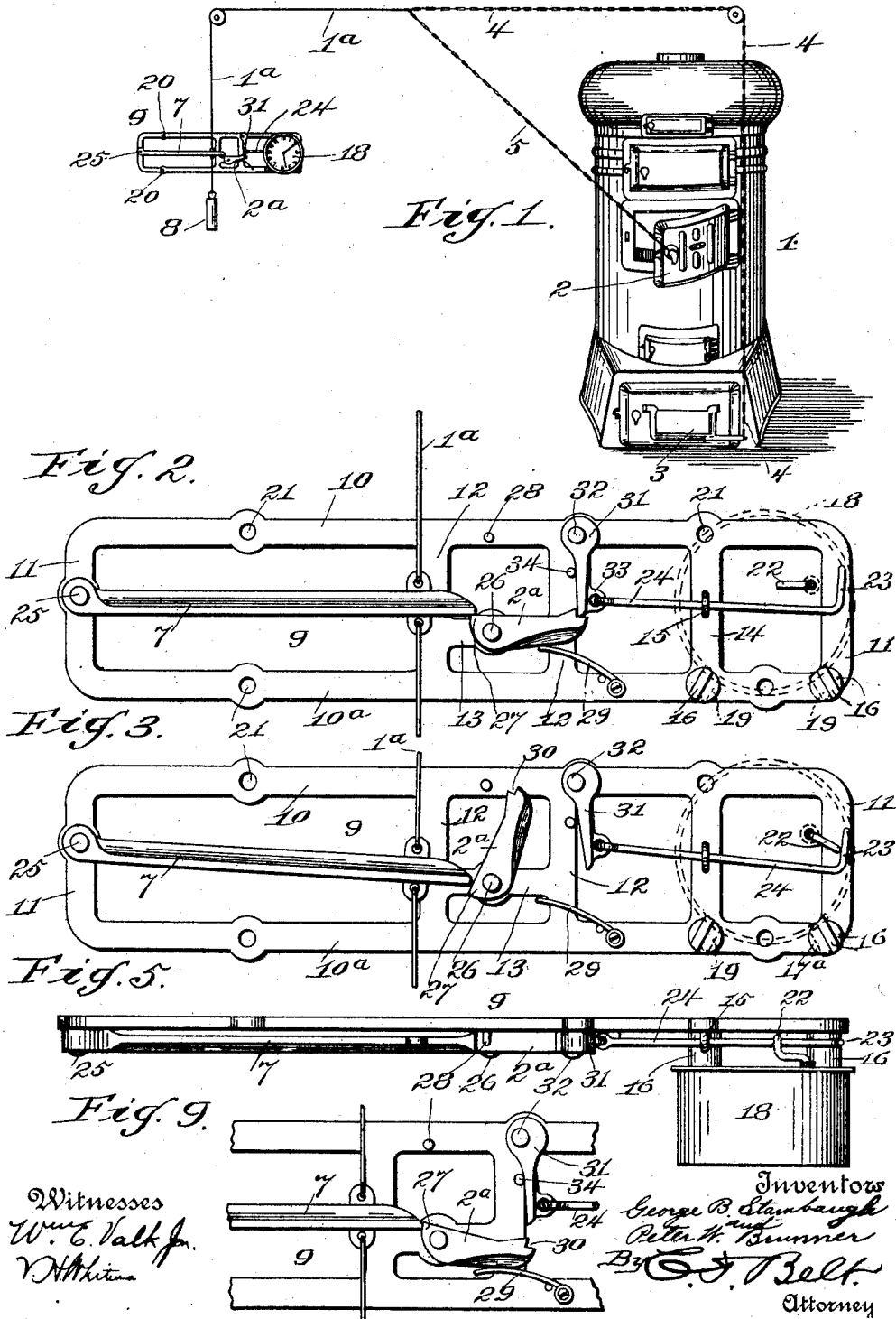


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DRAFT REGULATOR FOR HEATING FURNACES.
APPLICATION FILED FEB. 23, 1910.

983,411.

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2 SHEETS-SHEET 1.

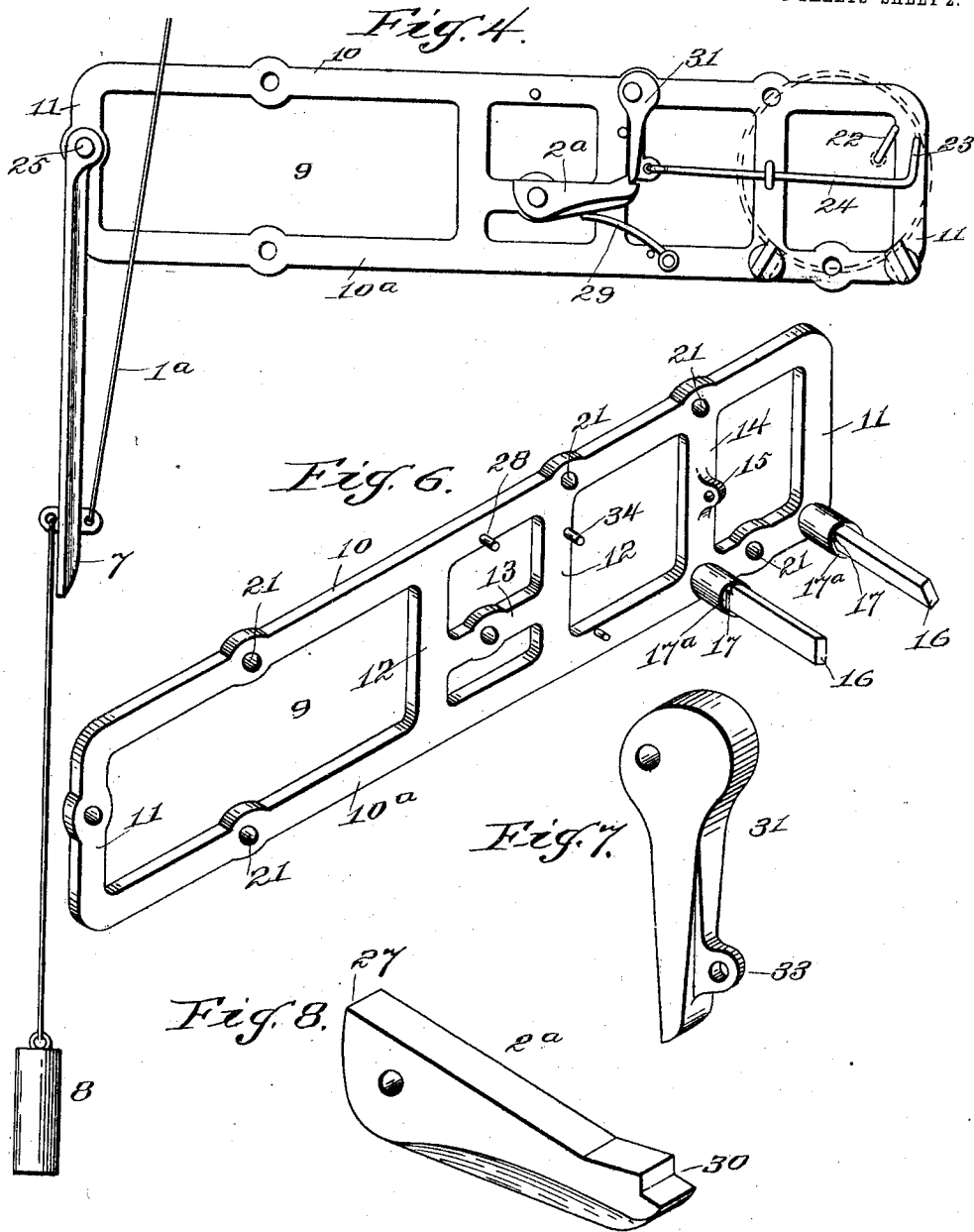


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UNITED STATES PATENT OFFICE.

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DRAFT-REGULATOR FOR HEATING-FURNACES.

983,411.

Specification of Letters Patent.

Patented Feb. 7, 1911.

Application filed February 23, 1910. Serial No. 545,344.

To all whom it may concern:

Be it known that we, GEORGE B. STAMBAUGH and PETER W. BRUNNER, citizens of the United States, residing at Washington, in the District of Columbia, have invented certain new and useful Improvements in Draft-Regulators for Heating-Furnaces, of which the following is a specification.

This invention relates to time controlled draft regulators for heating furnaces, and pertains especially to mechanism for closing the fuel-chamber door and opening the draft door or damper of a furnace simultaneously and at a pre-determined time.

The object of the invention is to provide a device of such novel and peculiar construction that its operation to open and close the damper and door, respectively, of a furnace, will be certain, unfailing, and without lost motion in itself or in the opening and closing of the damper and door.

A further object of the invention is to provide a novel and peculiar device connected to the fuel-chamber door and to the damper of a furnace, and operated by a time-set clock, and comprising simplified and inexpensive arrangement of elements adapted to be quickly and expeditiously set for releasing a weighted lever to open the damper and close the door simultaneously.

A still further object of the invention is to provide a novel and peculiar bracket affording means for mounting thereon the operating mechanism of the device, and for holding a clock or time piece thereon, and to furnish a special connection between the time piece and such mechanism for operating the latter.

In the accompanying drawings forming part of this application: Figure 1 is an elevation showing the application of the invention. Fig. 2 is a front view showing the device set and the clock in dotted lines. Fig. 3 is a similar view showing the parts as moving out of set position. Fig. 4 is a similar view showing the weighted lever dropped, and the other parts in position to set the lever. Fig. 5 is a top edge view. Fig. 6 is a perspective view of the bracket. Figs. 7 and 8 are detail perspective views, respectively of the pawl and the trigger. Fig. 9 is an elevation, partly broken away, showing the weighted lever in its upward movement for setting.

The same reference numerals denote the

same parts throughout the several views of the drawings.

The furnace 1 shown in the drawings is simply used to show the application of the invention, it being obvious that the invention may be applied to any heater, stove or furnace applicable thereto. Said furnace has the usual fuel-chamber door 2, and a draft or damper door 3. The door 3 has one end of a chain 4 secured thereto, to which is attached one end of a chain 5, having its other end attached to the door 2, and the other end of the chain 4 is connected by a rope or cord 1^a, to lever 7, having a weight 8 depending from its free end.

A special skeleton, frame or wall bracket 9 is devised upon which the several parts of the device are assembled, and consists preferably of top and bottom longitudinal parallel members 10 and 10^a, connected by a central uprights 12 connected by a horizontal bar 13, a vertical bar 14 having a guide-eye 15, and a pair of clock supporting arms 16 projecting from the front face of the lower member 10^a, said arms having notches or grooves 17 for the rim of a clock 18, and a shoulder 17^a, against which the back of the clock abuts so as to leave a space between it and the bracket. The arms are spaced apart so as to permit the legs or projections 19 of the clock to engage the inner side of the arms and prevent the clock turning, and the shoulders 17^a and the grooves or notches 17 prevent the lateral movement of the clock, while the arms suspend or support it, where it may be wound and set without removal. This bracket may be secured as desired by suitable screws or bolts 20 put through holes 21 in the members 10 and 10^a.

A crank arm 22 is secured to or formed on the alarm winding shaft of the clock. The arm 22 is not attached to or connected with the operating mechanism of the device, but is free for winding the shaft, and in the unwinding movement of the shaft the arm engages the upturned end 23 of a swinging lever 24, slidable through the eye 15.

The lever 7 has its end opposite its chain and weight attachment, pivoted to one of the bracket ends 11, at 25. A trigger 2^a is pivoted at 26 to the bracket bar 13, and has a projection 27 swingable in the path movement of the free end of the lever 7, and in set position the free end of the lever

7 slightly overlaps said projection so as to rest thereon.

The trigger swings and drops the free end of the lever, and such swinging movement of the trigger is stopped by a lug 28 projecting from the top bracket member 10, so that it falls back against and is cushioned by a spring 29 secured to the bottom bracket member 10^a, and said spring is depressed by the trigger in raising the free end of the lever past the trigger projection 27 for seating said end thereon in setting the device. The end of the trigger opposite its projection has a stop shoulder 30, one face of which limits the movement of a pawl 31 in its engagement with the other face. The pawl 31 has an eccentric pivot 32 with the bracket member 10, so as to fall by its own weight into the shoulder 30, and the lever 24 is pivoted in an eye 33 of the pawl for withdrawing the pawl from the shoulder when the crank arm 22 strikes the end 23 of the lever 24, and thereby releases the trigger. During such movement of the trigger and pawl, the arm 22 will have passed out of engagement with the end 23, permitting the pawl and trigger to drop back automatically into engagement with each other. During the depressed movement of the trigger, the pawl is prevented from swinging over the trigger and is held in proper position to engage the trigger shoulder by means of a stop lug 34.

It is obvious that the lever 24 is worked loosely through the guide-eye 15 only when the crank 22 engages and disengages the lever end 23; that said lever is free to slide with the swinging movement of the pawl; that the trigger and the pawl cooperate automatically in falling into engagement with each other, so that neither the trigger or the pawl require hand setting; and that it is only necessary to raise the weight-lever 7, as hereinbefore described for setting the whole device.

Having thus described our invention what we claim as new and desire to secure by Letters Patent is:

1. In a draft regulator for furnaces, the combination, with a weighted lever pivoted at one end and having unlimited swinging movement, connections between the furnace doors and the free end of the lever, and a time device, of means operated by the time device for setting and releasing said lever, comprising a self-setting pawl pivoted at one end, a self-setting trigger pivoted at one end and such end engaging the free end of the said lever and the other end of the trigger engaging the free end of the pawl in set position, and a lever pivoted to the pawl and having a free end engaged by the time device for releasing the pawl, the trigger and the weighted lever.

2. In a draft regulator for furnaces, the combination, with a time device, a crank arm revolved by such device, and a lever pivoted at one end and having its other or free end provided with a weight and connected with the furnace doors, of means operated by the said arm for setting and releasing said lever, comprising a self-setting trigger having a pivoted end swingable downwardly with the downward swing of said lever, a self-setting pawl pivoted at one end to swing at right angles to and simultaneous with the lever and the trigger, and a slidable lever pivoted to the pawl and having a free end engaged by the said arm for automatically releasing the pawl and the trigger.

3. In a draft regulator for furnaces, the combination, with a time device, a revoluble crank projecting from the back of such device, a wall bracket having a pair of parallel arms projecting laterally from one end thereof for holding such device, and a weighted lever having one end pivoted to the other end of the bracket and having its free end connected to the furnace doors, of a self-setting pawl pivotally hung to the top of the bracket, a lever pivoted to and projecting from the pawl over said arms and having its free end working in the path movement of the said crank for releasing said pawl, a self-setting trigger pivoted at one end to the central portion of the bracket for setting and releasing the weighted lever, and a spring secured to the bottom portion of the bracket and forming a seat for the trigger.

4. In a draft regulator for furnaces, the combination, with a time device, a crank revolved by the time device, a wall bracket having a pair of arms projecting therefrom for holding such device, a pair of stop lugs projecting from the face of the bracket, and a weighted lever pivoted at one end to the bracket and having its other or free end connected to the furnace doors, of a self-setting pawl pivoted to the top of the bracket and limited in its inward movement by one of the said lugs, a lever pivoted to the pawl and having its free end in the path movement of said crank for releasing the pawl, a self-setting trigger pivoted at one end to the bracket and limited in its upward movement by the other of said lugs, and a spring seat for limiting the downward movement of the trigger.

In witness whereof we hereunto set our hands in the presence of two witnesses.

GEORGE B. STAMBAUGH.
PETER W. BRUNNER.

Witnesses:

C. T. BELT,
WM. E. VALK, Jr.