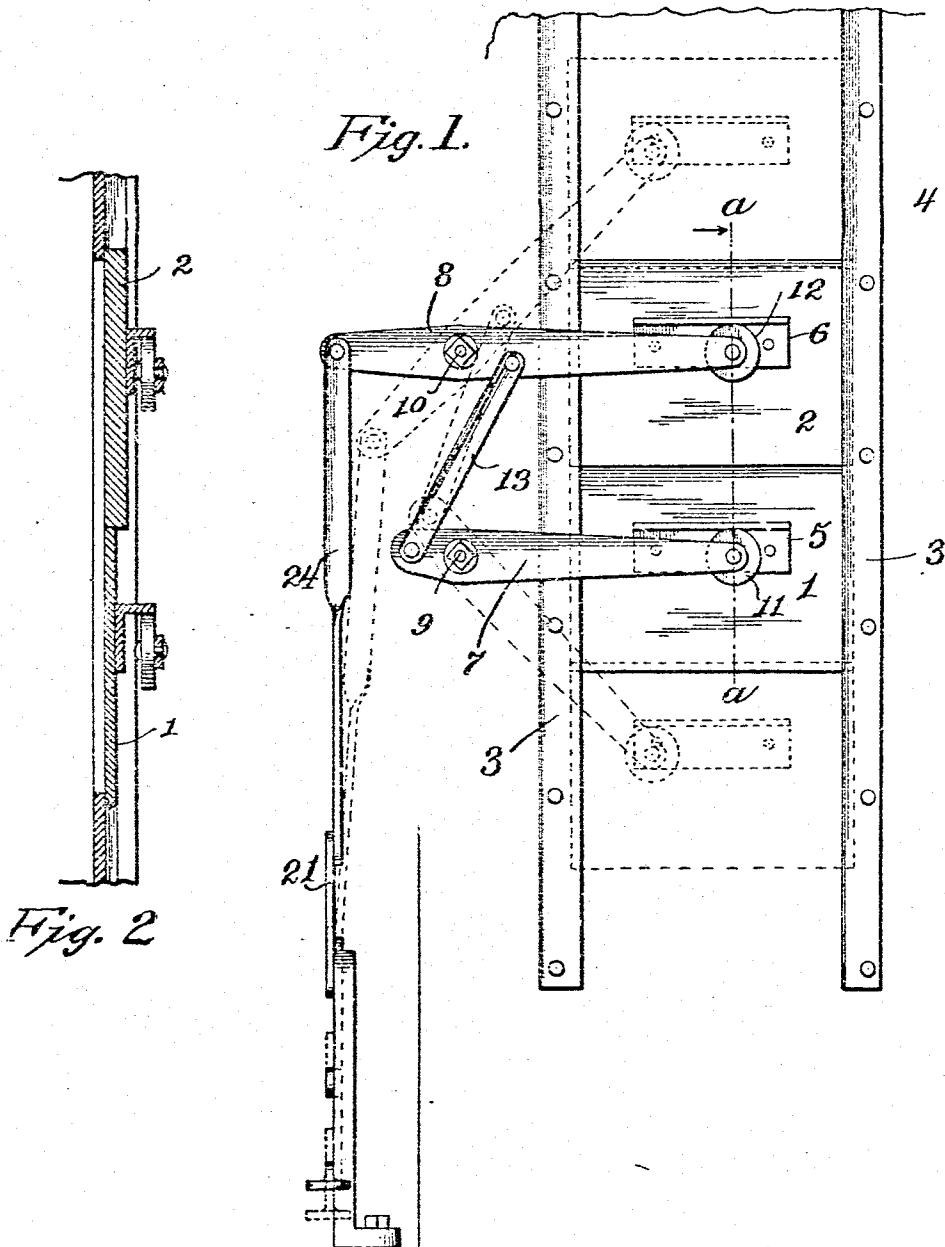


948,218.

Patented Feb. 1, 1910.

2 SHEETS—SHEET 1.



Inventor
George H Gregory

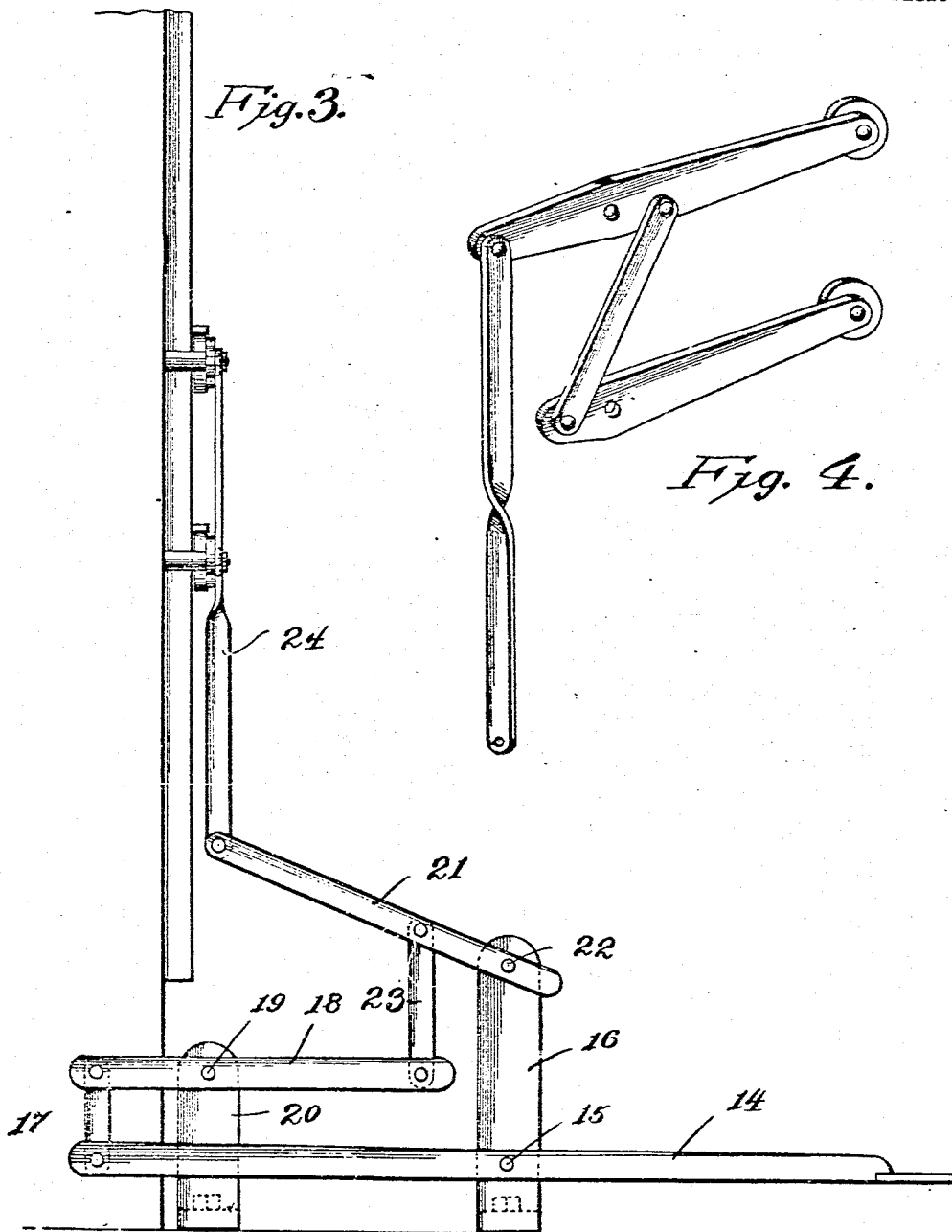
Witnesses

James F. Brown
J. W. Garner

By Victor J. Evans
Attorney

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2 SHEETS—SHEET 2



Witnesses

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J. W. Garner

Inventor
George H. Gregory

By Victor J. Evans
Attorney

UNITED STATES PATENT OFFICE.

GEORGE H. GREGORY, OF MOUNT CARMEL, ILLINOIS.

FURNACE FIRE-DOOR.

948,218

Specification of Letters Patent.

Patented Feb. 1, 1910.

Application filed October 9, 1909. Serial No. 521,847.

To all whom it may concern:

Be it known that I, GEORGE H. GREGORY, a citizen of the United States, residing at Mount Carmel, in the county of Wabash and State of Illinois, have invented new and useful Improvements in Furnace Fire-Doors, of which the following is a specification.

This invention relates to improvements in fire doors and means for opening the same, the object of the invention being to provide an improved fire door which automatically moves to closed position by gravity, a further object being to provide means for readily opening the door, the said invention consisting in the construction, combination and arrangement of devices hereinafter described and claimed.

In the accompanying drawing:—Figure 1 is a front elevation of a self-closing fire door and operating means therefor, constructed in accordance with my invention. Fig. 2 is a detail vertical sectional view of the fire door, on the plane indicated by the line *a-a* of Fig. 1. Fig. 3 is a side elevation of my improved fire door and operating means therefor at right angles to Fig. 1. Fig. 4 is a detail perspective view of the pivotally mounted arms which carry the leaves of the door, also showing the link which connects said arms and a portion of the link which connects the operating levers to the upper arm.

My improved fire door comprises a lower leaf or member 1 and an upper leaf or member 2, both of which operate in vertically disposed guide ways 3 which are provided on the front of the furnace indicated at 4. The upper leaf is heavier than the lower leaf and is here shown as thicker than the lower leaf in order to give it the required additional weight. The lower and upper leaves are respectively provided on their outer sides with horizontally disposed track ways 5, 6, each of which is here shown as of angle form cross sectionally providing a vertical web bearing on and secured to one of the leaves and an upper outwardly extending horizontal web.

A pair of arms 7, 8, are pivotally mounted as at 9—10 respectively on the front of the furnaces, said arms extending across one of the guide ways and partly across the doors and being respectively provided at their free inner ends with rollers 11, 12,

which respectively bear under the horizontal webs of the angle track-ways of the door leaves or members. The said arms are connected together by a link 13, the pivot connections between the said link and the said arm being on opposite sides and at a suitable distance from the pivots 9, 10, on which said arms are mounted so that the said link while connecting the said arms together causes them to move simultaneously in reverse directions.

A foot lever 14 is pivotally mounted as at 15 on one side of a standard 16 and is connected by a link 17 to the shorter arm of a link lever 18, which is fulcrumed as at 19 to a standard 20. A link lever 21 is pivotally connected as at 22 to the standard 16 and is connected at an intermediate point by a link 23 to the lower arm of the link lever 18. A link 24 connects the link lever 21 to the outer end of the arm 8 which is connected to the heavier upper door leaf or member 2.

Owing to the superior weight of the heavier upper door leaf or member 2, the latter normally remains in closed position indicated in Figs. 1 and 2 and hence by its connection with the lower leaf or member 1 by the arms 7, 8, and link 13, also keeps the lower leaf or member of the door in upper closed position. When it is desired to open the door, the fireman presses with his foot on the lever 14 causing the latter through its connections hereinbefore described, which in effect, forms a compound lever, to lower the outer end of the arm 8 so as to dispose said arm in inclined position and in so doing cause said arm by reason of its connection with the upper door member to raise said upper door member, the link 13 and the lower arm 7 simultaneously acting to lower the lower door member and hence open the door members as shown in dotted lines in Fig. 1. After stoking, the fireman removes his foot from the lever 14 and thereupon the upper door member by its superior weight, descends and in so doing causes the connections between it and the lighter lower door member to raise the latter and hence the door automatically closes.

What is claimed is:—

A furnace having a door opening and vertical guide ways, a pair of fire door members mounted for sliding movement in said guide

ways, the upper door member being heavier than the lower door member and each door member having a track way, a pair of arms pivotally mounted on the furnace and each having a roller engaging one of the track ways of the door members, a link connecting said arms together for simultaneous movement in reverse directions, a foot lever and

connections between the latter and one of said arms.

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

GEORGE H. GREGORY.

Witnesses:

ETHEL D. RIGG,

Z. S. RIGG.

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