Jan. 1, 1929. 1,697,048

J. W. COX

FUEL FEEDER NOZZLE

Filed Feb. 6, 1925

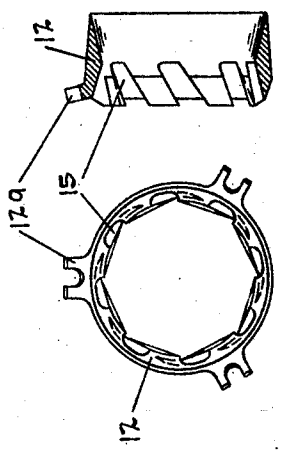


Fig. 3

Fig. 2

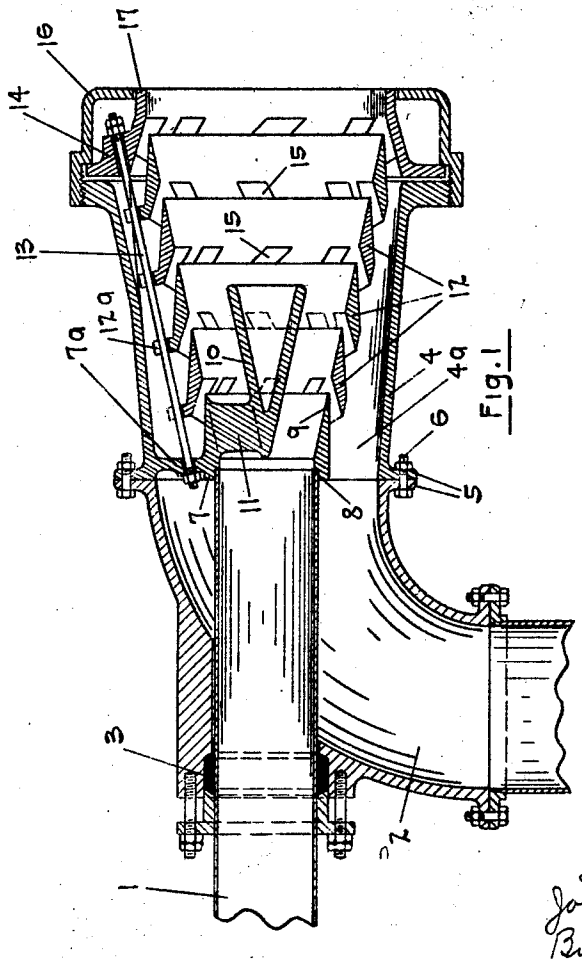


Fig. 1

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UNITED STATES PATENT OFFICE.

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FUEL-FEEDER NOZZLE.

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This invention is designed to improve the delivery of fine fuel, such as coal dust, which is delivered with a conveying air and has supplemental air supplied to give sufficient air for combustion. One of purposes of the invention is to more thoroughly mix the supplemental air with the conveying air and dust so that a more complete combustion may be accomplished. Features and details of the invention will appear from the specification and claim.

The invention is illustrated in the accompanying drawings as follows:—

Fig. 1 shows a central sectional view of the preferred form of feeder.

Fig. 2 an end elevation of one of the deflector rings of the nozzle of this feeder.

Fig. 3 a section of the same ring.

1 marks the fuel conveying pipe, and 2 a supplemental air conveying pipe which is in the form of an elbow, the fuel conveying pipe leading into the elbow through a stuffing box 3. A nozzle shell 4 is secured to the elbow, the elbow and nozzle being provided with flanges 5—5 through which bolts 6 extend. A ring 7 is carried by the shell 4 by arms 7^a. The ring has the recess 8 receiving the pipe 1, and the forward projection or deflector ring 9. A spreader 10 is mounted by means of a web 11 on the ring 7 and extends forwardly into the nozzle, the purpose of this being to spread the incoming air and dust. A series of deflector rings 12 are arranged within the shell 4, the shells being of slightly increasing size so that they form an inner expanding cone-shaped wall surrounding the spreader. These rings have extending slotted ears 12^a and are clamped together by bolts 13 which extend from the arms 7^a to projections 14 on the outer ring 12. The deflector rings have air passages 15 connecting the part within the rings with a passage 4^a outside the rings. The air is broken up by the separating passages 15 and enters the center of the nozzle in streams, these streams being given a rotary or spiral direction. The passages 15 in succeeding rings have their direction of spiral reversed so that with each succeeding ring the jets of air are delivered with reverse spirals, thus entering into and giving to the dust-laden air from the conveyor pipe supplemental air which is thoroughly distributed and mixed with the dust laden air, thus insuring complete combustion on the issuance of the mixture from the nozzle. A cap 16 is screwed on the end of the shell 4 and centers the outer ring 12, this ring having an extension 17 for this purpose.

What I claim as new is:—

In a fuel feeder nozzle, the combination of an outer shell; an air pipe leading to the outer shell; deflectors directing the air from the outer end inwardly, said deflectors being in the form of separate rings, said rings breaking the air up into streams having spiral directions, some of the streams having a reverse spiral to others; bolts extending through the rings clamping them together; and a dust supply pipe leading to the space within the deflectors.

In testimony whereof I have hereunto set my hand.

JOHN WILLIAM COX.