvent in chamber 12 will be directed through conduit 18 and outwardly from nozzle 22.

The conduit 18 may be cleared of asphalt by moving valve 54 against seat S1, moving valve 28 to its closed position and opening valve 38 to the portion of conduit 34 that extends into chamber 12. Then the asphalt in conduit 18 will be directed into the outer end of conduit 32 then through the conduit 32 and back to chamber 12. Valves 28 and 38 may then be opened to branch pipes 26 and 36 so that hot solvent in chamber 14 will pass through conduit 18, then conduit 32 and back to chamber 14 for flushing the conduits 18 and 32.

Having described the invention, what is claimed as new is:

1. An asphalt spraying device comprising an outer conduit connected to a source of asphalt, an inner conduit extending through the outer conduit and of a diameter considerably less than the diameter of the outer conduit, a delivery nozzle carried by the outer conduit and having an

outlet, said inner conduit including a first end terminating adjacent the nozzle, a valve slidably carried by the nozzle for selectively opening and closing the first end of the inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of the inner conduit and opening the nozzle outlet during its closing movement relative to the first end of said inner conduit, means yieldingly urging the valve to its open position relative to said inner conduit, manually actuated means mounted on the outer conduit and connected to the valve for urging the valve to its closed position relative to said inner conduit, said inner conduit having its other end disposed exteriorly of the outer conduit and remote from the nozzle, and impelling means connected to said outer conduit for directing a liquid through the outer conduit.

2. An asphalt spraying device comprising an outer conduit connected to a source of asphalt, an inner conduit extending through the outer conduit and of a diameter considerably less than the diameter of the outer conduit, a delivery nozzle carried by the outer conduit and having an outlet, said inner conduit including a first end terminating adjacent the nozzle, a valve slidably carried by the nozzle for selectively opening and closing the first end of the inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of said inner conduit and opening the nozzle outlet during its closing movement relative to the first end of said inner conduit, means yieldingly urging the valve to its open position relative to said inner conduit, manually actuated means mounted on the outer conduit and connected to the valve for urging the valve to its closed position relative to said inner conduit, said inner conduit having its other end disposed exteriorly of the outer conduit, and means connected to said outer conduit for directing a liquid through the outer conduit, said manually actuated means including a bale terminally attached to said outer conduit, a hand grip pivoted to said bale and swingable toward and away from said outer conduit, a swingable valve actuating arm pivoted to said nozzle and engaging said valve, and a flexible connector between said arm and said hand grip.

3. An asphalt spraying device comprising an outer conduit connected to a source of asphalt, an inner conduit extending through the outer conduit and of a diameter considerably less than the diameter of the outer conduit, a delivery nozzle carried by the outer conduit and having an outlet, said inner conduit including a first end terminating adjacent the nozzle, a valve slidably carried by the nozzle for selectively opening and closing the first end of the inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of said inner conduit and opening the nozzle outlet during its closing movement relative to the first end of said inner conduit, means yieldingly urging the valve to its open position relative to said inner conduit, manually actuated means mounted on the outer conduit and connected to the valve for urging the valve to its closed position relative to said inner conduit, said inner conduit having its other end disposed exteriorly of the outer conduit, and means comprising an impeller connected to said outer conduit for directing a liquid through the outer conduit, said manually actuated means including a bale terminally attached to said outer conduit, a hand grip pivoted to said

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bale and swingable toward and away from said outer conduit, an arm pivoted to said nozzle and swingable toward and away from said hand grip, said valve including a bifurcated end disposed exteriorly of the conduits and received by said bifurcated end, and a flexible connector between said arm and said hand grip.

4. An asphalt spraying device comprising an outer conduit connected to a source of asphalt, an inner conduit extending through the outer conduit and of a diameter considerably less than the diameter of the outer conduit, a delivery nozzle carried by the outer conduit and having an outlet, said inner conduit including a first end terminating adjacent the nozzle, a valve slidably carried by the nozzle for selectively opening and closing the first end of the inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of said inner conduit and opening the nozzle outlet during its closing movement relative to the first end of said inner conduit, means yieldingly urging the valve to its open position relative to said inner conduit, manually actuated means mounted on the outer conduit and connected to the valve for urging the valve to its closed position relative to said inner conduit, said inner conduit having its other end disposed exteriorly of the outer conduit, means connected to the outer conduit for impelling a liquid through the outer conduit, said manually actuated means including a bale terminally attached to said outer conduit, a hand grip pivoted to said bale and swingable toward and away from said outer conduit, an arm pivoted to said nozzle and swingable toward and away from said hand grip, said valve including a bifurcated end disposed exteriorly of the conduits and received by said bifurcated end, and a flexible connector between said arm and said hand grip, said means urging the valve to its open position relative to the inner conduit including a spring surrounding the valve and biasing the bifurcated end from the nozzle.

5. The combination of claim 1 wherein said inner and outer conduits each includes a pair of sections having inner adjacent ends, and a coupling joining the inner adjacent ends of the sections.

6. The combination of claim 5 wherein said coupling includes a pair of outer sleeves having interfitting engagement, an inner pair of sleeves surrounding the inner ends of the sections of the inner conduit and embraced by the outer sleeves, one of said inner sleeves having a reduced end received in the other inner sleeve when the outer sleeves are engaged, and a coupling ring joining the outer sleeves.

7. An asphalt spraying device comprising an

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outer conduit connected to a source of asphalt, an inner conduit extending through the outer conduit and of a diameter considerably less than the diameter of the outer conduit, a delivery nozzle carried by the outer conduit, said inner conduit including a first end terminating adjacent the nozzle, a valve slidably carried by the nozzle for selectively opening and closing the first end of the inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of said inner conduit and opening the nozzle outlet during its closing movement relative to the first end of said inner conduit, means yieldingly urging the valve to its open position relative to the first end of said inner conduit, manually actuated means mounted on the outer conduit and connected to the valve for urging the valve to its closed position relative to the first end of said inner conduit, said inner conduit having its other end disposed exteriorly of the outer conduit, means connected to said outer conduit for directing a liquid through the outer conduit, and a swivel connecting the nozzle to the outer conduit.

8. A spraying device comprising a tank divided into two chambers, an asphalt in one chamber and a solvent in the other chamber, an outer conduit having an inner end entering the chamber receiving asphalt and a branch pipe entering the chamber receiving the solvent, a valve in the outer conduit for selectively opening the outer conduit to the chambers, an inner return conduit extending through the outer conduit and including an end entering the chamber receiving the asphalt and a branch pipe entering the chamber receiving the solvent, said outer conduit including a delivery end, a nozzle on said delivery end, said inner conduit including an end disposed adjacent the nozzle, and a valve mechanism for selectively opening and closing the last named end of said inner conduit, said valve also closing the nozzle outlet during its opening movement relative to the first end of the inner conduit and opening the nozzle outlet during its closing movement relative to the said end of said inner conduit.

KENNETT C. KELLY.

References Cited in the file of this patent

UNITED STATES PATENTS

Number	Name	Date
1,957,398	Wallace	May 1, 1934
1,982,345	Kirby	Nov. 27, 1934
2,051,290	Davis	Aug. 18, 1936
2,308,181	Laird	Jan. 12, 1943
2,364,615	Beckes	Dec. 12, 1944