H. N. LEASK.

CHARGING DOOR FOR FURNACES.

APPLICATION FILED DEC. 30, 1910.

1,074,509.

Patented Sept. 30, 1913.

2 SHEETS—SHEET 1.

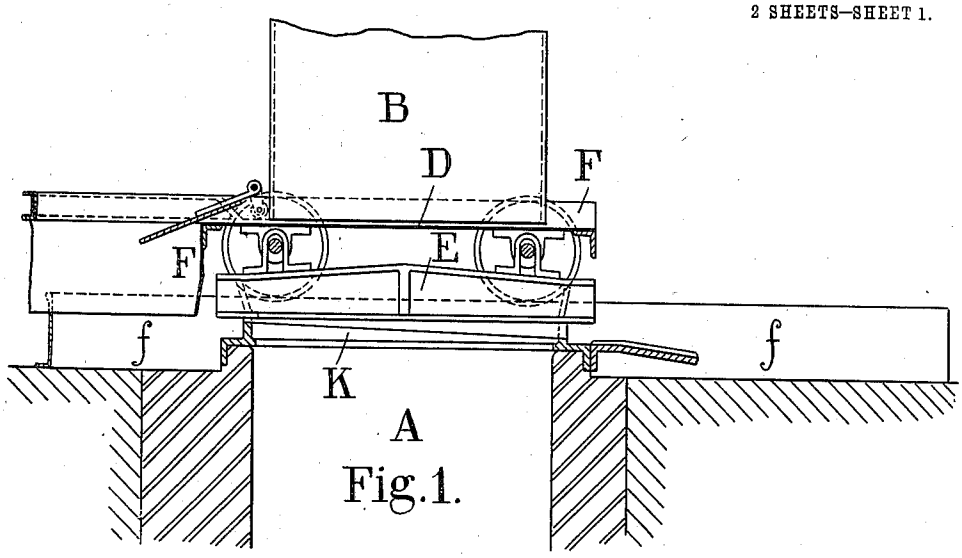


Fig.1.

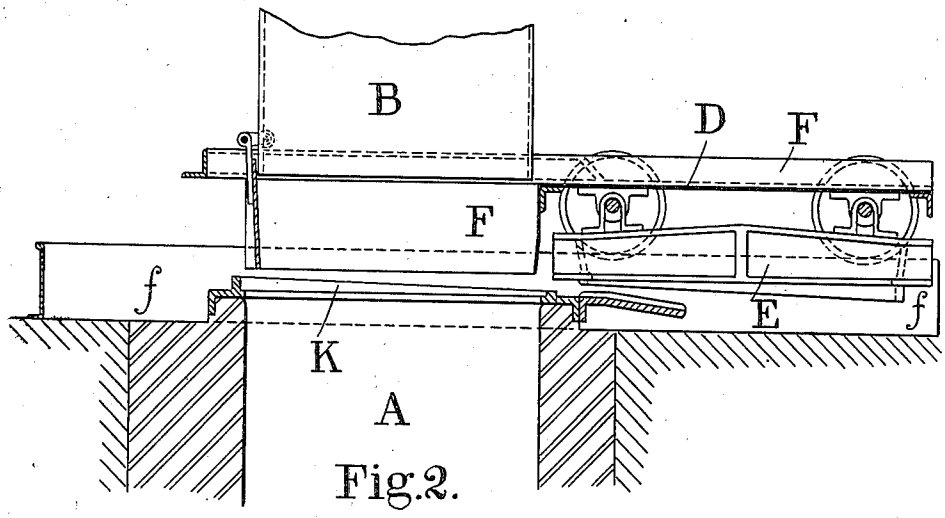


Fig.2.

WITNESSES

INVENTOR

Henry N. Leask

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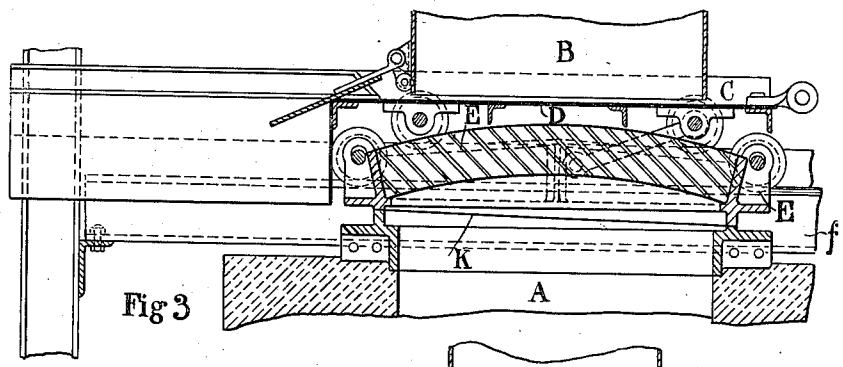


Fig 3

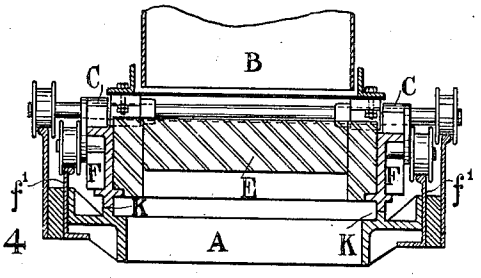


Fig. 4

WITNESSES

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UNITED STATES PATENT OFFICE.

HENRY NORMAN LEASK, OF EGREMONT, ENGLAND.

CHARGING-DOOR FOR FURNACES.

1,074,509. Specification of Letters Patent. Patented Sept. 30, 1913.

Application filed December 30, 1910. Serial No. 600,013.

To all whom it may concern:

Be it known that I, HENRY NORMAN LEASK, a British subject, residing at Egremont, county of Chester, England, have invented certain new and useful Improvements in Charging-Doors for Furnaces, of which the following is a specification.

This invention relates to improvements in doors of refuse destructor and other furnaces of the type in which the fuel is fed to the fire from the top or from a level above that of the fire and especially applicable for use in connection with furnaces having containers with bins or other receptacles arranged above the fire door into which the fuel is placed before being fed or dropped into the fire.

It consists essentially of a carriage or slide carrying a door having an inclined bottom or face and capable of being moved against a furnace opening having a rim of corresponding inclination to close the furnace, the carriage if desired also carrying an upper door to close the bottom of the container or such door may be carried by a separate carriage.

The invention will be fully described with reference to the accompanying drawings.

Figure 1. is a sectional view showing the door operated by means of a single carriage, with the door closed. Fig. 2. is a similar view showing the door open. Fig. 3. is a similar view showing door operated with two carriages. Fig. 4. is a transverse section of same.

As shown in the drawings the arrangement of the hopper B and furnace opening A is exactly as described in my concurrent application Serial No. 600,012. The furnace opening is however provided with a rim K the top edge of which is finished or arranged in an inclined plane and the bottom edge of the door E is constructed of a corresponding inclination so that when the door is moved horizontally into the closing position it makes a tight joint with the rim K.

In the form of the invention shown in Fig. 1 the door E is supported upon a carriage F adapted to run on rails *f* so that the door E can be moved into and out of closing position. The bearings by which the door E is suspended are preferably slotted as shown so that the door may be moved forward till its whole weight rests on the rim K. The carriage F may carry a plate D adapted to form a door or closure or means for operating the closure of the bottom of the hopper or container B.

In the arrangement shown in Figs. 3 and 4, the door is operated by a double carriage arrangement such as described in the concurrent application Serial No. 600,012, the carriage F carrying the door E being articulated to a second carriage C which may carry the container closure D. As shown the carriage F runs on separate rails *f'* to the carriage C but if desired both carriages may run on the same rails.

The object of the inclined construction of the upper surface of the rim and the corresponding inclination of the door as hereinbefore specified is to prevent distortion and displacement of the top of the furnace or a failure to close the furnace owing to distortion and to avoid lifting the door more at one side than at another, and also to form a good joint between the rim and the door and still provide means for a ready separation of the door from the furnace rim. Water seals around the inlet openings of furnaces of this character have been found very troublesome in that a great deal of water is required to prevent boiling of the contents of the seals and filling the destructor house with steam. Moreover, these water seals are apt to clog and fill up with dust, in which case the circulation of water ceases. A still further objection to the water seals is that they are apt to crack and break. The inclined structure of the rim and the door as hereinbefore disclosed overcome to a large extent the objections of previous structures and a tight seal or closure for the furnace inlet is provided.

What I claim as my invention and desire to protect by Letters Patent is:—

1. In a furnace charging and closing means of the class specified, the combination of a furnace having an inlet opening provided with a surrounding rim with a top inclined contacting edge, a fixed charging container disposed over and at a distance from the inlet opening of the furnace, a carriage movably mounted between the bottom portion of the fixed container and the inlet opening of the furnace, and a door suspended from the carriage and movable with the latter between the container and furnace inlet opening and provided with an inclined bottom edge to slide over and bear upon the

top inclined edge of the rim of the furnace inlet opening to close the latter by a tight wedging action.

2. In a furnace charging and closing means of the class specified, the combination of a furnace having an inlet opening provided with a surrounding rim with a top inclined contacting edge, a fixed charging container disposed over and at a distance from the furnace inlet opening, a carriage movably mounted between the container and inlet opening of the furnace, a door suspended from and movable with the carriage between the container and furnace inlet and provided with a lower inclined bottom edge slidable over the top inclined edge of the furnace rim and having snug bearing on said inclined rim edge to form a tight closure, and a closure supported by the carriage above the door to engage and close the lower portion of the container.

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

HENRY NORMAN LEASK.

Witnesses:
JOHN WILLIAM THOMAS,
MALCOLM SMETHURST,
J. OWDEN O'BRIEN.