Dec. 18, 1928. 1,695,722

W. A. SMITH

OIL INJECTING APPARATUS FOR ASPHALT MIXERS

Filed Nov. 29, 1927

Fig. 1.

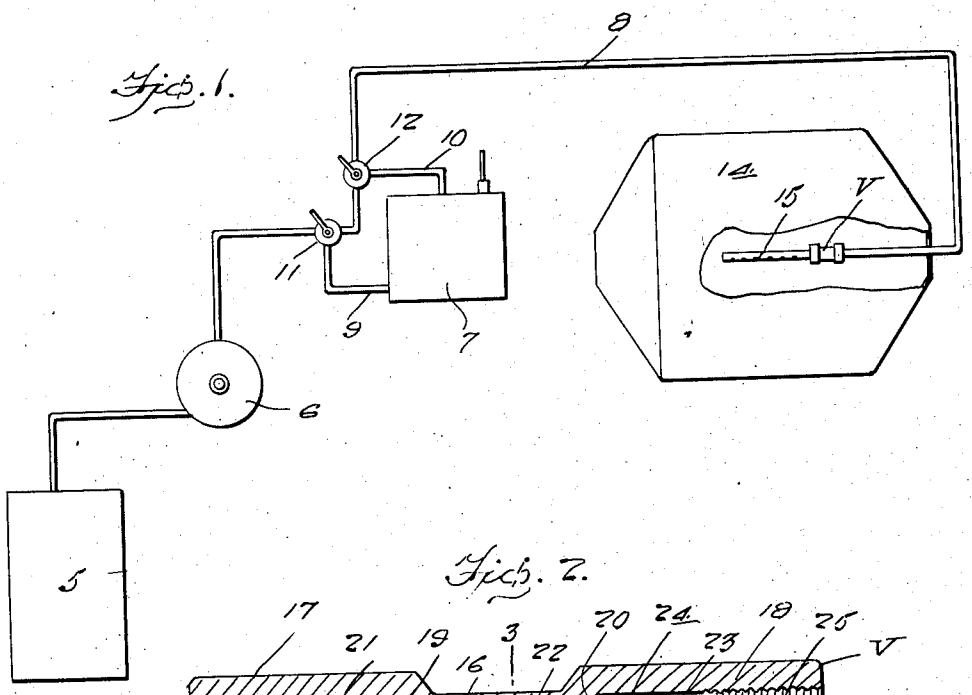


Fig. 2.

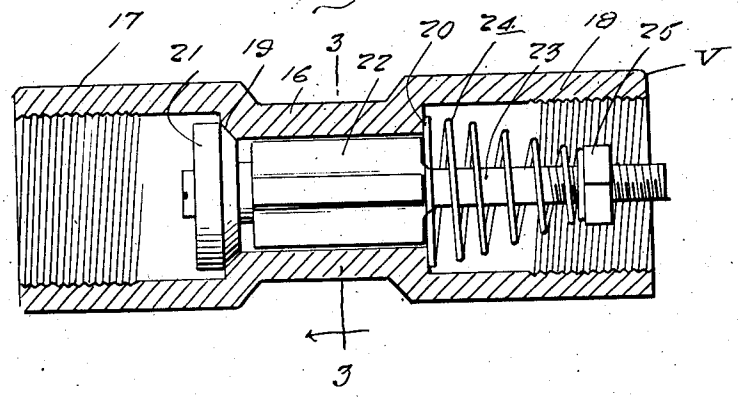
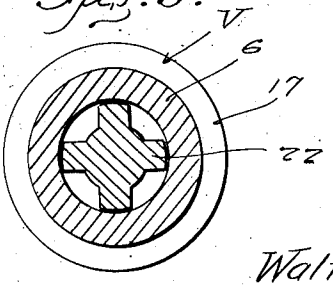


Fig. 3.



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UNITED STATES PATENT OFFICE.

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OIL-INJECTING APPARATUS FOR ASPHALT MIXERS.

Application filed November 29, 1927. Serial No. 236,435.

The present invention relates to concrete mixers generally and more particularly to the oil injecting apparatus used therewith.

The apparatus commonly used for injecting oil in an asphalt mixer comprises an oil line under pressure leading to the mixer and terminating interiorly of the drum thereof, said inner end having connected therto a nozzle. In the oil line there is disposed a valve remote from the nozzle since the nozzle is inaccessible for practical purposes when the mixer is in use. It has been found that when the remotely located valve is turned off the oil in the line between the valve and the nozzle leaks out causing the formation of bubbles in the line which when the valve is again turned on for the next operation causes what are known in the art as "oil balls" and these weaken the asphalt particularly pavement and the like. The prime object of the present invention is to provide an apparatus which enables the oil line to be cut off immediately at the nozzle in an automatic manner when the remotely located valve is turned off.

With the above and numerous other objects in view as will appear as the description proceeds, the invention resides in certain novel features of construction, and in the combination and arrangement of parts as will be hereinafter more fully described and claimed.

In the drawing:

Figure 1 is a diagrammatic elevation of an apparatus embodying the features of my invention,

Figure 2 is a detail longitudinal section through the check valve structure, and

Figure 3 is a transverse sectional view therethrough.

Referring to the drawing in detail it will be seen that the numeral 5 denotes an oil supply tank, the numeral 6 an oil pump, and the numeral 7 a batch tank. An oil line 8 leads from the tank 5 to the pump 6 and from the pump 6 past the batch tank 7, being connected to said batch tank by branch pipes 9 and 10. Valves 11 and 12 are mounted in the line 8 at the juncture of branch pipes 9 and 10 therewith respectively. The numeral 14 denotes an asphalt mixer drum into which the pipe line 8 leads coaxially therewith in the usual well known manner. Letter V denotes my improved valve which functions as a coupler between the line 8 and a nozzle 15 into the drum 14. With the exception of the valve V the apparatus is identical with that now commonly in use, the valve V being the added element to the combination involving the essence of the present invention. The valve V is illustrated to advantage in Figures 2 and 3 of the drawings comprising an elongated casing the intermediate portion of which is reduced as at 16 and the end portions diametrically enlarged as at 17 and 18. The reduced intermediate portion 16 causes the formation of shoulders 19 and 20. The shoulder 19 is beveled to form a valve seat against which is closable a valve element 21 mounted on a cruciform guide structure 22 longitudinally movable in the reduced portion 16 and terminating in a shank 23 disposed in the large end 18. A conical coil spring 24 is disposed about the shank 23 and its larger end impinges against the shoulder 20 and its smaller end impinges against a nut 25 threaded on the shank 23. Obviously the spring 24 maintains the valve 21 closed and this valve is openable in one direction only, that is toward the nozzle 15 since the end 17 threadedly receives the nozzle while the end 18 threadedly receives the inner terminal of the pipe line 8.

With the use of this valve V it will be seen that when the valve 12 is turned on so that oil under pressure flows through the pipe line 8 to the nozzle 15 the oil overcomes the tension of the spring 24 opening the valve 21 and closes its nozzle 15 and as soon as the valve 12 is closed the pressure ceases and therefore the valve element 21 will close against the seat 19 through the action of the spring 24 thus preventing any of the oil trapped between the valve 12 and the valve V from flowing into the nozzle 15 and thereby preventing the formation of the undesirable "oil balls" mentioned above.

It is thought that the construction, utility, operation and advantages of this invention will now be quite apparent to those skilled in this art without a more detailed description thereof. The present embodiment of the invention has been disclosed in detail merely by way of example since in actual practice it attains the features of advantage enumerated as desirable in the statement of the invention and the above description. It will be apparent that changes in the details of construction and in the combination and arrangement of parts may be resorted to without departing from the spirit or scope

of the invention as hereinafter claimed or sacrificing any of its advantages.

Having thus described my invention, what I claim as new is:

A valve structure of the class described including an elongated tubular casing having its bore reduced intermediate its ends to provide a pair of spaced shoulders, one of the shoulders forming a valve seat, a valve element closable against the seat and having a cruciform member connected thereto and slidable longitudinally in the reduced portion of the bore and terminating in a shank, a spring disposed about the shank abutting the other shoulder and means on the shank against which the spring impinges for normally holding the valve element closed.

In testimony whereof I affix my signature.

WALTER A. SMITH.