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MEANS FOR ATTACHING STIRRING ARMS TO SHAFTS IN MECHANICAL ROASTING FURNACES.

APPLICATION FILED JULY 17, 1907.

904,819. Patented Nov. 24, 1908.

Fig. 1.

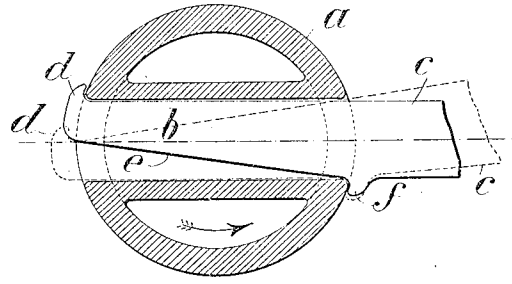


Fig. 2.

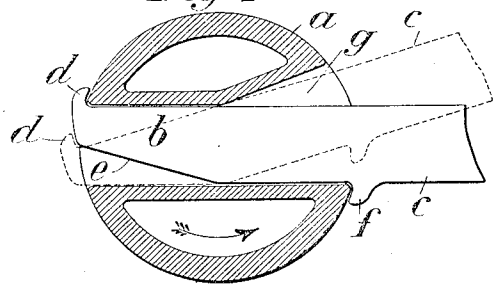
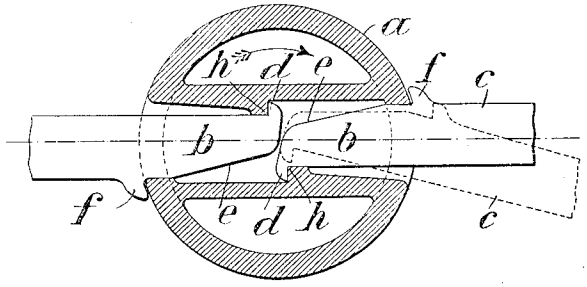


Fig. 3.



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WILHELM TROELLER, OF FRANKFORT-ON-THE-MAIN, GERMANY.

MEANS FOR ATTACHING STIRRING-ARMS TO SHAFTS IN MECHANICAL ROASTING-FURNACES.

No. 904,819. Specification of Letters Patent. Patented Nov. 24, 1908.

Application filed July 17, 1907. Serial No. 384,216.

To all whom it may concern:

Be it known that I, WILHELM TROELLER, a subject of the German Emperor, and resident of Frankfort-on-the-Main, Germany, have invented certain new and useful Improvements in Means for Attaching Stirring-Arms to the Shafts in Mechanical Roasting-Furnaces, of which the following is a specification.

My invention relates to apparatus, and more especially to mechanical roasting furnaces, in which stirring-arms are removably fixed in rotating-shafts, the object of the invention being an improved method of attaching said stirring-arms in the shafts. The advantages of the present invention over the known devices consist chiefly in the fact, that the stirring-arms are easily to be inserted in and removed from the openings provided in the shaft to receive the rabble-arms, and that for securing the arm in the shaft in order to prevent it from being moved in radial direction it is sufficient to operate a slight rotation of the arm or of the shaft-opening in a horizontal plane.

Figure 1 is a horizontal section of the shaft with the stirrer-arm. Figs. 2 and 3 are modifications of the device shown in Fig. 1.

According to the method illustrated in Fig. 1 the shaft *a* is provided in the known manner with a transverse passage at each hearth of the furnace. On the end *b* of the stirring arm *c* to be coupled with the shaft, is formed a projecting lug *d* adapted to engage over the back edge of the passage and thus to prevent the movement of the stirring-arm in a radial direction outwards.

In order to enable the end *b* of the stirring-arm with the lug *d* to be pushed through the passage, the end *b* of the stirring-arm is tapered as shown at *e*. On the side of the end *b* opposite to that occupied by the lug *d*, a second lug *f* may be arranged, formed for the purpose of preventing the stirring-arm being pushed too far in the opposite direction, that is to say inwards.

The arm can be installed in the position wherein the lugs *d* and *f* prevent said arm from being pushed in either radial direction by entering the front end in the position shown in dotted lines and by then bringing the arm in the position shown in full lines by means of a rotation in a horizontal plane, or, when the shaft rotates in the direction indicated by the arrow, the stirring arm places itself automatically in the position shown in full lines.

According to the modified method, illustrated in Fig. 2, the passage is furnished at that end, where the stirrer arm is inserted, with a wedge-shape enlargement *g*. By this construction, it is possible to shorten the tapered portion *e* of the end *b* of the stirring-arm and so to increase the strength of that part and to diminish the risk of breakage. Moreover, by the enlargement of the entrance of the passages the insertion of the stirring-arm and the pushing of the stirring-arm into position is facilitated. The installation of the stirring-arm in the fixed position is effected in a manner similar to that described with reference to Fig. 1.

Fig. 3 illustrates the application of the invention when two stirring-arms disposed diametrically opposite one another are mounted in one and the same passage. In this case, projections (or recesses) are provided opposite one another on the side walls of the passage, behind which (or in which) engage the lugs *d* of the stirring-arms. As illustrated in Figs. 1 and 2, the ends *b* of the stirring-arms are formed with taper portions *e* which enable the stirring-arms to be inserted in or withdrawn from the passage. The passage may here also be provided with an enlargement such as *g*, Fig. 2.

Having now fully described my said invention what I claim and desire to secure by Letters Patent is:

1. The combination of a shaft provided with a transversely disposed opening, and a stirring arm having a portion adapted to enter said opening and relatively reduced in size with respect thereto, said portion having oppositely projecting parts spaced apart from each other and engaging said shaft and serving to prevent longitudinal and permit lateral movement of said portion in said passage.

2. The combination of a shaft provided with a transversely disposed opening, and a stirring arm having a portion adapted to enter said opening and relatively reduced in size with respect thereto, said portion having oppositely projecting parts spaced apart from each other and arranged to engage peripheral portions of said shaft at points opposite the center thereof.

3. The combination of a shaft having a

transversely disposed opening provided with a lateral extension thereby forming one wall composed of two angular engaging portions and a straight opposite wall, and a stirring arm having a portion adapted to enter said opening and reduced throughout a part of its length with respect thereto, one edge of said portion being adapted to engage either of said angular walls and the other edge of said portion engaging a part of said straight wall, said portion having oppositely disposed parts engaging peripheral portions of the shaft at points opposite the centers thereof to prevent longitudinal and permit lateral movement of said arms.

4. In mechanical furnaces, the combination of a shaft having transverse openings, and of stirring arms adapted to enter and to be fixed in said shaft-openings, the portion of said stirring-arms which enter the shaft-openings being laterally reduced in size on one side and each provided with a lateral projection on the opposite side, the projection engaging behind the edge of the shaft-opening to limit movement of the arms in a radial direction.

5. In mechanical furnaces, the combination of a shaft having transverse openings, and of stirring arms adapted to enter and to be fixed in said shaft-openings, the portion of said stirring arms which enter the shaft-openings being laterally reduced in size on one side, and each being provided on the same side with one lateral projection and on the opposite side with another lateral projection, the projections engaging behind edges of the shaft-openings to limit movement of the arms in opposite radial directions.

6. In mechanical furnaces, the combination of a shaft having transverse openings, and of stirring arms adapted to enter and to be fixed in said shaft-openings, said shaft openings being outwardly enlarged at the end at which the stirring arms enter, and the portions of said stirring arms which enter the shaft-openings being laterally reduced in size on one side, and each being provided on the same side with one lateral projection and on the opposite side with another lateral projection, the projections engaging behind edges of the shaft-openings to limit the movement of the arms in opposite radial directions.

In testimony whereof I have hereunto set my hand in presence of two witnesses.

WILHELM TROELLER.

Witnesses:

JEAN GRUND,

CARL GRUND.