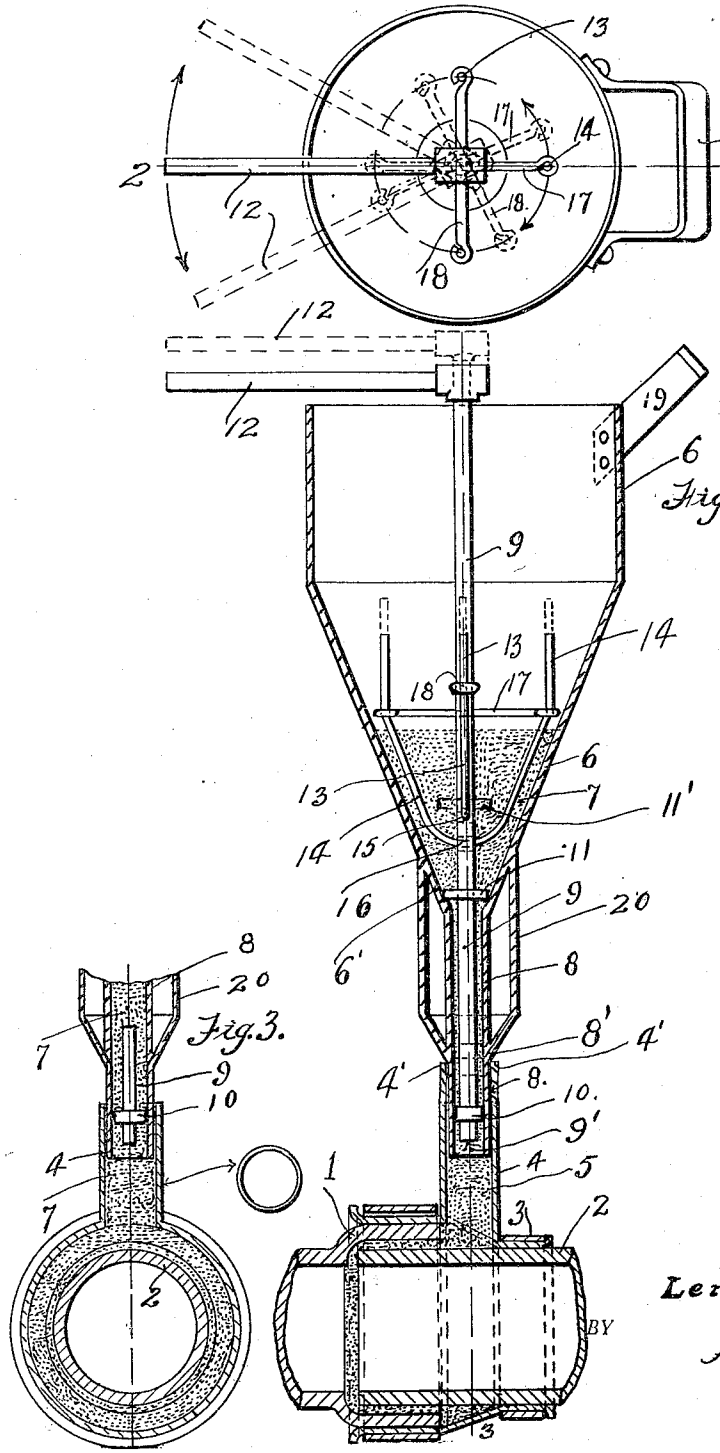
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L. A. WESTON

DEVICE FOR INSERTING CEMENT INTO PIPE JOINTS

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UNITED STATES PATENT OFFICE.

LEROY A. WESTON, OF ADAMS, MASSACHUSETTS.

DEVICE FOR INSERTING CEMENT INTO PIPE JOINTS.

Application filed July 16, 1923. Serial No. 651,994.

To all whom it may concern:

Be it known that I, LEROY A. WESTON, a citizen of the United States of America, residing at Adams, county of Berkshire, Commonwealth of Massachusetts, have invented certain new and useful Improvements in Devices for Inserting Cement into Pipe Joints, of which the following is a specification.

This invention relates to a device for inserting and forcing cement into a pipe joint. It relates more particularly to the insertion of cement into the joint of a sewer or tile pipe although it may be employed for other pipes as for making the joints in gas and water pipes.

Broadly the invention comprises a receptacle for receiving a quantity of the cement that is to be forced into and around the joint with means for directing the cement into the joint and further with means for subjecting the cement to pressure by imparting tamping blows thereto. The invention further comprises a device for mixing or stirring the cement in the receptacle to prevent its setting or becoming hard before it is used.

The invention is designed to be used in connection with the structure shown, described, and claimed in my prior Letters Patent of the United States Number 1,462,077 dated July 17, 1923.

Referring to the drawings:

Fig. 1 is a top plan view of the device showing the receptacle with the stirrer rods therein.

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 1 showing the plunger rod in the delivery tube, and the tube inserted in the casing which surrounds the pipe joint for receiving the cement, and

Fig. 3 is a detail vertical sectional view on the line 3—3 of Fig. 2 showing the operation of forcing the cement material into and around the pipe joint.

Referring to the drawings in detail:

1 designates the bell end and 2 the spigot end of a pipe joint. 3 designates as a whole the casing surrounding the joint and 4 the upwardly extending tubular part of the casing for inserting the joint forming material, indicated at 5.

Referring now to the present invention. 6 is a conical shaped receptacle in which is placed the cement 7. 8 is a downwardly extending discharge tubular member for the cement, the lower end of which is designed to fit into the tubular part 4 as shown.

Located in the discharge member 8 is a rod 9 having a ring or piston part 10 secured thereto near its lower end, as shown. This part is of a diameter which is nearly equal to the internal diameter of the discharge tubular member 8. Loosely mounted on the rod 9 is a washer 11 which serves as a valve to prevent the cement material 7 from flowing down through the member 8 when the device is not in use, as when it is being carried from one place to another. The upper end of the rod 9 is provided with a handle 12 for the double purpose of rotating the rod, and for imparting a vertical reciprocating movement thereto when used for forcing the cement material into and around the joint. Attached to the rod 9 are the two U-shaped stirrer rods 13 and 14 by passing the same through openings 15 and 16 in the rod at right angles to each other, as shown. Their upper ends are connected together by means of the cross wires 17 and 18 the ends of which are looped around the two U-shaped stirrer rods 13 and 14. 19 designates a handle for carrying the device from place to place. For strengthening the lower end part 6′ of the conical shaped member 6 I provide a casing member 20 the upper end of which is attached to the lower end part 6′ and its lower end is attached to the tubular bearer member 8 at the point 8′, as shown.

The operation is as follows: The cement material 7 is placed in the receptacle 6; it being assumed that the washer 11 is now closing the upper or inlet end of the tubular discharge member 8, as shown. The lower end of the member 8 is now inserted in the upwardly extending tubular part 4 of the enclosing casing 3 which surrounds the pipe joint. The operator now lifts the rod 9 by means of the handle 12 into the dotted line positions. The piston 10 strikes the washer 11 and carries it away from its seat at the upper end of the discharge member 8 and into the dotted position 11′. The cement can now flow downward through this member into the casing 3. If it does not readily flow by reason of its being too thick the piston 10 will, when the rod 9 is lowered, force the cement downward through the member 8 and into the casing 3. The washer

11, being loose on the rod 9 now closes the member 8. By moving the rod 9 up and down with the handle 12 the piston 10 serves to impart pressure and a tamping action to the cement in the casing 3. This has the effect of forcing the cement thoroughly into the casing 3 and completely filling every part of the pipe joint between the spigot and bell end of the pipe ends. It has been found in practice also that the tamping action of the piston and the lower end 9′ of the rod serves to forcibly expel practically all of the water from the cement thus doubly insuring a thorough filling of the joint with the cement material. This prevents the formation of any air holes or pockets in the material when the cement has completely hardened.

By rotating the handle, shown in dotted lines, in Fig. 1, the cement in the receptacle 6 is prevented from becoming hardened or set.

It is to be understood that the operator continues the operation until it is impossible to force any more material into the casing 3 and the joint is completely filled. The part 8′ is understood to engage the upper end 4′ of the part 4 when in use to for a tight joint to prevent the escape of the cement.

What I claim is:

1. A device for the purpose described, comprising a receptacle to receive the joint forming material, a discharge member therefor; a plunger rod, a washer loosely mounted on the rod for normally closing the discharge member, a piston on the rod and normally located in the discharge member for imparting impact or pressure blows to the material in said member, and means for agitating the material in the receptacle.

2. A device for forcing joint forming material into and around a pipe joint, comprising a conical shaped receptacle to receive the material, a discharge tube therefor, a plunger rod in the tube, a piston thereon for forcing the material through the tube, means for permitting the material in the receptacle to enter the tube when the rod is moved in one direction and to close the tube when the rod is moved in the opposite direction.

3. A device for forcing joint forming material into and around a pipe joint, comprising a conical shaped receptacle to receive the material, a discharge tube therefor, a plunger rod in the tube, a piston thereon for forcing the material through the tube, means for permitting the material in the receptacle to enter the tube when the rod is moved in one direction and to close the tube when the rod is moved in the opposite direction, said means including a part loosely mounted on the rod and designed to normally engage the inlet end of the tube to close the same but is engaged by the piston when the rod is drawn upward to move it from the inlet end of the tube to permit the material in the receptacle to enter the tube, whereby when the plunger rod is operated it will pass through the part on the rod and the piston will force the material through the tube.

4. A device for forcing cement material into a pipe joint comprising a receptacle to receive the material and formed with a conical-shaped discharge end, a tube connected to the discharge end, a valve for normally closing said end tube, a rod passing loosely through the valve, means on the rod for engaging the valve for lifting it from its seat to permit the material in the receptacle to flow therefrom into the tube, the valve engaging means serving when the rod is operated, to force the material which passes the valve into the tube, to force the material through the tube.

5. The combination with a receptacle to receive cement material, an agitator device therein comprising a rotatable rod and arms on the rod for engaging the material for mixing the same when the rod is rotated.

6. A device for the purpose described comprising a cement receiving receptacle having a conical shaped outlet end, a discharge tube attached to said end, a rod in the tube, means on the rod for forcing the material through the tube and for controlling the supply to the tube from the receptacle, said means including a washer like part which is loosely mounted on the rod but automatically seats in the conical shaped outlet end to shut off the flow of material from the receptacle when the rod is moved downward, said conical shaped outlet end serving to permit the said means on the rod to pass freely into the tube.

LEROY A. WESTON.