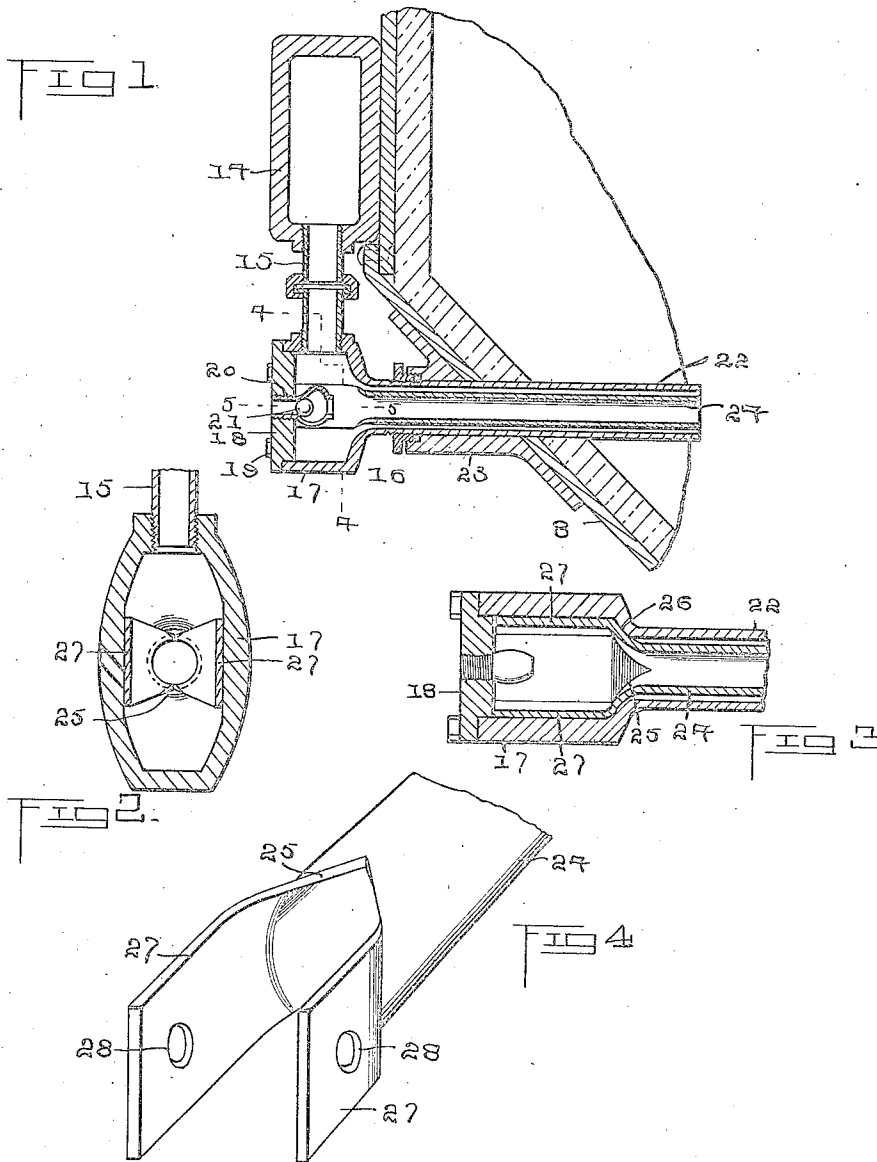


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TWYER.

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1,229,938.

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TWYER.

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To all whom it may concern:

Be it known that I, GEORGE D. GOLDEN, a citizen of the United States, residing at Clarkdale, in the county of Yavapai and State of Arizona, have invented certain new and useful Improvements in Twyers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in twyers for converters, blast and other furnaces.

The invention has for its primary object to provide an improved twyer embodying a quickly and easily removable blast conducting element removably supported in the main tube of the twyer, the inner tube being adapted for removal independently of the twyer so as to prevent injury to the wall of the converter shell.

With these and other objects in view, the invention consists in the novel construction, combination and arrangement of parts as will be hereinafter specifically described, claimed and illustrated in the accompanying drawings, in which:

Figure 1 represents an enlarged sectional view through the twyer showing a fragment of the body of a converter,

Fig. 2 represents a vertical sectional view on the line 4—4 of Fig. 1,

Fig. 3 represents a detail sectional view on the line 5—5 of Fig. 1, and

Fig. 4 represents a fragmental perspective view of the removable tube removed.

Referring to the drawings in detail, wherein similar reference numerals designate corresponding parts throughout the several views, the numeral 8 indicates a fragment of the body of a well known converter of the tilting or oscillating type.

The wind box 14 of the converter is connected by a plurality of pipe connections 15 with the twyers, designated generally by the numerals 16. Each twyer includes a hollow body 17, having an open outer end normally closed by a removable plate 18 secured in position by bolts 19 and provided with a poke hole 20 normally closed to prevent the escape of the air from the body by a valve 21. The inner wall of the hollow body 17 is formed integral with the main blast conducting tube 22, which extends through the

wall 8 of the converter and a supporting plate 23 secured to the converter wall.

An inner or auxiliary blast conducting tube 24 is arranged within the main tube 22 and the outer extremity thereof is slit, as indicated at 25. The inner tube 24 is arranged in concentrically spaced relation throughout its entire length to the main tube 22, thereby providing an air space between the tubes, and the inner end of the inner tube, which is disposed within the body 8 of the converter, terminates in proximity to the inner end of the main tube 22. The slit end of the inner tube 24 is curved outwardly to provide stop shoulders 26, adapted for engagement with the inner face of the inner wall of the hollow body 17, and the portions of the tube lying outwardly of the shoulders 26 are extended along the side walls of the twyer body, as clearly illustrated in Figs. 4 and 5. The flat portions 27 of the inner tube 24 are engaged at their outer terminals by the removable plate 18, which, when advanced to proper position with relation to the twyer body 17, firmly clamps the shoulders 26 against the inner wall of the twyer body, thereby firmly securing the inner or auxiliary blast conducting tube in spaced concentric relation to the main tube 22. The plates 27 are formed with apertures adapted to receive a suitable pointed tool to facilitate removal of the auxiliary tube from the outer or main tube.

In use, the outer terminal of the tube 22 of converter twyer very often becomes choked with metal, due to accidental stopping of the air blast and under such conditions the molten metal quickly freezes, thus closing up the outer end of the blast conducting tube necessitates the removal of the latter. With my improved twyer when it becomes necessary to clean or open the inner end of the twyer tube the removable plate 18 is removed and the inner tube 24 removed and replaced by a new one, thus eliminating the necessity of removing the outer or main tube 22 and the consequent injury to the brick lining of the converter. The space between the main tube 22 and the inner tube 24, from end to end of the latter, permits a circulation of air about the inner tube and thus retains the latter in a relatively cool condition. It is further evident, owing to the fact that the inner end of the inner tube 24 terminates in proximity to the adjacent end

of the outer or main tube 22, that the frozen metal when poked from the inner end of the tube 24 breaks off along the edge of the inner end of the main tube 22, thereby
 5 preventing the frozen metal from being torn away from and injuring the lining of the converter body 8.

What is claimed is:

1. In a twyer structure, a hollow body
 10 having an open outer end, a removable closure for said open end, a main blast conducting tube connected with said body, and an auxiliary blast conducting tube having its outer end apertured and extended into
 15 proximity to the closure to facilitate removal of the auxiliary blast conducting tube through the open end of the body.

2. In a twyer structure, a hollow body, a main blast conducting tube connected therewith, and an auxiliary blast conducting tube
 20 removably supported in the first-mentioned tube and disposed in spaced relation from end to end of the latter to provide an air chamber.

25 3. In a twyer structure, a hollow body, a main blast conducting tube connected therewith, and an auxiliary blast conducting tube arranged within the main blast conducting tube and terminating, at its inner
 30 end, in proximity to the adjacent end of the main blast tube.

4. In a twyer structure, a hollow body, a main blast conducting tube connected therewith, a removable plate associated with said
 35 hollow body, and an auxiliary blast conducting tube removably positioned in the first-mentioned tube and secured in position by said plate.

5. In a twyer structure, a hollow body, a
 40 tubular blast conducting member connected with said body, a removable plate associated with said hollow body, and an auxiliary blast conducting tube associated with said tubular member arranged in concentrically
 45 spaced relation within the latter and being secured in position by said removable plate.

6. In a twyer structure, a hollow body, a main blast conducting tube connected there-

with, an auxiliary main blast conducting tube arranged in concentrically spaced re-
 50 lation with the first-mentioned tube and having a portion thereof disposed within the hollow body split and apertured to facilitate removal thereof, and means securing said auxiliary tube in position in said
 55 body.

7. In a twyer structure, a hollow body, a main blast conducting tube connected therewith, an auxiliary blast conducting tube supported in concentrically spaced relation
 60 within the first-mentioned tube and having one end split and extended within said housing, the split terminals of said tube being apertured to facilitate removal thereof, and a removable plate associated with
 65 said housing and removably securing the auxiliary tube in position within the main tube.

8. In a twyer structure, a hollow body having an open outer end, a main blast
 70 conducting tube connected therewith, an auxiliary blast conducting tube arranged within the first-mentioned blast conducting tube and removable outwardly through the open outer end of said body, and a closure
 75 for the open end of said body securing the auxiliary blast conducting tube in position in the main blast conducting tube.

9. In a twyer structure, a hollow body having an open outer end, a main blast con-
 80 ducting tube connected therewith, an auxiliary blast conducting tube arranged within and disposed in spaced relation from end to end of the main blast conducting tube, said auxiliary blast conducting tube being
 85 removable outwardly through the open end of said body, and a removable closure for the open end of said body supporting said auxiliary blast conducting tube in position
 90 in the main blast conducting tube.

In testimony whereof I affix my signature in presence of two witnesses.

GEORGE D. GOLDEN.

Witnesses:

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