

(No Model.)

W. J. GODFREY.

WATER JACK FOR SMELTING FURNACES.

No. 367,904.

Patented Aug. 9, 1887.

Fig. 1.

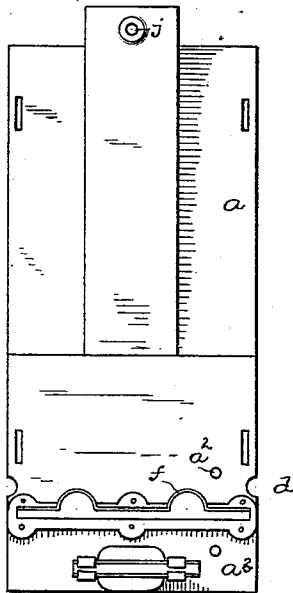


Fig. 6.

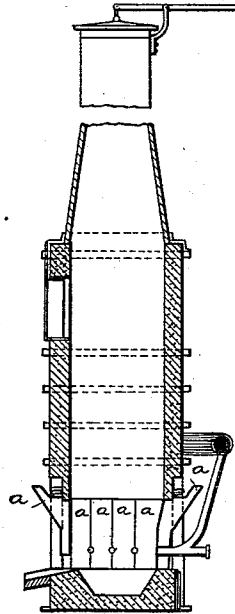


Fig. 2.

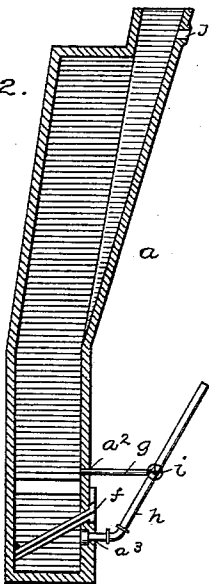


Fig. 3.

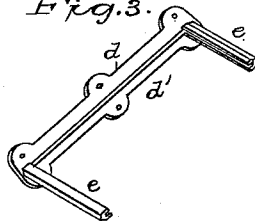


Fig. 7.

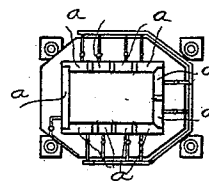


Fig. 4.

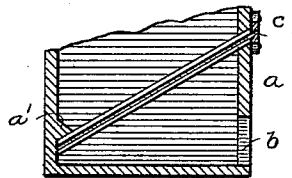
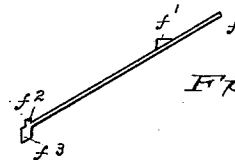


Fig. 5.



Witnesses
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UNITED STATES PATENT OFFICE.

WALTER J. GODFREY, OF DENVER, COLORADO.

WATER-JACK FOR SMELTING-FURNACES.

SPECIFICATION forming part of Letters Patent No. 367,904, dated August 9, 1887.

Application filed February 14, 1887. Serial No. 227,626. (No model.)

To all whom it may concern:

Be it known that I, WALTER J. GODFREY, a citizen of the United States, residing at Denver, in the county of Arapahoe and State of Colorado, have invented a new and useful Water-Jacket for Smelting-Furnaces, of which the following is a specification.

My invention relates to improvements in water-jackets; and the object of my improvement is to provide a water-jacket having a means by which the water may be shut off from the bottom while the operator is removing sediment, and which cut-off will allow the water to come in contact with the fire-front, while it prevents it from reaching the bottom. I attain this object by the construction of devices illustrated in the accompanying drawings, in which—

Figure 1 is a back view of a water-jacket with my improvements attached; Fig. 2, a vertical section through the center of Fig. 1; Fig. 3, a perspective view of the guideway for the slide. Fig. 4 is a vertical section of the lower portion of the jacket, showing the groove by which the guideway is held in position. Fig. 5 is a side view of the cut-off slide; and Figs. 6 and 7 are vertical and horizontal sectional views of a furnace with my improvements applied.

Similar letters refer to like parts throughout the several views.

In the drawings, *a* represents the shell or jacket, made of cast-iron, having an opening, *b*, near its lower extremity. Above this opening a slot, *c*, is cast in the shell, extending from side to side, for the reception of the guideway *d* from the slot *c*; and extending to a point near the bottom a groove is formed, in which the arms *e e* of the guideway *d* rest and by which they are held in position. On the inside of the front of the shell *a* a rib, *a'*, is cast, which extends from side to side, and is for the purpose of assisting in making a tight joint with the slide *f* as it is passed beneath. The guideway is formed, as shown in Fig. 3, with a slot, *d'*, between the arms *e e*, which are grooved for the reception of the cut-off slide *f*. At *a²* and *a³* pipes *g* and *h* are fitted into the main shell, and are connected at their meeting-point with a stop-cock, *i*, which may

be turned so as to convey the water into either of the pipes, as may be desired.

In putting this jacket and its connections together the cut-off slide *f* is placed in position in the grooves of the way. The whole is then placed in the slot *c* and forced into the grooves in the shell. The guideway is then fastened, preferably by rivets, to the shell. The projection *f'* is then attached to the slide *f*, and is for the purpose of completely closing the aperture when the slide is in use and preventing the water above the slide from escaping through the slot.

In operating, the stop or switch is turned so that the feed-water passes into the shell through the pipe *h* and passes up through the shell and out through the outlet *j*, (the slide *f* being drawn out so that the projections *f²* and *f³* come in contact with the shell and close the opening,) and by this flow of water the fire-front of the jacket is kept comparatively cool. The water, however, becomes heated more or less, which precipitates the lime and the like carried in the water. This becomes baked to the inside of the shell, which coating, if not removed, will prevent the water keeping that portion of the shell cool. It will therefore melt or in other ways be destroyed by the heat, and in the water-jackets now in use the furnace must be cooled down in order to clear it of the sediment mentioned, which causes expensive delays; and my invention is to provide a means of cleaning out or removing the sediment without being obliged to cool down the furnace, and this is accomplished by simply pushing in the slide *f* and turning the flow of water through the pipe *g*. This shuts off the water from the bottom. The hand-hole *b* is then uncovered, through which the sediment is removed, while at the same time the water is allowed to come in contact with the whole fire-front of the shell. After the cleaning process is completed the cover is placed again in the hand-hole and secured in the ordinary manner. The slide is pulled out, and the water turned through the pipe *h*. Thus it will be seen that the process of removing the scale and sediment can be easily accomplished with my device while the furnace is doing its ordinary work.

Having now fully described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with a sectional water-jacket having a seat extending across the back thereof and provided internally at the sides with diagonal grooves and in front with a projecting rib, of a sliding cut-off resting in said diagonal grooves, and pipes for conducting
10 water to said water-jacket, substantially as described.

2. The combination, with a sectional water-jacket provided internally at the sides with diagonal grooves and in front with a projecting rib, of a sliding cut-off resting in said
15 diagonal grooves, and pipes for conducting water to said water-jacket.

3. The combination, with a sectional water-jacket provided internally at the sides with diagonal grooves, of the guideway or frame
20 for the slide-valves, consisting of a slotted plate having grooved arms *e e*, adapted to fit in the diagonal grooves in the water-jacket, and the slide *f*, substantially as shown and described.

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

WALTER J. GODFREY.

Witnesses:

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