T. G. SELLECK.

FURNACE DOOR OPERATING MEANS.

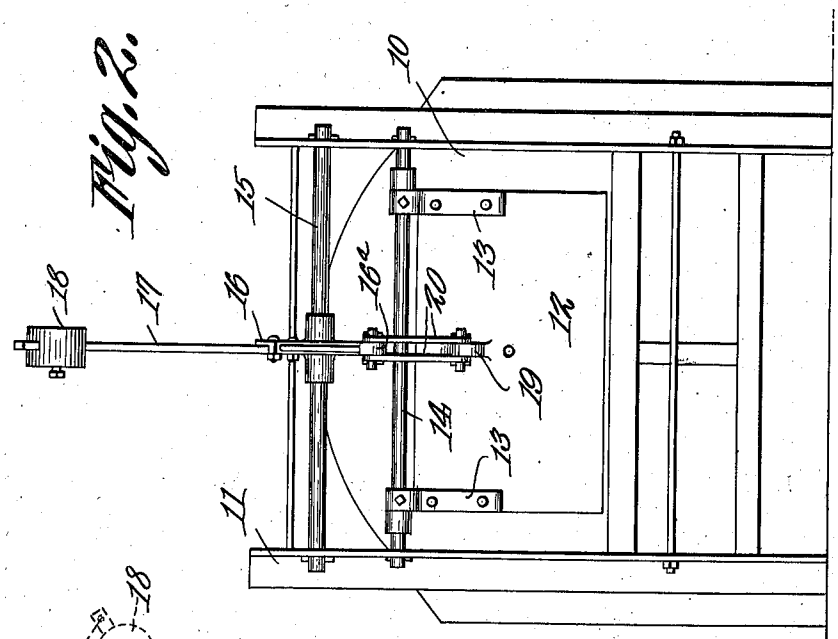
APPLICATION FILED APR. 3, 1916.

1,215,418.

Patented Feb. 13, 1917.

2 SHEETS—SHEET 1.

Fig. 2.



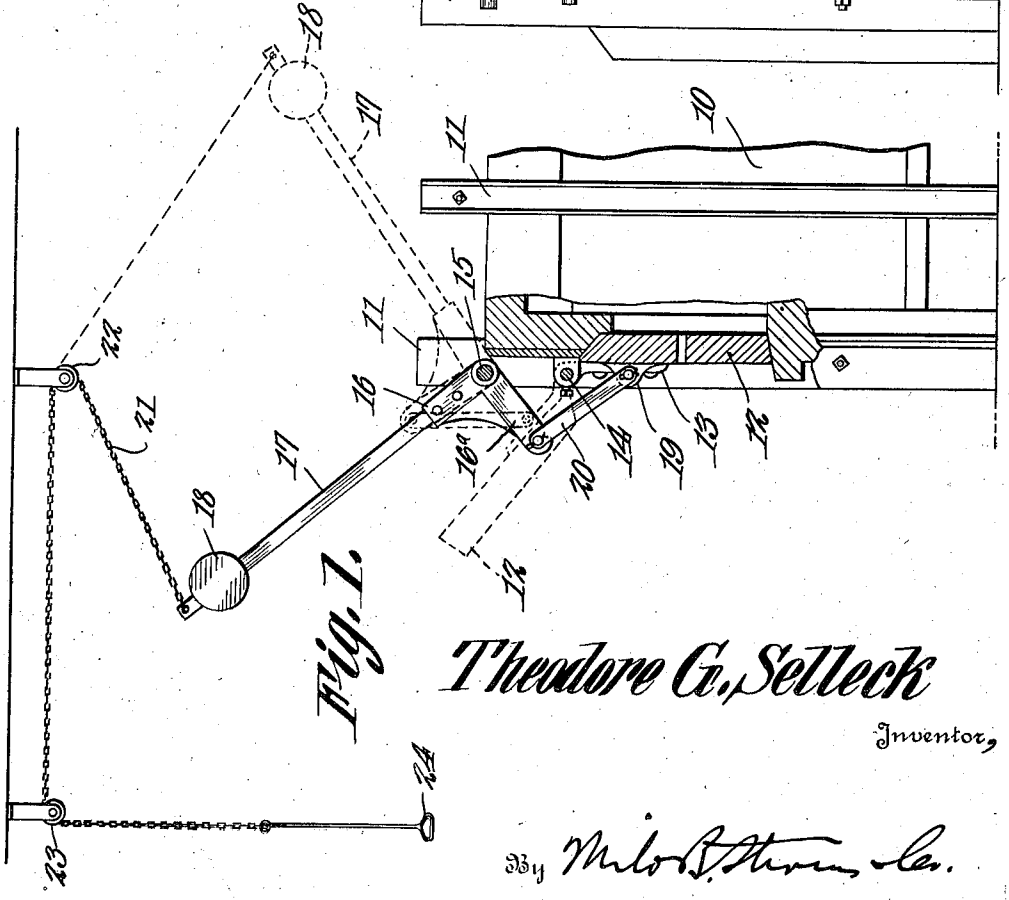


Fig. 1.

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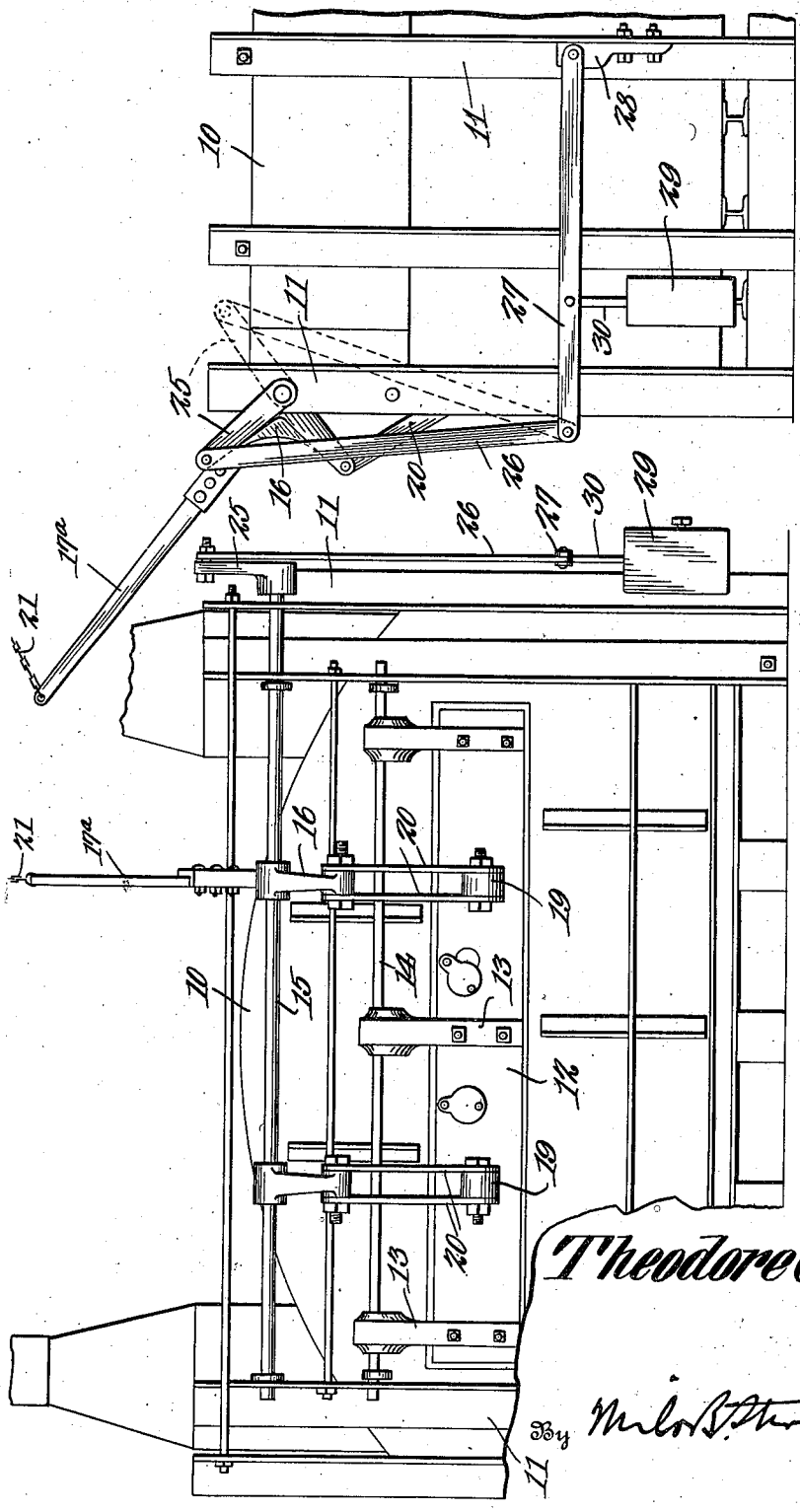


Fig. 4.

Fig. 3.

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UNITED STATES PATENT OFFICE.

THEODORE G. SELLECK, OF CHICAGO, ILLINOIS, ASSIGNOR TO DEERE & COMPANY, OF MOLINE, ILLINOIS, A CORPORATION.

FURNACE-DOOR-OPERATING MEANS.

1,215,418. Specification of Letters Patent. Patented Feb. 13, 1917.

Application filed April 3, 1916. Serial No. 88,577.

To all whom it may concern:

Be it known that I, THEODORE G. SELLECK, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Furnace-Door-Operating Means, of which the following is a specification.

This invention relates to devices for operating furnace doors, more particularly the doors of annealing and similar furnaces.

The invention has for its object to provide a device whereby the door may be easily operated, and also securely held in open or closed position.

With the object stated in view, the invention consists in a novel combination and arrangement of parts to be hereinafter described and claimed, and in order that the same may be better understood, reference is had to the accompanying drawing, in which—

Figure 1 is a side elevation, partly in section, showing one embodiment of the invention;

Fig. 2 is a front elevation thereof;

Fig. 3 is a front elevation showing another embodiment of the invention, and

Fig. 4 is a side elevation thereof.

Referring specifically to the drawing, 10 denotes a furnace of the kind stated, the same being mounted between standards 11. The charging door of the furnace is shown at 12, the same being pivoted by means of two heavy straps 13 on a rod 14 extending horizontally across the front of the furnace and supported at its ends by the front standards 11. The door is thus hinged or pivoted to swing in a vertical plane. The edge of the door is beveled and the door opening is correspondingly shaped so that a tight closure may be had.

Above the rod 14, and parallel thereto, extends a shaft 15 which is also supported at its ends by the front standards 11. The shaft 15 is the fulcrum of an angle lever, the same being mounted at its angle on the shaft, and swinging in a vertical plane. The branches of the angle lever are indicated at 16 and 16^a, respectively. To the branch 16 is fixed an extension arm 17 carrying a weight 18. The lever branch 16^a is connected by a pair of links 20 to the door 12, the latter having lugs 19 on its outer face to which the links are connected.

A chain or similar hauling device 21 is connected to the outer end of the lever arm 17 and runs upward to a pulley 22 mounted above the furnace 10. The chain is trained over the pulley and is brought back horizontally to a pulley 23, and then drops down to within easy reach of the operator, its ends being provided with a suitable hand grip 24.

When the door 12 is closed, the lever arm 17 extends forward at an inclination to the vertical center line of its fulcrum, the same being the shaft 15, and the weight 18 therefore holds the door tightly closed. To open the door, it is necessary only to give the chain 21 a downward pull, whereupon the lever arm 17 is swung back, and through the lever branch 16^a and the link connection 20 the door is swung upward and open. The lever arm is swung back far enough to pass to the rear of the vertical center line of the shaft 15, so that the weight 18 now holds the door open, the lever arm and the parts associated therewith being located high enough to clear the top of the furnace. To close the door, the chain is given another pull which swings the lever arm back to its first position, and then the connections with the door close the same.

In the modification shown in Figs. 3 and 4 the weight 18 is not mounted on the lever arm 17. To one end of the shaft 15 is fixed a crank 25 which is connected by a link 26 to one end of a lever 27 fulcrumed at its opposite end to a bracket 28 carried by one of the standards 11. A weight 29 is mounted on a rod 30 suspended from the lever 27 intermediate its ends. The chain 21 is connected to the lever arm 17 as before, said arm, however, being shorter. The operation of the device is the same as that hereinbefore described, the holding of the door in open and closed position being effected by the swing of the crank 25 and the link 20 past the vertical center line of the shaft 15.

The last described structure has been designed where the ceiling of the furnace room is too low for the weighted arm 17, or where the sweep of said arm would be interfered with by other appliances.

It will be noted that in both structures the swinging radius of the door is considerably less than the swinging radius of the actuating devices, resulting in a quick opening and closing of the door.

I claim:—

1. The combination with a pivoted furnace door, of an operating means therefor, comprising an angle lever, a link connecting one of the branches of the lever to the door, means connected to the other branch of the lever for swinging the lever, a shaft carrying the lever, and forming the fulcrum thereof, and a weight having a connection with the operating means to hold said means against a return movement at the limits of their door-opening and closing movements.

2. The combination with a pivoted furnace door, of an operating means therefor, comprising an angle lever, a link connecting one of the branches of the lever to the door, means connected to the other branch of the lever for swinging the lever, a shaft carrying the lever and forming the fulcrum thereof, and a weight having a connection with the operating means to hold the door open and closed.

3. The combination with a pivoted furnace door, of an operating means therefor, comprising an angle lever, a link connecting one of the branches of the lever to the door, the other branch of the lever being provided with an extension, means for swinging the lever, a shaft carrying the lever and forming the fulcrum thereof, and a weight carried by the aforesaid lever extension, said lever extension swinging past the vertical center line of the shaft in both directions.

4. The combination with a pivoted furnace door, of an operating means therefor, comprising an angle lever, a link connecting one of the branches of the lever to the door, the other branch of the lever being provided with an extension, hauling means connected to the lever extension, a shaft carrying the lever and forming the fulcrum thereof, and a weight carried by the aforesaid lever extension, said lever extension swinging past the vertical center line of the shaft in both directions.

In testimony whereof I affix my signature.

THEODORE G. SELLECK.