No. 877,374. PATENTED JAN. 21, 1908.

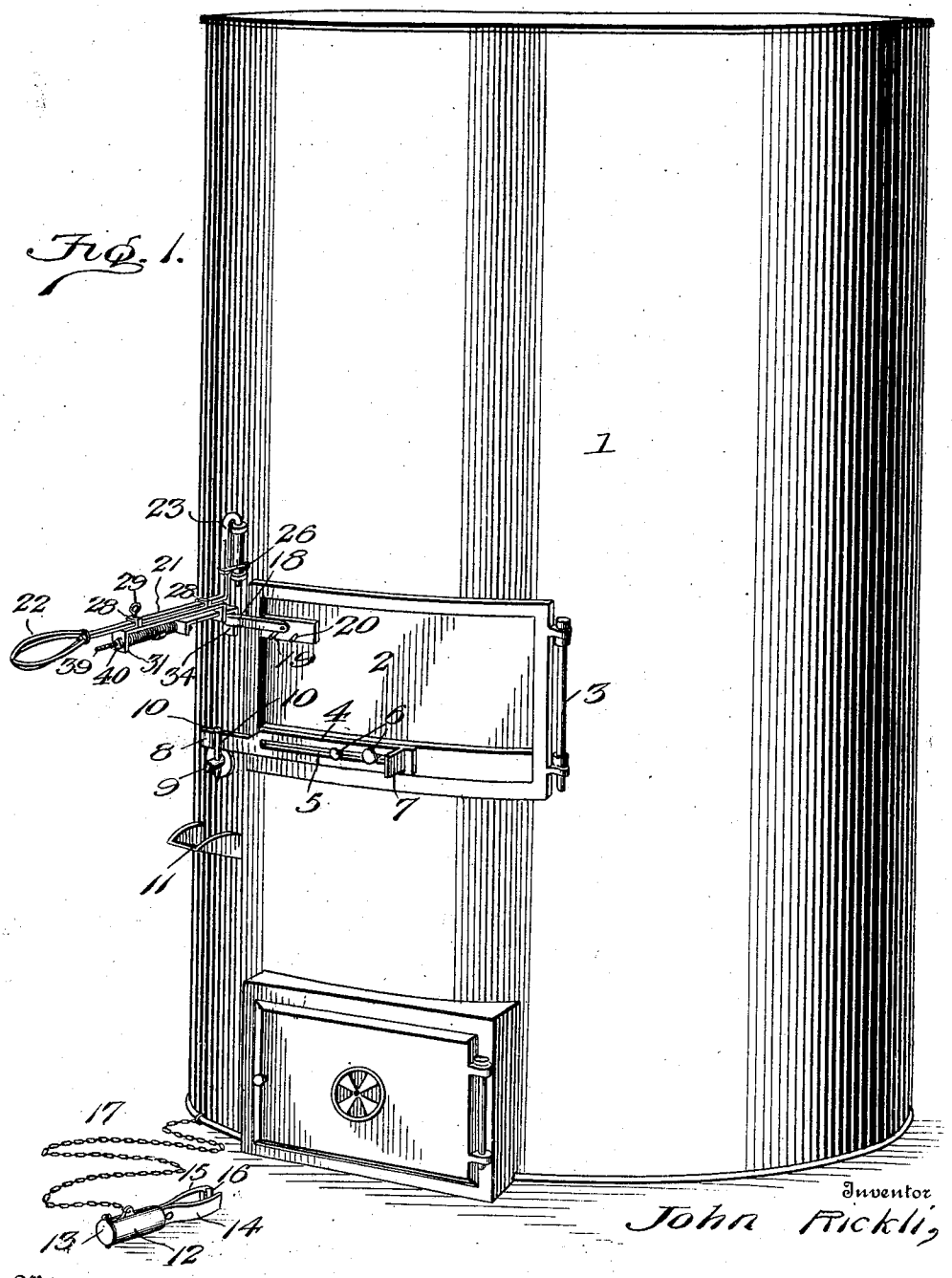
J. RICKLI.

DOOR CONTROLLING MEANS.

APPLICATION FILED MAR. 29, 1907.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses

W. Koerth.

C. C. Hines.

Inventor

John Rickli,

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

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2 SHEETS—SHEET 2.

Fig. 2

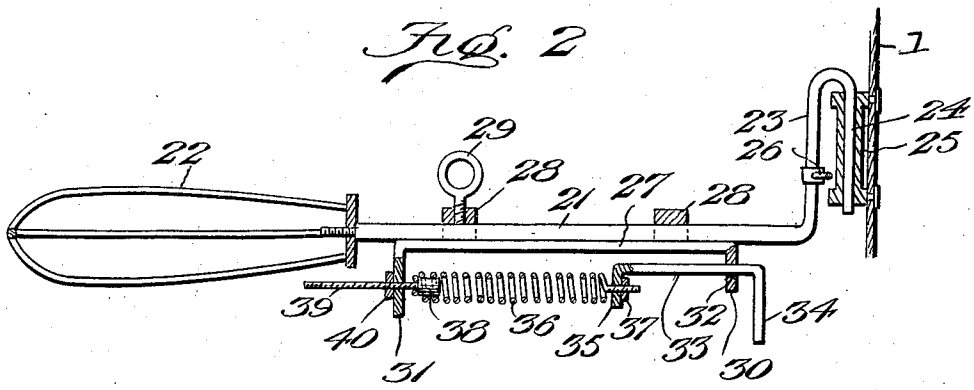
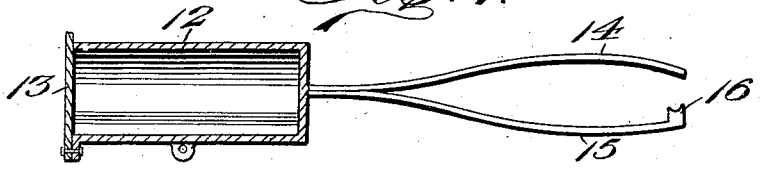


Fig. 3



Fig. 4.



Inventor

John Rickli,

Witnesses

Wm. J. Berth.

C. C. Hines.

By Victor J. Evans

Attorney

THE NORRIS PETERS CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

JOHN RICKLI, OF CARROLLTON, OHIO.

DOOR-CONTROLLING MEANS.

No. 877,374. Specification of Letters Patent. Patented Jan. 21, 1908.

Application filed March 29, 1907. Serial No. 365,399.

To all whom it may concern:

Be it known that I, JOHN RICKLI, a citizen of the United States of America, residing at Carrollton, in the county of Carroll and State of Ohio, have invented new and useful Improvements in Door-Controlling Means, of which the following is a specification.

This invention relates to means for controlling furnace and stove doors, the main object of the invention being to provide a simple and efficient construction of means for holding the check-draft door normally closed and automatically opening the same when a predetermined high degree of temperature is reached, to allow the stove to cool off and obviate all liability of danger from excessive temperature.

The invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of a furnace embodying my invention. Fig. 2 is a vertical longitudinal section of the door-opening device. Fig. 3 is a view of the fusible locking pin. Fig. 4 is a view of the pin holding and applying device.

Referring to the drawings, 1 designates a stove or furnace provided with a check-draft door 2, hinged at one side, as at 3, to swing to an open or closed position. In accordance with my invention, the door is provided with a sliding latch bolt 4 provided with a longitudinal slot 5 engaging guide members 6 on the door frame, said bolt being provided at its rear end with a finger piece 7 and having its opposite end reduced to form a latch member 8. The member 8 when projected lies, when the door is closed, above a keeper member 9 on the stove body, which keeper member is provided with a socket or opening to receive a latch pin 10, whereby the door is locked in closed position. This latch pin is composed of some suitable fusible material, such as lead and tin, adapted to melt at a predetermined degree of heat, say 530 degrees Fahrenheit, thus releasing the door and permitting it to be opened. A catch basin or receptacle 11 is provided below the keeper to receive the molten metal of which the pin is made, thus preventing all liability of a conflagration being started by the dropping of the metal on the floor. If desired, a device for holding a plurality of the locking pins and conveniently applying the same may be employed. Such a device is shown in Figs. 1 and 4 and comprises a hollow handle 12 forming a reservoir for the pins, which handle is closed at its outer end by a pivoted cover 13. From the opposite end of the handle project jaws 14 and 15, forming a pair of tweezers by which a pin may be gripped and conveniently inserted into the keeper. The jaw 15 is preferably formed with a notched lug 16, in which the pin 10 is adapted to be securely held by the pressure of the free end of the jaw 14. A chain or other flexible connecting medium 17 is employed for connecting the device with the body of the furnace, as shown in Fig. 1, so that it may be conveniently manipulated and its loss prevented.

The free end of the door is provided above the latch with a pivoted holding arm 18 adapted to be swung to a horizontal position beyond the end of the door or wholly over upon the front surface of the door, and to rest in such positions upon supporting ears or projections 19 and 20. A door opening device is employed in connection with this arm 18 for automatically opening the door upon the fusing of the pin 10. This door opening device comprises an arm or bar 21 provided at its outer end with an operating handle 22 and having a hook-shaped inner end forming an upturned arm 23 and a downturned parallel pintle 24, the latter being journaled in a socket or bearing 25 on the wall of the furnace to permit said bar to be swung in a horizontal plane toward and from the free end of the door. A suitable form of stop device 26 is provided upon the arm 23 to engage the furnace and limit the inward swinging movement of the bar. A bracket 27 is slidably mounted on the underside of the bar 21 and provided with cuffs or sleeves 28 engaging the same, and on one of said sleeves is mounted a clamping screw 29 for holding the bracket in fixed position upon the bar. The front and rear ends of the bracket are downturned to form supporting portions 30 and 31, the portion 30 being provided with a transverse slot 32 to slidably receive a door opening member 33 provided with a downturned finger 34 at its forward end to engage in the space between the wall of the furnace and arm 18, when the parts are in operative position. The rear end of the member 33 has a downturned portion 35 threaded to receive the inner threaded end of a coiled contractile spring 36, which is secured thereto by a retaining nut 37. The outer or rear end of the spring receives and is secured to a head 38 connected with a screw stem 39 which

passes through an opening in the portion 31 of the bracket 37 and is provided with an adjusting and retaining nut 40.

In the operation of the device the parts are arranged, as shown in Fig. 1 with the door closing device mounted in operative position by the engagement of the finger 34 with the arm 18, said finger lying between said arm and the wall of the furnace, from which it will be understood that the member 33 will be held from outward movement against the pull of the spring 36 by the resistance of the door, which is locked in closed position by the pin 10. When the temperature within the stove body and transmitted to the pin reaches a predetermined high point, the pin will be fused, thus leaving the door free to open, when the member 33 will be slid rearwardly by the action of the spring 36, thus pulling the door open. In such action the arm 18 in swinging outwardly slides off the finger 34, permitting the door to open to a determined extent by the transmitted motion and momentum. The stove or furnace is thus allowed to cool down, and when normal conditions are restored the door opening device may be again set to operate in an obvious manner.

It will be understood that the power of the door opening device may be regulated by holding the spring expanded to a greater or less extent through the adjustability of the bracket 27 on the bar or arm 21, and also through the adjustability of the head 38 through the stem 39 and nut 40. Hence the power may be regulated according to the weight of the door and the degree to which it is desired to throw it open. In the event that it is not desired to employ the door opening device the arm 18 may be thrown inward to rest upon the pin 20, and the ordinary locking pin may be employed in lieu of the pin 10.

Having thus described the invention, what is claimed as new, is:—

1. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, a supporting bar, and a door-engaging and opening device slidably mounted on the bar and operative to open the door upon the fusion of the lock.

2. In combination with a stove or furnace and its check-draft door, a fusible locking device for holding the door closed, an arm upon the door projecting beyond the free end thereof, a swinging bar, a door opening device slidably mounted on said bar and adapted to engage the arm, and a spring for operating said opening device.

3. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, a supporting bar, a bracket adjustably mounted on the bar, and a sliding door-engaging and opening device carried by the bracket and operative upon the fusion of the lock to throw the door open.

4. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, an arm upon the door, a pivotally mounted bar, a sliding door opening operating device on the bar adapted to engage the arm, a spring for operating said device, and means for regulating the power of the spring.

5. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, a supporting bar, a spring-operated sliding door-engaging and opening member supported by the bar operative upon the fusion of the lock to throw the door open, and means for regulating the action of the spring.

6. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, an arm pivotally mounted upon the door, means for supporting said arm in projected and retracted position, a bar, and a spring actuated sliding door opening device carried by the bar and provided with means to engage the arm to throw the door open upon the fusion of the lock.

7. In combination with a stove or furnace and its check-draft door, a fusible lock for holding the door closed, a bar pivotally supported for movement toward and from the free edge of the closed door, an engaging member on the door adapted to project beyond the free edge thereof, a bracket slidably mounted on the bar, a door opening device slidably mounted on the bracket and having a finger engaging said engaging member, and a spring connecting said door opening device with the bracket for actuating the former to throw the door open upon the fusion of the lock.

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

JOHN RICKLI.

Witnesses:
JAMES WATKINES,
R. E. MILLER.