

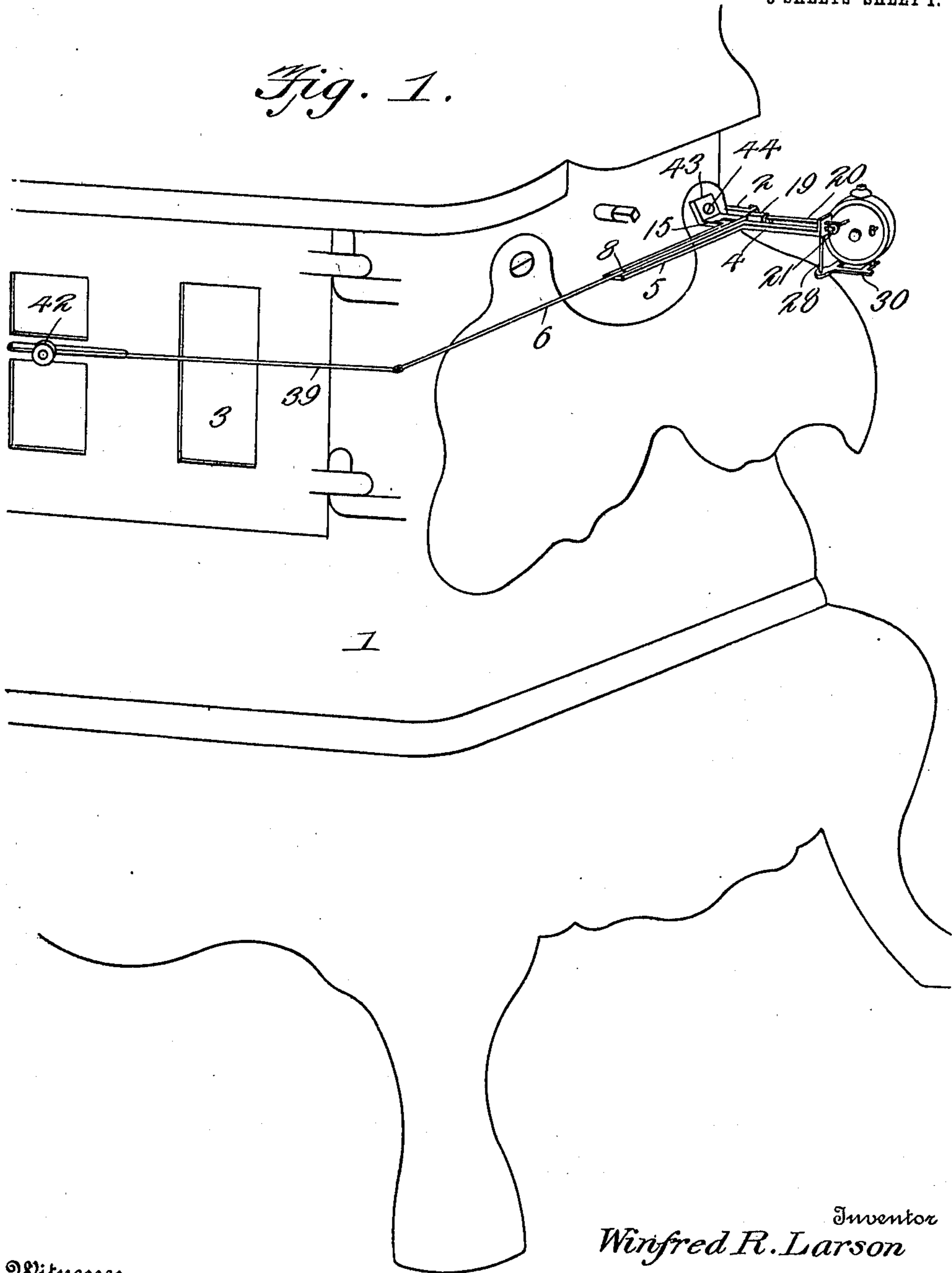
W. R. LARSON.
AUTOMATIC STOVE DAMPER.
APPLICATION FILED JUNE 1, 1910.

992,011.

Patented May 9, 1911.

3 SHEETS-SHEET 1.

Fig. 1.



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3 SHEETS—SHEET 2.

Fig. 5.

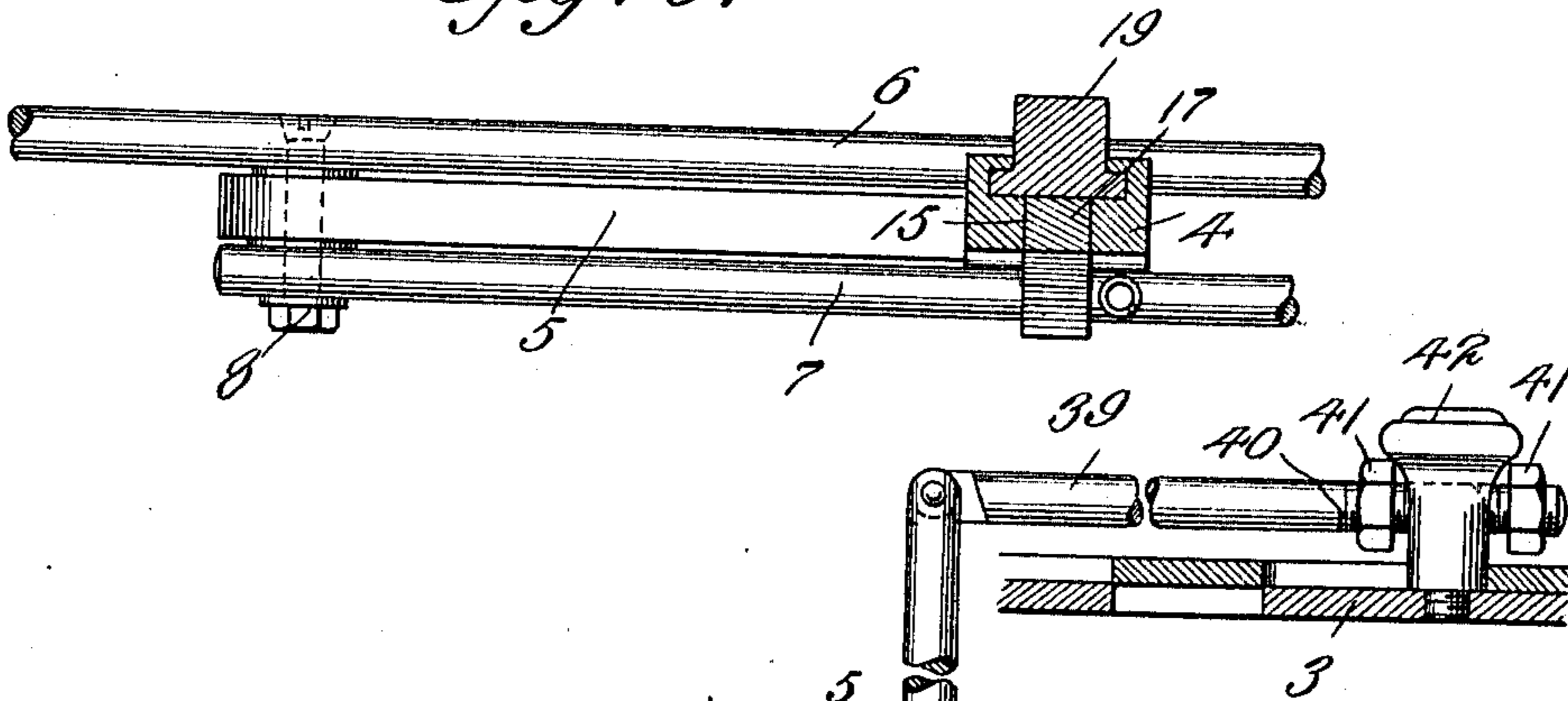
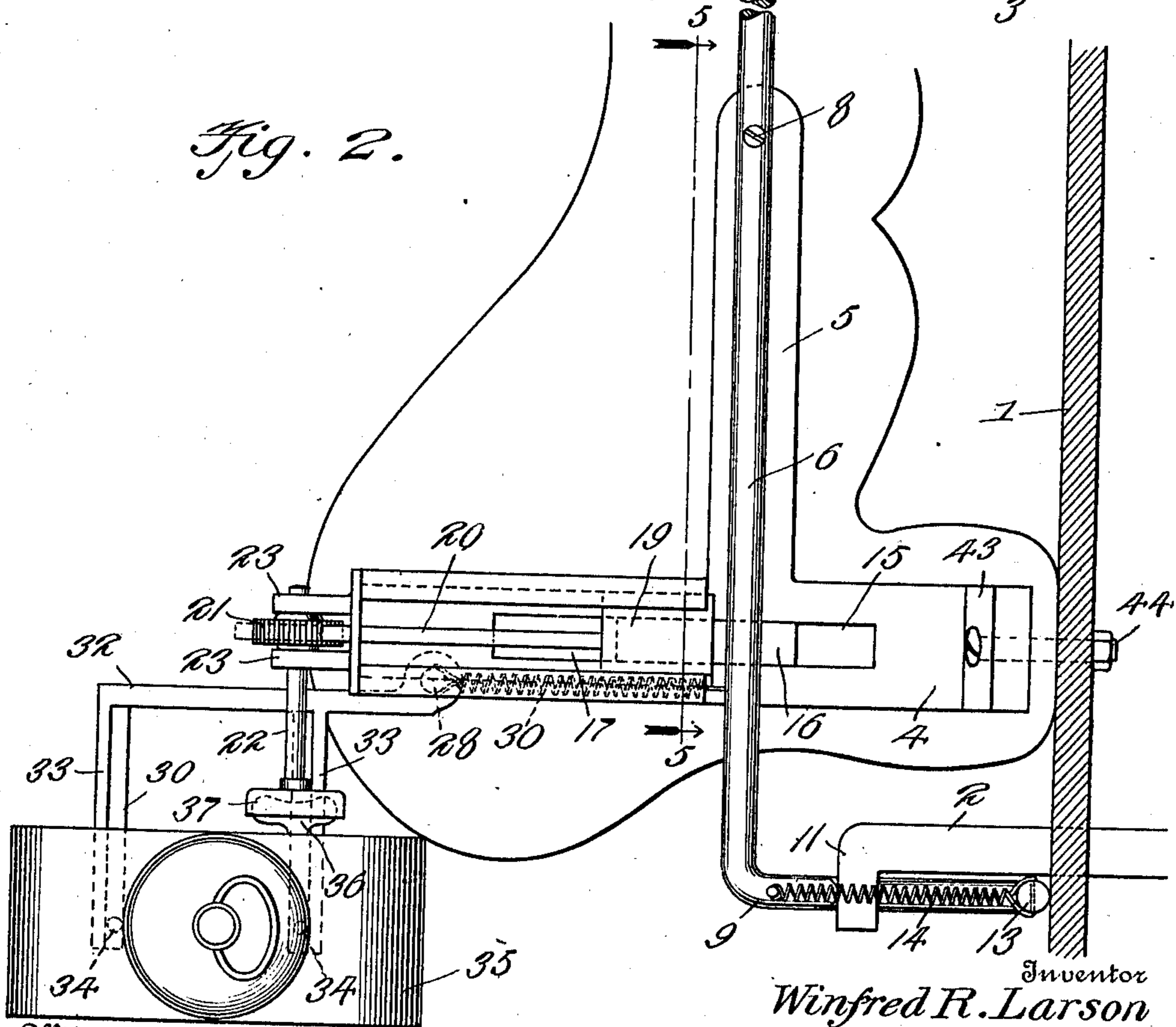


Fig. 2.



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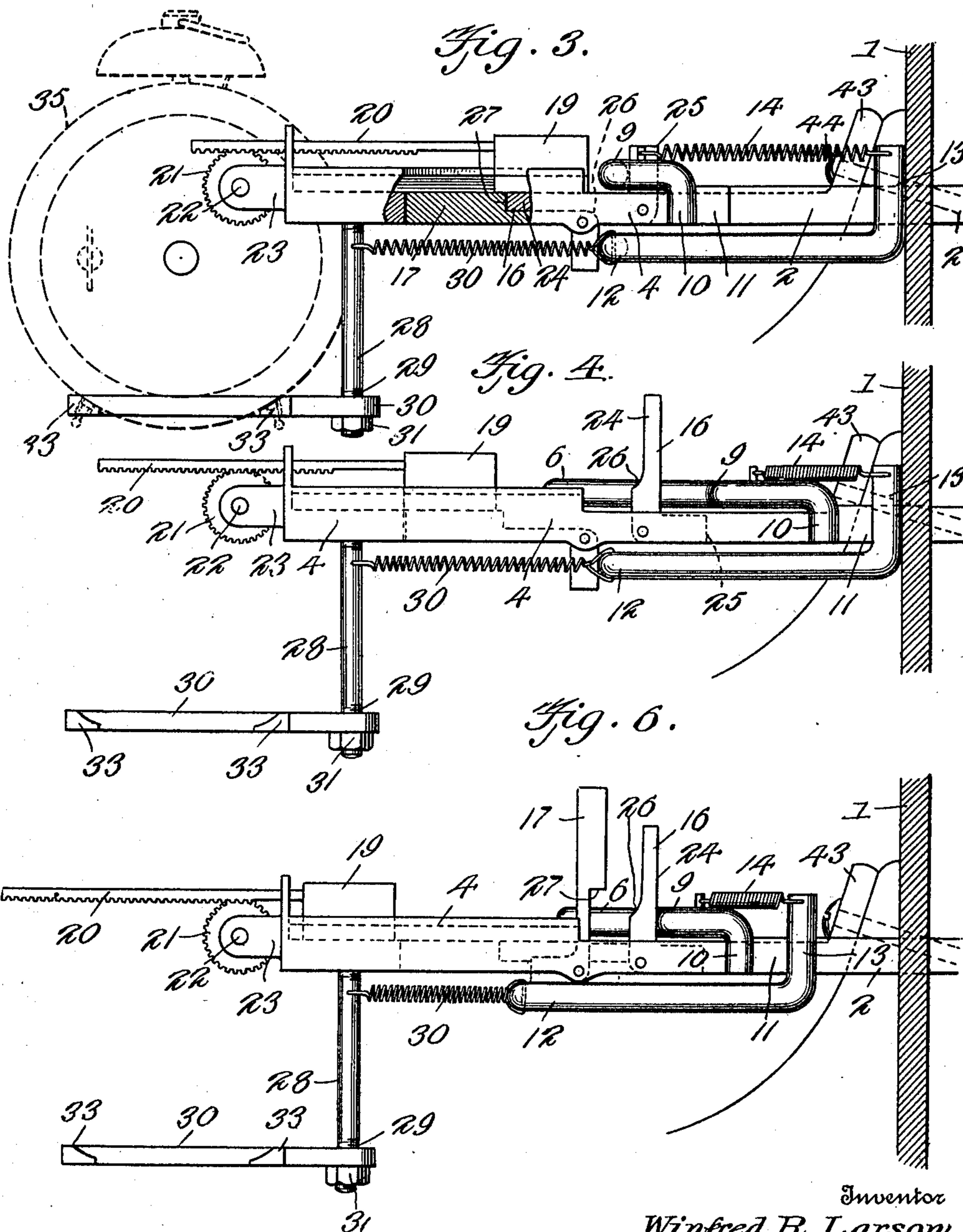
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3 SHEETS-SHEET 3.



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UNITED STATES PATENT OFFICE.

WINFRED R. LARSON, OF KEWANEE, ILLINOIS.

AUTOMATIC STOVE-DAMPER.

992,011.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed June 1, 1910. Serial No. 564,430.

To all whom it may concern:

Be it known that I, WINFRED R. LARSON, a citizen of the United States, residing at Kewanee, in the county of Henry and State of Illinois, have invented new and useful Improvements in Automatic Stove-Dampers, of which the following is a specification.

This invention relates to automatic stove damper regulators.

10 The object of the invention is the provision of a damper of this character which will control the drafts in such a manner that they will be opened for a predetermined time to permit the fire to burn freely and
15 then be automatically closed to prevent excessive heat.

A still further object of the invention is the provision of a novel, cheap and efficient damper control having means for supporting a controlling chronometer.

20 Still further objects of the invention will appear as the specific description which follows is read in connection with the accompanying drawings which form a part of this specification and in which:—

Figure 1 is a perspective view of the device applied to a stove. Fig. 2 is a top plan view of the device showing the stove in section and part of the mechanism in section.
30 Fig. 3 is a side elevation partly in section. Fig. 4 is a view similar to Fig. 3 showing the device in operative position to open the dampers. Fig. 5 is a section taken on the line 5—5 of Fig. 2. Fig. 6 is a fragmentary
35 side elevation showing the position of the parts upon the second operation of the device to close the dampers.

Referring more especially to the drawings 1 represents the stove which is provided
40 with the usual damper 2 and draft door 3. In most instances the draft damper arm is arranged near the rear of the stove upon the side thereof while the draft door 3 is located in the front. I therefore secure to
45 the side of the stove a supporting frame 4 which is arranged adjacent the damper arm 2 and is provided with a lateral extension 5 upon which the damper controlling rods 6 and 7 are pivoted as at 8. The damper
50 controlling rod 6 extends parallel with and lies upon the top of the extension 5 passing transversely across the main frame 4 and extending some distance therebeyond where it is bent at right angles as at 9 and then
55 bent downwardly as at 10 to engage the right angular end 11 of the damper rod 2.

The rod 7 extends from the pivotal point 8 parallel with and beneath the extension 5 passing across the main frame 4 in line with the damper rod 6 and being bent at right
60 angles as at 12 parallel to the portion 9. This right angular extension extends beneath the angular end 11 of the damper rod 2 and has an up-turned portion 13 which is connected to the part 9 of the damper 6 by
65 a spiral spring 14 which is normally under tension when the device is set for the initial operation.

The main frame 4 is slotted at 15 for a portion of its length to permit the damper
70 rod triggers 16 and 17 to be pivoted therein for a purpose which will be hereinafter explained. The frame is further slotted as at 18 to provide for a sliding trigger retaining member 19 which has connected to its outer
75 end, a rack bar 20 extending rearwardly over the frame for engagement with a pinion 21 which is keyed upon a transverse shaft 22 journaled in a pair of separated
80 arms 23 forming an extension of the frame. The trigger 16 has a horizontal arm 24 and a vertical arm 25, the latter being adapted to hold the rod 6 from movement by the action of the spring 14 and the horizontal portion of the trigger is adapted to be engaged by
85 the trigger retaining member 19 so as to hold it in position until said trigger retaining member is retracted by the action of the pinion on the rack bar at which time the trigger 16 will be released and the spring
90 14 permitted to operate to cause the rod 6 to force the damper rod 2 inwardly and upon the damper of the stove, not shown.

The underneath side of the trigger 16 is recessed at 26 to receive the corner of the
95 trigger 17 and the trigger 17 is recessed at 27 to receive the end of the trigger 16. The outer end of the trigger 17 is thicker than the trigger 16 in order to bring its upper face flush with the upper face of the trigger
100 16 so that both are engaged by the trigger retaining member 19.

Depending from the outer end of the frame 4 is a post 28 which has its free end threaded as at 29 to adjustably receive a
105 chronometer supporting bracket 30, a suitable lock nut 31 holding the bracket from turning. This bracket comprises a rearwardly extending arm 32 and laterally projecting fingers 33 which are notched at
110 to receive the lugs of the chronometer 35. This chronometer is in the form of an or-

dinary repeating alarm clock and is provided with a projecting winding wing 36 connected to its alarm winding shaft. This winding wing is engaged by a clamp 37 carried upon the end of the transverse shaft 22 whereby when the alarm goes off the shaft 22 will be turned and the trigger retaining member 19 will be retracted through the action of the pinion 21 on the rack bar 20.

As before stated, the free end of the rod 7 is connected to the free end of the rod 9 by a spring 14 which is normally under tension when the device is set for initial operation. When the rod 6 is operated however, and the spring 14 collapsed it is necessary to produce some means for retracting both of these rods in order that the damper rod 2 may be pulled out and the door 3 closed as will hereinafter be described. I therefore connect the rod 7 to the post 28 by means of a spiral spring 38. This spring 38 is under tension as long as the trigger 17 is held in normal position by the trigger retaining member 19 and is not affected by any action of the rod 6 or the spring 14 which connects the rods 6 and 7 when the trigger 17 is released however, the spring 38 will act to retract the damper rod 2 and as the downturned end 10 of the lever 6 is constantly in engagement with the angular end 11 of said damper rod, the rod 6 is also retracted.

It will be seen from an inspection of Fig. 2 that the rod 6 projects beyond the pivotal point 8 and has pivotally connected to it a similar rod 39 which extends along the front side of the stove and is threaded at 40 to receive the knob clamping members 41. These clamping members are arranged in either side of the draft door knob 42 which is connected to the draft door 3 in the customary manner. The end of the frame 4 is bent up at an obtuse angle thereto to form an attaching frame 43 through which an attaching bolt 44 passes.

In the operation of the device, I employ a chronometer which repeats after a certain predetermined time after the first or initial sounding of the alarm. For instance, the device herein described may be employed as follows: The alarm being set for a given time say six o'clock; when it goes off the device is operated to open the drafts and upon the second operation of the chronometer of say seven o'clock the drafts are closed off, thus allowing the stove to burn freely for an hour and warm the room before the occupant rises. The specific operation of the device is as follows, it being understood that the rod 7 is in engagement with the end of the trigger 17; when the clock is operated, and the shaft 22 turned, the pinion operates upon the rack bar 20 to withdraw the trigger retaining member 19 thus releasing the trigger 16 to the position shown

in Fig. 4, allowing the spring 14 to act which pulls upon the rod 6, the latter forcing the draft bar 2 inwardly and opening the draft. The opposite end of the draft rod 6 is connected with the rod 39 and the draft door is operated in the opposite direction to open said draft door, thus both draft doors are open until the second operation of the chronometer. Upon the second operation of the chronometer, the trigger retaining member is further retracted to the position shown in Fig. 6, thus releasing the trigger 17 and permitting it to assume the position shown in said figure. The spring 38 then acts to retract the free end of the rod 7 and the downturned end of this rod being then in engagement with the end 11 and the downturned end 10 of the rod 6 being also in engagement with the end 11, both rods are retracted by the action of the spring 38 and the draft rod 2 is pulled out and the draft door 3 closed. In this position both triggers stand released and it is therefore necessary to reset the device after each complete operation, in order that the mechanism may be operative for the next day.

Having thus described the invention, what is claimed is—

1. In a device of the class described, the combination with a stove, of a frame secured thereto, a repeating alarm chronometer secured to the frame, draft controlling devices connected to the stove, means pivoted on the frame for operating said draft controlling devices, a pivoted trigger for holding said draft operating means in inoperative position, means controlled by the chronometer for releasing said trigger in the initial operation of said chronometer, a retracting member pivoted on the frame, means connecting the retracting member and the operating member for operating the latter to work the draft controlling means, means connected to the frame and to the retracting member for operating the same, a second trigger pivoted to the same for holding said retracting means inoperative, said releasing means adapted to release said second trigger upon the second operation of the chronometer, whereby the operating means therefor will retract the retracting means and bring the draft controlling operating means to normal, and an adjustable support for the chronometer carried by the frame.

2. The combination with a repeating alarm chronometer and a stove having a draft door and a damper rod, of a frame, a rod pivoted on the frame and connected at one end to the draft door and having its opposite end in engagement with the damper rod, of a second rod pivoted to the frame, means interconnecting said rods for normally operating the first rod, means for holding said first rod in inoperative position,

means operated in the initial movement of the chronometer for releasing said holding means, and means interconnecting the frame and the second rod for returning said first
5 rod to normal position upon the second movement of the chronometer.

3. The combination with a repeating alarm chronometer and a stove having a draft door and a damper rod, of a frame carried
10 by the stove, a rod pivoted upon the frame, and connected at one end to the draft door and having its opposite end in engagement with the damper rod to operate the same, of
15 a second rod pivoted upon the frame, means interconnecting said rods for operating the

first rod and thereby the damper rod, means for normally holding the first rod in inoperative position, means for holding said second rod in inoperative position, means for releasing said holding means, upon the
20 initial and secondary movements of the chronometer, and means interconnecting the second rod and frame for operating said second rod and retracting said first rod.

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

WINFRED R. LARSON.

Witnesses:

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Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
