

M. J. TIERNEY.
AUTOMATIC GRATE LOCK.

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946,081.

Patented Jan. 11, 1910.

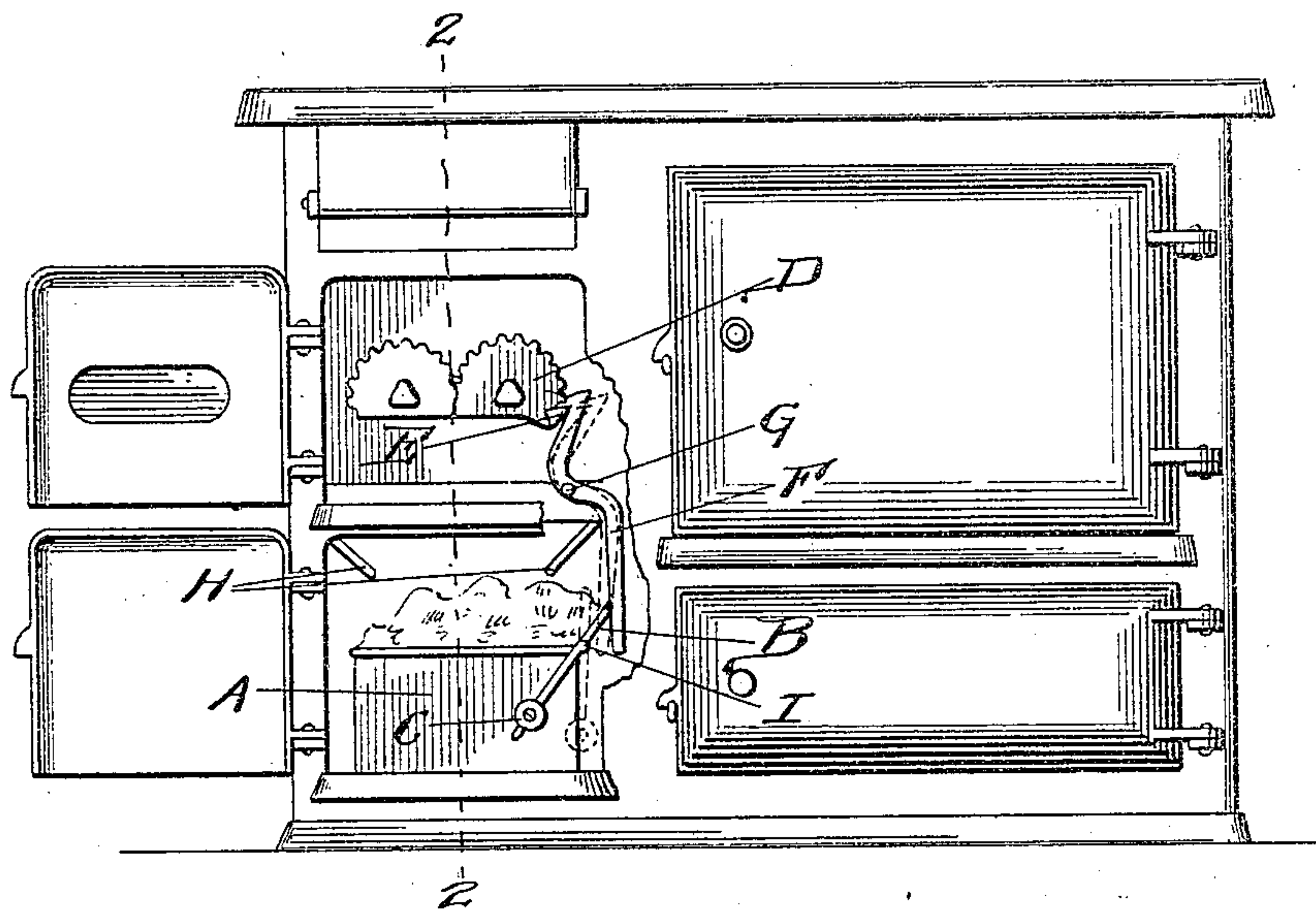


Fig 1

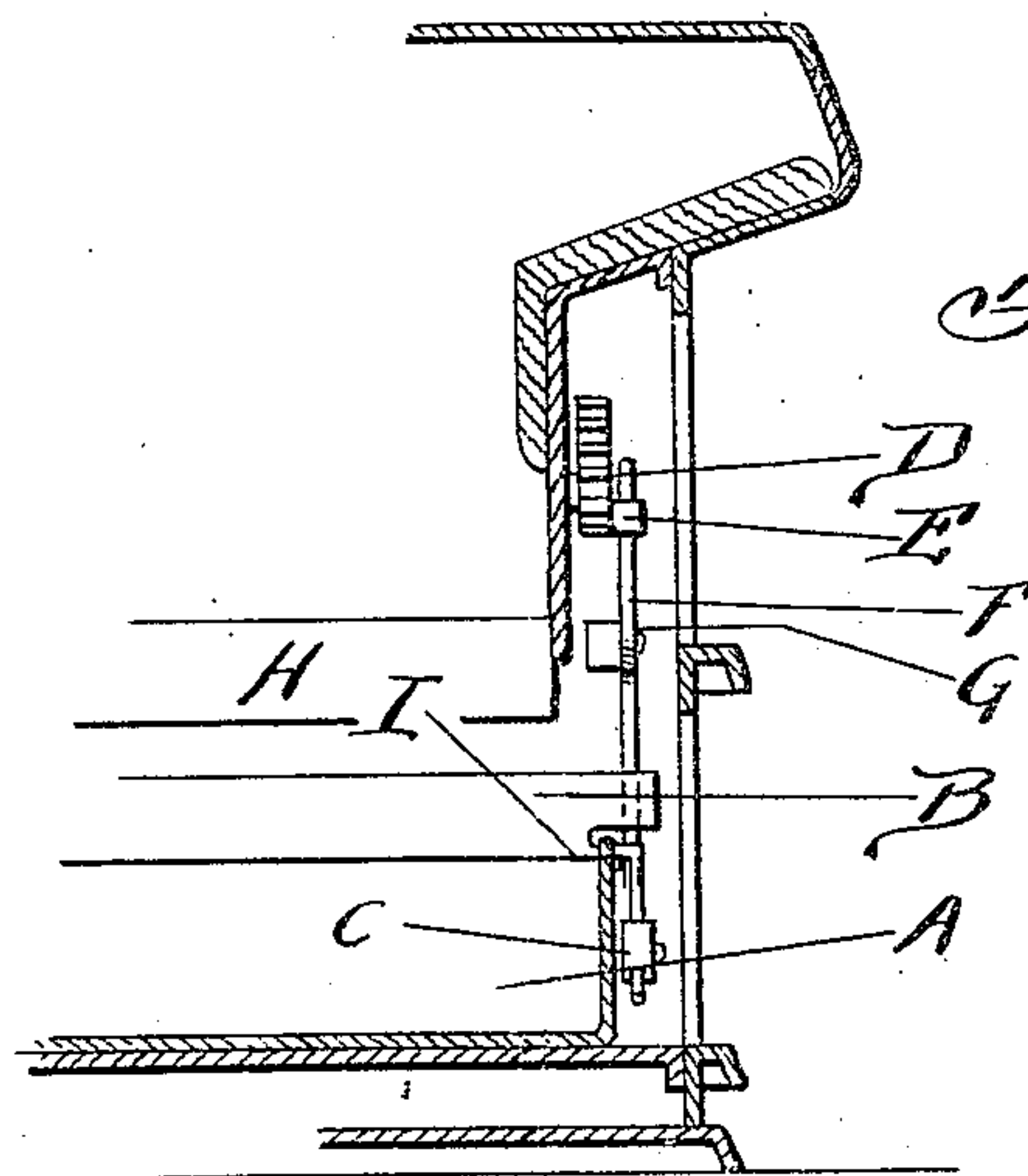
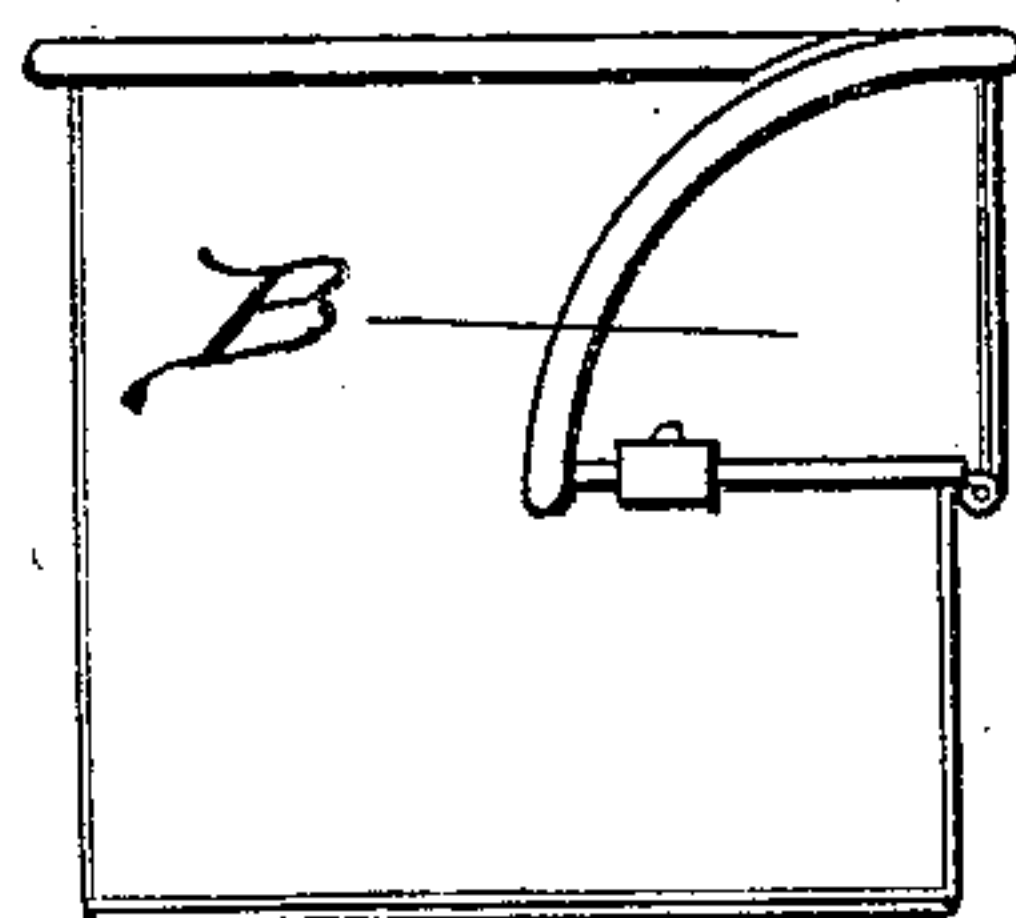


Fig 2

Fig 3



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AUTOMATIC GRATE-LOCK.

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To all whom it may concern:

Be it known that I, MICHAEL J. TIERNEY, a citizen of the United States, residing at Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Automatic Grate-Locks, of which the following is a specification.

This invention is an automatic device for preventing the overloading of ash pans and ash pits, and the consequent burning out of grates in stoves, furnaces and all other fuel burning structures.

The device acts in combination with a grate which is agitated, to prevent dumping or agitation after the ash pan or pit is full, by automatically engaging some portion of the grate so that it cannot be operated.

The invention is illustrated in connection with a range, but it is to be understood that it may be used on any sort of stove or furnace, and is not limited to the exact embodiment shown, the invention embracing the broad idea of locking a shaking or dumping grate when the ash pan or ash pit becomes full.

The accompanying drawing illustrates only one of many variations of the device, and referring thereto, Figure 1 is a front elevation, partly broken away, of a range provided with the device. Fig. 2 is a vertical section on the line 2—2 of Fig. 1. Fig. 3 is an end view of a modified ash pan having a different form of the invention.

Referring specifically to the drawings, A indicates an ash pan having at one side a hinged plate or section B which in the embodiment shown in Fig. 1 is pivoted at its ends, at I, to the top of the side wall of the pan and which projects above said wall. Said plate has a depending arm with a counter-weight C.

F is a dog which is pivoted at G to one of the cross bars of the frame of the stove, and the lower end of this dog projects in the path of the plate B and is engaged thereby when the plate swings out. The head of the dog is arranged to engage a projection E on one of the grate gears D, when the lower end of the dog is swung out as stated.

H is the ash chute above the ash pan.

The operation of the device is as follows: When the ash pan becomes filled with ashes above the rim thereof the weight of the ashes will cause the plate B to swing out or over, as shown in full lines in Fig. 1, the

edge thereof coming in contact with the lower end of the dog F causing said dog to turn and engage the projection E of the grate cog, thereby locking the cogs and preventing any further operation of the grate until the ash pan is removed and dumped; when this is done the plate B will hang in vertical position as shown in dotted lines in Fig. 1 and the dog F will swing out of engagement with the gears, thereby allowing further operation of the grate.

In Fig. 3, the swinging section B forms a part of the side wall of the pan, and has segmental ends to prevent escape of the ashes when it swings out, and with this construction, when the pan becomes nearly full the pressure of the ashes against the swinging section will cause the same to swing out and strike the dog, with the same result as above described.

It is obvious that a construction embodying the same idea may be applied to any ash pan or ash pit, and any kind of a traveling or turning grate, or any other kind of grate requiring movement for its operation, to lock said grate against movement until the ash pan or ashes are removed.

Therefore by the use of the invention the ashes cannot be filled up against the grate and consequently the premature burning out of grates will be prevented. It will necessitate the requisite attention to ashes, on the part of domestic servants, furnace firemen and the like.

I claim:

1. The combination with a movable grate, and an ash receptacle thereunder, of means actuated by collection of ashes in the receptacle to prevent movement of the grate.

2. The combination with a shaking grate, and an ash receiver thereunder, of means actuated by collection of ashes in the receiver to prevent movement of the grate.

3. The combination with a movable grate, of an ash-receptacle thereunder, a plate in the receptacle, movable by weight of ashes against the same when the receptacle is filled to a predetermined extent, and means actuated by movement of the plate to lock the grate against movement.

4. The combination with a movable grate, of an ash receptacle thereunder, a dog engageable with the grate to prevent movement thereof, and a yielding plate supported adjacent to the upper part of the ash receptacle in position to receive the pressure of

the ashes when they reach a certain height, and arranged to strike the dog and cause the same to engage the grate.

5 5. The combination with a movable grate, of an ash receptacle thereunder, having an outwardly movable section at the side thereof, and a locking device arranged to engage and lock the grate against movement and projecting into the path of said movable
10 section, for operation thereby.

6. The combination with a shaking grate, of a dog pivoted thereunder and engageable with the grate to lock the same against

movement, and an ash pan under the grate, having an upper swinging plate at the side, 15 arranged for operation by pressure of ashes thereon, and in position to strike and operate the dog, to lock the grate, when the pan is full of ashes.

In testimony whereof, I affix my signature 20 in presence of two witnesses.

MICHAEL J. TIERNEY.

Witnesses:

JOSEPH B. HONE,
ARTHUR B. NORRIS.