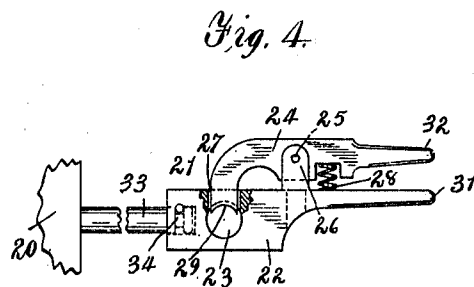
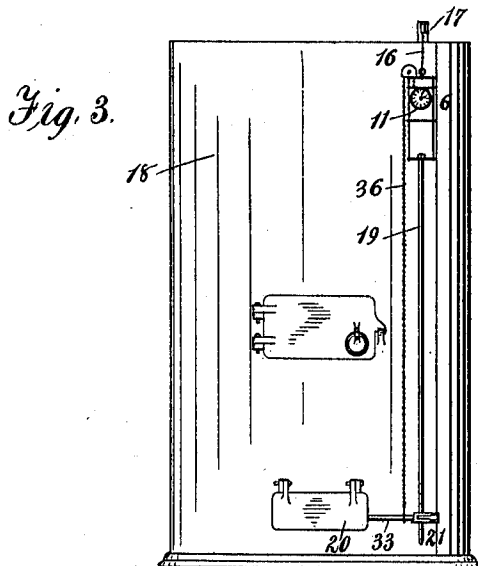
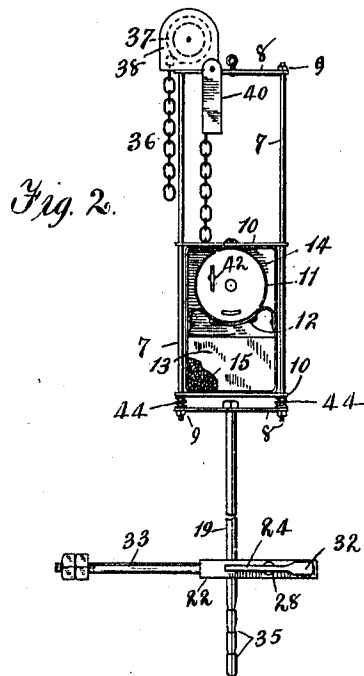
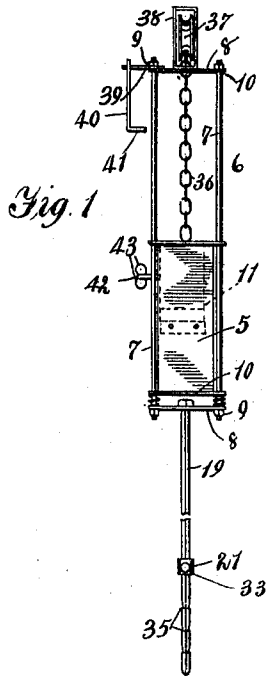


T. G. MEAS.
DRAFT REGULATOR.
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980,317.

Patented Jan. 3, 1911.



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THEODORE G. MEAS, OF LANSING, MICHIGAN.

DRAFT-REGULATOR.

980,317.

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To all whom it may concern:

Be it known that I, THEODORE G. MEAS, citizen of the United States, residing at Lansing, in the county of Ingham and State of Michigan, have invented certain new and useful Improvements in Draft-Regulators, of which the following is a specification.

My invention relates to draft regulators and has especial reference to automatic devices of this class in which the desired mechanical action is produced at predetermined times.

The chief objects of the improvements which constitute the subject matter of this application are:—to provide a time controlled apparatus for opening and closing the draft doors of a furnace, or that will connect the draft regulating devices or means with automatic controlling mechanism therefor at a predetermined time; to furnish a device for the purpose stated that may be operated by simple clock mechanism, time pieces of a type in common use being utilized for this purpose, thus conducing to economy in the cost of the apparatus; and to produce a simple, efficient and durable mechanism to accomplish the results sought.

A further object of the invention is to combine the timing mechanism with the weight used to counterbalance the regulating dampers, thus producing a more compact device than would otherwise result.

I accomplish the desired objects by means of the apparatus illustrated in the accompanying drawing, which forms a part of this application, the salient points in the construction being disclosed in the following views:—

Figure 1 is a side elevation of the weight and clock carrying frame and connecting rod, with draft door connecting arm and catch in position on the latter; Fig. 2 is a rear elevation of the weight and clock carrying frame, showing manner of supporting the clock casing; Fig. 3 is a view showing a heater in front elevation, illustrating the manner of attaching the improved governing device to automatic draft regulating mechanism, and Fig. 4 is a top plan view of the automatic catch with damper arm attached, on enlarged scale.

Referring to the details of the drawing, the numeral 5 indicates a rectangular casing adapted to slide in a frame 6 comprising vertical rods 7 connected above and below

by tie plates 8 the ends of the rods being threaded for retaining nuts 9. The top and bottom plates 10 of the casing 5, extend laterally beyond the body of the casing, and are furnished with suitable holes through which the rods pass so as to permit the casing to slide easily thereon. Near the upper portion of the casing 5 is secured an ordinary alarm clock 11 of the circular type, supported upon a bracket 12, the ends of which are secured to the sides of the casing. The rear plate 13 extends over the lower portion only of the casing, leaving the upper part open at 14 to give convenient access to the clock, and also to the interior of the case while the lower part of the casing is entirely inclosed forming a compartment or receptacle for the insertion of a suitable weight 15. I prefer to employ ordinary shot for this purpose, a sufficient quantity being poured into the bottom of the casing through the opening 14.

The frame 6 is supported by a short chain 16, from the end of an arm 17, the latter forming a part of an automatic draft regulating device, which may be any one of the many types in common use, said arm projecting in the usual manner from the upper part of the furnace or heater 18. To the center of the lower frame or tie-plate 8 is attached a pendent connecting rod 19, which extends downward to the vicinity of a draft regulating door 20 hinged to the said furnace. Upon the lower end of said rod is slidably mounted a catch 21, comprising a block 22, having a hole 23, through which the connecting rod 19 passes. Upon one side of the said block is mounted a latch member 24 pivoted by a pin 25 in ears 26. One end of said latch is curved and adapted to pass through a slot 27, which permits the end of the latch to project into the hole 23 when not restrained, a coiled spring 28 urging the latch to this position. The engaging end 29 of the latch is furnished with a curved notch 29 which is adapted to conform to the curvature of the rod 19. The latch 24 and block 22 are each provided with a suitable handle 31, 32. To the end of the block 22 opposite its handle 31 is attached a damper or valve arm in the form of a rod 33, the connection to the block being in the form of a swivel 34, which permits the said arm to have a rotary adjustment relative to the catch. The lower end of the connect-

ing rod 19 is furnished with spaced notches 35 with which the latch member 24 is adapted to engage.

The draft door arm 33 is operatively connected with the casing 5 by a chain 35 which passes over a grooved pulley 37 mounted in a housing 38 secured to the upper tie plate 8. Projecting from the rear of the top plate 8 is a short fixed arm 39 to which is pivoted a trip lever 40 having its lower end bent at a right angle toward the frame to form a lug or finger 41. The function of the trip lever is to hold the weighted casing 5 at the top of the frame 6 by the engagement of the said finger 41 with the key 42 which serves to wind the alarm mechanism of the clock, and which is arranged to project to a sufficient extent from the rear of the casing, as shown in Fig. 1.

Provision is made for lessening the shock of the falling counterweight by the introduction of buffers in the form of coiled springs 44 embracing the frame rods 7 immediately above the lower tie plate 8.

The manner in which my improved draft regulating apparatus operates is as follows:—To set the mechanism the catch 21 is released from the rod 19 and the arm 33 moved downward until the door 20 is closed thus shutting off the draft. This movement of the arm 33, through the medium of the chain 36, will raise the casing 5 to the top of its frame 6. The operator will then bring the finger 41 beneath the key 42, thus holding the casing at its upper position. It will be understood that the alarm mechanism has been previously wound and properly set. The parts being adjusted as described, no movement will take place until such time as the alarm is released by the clock mechanism in the usual manner. When the alarm is thus released the key 42 will turn and one of its wings 43 will strike the finger 41 and swing the latch laterally, and the released casing 5 will then descend to the bottom of the frame 6, the buffer springs 44 serving to lessen the shock of its fall, at the same time the chain 36 will elevate the arm 33, opening the door 20, while the latch 24 will engage one of the notches 35 and pre-

vent any further movement of said arm relatively to the rod 19 until the apparatus is reset. As the damper arm 33 will, by means of the said rod and frame 6, be directly connected with the regulating arm 17, any further required movements of said damper will be taken care of by the automatically operated apparatus installed for that purpose, and of which the arm 17 forms a part, the said arm being the only portion of said apparatus shown in the drawing.

Having thus described my invention, what I claim as new, is:—

1. In damper regulating means, a clock case adapted to form a gravity operating counterweight for the damper, operative connection between said clock case and the damper, means for holding said case against gravity, and clock mechanism mounted in said case and adapted to release said holding means at a predetermined time.

2. In damper regulating means, a clock case adapted to form a gravity operating counterweight for the damper, an adjustable connection between said case and the damper, means for holding said case against gravity, clock-mechanism including a key, mounted in said case, said key arranged to automatically release said holding means through the operation of the clock-mechanism.

3. In a draft regulating device, the combination with a damper, of a counterweight for said damper, said counterweight including a slidable casing, and clock mechanism arranged in the casing, a support for the counterweight, adjustable connection between the said support and the damper, a connection between the counterweight and the damper, a tripping device adapted to retain the counterweight at its elevated position, and means operated by the clock mechanism for releasing the tripping device at a predetermined time.

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

THEODORE G. MEAS.

Witnesses:

ORIEN A. JENISON,
FRANCES M. SHANK.