Sept. 9, 1924. 1,507,773

T. HAMM

CEMENT GUN NOZZLE

Filed Jan. 15, 1923

Fig. 1.

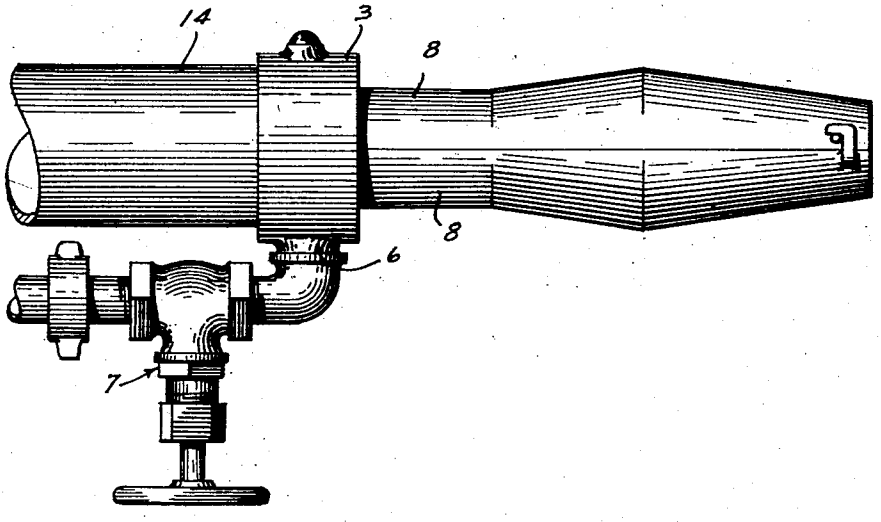
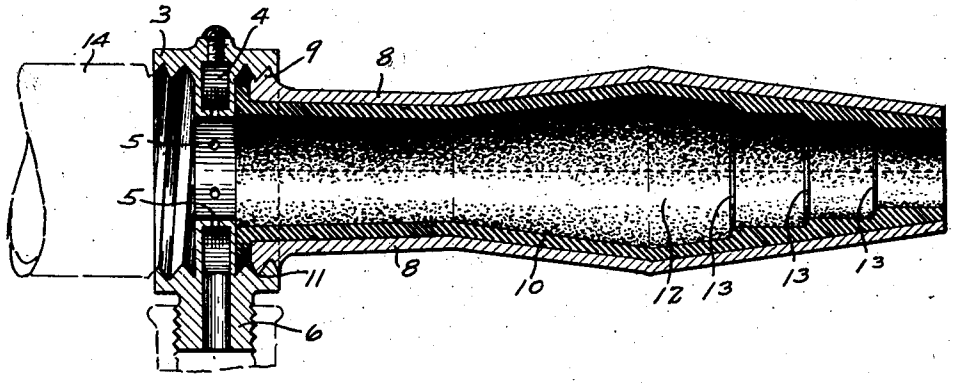


Fig. 2.



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Patented Sept. 9, 1924. 1,507,773

UNITED STATES PATENT OFFICE.

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CEMENT-GUN NOZZLE.

REISSUED

Application filed January 15, 1923. Serial No. 612,851.

To all whom it may concern:

Be it known that I, THOMAS HAMM, a citizen of the United States, and resident of Hawthorne, in the county of Los Angeles and State of California, have invented new and useful Improvements in a Cement-Gun Nozzle, of which the following is a specification.

This invention relates to a nozzle for use in building structures of cement or plastic material by spraying the same under pressure upon a background. The present invention pertains more particularly to the tip used in the nozzle.

In operations of this character a mixture of cementitious material in a dry form is blown into a nozzle. In its passage through the nozzle, water is supplied thereto and mixed therewith, to form a wet cement or concrete, which issues therefrom and is directed in a stream and at a high velocity upon the background. Under these conditions the cement is impacted upon the background and pneumatically rammed to form a dense cementitious mass. The nozzles as at present used, are tapered to a smaller diameter at the exit or discharge end, water being admitted transverse to the axis of the nozzle at the larger end. Careful mixing of the ingredients of the cement or plastic material is required before admission to this type of nozzle. As the wet mixture issues from the nozzle it tends to spread. The primary object of this invention is to provide a nozzle which will reduce the amount of spreading and at the same time will provide a more thorough mixing of the ingredients of the cement.

These objects together with other objects and corresponding accomplishments are obtained by means of the embodiment of my invention illustrated in the accompanying drawing, in which:

Fig. 1 is a side elevation of a nozzle; and Fig. 2 is an axial section therethrough.

Referring more particularly to the drawing, a water ring is indicated by 3. It is provided with threaded bores separated by an annular water chamber 4 having spaced openings 5 to direct water inwardly. A threaded nipple 6 serves for a connection to a water line indicated generally by 7. The nozzle tip may be formed by two sections 8, which when placed together form a cylindrical member having a base or enlarged portion 9 threaded for mounting in the ring 3.

Within the tip is a lining 10, preferably of rubber. This lining has a flange 11 at the bottom, which is clamped between the ring and the base of the tip. The bore of the lining is tapered from its lower end, decreasing in diameter to its junction with a mixing chamber indicated generally by 12. This chamber is formed by flaring the bore outwardly to a larger diameter then tapering inwardly. Near the upper or outer end annular shoulders 13 are formed which comprise chokes. The inventive feature resides in the enlarged mixing chamber and the chokes.

The cementitious ingredients, such as sand and cement are blown through a hose 14 into the ring 3. Water passes through the water line 7 and apertures 5 to the cement and sand. The cement, water and sand is mixed in their passage along the lower tapered portion of the nozzle and spread as they enter the mixing chamber portion 12. Here a more intimate mixture of the ingredients is obtained. The wet cement then passes through the portion of the nozzle containing the chokes. These contract the stream and at the same time assist in mixing. The cement finally issues in a compact stream without any substantial spreading.

What I claim is:

1. A cement gun nozzle having a cylindroidal passage provided with an annular choke shoulder adjacent its discharge end.

2. A cement gun nozzle having a cylindroidal lining provided internally with an annular choke shoulder adjacent its discharge end.

3. A cement gun nozzle having a passage with a mixing chamber of larger diameter intermediate its ends, a portion contracting from said mixing chamber towards the discharge end of said nozzle, and an annular choke shoulder in said passage adjacent said discharge end.

4. A cement gun nozzle having a passage contracting from the inlet end towards the discharge end, a mixing chamber of larger diameter intermediate its ends, and an annular choke shoulder in said passage adjacent the discharge end.

5. A cement gun nozzle having a lining provided with a passage having a mixing

chamber of larger diameter intermediate its ends, a portion contracting from said mixing chamber toward the discharge end, and an annular choke shoulder in said passage adjacent the discharge end.

6. A cement gun nozzle having a lining provided with a passage expanding from the inlet end toward the discharge end, a mixing chamber of larger diameter intermediate its ends, a portion contracting from said mixing chamber toward the discharge end, and an annular choke shoulder in said passage adjacent said discharge end.

In witness that I claim the foregoing I have hereunto subscribed my name this 9th day of January, 1923.

THOMAS HAMM.