A. P. STRONG.

INTAKE FITTINGS FOR CONVEYING SYSTEMS.

APPLICATION FILED NOV. 21, 1916.

1,237,408. Patented Aug. 21, 1917.

Fig. 1.

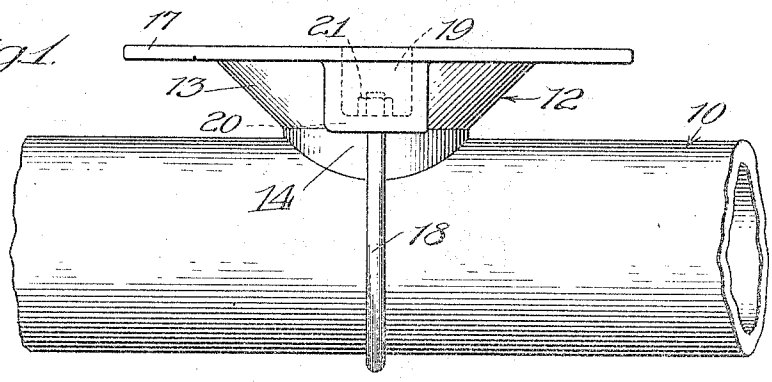


Fig. 2.

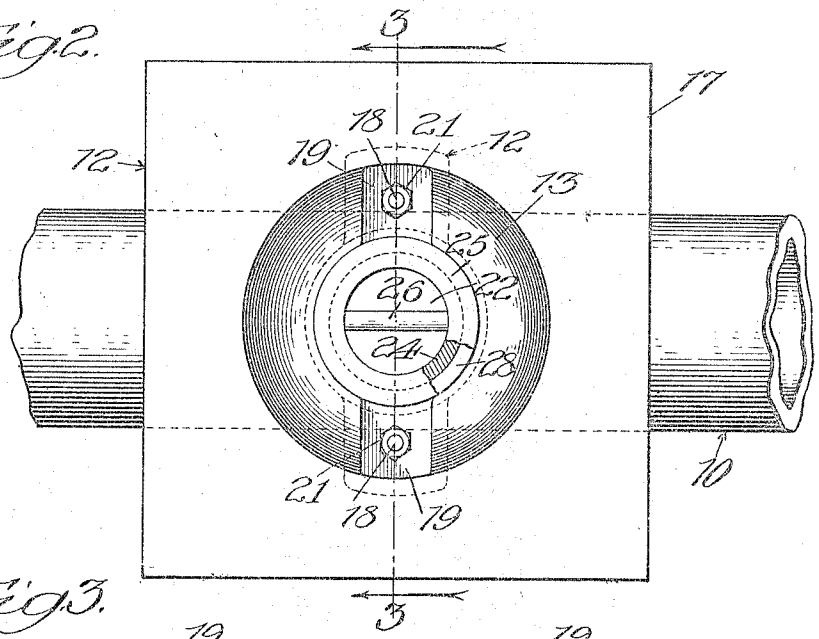
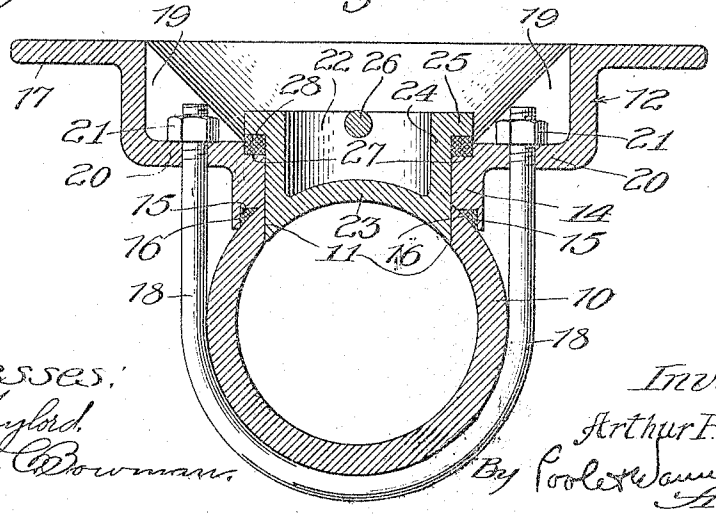


Fig. 3.



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UNITED STATES PATENT OFFICE.

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INTAKE-FITTING FOR CONVEYING SYSTEMS.

1,237,408. Specification of Letters Patent. Patented Aug. 21, 1917.

Application filed November 21, 1916. Serial No. 132,546.

To all whom it may concern:

Be it known that I, ARTHUR P. STRONG, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Intake-Fittings for Conveying Systems, of which the following is a specification.

This invention relates to improvements in fittings for conduits or pipes used in systems for conveying ashes and like abrasive materials, and more particularly to intake fittings through which the ashes or like materials are introduced into the conduit, for the purpose of disposal.

Conveying systems of the character to which this invention relates are ordinarily constructed of cast metal conduits, through which the materials are forced or carried, by suitable suction-producing apparatus, to a common disposal receptacle or discharge, the material entering the conduits at a point adjacent to the furnace of a boiler, there being preferably provided a horizontal conduit extending below the floor in front of the furnace, said conduit having intake openings into which the ashes may be emptied.

As ordinarily constructed, these intake openings consist of upwardly diverging members having marginal flanges arranged flush with the floor and converging in the manner of a funnel at a point below the floor, where the opening into the conduit is provided, said opening being normally closed by a plug or closure, properly seated upon a shoulder surrounding the opening, so as to effectively seal the same. These fittings, which are usually of cast metal, are subject to wear by the abrasive action of the ashes introduced thereinto, and particularly the surfaces or seats surrounding the intake opening and upon which seats the closure plug. As a result, therefore, the fitting must be replaced by a new one, for the reason that the plug or closure cannot be properly seated upon the worn shoulders in a manner to effectively seal the opening from the leakage of air and the consequent reduction in the suction in the conduit and decreased efficiency of the system.

The purpose of this invention, therefore, is to provide means whereby the parts of the fitting which are particularly susceptible to wear may be replaced by materials which will effectively resist the abrasive action, and again, if eventually become worn, can be easily and inexpensively renewed without disturbing or replacing a substantial part of the entire fitting.

The construction of an intake fitting embodying the features of the invention is illustrated in the accompanying drawings, wherein—

Figure 1 is a view in side elevation of a conduit provided with an intake fitting;

Fig. 2 is a top plan view of the intake fitting; and

Fig. 3 is a view in cross-section of an intake fitting, taken on line 2—2 of Fig. 1.

Referring to the drawings, the conduit or pipe 10 may be considered as a horizontal section, provided in its upper wall with an opening 11, located at the desired point in the length of the pipe where the ashes are to be introduced.

Attached to the pipe adjacent to said opening 11 is the intake fitting 12, the same comprising a casting removably connected to the pipe and consisting of a central, funnel-shaped depression or passage 13 terminating at its lower end in a downwardly depending cylindric neck 14 forming an opening or passage registering with the opening 11 of the conduit 10. The lower edge of the neck 14 is shaped and beveled, as shown in Fig. 3, to conform with the cylindric contour of the conduit 10, thus providing a tight joint between the intake fitting and the margins of said opening 11, there being preferably formed in the lower edge of said neck 14 a groove 15, containing a suitable packing ring 16 to assure a tight joint and to eliminate the possibility of the leakage of air. The upper margin of the funnel-shaped passage is surrounded by a horizontal flange 17, preferably rectangular in shape, said flange being preferably sunk in the floor with its surface flush therewith.

The intake fitting is removably secured to the conduit by means of a U-shaped bolt or yoke 18 surrounding the conduit and provided at its upper ends with screw-threaded extremities, which project upwardly through the wall of the intake fitting on opposite sides of the neck 14, there being provided for this purpose oppositely disposed depressions or recesses 19, 19 formed in the wall of the passage 13, said depressions having a horizontal bottom

wall 20. 20, provided with apertures through which the end portions of the yoke extend. At the upper ends of the yoke are mounted bolts 21, 21, bearing downwardly upon the walls 20, 20 of the depressions 19, 19 and adapted to draw the intake fitting tightly to the conduit.

Referring now to the means for closing the intake opening, a plug or closure 22 is preferably employed, said plug consisting of a hollow cylindric member having a curved lower wall 23, conforming to the curvature of the inner surface of the conduit and adapted to extend flush with said inner surface of the conduit and close the opening 11 therein when the plug is in closing position. The side wall 24 of the plug is cylindric in shape and fits snugly in the neck 14 of the fitting, said wall being provided at the upper margin with a laterally extending flange 25, forming a downwardly facing annular shoulder at the upper end of said plug and a transversely extending bar 26 adjacent said upper end and serving as a handle for removing and inserting the plug in the opening.

The plug or closure 22 is supported or seated in position by the provision of an annular seat or shoulder formed at the upper end of the neck 14 of the fitting, said seat being preferably formed in the following manner: At the upper end of the passage through said neck, and formed or cut in the wall of said neck, is an annular groove or recess 27, having upwardly and laterally facing surfaces. Within the groove 27 is mounted or secured an annular ring 28, preferably rectangular in cross-section and of a thickness to provide a portion which projects slightly above the lower edge of the funnel-shaped passage or the normal edge of the opening of the neck 14, the upper surface of the ring forming an annular seat upon which rests the flange 25 of the plug or closure 22.

The annular ring 28 is preferably cast or formed of hard metal of a suitable character, preferably of a degree of hardness greatly exceeding that of the metal of the conduit or intake fitting, and hence capable of withstanding a much greater degree of wear or abrasive action. Although the method of securing the ring in place is immaterial, it is preferred that the ring shall be removable, thus permitting the ring to be easily replaced or renewed from time to time.

The advantage of the construction herein described is manifestly important in the maintenance of systems designed to convey hard and abrasive material and therefore subject to unusual wear and depreciation, such as is not experienced in ordinary systems or pipe lines for conveying liquids or gases or even solid materials of a less abrasive character. The maintenance of ashes-conveying systems and the like would, therefore, entail considerable labor and expense were it not for the provision of means such as herein described, whereby those surfaces which are exposed to excessive wear can be protected or fortified, not only with a surface of harder metal, but one which can be renewed whenever necessary, with very little expense and labor.

In connection with an intake fitting such as described, the advantages of a renewable ring or seat are two-fold—first, that the wear ring eliminates the wear that would otherwise be suffered by the intake fitting, and hence necessitate the frequent renewal of the fitting itself, an exceedingly expensive and laborious operation, inasmuch as a new fitting is considerably greater in cost than a ring, and, further, the renewal of the fitting would necessitate the tearing up of a considerable portion of the floor adjacent to the fitting, not to mention the labor and time lost in making the change; and, secondly, the particular location and function of the wear ring makes it exceedingly desirable to eliminate wear as much as possible, inasmuch as it forms the seat for the closure, which must, so far as possible, be a true surface in order that a sealing contact can be effected between the plug and its seat, thereby eliminating the leakage of air and the attendant loss of suction in the system when the particular intake opening is not being used.

The construction embodying the features of the invention are more specifically pointed out in the appended claims, wherein:

I claim as my invention:

1. In a conveying system, the combination of a conduit, an intake member provided with an opening communicating with said conduit, a removable closure for said opening, and a ring of wear-resisting metal surrounding said opening and forming a seat for said closure.

2. In a conveying system, the combination of a conduit, an intake member provided with an opening communicating with said conduit, a closure for said opening, and a ring of wear-resisting material removably mounted in said opening and forming a seat for said closure.

3. In an intake fitting, the combination with a conduit provided with an intake opening in its wall, of an intake member connected to said conduit and having a passage registering with said opening, a closure for said passage, and a ring of wear-resisting metal mounted in said passage and forming a seat for said closure.

4. In an intake fitting, the combination with a conduit provided with an intake opening in its wall, of an intake member connected to said conduit and having a pas-

sage registering with said opening, a plug insertible in said passage and closing said opening in said pipe, and a ring of wear-resisting metal removably mounted at the entrance of said passage and forming a seat for said plug.

In testimony that I claim the foregoing as my invention I affix my signature in the presence of two witnesses, this 17th day of November, A. D. 1916.

ARTHUR P. STRONG.

Witnesses:
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JOS. M. HORNIT.