No. 839,622. PATENTED DEC. 25, 1906.

S. McCLURE.

STOVE DRAFT APPARATUS.

APPLICATION FILED NOV. 23, 1905.

Fig. 1.

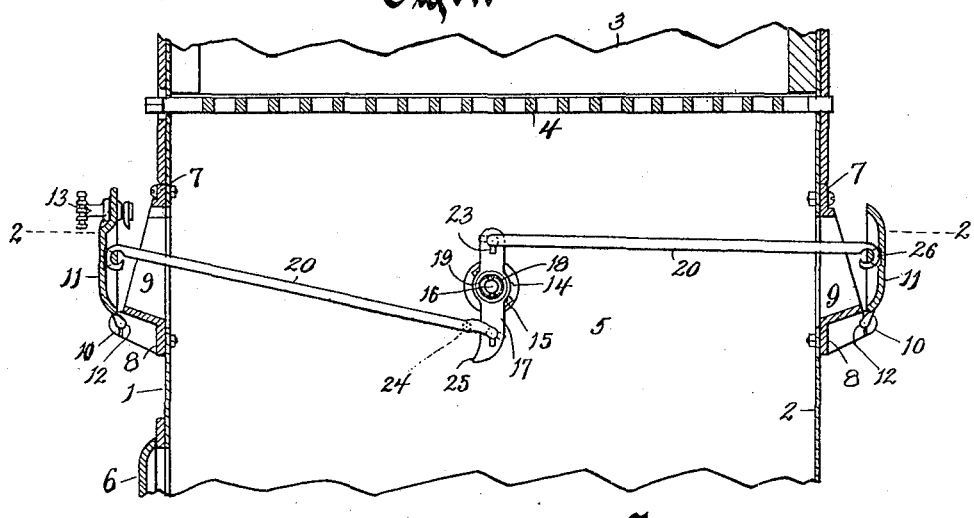


Fig. 2.

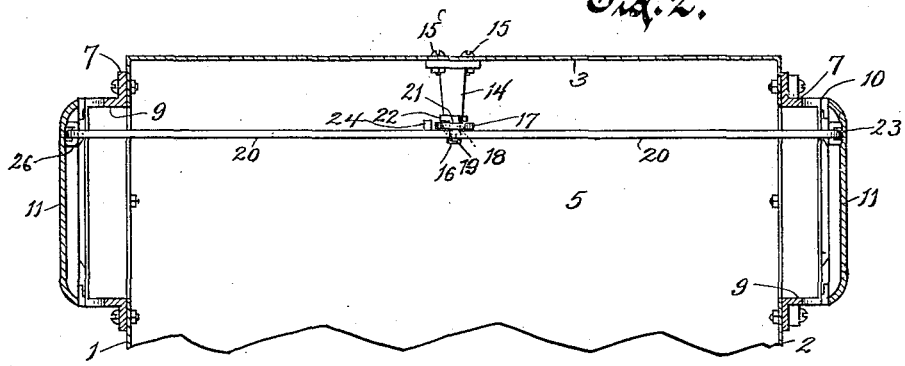


Fig. 3.

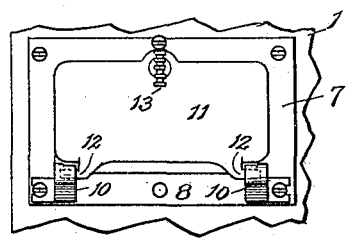


Fig. 4.

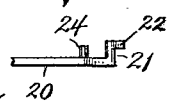
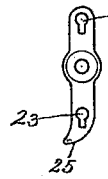


Fig. 5.



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UNITED STATES PATENT OFFICE.

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STOVE DRAFT APPARATUS.

No. 839,622. Specification of Letters Patent. Patented Dec. 25, 1906.

Application filed November 23, 1905. Serial No. 288,673.

To all whom it may concern:

Be it known that I, SILAS McCLURE, residing in Beaver Dam, in the county of Dodge and State of Wisconsin, have invented new and useful Improvements in Stove Draft Apparatus, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

In those stoves or ranges in common use in which there is a long narrow fire-box it is usual to provide a draft-opening in the wall of the stove below and at one end of the fire-box. Such opening provides a passage for the air into a draft-chamber extending from the front wall across the stove under the fire-box, so that there is opportunity for air entering through the opening in the front wall to pass up through the fire-grate at the bottom of the fire-box practically throughout its entire length; but as a matter of fact the result of such construction is that air entering the draft-chamber below the fire-box at one end thereof, usually near that end of the box that is at the front or approachable side of the stove, passes chiefly in a strong current by the shortest route directly up to that part of the fire-box and to the fire thereon that is near the front end of the box and causes a much more active combustion of the fuel on the grate at that end of the box than it does in that part of the fuel farther away from the draft-opening or from the front of the stove, so that the heat furnished for cooking on the top of the stove—in case of kitchen stoves or ranges, where such constructions are mostly found—is very unequal, being much greater near the front of the stove than toward the rear of it. This is undesirable and unsatisfactory.

My invention relates to an apparatus for admitting and regulating the draft of air to such a stove whereby the unsatisfactory results above mentioned are overcome and also in which improved apparatus novel and valuable features of construction are employed, making the apparatus simple in construction, strong and durable in character, and that can be easily and satisfactorily operated, while it can be produced at a minimum of expense.

The invention consists of the apparatus and its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 is a vertical section from front to rear of a fragment of a stove or range through the draft-chamber and showing my improved apparatus therewith. Fig. 2 is a plan of my improved apparatus, partly in section, in connection with the draft-chamber, also in section. Fig. 3 is an elevation of the front door of my improved apparatus in connection with a fragment of the front wall of the stove, and Figs. 4 and 5 are details of the apparatus.

In the drawings, 1 is the front wall, and 2 is the rear wall, of a stove or range, and 3 is a side wall thereof. 4 is the grate forming the bottom of the fire-box, and beneath which is the draft-chamber 5, extending across the stove from front to rear beneath the fire-box. Usually there is an ash-box below this draft-chamber, and the door 6 indicates the location of the chamber in the stove in which the ash-box is placed.

My improved apparatus is especially adapted to be used in connection with stoves and ranges constructed of sheet-steel, and the details of the stove construction shown herewith are those employed in connection with such a stove or range. A draft-opening is provided through the front wall 1 and through the rear wall 2, advisably centrally of the length of the draft-chamber from front to rear, and a door-frame 7, advisably of malleable iron, is in each instance secured to the wall of the stove at and about the margin of the draft-opening. The lower transverse rail or member 8 of the door-frame projects outwardly a distance greater than the upper member or rail of the frame projects, and the side members or rails 9 of the door-frame have their edges inclined inwardly upwardly from the outer edge of the lower member to the edge of the narrower upper member, so that when the frame is in position on the wall of the stove the plane of the outer edge of the door-frame inclines inwardly upwardly from the lower rail or member. This provides an inclined seat for a door to rest thereon. The lower rail member is provided with ears 10, having sockets adapted to receive therein the pintles of the door. Each of these door-frames 7 is provided with a swinging draft-door 11, which door has pintles 12 at its lower

edge fitting and revoluble in the sockets in the ears 10 of the door-frame. The door is of a size to fit over and close the draft-opening, the inturned edge of the door being faced to fit on the outer edge of the door-frame. The construction and arrangement of the parts are such that when the door is closed upon the door-frame it rests thereon at such an angle to the perpendicular as to be held by gravity in place, being adapted to be opened only by such force applied thereto as will lift the door away from its inclined position. The front door is provided with a rotating knob 13 near its upper edge, which knob has a radial locking-finger on its inner end.

The object of providing the two draft openings and doors, one at the front and the other at the rear and under the respective distant ends of the grate, is that these doors may be opened concurrently and to a similar extent, so as to admit to the draft-chamber substantially equal supplies of air to feed the combustion on the grate equally at and near both ends thereof. To accomplish such coincident opening and closing of the draft-doors at the front and rear of the stove and to control the extent of the opening of these doors, I provide means therefor as follows: A stud 14 is footed against the side wall 3 of the stove at equal distances from and in the plane of the draft-doors and is secured thereto by screws 15 through the wall of the stove and through a flange or foot of the stud. The stud 14 terminates in a reduced pivot 16, the stud 14 having an annular shoulder where the pivot extension thereof begins. A lever 17 is pivoted medially on the pivot-pin 16 and has arms projecting in opposite directions therefrom. As it is desirable that there shall be sufficient friction in the movement of this arm on the pivot to prevent its accidental shifting revolubly thereon, there is advisably provided a concave elastic sheet-metal annular washer-clamp 18, fitting on the pivot 16 and by its larger annular edge against the lever 17, a key 19 being inserted through the pivot-pin outside the washer-clamp and fitting against it so as to hold it against the lever 17, whereby the lever is clamped between this washer and the shoulder on the stud. In other words, the lever 17, revolubly loose on the pivot-pin 16, fits against the annular shoulder or stop on the stud 14, the annular concave elastic washer-clamp 18 with its concave side toward lever 17 bears by its peripheral edge against that lever, and a split key 19 through the pin 16 bears against the washer-clamp on the outer apex side or end. Rods 20 connect the arms of the lever 17 respectively to the front and rear doors 11. These rods are connected to the doors at an equal distance, respectively, above the swinging axis of the door, so that being respectively connected to opposite arms of the lever 17 they are by the swinging of the lever compelled to open and close concurrently. Each of these rods is connected pivotally to the lever by a wrist-pin 21, having a laterally-extending key 22, which pin and key enter through the elongated aperture 23 therefor in the lever 17, the aperture and key being so disposed that when the pin has come to its seat in the aperture the key will be turned at an angle to the extension of the aperture and the pin cannot escape from the lever. Also one of the rods 20 is provided with a stop-pin 24, adapted when the lever has been shifted toward a horizontal position to engage a nose 25 on the lever 17 and prevent the further tilting of the lever and the further opening of the doors. The rods 20 are readily connected to the doors 11 by means of loop-lugs 26, formed on the doors, through which the suitably-formed ends of the rods are inserted and in which they are held by being closed upon the rods by bending these ends around to the rods after they are inserted through the loops. The rods are of wrought or malleable iron or of steel or other flexible material. These rods are inexpensively made and are connected up to the lever and the doors in the manner described, and if because of any slight inequality in length of the rods the doors do not both properly come to a closure on the door-frames the rods or either one of them can be slightly bowed to dispose of its excess of length in any convenient manner, as by striking the rod a blow with a hammer therefor.

It will be understood that by the opening or closing of the front draft-door the rear draft-door will at the same time be correspondingly opened or closed and that if the doors be thus only partially opened by reason of the frictional engagement of the lever 17 on the stud 14 the doors will remain in the position to which they have been thus moved, it being noted that the combined effort of gravity on both doors is to hold them closed when they have been moved to that position.

It should be noted that in this apparatus the connection of the doors is entirely on the inside of the stove, so that there is no opening or even hole through any wall of the stove therefor.

While my invention has herein been illustrated and described by a form of apparatus that is a preferred embodiment thereof, yet I do not wish to thereby exclude equivalent forms of apparatus quite within the scope of the invention as herein described and claimed.

As a stove and a range are, for the purposes of this invention, practically the same thing, the word "stove" herein is to be deemed to include a range also.

What I claim as my invention is—

1. In a stove or analogous device having a fuel-grate and an air-draft chamber across

under the grate, a plurality of swinging draft-controlling doors on a wall or walls of the draft-chamber adapted to concurrently open and close and thereby to coincidently admit or shut off the flow of air to the draft-chamber under the grate at distant points, a lever pivoted medially on the inside of the draft-chamber between and substantially in a line with said doors, and rods severally connecting the opposite arms respectively of said lever to said doors respectively and so that the swinging of one of said doors outwardly or inwardly will compel movement of the rods in reverse directions and the swinging of the doors reversely concurrently outwardly or inwardly.

2. A stove draft apparatus, comprising hinged draft-doors at distant localities on the walls of the stove, a lever pivoted medially on the stove in the line between the doors, a yielding elastic device bearing on and holding the lever yieldingly against rotating, and rods connecting the arms of the lever respectively to the doors.

3. A stove draft apparatus, comprising a pair of doors hinged at their lower edges respectively to walls of a stove, an intermediate lever pivoted medially on a stud-pivot fixed on the stove the stud having a shoulder at the inner end of the pivot, means on the pivot holding the lever against the shoulder frictionally, and rods connecting the arms of the lever respectively to the doors adapted to compel them to swing coincidently.

4. In stove draft apparatus duplicate door-frames secured respectively to the wall or walls of a stove said frames each having a door-seat around an opening and inclined inwardly upwardly and pintle-sockets in the lower member of the frame, doors having pintles that enter the sockets and hinge the door on the frame, the door being adapted to rest when closed on the inclined seat of the frame, and means on the inside of the stove connecting the doors so that they must swing or remain closed coincidently.

5. In a stove draft apparatus, two oppositely-located swinging doors, an intermediate medially-pivoted swinging lever having laterally-extended pivot-apertures in its arms, and rods connecting the doors to said lever said rods having wrist-pins with radially-projecting rigid keys thereon adapted to pass through the apertures in the lever-arms and by a quarter-turn to be held therein against escape by endwise movement of the wrist-pins.

6. In combination with a stove or range, two draft-doors located in opposite walls of the stove, a medially-pivoted swinging lever and rods connecting the doors at the inside thereof to the arms of the lever, the lever the rods and the connection of the rods to the doors being all on the inside of the stove and between the doors.

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

SILAS McCLURE.

Witnesses:
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V. E. Klasson.