F. L. WATSON.

FURNACE ATTACHMENT.

APPLICATION FILED APR. 3, 1907.

908,176.

Patented Dec. 29, 1908.

2 SHEETS—SHEET 1.

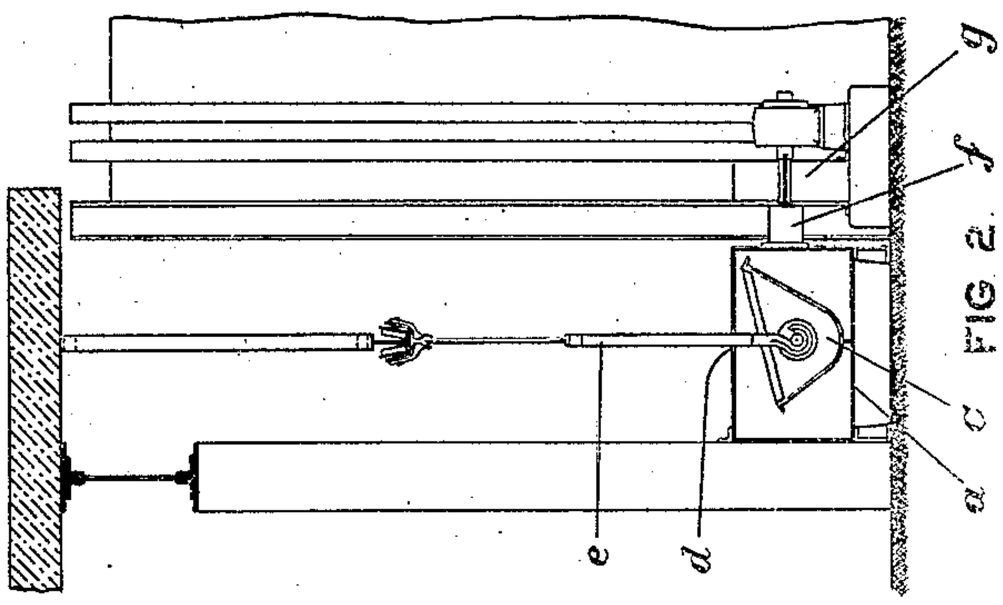


FIG 2.

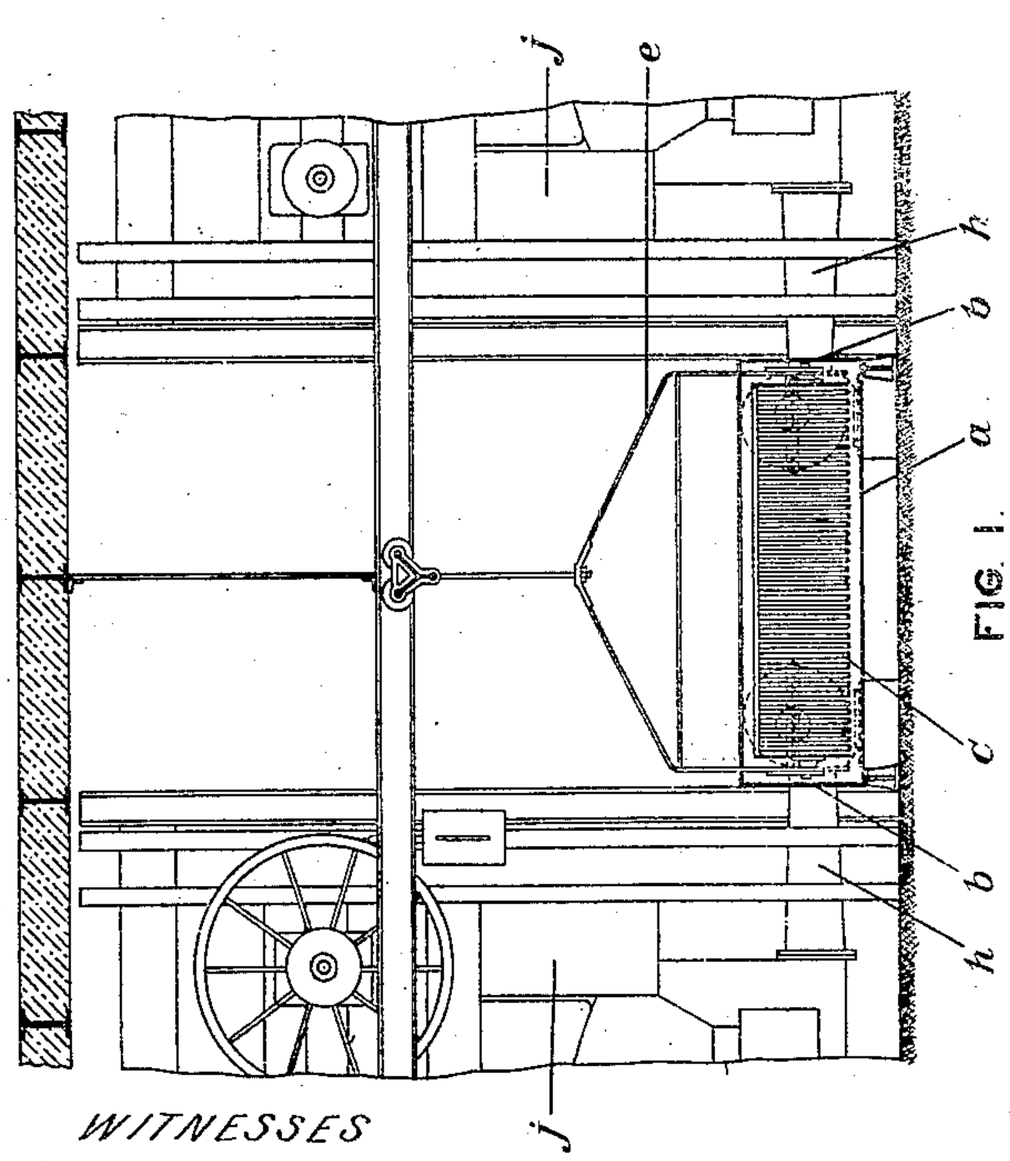


FIG 1.

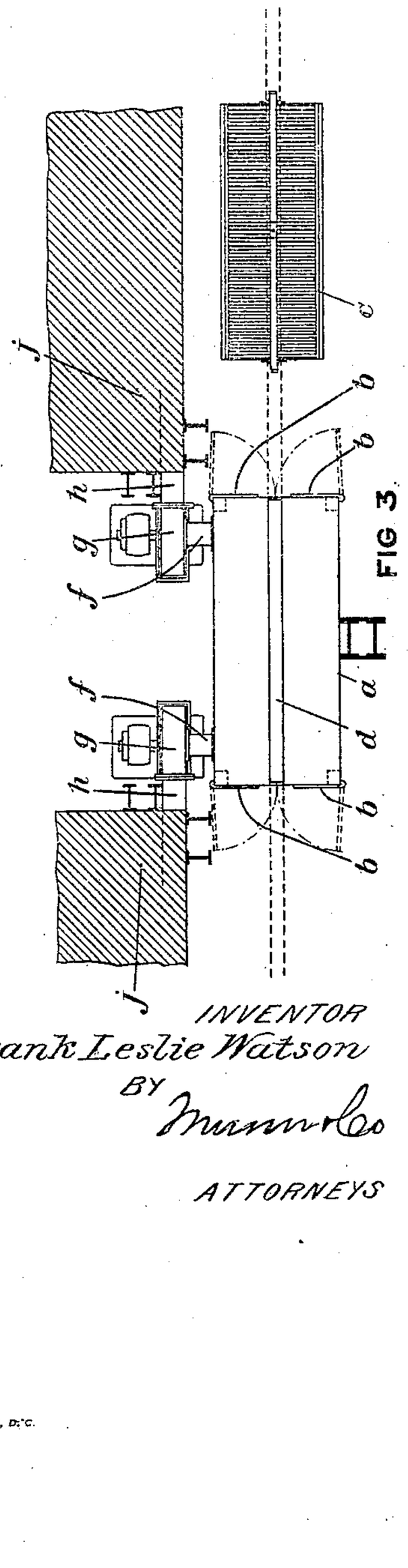


FIG 3.

WITNESSES

W. M. Avery

Fred. G. Hoskins

INVENTOR

Frank Leslie Watson

BY Munn & Co

ATTORNEYS

F. L. WATSON.

FURNACE ATTACHMENT.

APPLICATION FILED APR. 3, 1907.

908,176.

Patented Dec. 29, 1908.

2 SHEETS—SHEET 2.

FIG. 5.

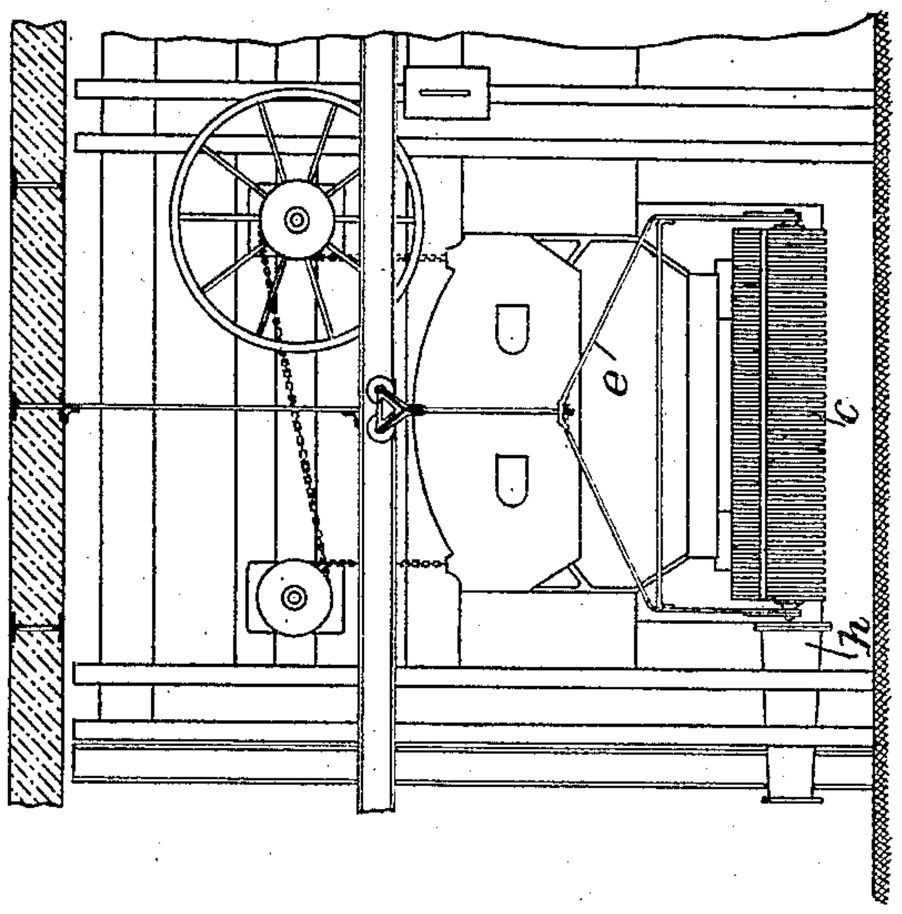
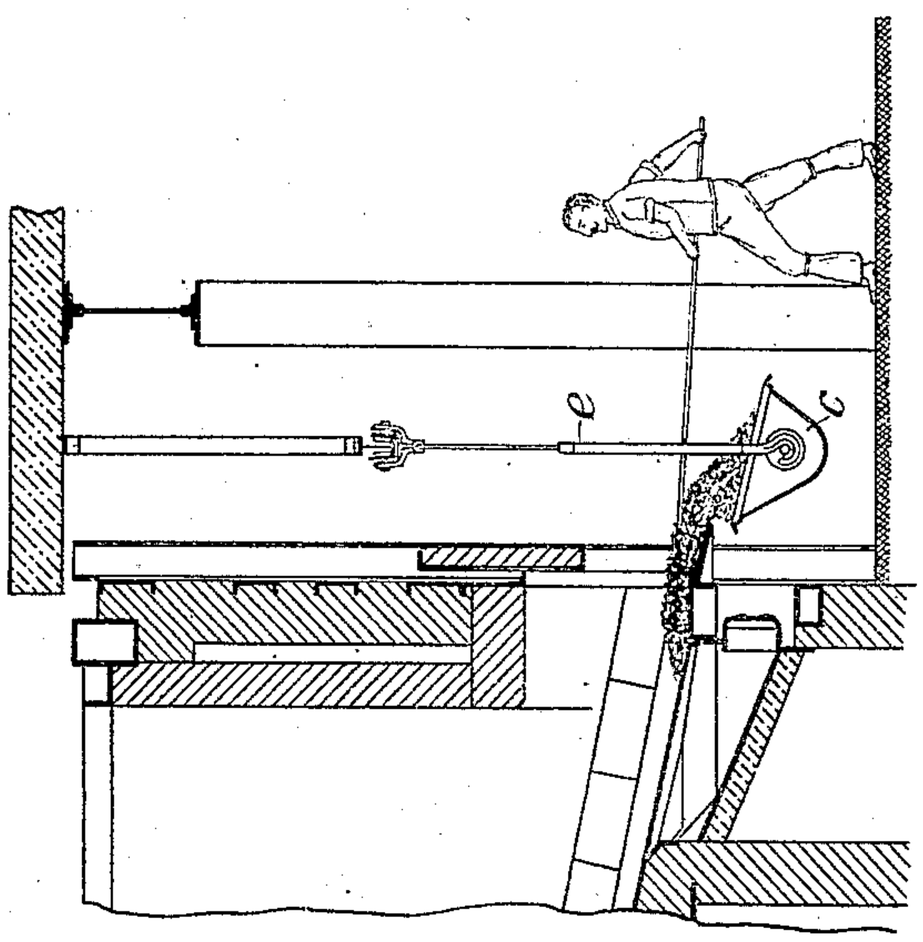


FIG. 4.



WITNESSES

W. M. Avery

Fredy. Hoosten

INVENTOR

Frank Leslie Watson.

BY Munn & Co

ATTORNEYS

UNITED STATES PATENT OFFICE.

FRANK LESLIE WATSON, OF LEEDS, ENGLAND.

FURNACE ATTACHMENT.

No. 908,176. Specification of Letters Patent. Patented Dec. 29, 1908.

Application filed April 3, 1907. Serial No. 366,173.

To all whom it may concern:

Be it known that I, FRANK LESLIE WATSON, a subject of the King of Great Britain, and a resident of Leeds, England, have invented a new and improved Furnace Attachment.

The invention relates to furnaces, and its object is to provide a new and improved apparatus, arranged for cooling the clinkers, cinders or like hot material discharged from the furnace, for recovering the heat contained in the hot material by heating air, and for forcing the heated air into the fire box of the furnace, to insure complete combustion of the fuel burning in the fire box.

The invention consists of novel features and parts and combinations of the same, which will be more fully described hereinafter and then pointed out in the claims.

A practical embodiment of the invention is represented in the accompanying drawings forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a front elevation of the improvement as applied to furnaces; Fig. 2 is a transverse section of the same; Fig. 3 is a sectional plan view of the same; Fig. 4 is a cross section of the improvement showing the vehicle in front of the discharge door of the furnace to receive the hot clinkers, ashes, etc., and Fig. 5 is a front elevation of the same.

A cooling box *a* provided at either end or both ends with doors *b* is located in the path of a vehicle *c*, such as a wheel barrow, truck, tipping wagon, suspended buckets, conveyer or the like, and used for conveying the clinkers, cinders or like hot material from the furnace to a suitable place of discharge, such as a tipple, crushing machine or the like. As illustrated in the drawings the vehicle *c* is in the form of a bucket suspended from a trolley running on an overhead rail, to carry the material from the furnace to the place of discharge.

The cooling box *a* is provided on its top with a slot *d* which serves for the passage of the hanger *e* of the vehicle *c*. The slot also forms an inlet for atmospheric air.

The bucket *c* is preferably constructed of bars or lattice work arranged on a stiff frame, so that the air which passes into the box *a* by way of the slot *d* can also freely pass through the bucket and the material contained therein. The air is drawn out of the box *a* through suction pipes *f* of fans *g*, which supply air for forced draft through blast pipes *h* to two furnaces *j*. Now when the vehicle *c* filled with the hot material from the furnace is passed within the box *a*, and the fans *g* are running, then atmospheric air is drawn through the slot *d* into the box *a* and over the hot material contained in the vehicle *c*, so as to abstract the heat contained in the said material, thus producing hot air, which is forced by the fans *g* into the furnaces *j*, that is, into the fire boxes and the burning fuel contained therein, with a view to insure complete combustion of the said fuel. After the heat has been abstracted from the material in the vehicle *c*, and the said material is thus cooled, then the vehicle *c* is removed from the box *a* and sent to its destination, for discharging the cooled material.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. The combination with a furnace, a track adjacent thereto, and a vehicle for receiving the clinkers, cinders and like hot material from the furnace, the said vehicle being arranged to travel on said track from the furnace to a place of discharge, of a cooling box having a door at each end and located in the path of travel of said vehicle, and means connected with the said box for drawing air through the same and over the said material in the vehicle when the latter is within the box, to heat the air.

2. An apparatus for cooling clinkers, cinders and like material and recovering the heat therefrom comprising a cooling box having a door at each end, a suspended vehicle for containing the material to be cooled and mounted to travel through the said cooling box by way of said doors, the said cooling box having a slot for the passage of the suspending means of the vehicle, and means connected with the said box for drawing air through the same and over the said material to heat the air.

3. An apparatus for cooling clinkers, cinders and like material and recovering the heat contained therein, comprising a cooling box having a door at each end and a longitudinal slot in its top, a vehicle for containing the hot material, a trolley running on an overhead rail, a hanger for suspending the vehicle from the trolley, the said slot in the top of the cooling box serving for the passage of the hanger of the vehicle and also forming

an air inlet to the box, and a forced draft apparatus for a furnace or the like and having its inlet connected with the said box.

4. The combination with a furnace, an overhead track adjacent to the furnace and a suspended vehicle mounted to travel on said track for conveying the clinkers, cinders and like material from the furnace to a place of discharge, of a cooling box having a door at each end and located in the path of the said vehicle, the said cooling box having an opening for the passage of the suspending means of the vehicle and for the admission of air, and a forced draft apparatus for the furnace having its inlet connected with the said box.

5. The combination with two furnaces and a vehicle for receiving the clinkers, cinders and like material from the furnaces, the said vehicle being constructed of bars arranged to permit of the free passage of air through the vehicle and the material contained therein, of a cooling box located at the front of the adjacent ends of the furnaces and adapted to receive the loaded vehicle, and a forced draft apparatus for each of said furnaces, and having its inlet connected with the said box.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FRANK LESLIE WATSON.

Witnesses:

JOHN JACKSON,

JOSH. HY. WHITAKER.