Feb. 7, 1939. I. J. OVERMAN 2,146,405

AGGREGATE PROCESSING APPARATUS

Filed Oct. 4, 1937

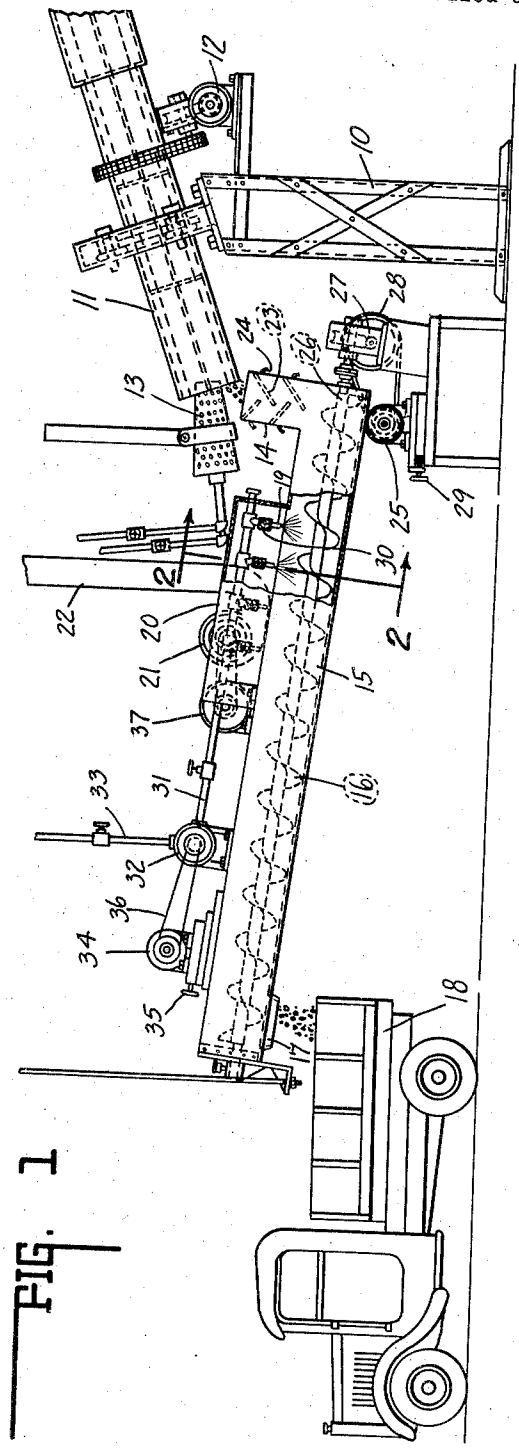


FIG. 1

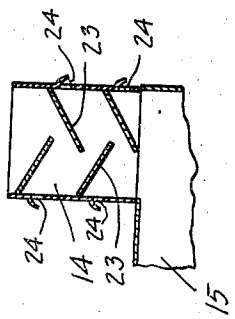


FIG. 3

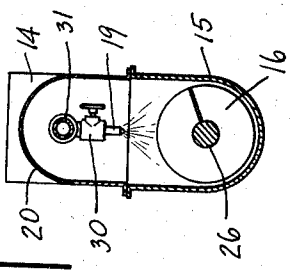


FIG. 2

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AGGREGATE PROCESSING APPARATUS

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Application October 4, 1937, Serial No. 167,203

3 Claims. (Cl. 259—155)

This invention relates to an apparatus for treating aggregate such as drying crushed stone and mixing the same with asphalt for road construction. Reference is made to the drier apparatus shown and described in Letters Patent No. 2,082,970, granted June 8, 1937 to Ivan J. Overman and entitled Rotary aggregate drier.

This invention resides in the apparatus for receiving the heated and dried crushed stone discharged from the drier of the above-mentioned patent, and wherein such crushed stone is simultaneously further dried, cooled, conveyed and treated with asphalt during a continuous operation ready for use. By means of this apparatus a more satisfactory and uniform mixture and distribution of asphalt and crushed stone is obtained, and the usual handling and conveying costs are eliminated.

The invention contemplates the discharge of the hot dry aggregate from the drier of the above patent into a hopper which is so baffled as to draw in fresh air for further drying and cooling before the aggregate reaches the conveyor. The aggregate is then conveyed to the road truck in a closed conduit into which asphalt is simultaneously sprayed and the hot air removed. The movement of the aggregate may be controlled by the speed of the conveyor and the amount of asphalt required may likewise be controlled so that a predetermined and uniform mix may be obtained. When the mix is discharged from the conveyor into the road truck, it is fully prepared and ready for use without further handling. By means of this arrangement, the time and labor usually required in handling and mixing the crushed stone with asphalt is greatly reduced.

Other objects and features of the invention will be readily understood from the accompanying drawing and the following description and claims:

Fig. 1 is a side elevation of the apparatus showing portions thereof in central vertical section. Fig. 2 is an enlarged section taken on the line 2—2 of Fig. 1. Fig. 3 is an enlarged view with parts broken away of the drying and cooling hopper.

In the drawing there is shown a supporting frame work 10 upon which is mounted the lower end of the drier 11 comprising the subject matter of the above-mentioned Letters Patent. The aggregate is discharged into the far end of the drier 11 which is rotated by the motor 12, the aggregate passing therethrough as it is heated and dried by the flame from the blow torch 13. The aggregate is discharged from said drier into the hopper 14 where it is further dried and cooled by air drawn into said hopper as will be hereinafter described. The hopper 14 discharges into a closed conveyor tube 15 in which a conveyor screw 16 operates carrying the aggregate to a discharge spout 17 whence it is discharged into a road truck indicated at 18, ready for use. As the aggregate is conveyed through the tube 15, it is sprayed with asphalt from spray jets 19 mounted in a jacket 20. An exhaust fan 21 communicates with the jacket 20 and an exhaust pipe 22 for exhausting the hot gases accumulating in the jacket from the aggregate. Said exhaust fan also acts to draw fresh air for cooling and drying purposes through the hopper 14.

The hopper 14 is provided with a plurality of inwardly and downwardly extending overlapping baffle plates 23 for causing the hot aggregate discharged therein to be spread and agitated. Opposite side walls of the hopper are provided with elongated air ducts 24 for permitting air to be drawn therein, both by the deflected passage of aggregate and the action of the exhaust fan.

The conveyor 16 is driven by the motor 25 through shaft 26, gear housing 27 and pulley 28. The motor is mounted upon an adjustable base, adjustable through a hand screw 29 for varying the driving speed in the well known and understood manner.

The jacket 20 is positioned near the hopper 14 and is open to the conveyor tube 15. Contained therein there are a plurality of downwardly extending spray jets controlled by valves 30 and in communication with an asphalt feed pipe 31 leading from the asphalt pump 32 which is in communication with the asphalt supply pipe 33. The pump 32 is driven at variable speeds by a motor 34, the driving speed of which is controlled by the hand screw 35 for adjusting the motor base and driving speed of the pulleys and belt 36 in the usual well understood manner.

The exhaust fan 21, which is in communication with the jacket 20, is driven from a motor 37 whereby fresh air is sucked into the hopper and the hot gases discharged from the conveyor tube.

The invention claimed is:

1. An aggregate treating apparatus comprising an elongated conveyor tube, a conveyor screw extending longitudinally of said tube for conveying aggregate from the intake end thereof to the discharge end, means for driving said screw, a hopper at the intake end of said conveyor tube in

communication therewith for receiving hot aggregate, said hopper being provided with a plurality of baffle plates and air passages, means for introducing a spray of liquid asphalt into said conveyor tube for mixing with the aggregate conveyed therethrough, said means being positioned within a jacket having open communication with said conveyor tube, and a fan associated with said jacket for removing gases arising from said aggregate and for cooling said hopper.

2. An aggregate treating apparatus comprising an elongated conveyor tube, a conveyor screw extending longitudinally of said tube for conveying aggregate from the intake end thereof to the discharge end, means for driving said screw, a hopper at the intake end of said conveyor tube in communication therewith for receiving hot aggregate, said hopper being provided with a plurality of baffle plates and air passages, a jacket positioned intermediate the ends of said tube and in communication therewith, a plurality of spray jets positioned therein through which liquid asphalt is discharged onto the aggregate as it is conveyed through said tube, and a fan associated with said jacket for removing gases arising from said aggregate and for cooling said hopper.

3. An apparatus for continuously treating and delivering aggregate including a drier for continuously discharging dry, hot aggregate, an air cooled hopper for continuously receiving said hot aggregate from the drier, a conveyor for continuously receiving and conveying the aggregate from the hopper to a discharge end, means associated with said conveyor for spraying the aggregate with hot asphalt as it is conveyed therethrough, said means being positioned within a jacket having open communication with said conveyor, and a fan associated with said jacket for removing gases arising from said aggregate and for cooling said hopper.

IVAN J. OVERMAN.