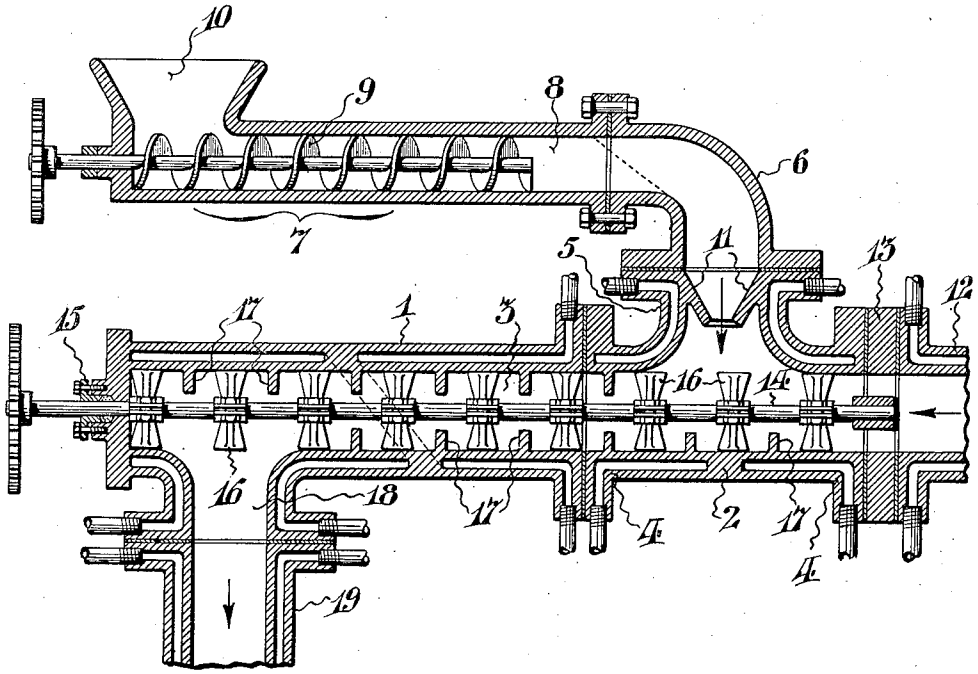
July 14, 1925. 1,546,336

F. A. BROWNE

MIXING MACHINERY

Original Filed May 9, 1922



WITNESSES

Alfred E. Ischinger

Thomas W. Kerr, Jr.

INVENTOR:

Frank A. Browne,

BY Fraley & Paul

ATTORNEYS.

Patented July 14, 1925. 1,546,336

UNITED STATES PATENT OFFICE.

FRANK A. BROWNE, OF WAYNE, PENNSYLVANIA, ASSIGNOR TO THE BARBER ASPHALT COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF WEST VIRGINIA.

MIXING MACHINERY.

Original application filed May 9, 1922, Serial No. 559,560. Divided and this application filed March 27, 1925. Serial No. 18,687.

To all whom it may concern:

Be it known that I, FRANK A, BROWNE, a citizen of the United States, residing at Wayne, in the county of Delaware and State of Pennsylvania, have invented certain new and useful Improvements in Mixing Machinery, whereof the following is a specification, reference being had to the accompanying drawings.

This application relates to mixing machinery, and more particularly to that type used in forming mixtures of asphaltum with granular substances in such proportions as to retain a fluent condition in the aggregate, and is a divisional from my co-pending application, Serial #559,560, filed the 9th day of May, 1922.

An object of the invention is to provide improvements in a mixer of this type which are calculated to permit incorporation of the granular material with the fluent ingredient while the latter is enroute from the source of supply to the point of utilization, so as to avoid the necessity of temporarily arresting the flow of the fluent ingredient as a prerequisite to the act of mixing.

Another object of the invention is to provide a mixing machine embodying improvements designed to permit formation of the aggregate while the fluent ingredient is conducted through the machine under pressure and to supply the other ingredients to the fluid stream against the pressure thereof, while creating a continuous seal by accumulation of granular material to check back flow or loss of the mixture.

In addition to the foregoing this invention comprehends improvements in the details of construction and arrangement of the correlated parts to be hereinafter set forth and particularly pointed out in the appended claims.

The accompanying drawing is a view in longitudinal section of a mixing machine embodying my improvements and shown as constituting a section of a conduit for the continuous transportation of a fluent substance.

Referring to the particular form of apparatus shown 1 and 2 designate two tubular sections of a casing enclosing a mixing chamber or channel 3. The section 2 is in the form of a T-connection including aligned ends 4 and a vertical branch 5, the latter being flanged and coupled to one end of an elbow 6, the other end of the latter being coupled to one end of a horizontal casing 7 constituting part of the feeding element and enclosing a channel 8 in which a spiral conveyor 9 is located and mounted for rotation. A suitable hopper 10 surmounts the casing 7 to conduct material thereinto. The discharge end of the spiral conveyor 9 terminates short of the discharge end of the channel 8 to promote the formation of a seal by accumulation of material. The throat of the branch 5 is constricted by the integral formation therein of a downwardly directed nozzle 11. The adjacent ends of the sections 1 and 2 are flanged for convenient coupling, and the opposite end of the section 2 is likewise flanged for coupling connection to a conduit 12 through the interposition of a spider 13 having a central journal adapted to support one end of a shaft 14, which extends through the mixing chamber channel 3 and is journalled at its other end in a packing gland 15 embodied in the end wall of the section 1. A series of agitator elements 16 are fixed to the shaft 14 and arranged along the same in spaced relation from end to end, a series of lugs 17 being cast upon the inner walls of the sections 1 and 2 and arranged in pairs, with each said pair interposed between an adjacent pair of agitator elements 16 to cooperate therewith in breaking up the current in the stream of material and thereby promote the formation of a homogeneous mixture. The discharge end of the section 1 is formed with a downwardly directed branch 18, flanged for coupling connection to a conduit 19 by which the aggregate is conveyed to the point of utilization. The sections 1 and 2 and the conduits 12 and 19 are jacketed for the circulation of a heating medium, while the spiral conveyor 9 and agitator shaft 14 are driven in any manner found convenient or desirable.

The fluent ingredient, passing from the conduit 12 enters the channel 3 and discharges through the conduit 19 in a continuous stream. The granular material is fed from the hopper 10 along the channel 8 of the feeding mechanism and discharged through the nozzle 11 into the channel or

mixing chamber 3 for incorporation into the fluid stream. The intimate mixture of the ingredients will be complete by the time any portion of the aggregate reaches the discharge end of the mixing chamber 3.

While I have illustrated as one instance the employment of a spiral conveyor, it will be apparent that any other kind of feeding means may be substituted that is capable of forcibly discharging granular material into the fluid stream against internal pressure while preventing back flow or leakage of the fluent material.

Having thus described my invention, I claim:

1. In a conduit conveying system for viscous fluids under pressure having an interrupted portion provided with coupling flanges, the combination of a conduit section, for interposition in said interrupted portion, of corresponding diameter to form a continuation of the system and having cooperating coupling flanges and a vertical branch, said branch having a constricted inlet nozzle, a hopper and feeding channel for connection to said branch, and a conveyor in the channel for forcing granular material from the hopper into said section.

2. In a conduit conveying system for viscous fluids having an interrupted portion, a T-connection interposed in said interruption of corresponding diameter to form a continuation of the system and having a vertical branch, said branch being formed with an integral constricted funnel-shaped inlet, a spider support interposed between the conduit and T-connection, an agitator shaft journalled in the spider support, a hopper and feed channel communicating with the conduit to feed granular material into the conduit, and a spiral conveyor operating in the channel.

3. In a conduit conveying system for viscous fluids interrupted at an angle to permit the interposition of a mixing apparatus, comprising a flanged conduit section having a vertical branch, a second conduit section forming a continuation thereof and having a lateral depending branch for connection to the system and an end wall, an agitator shaft extending through said conduit sections having agitator blades and journalled in said end wall and first section, a horizontal feeding chamber having a depending portion with means for connecting the same to said vertical branch, a hopper formed with said horizontal feeding chamber, and a feeding conveyor operating in said feeding chamber and terminating short of the downturned portion to promote the formation of a seal by accumulation of material.

In testimony whereof, I have hereunto signed my name at Philadelphia, Pennsylvania, this 24th day of March, 1925.

FRANK A. BROWNE.

Witnesses:
JAMES H. BELL,
E. L. FULLERTON.