UNITED STATES PATENT OFFICE.

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RABBLE.

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To all whom it may concern:

Be it known that I, EUGENE CLAYBORNE ROBINSON, citizen of the United States, residing at Douglas, in the county of Cochise and State of Arizona, have invented certain new and useful Improvements in Rabbles, of which the following is a specification.

This invention relates to improvements in rabbles for metallurgical roasting ovens of the type in which the rabble arms are cooled by air.

As is well known, rabbles in this type of furnace ordinarily embody an inner hollow shaft and an outer inclosing shaft, the arm of the rabble comprising an outer member and an inner member through which latter air is supplied and passes into the outer member of the arm and is thence conducted to the outer shaft of the rabble through which it passes to the air outlets. In one type of rabble the inner end of the inner member of the rabble arm is secured in an opening in the inner or cooling-fluid supply shaft of the rabble, and the inner end of the outer member of the arm is secured in an opening in the outer or exhaust-fluid conducting shaft of the rabble, the said members of the arm opening directly into the interiors of the respective shafts. For the purpose of securely supporting the outer member of the arm to enable it to withstand the stresses to which the arm is subjected as it operates against ore to be roasted upon the hearths of the furnace, it has been customary to seat the inner end of the outer member of the rabble arm in a boss located at and surrounding the opening in the outer shaft of the rabble. This arrangement, however, presents disadvantages for if the boss is made sufficiently long to provide a firm and secure seat for the inner end of the outer member of the rabble arm, it is insufficiently cooled in the operation of the roaster, and as a consequence soon becomes burned away. If, on the other hand, in order to prevent burning away, the boss is formed relatively short, the said outer member of the rabble arm will not have sufficient purchase in the socket provided by the boss to withstand the stresses to which it is subjected. The primary object of the present invention is, therefore, to provide means for so seating the rabble arm in the rabble shaft that a bearing of maximum length will be afforded the arm and at the same time a boss of minimum length only need be provided upon the outer shaft of the rabble.

The figure of the accompanying drawing is a view partly in vertical section and partly in elevation of a portion of a roaster rabble embodying the present invention.

In the drawing the numeral 1 indicates the inner or cooling-fluid supply shaft of the rabble and the numeral 2 indicates the outer or exhaust-fluid-conducting shaft of the rabble, these shafts being concentrically positioned with relation to each other, and the shaft 1 being connected with any suitable source of air supply such, for example, as a blast fan, and the shaft 2 being in communication with the usual outlets for the air after it has performed its function of cooling the rabble arms. For a purpose to be presently explained, the shaft 1 is formed at intervals with openings 3 through which the cooling air is to be discharged into the rabble arms, and surrounding each opening the shaft is formed exteriorly with a flange 4 which forms a seat, indicated by the numeral 5, the flange being concentric to the respective opening 3 and the seat being of greater diameter than the said opening so that a seating shoulder 6 is provided at the inner end of the said seat. Opposite each opening 3 in the shaft 1, the shaft 2 is formed with an opening 7 and exteriorly with an integral collar or boss 8 which is sufficiently short to guard against undue heating of its outer portion, which is the disadvantage heretofore pointed out for the ordinary forms of rabbles in which this boss has been formed of considerable length in order to provide a sufficiently long bearing for the inner end of the rabble arm. Interiorly the boss is of the same diameter as the opening 7 and it is preferable that the boss be interiorly flared at its outer end as indicated by the numeral 9, so as to permit of the more ready insertion of the rabble arm when fitting the arm into place. Also, for a purpose to be presently pointed out, each boss 8 is formed in its upper side with an opening 10.

The rabble arm is indicated in general by the numeral 11 and the same comprises an