No. 808,896. PATENTED JAN. 2, 1906.

S. B. BROWN.

TIME CONTROLLED DAMPER.

APPLICATION FILED JAN. 30, 1905.

2 SHEETS—SHEET 1.

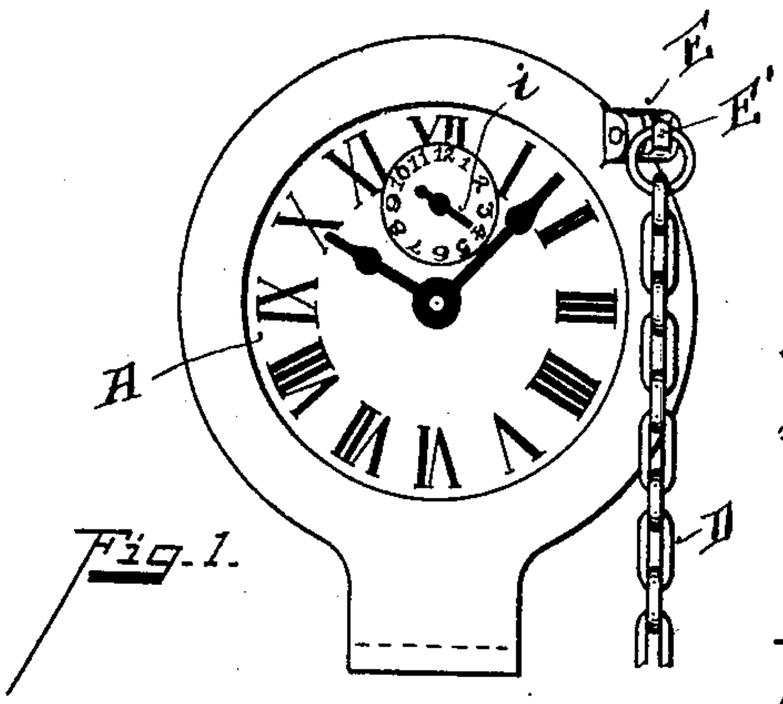

Fig. 1.

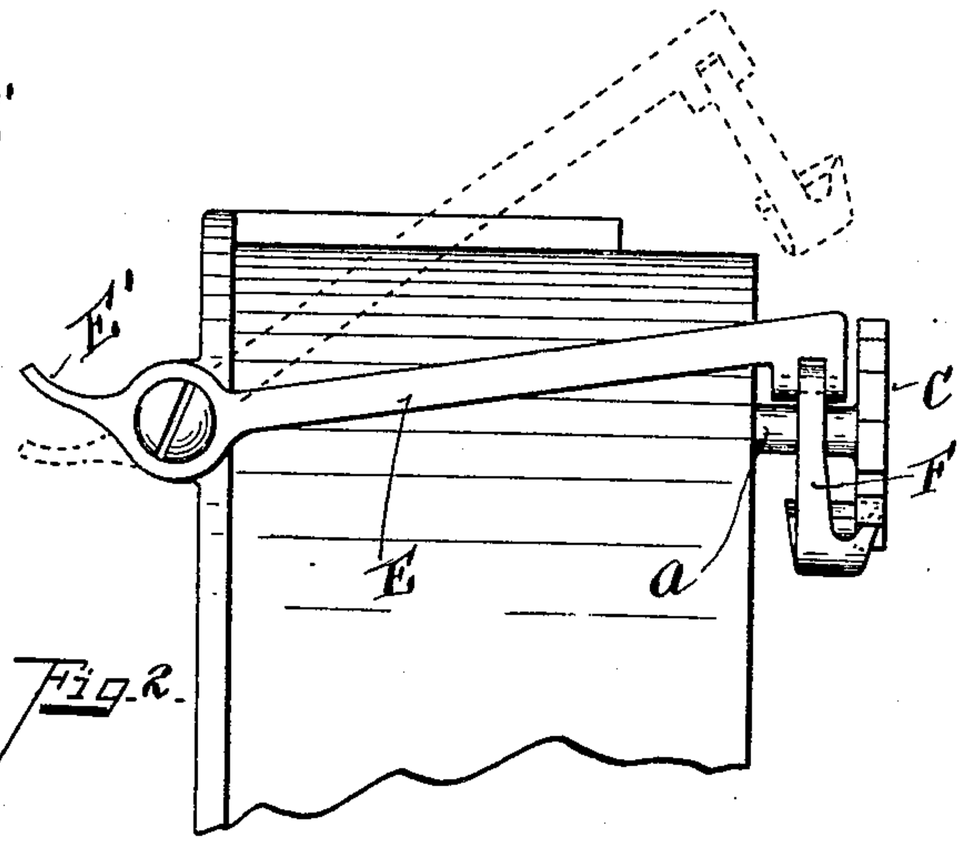

Fig. 2.

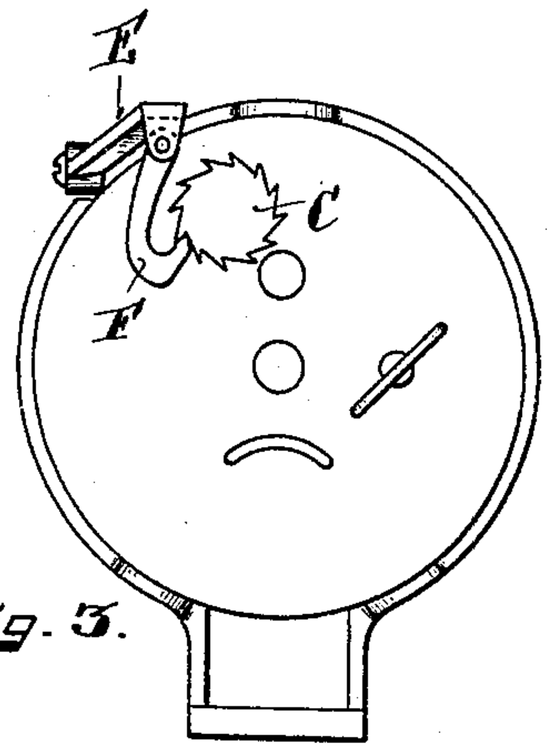

Fig. 3.

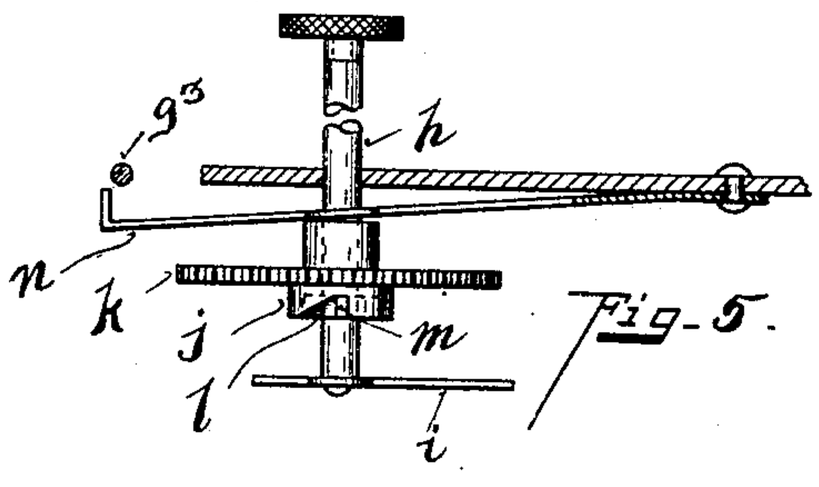

Fig. 5.

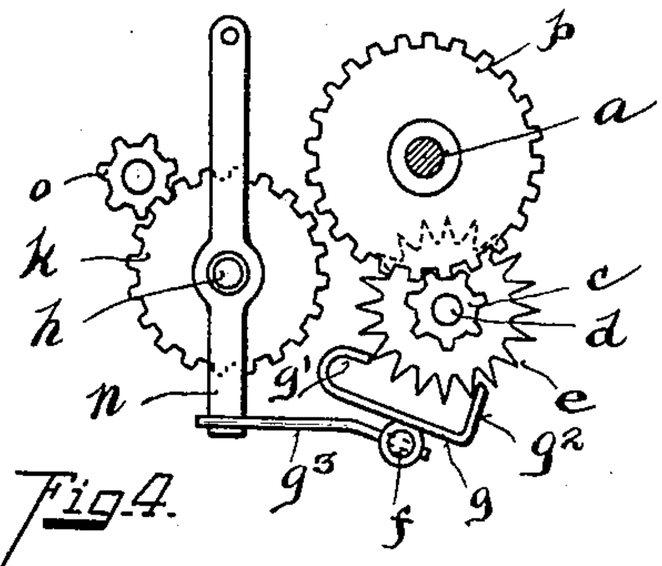

Fig. 4.

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2 SHEETS—SHEET 2.

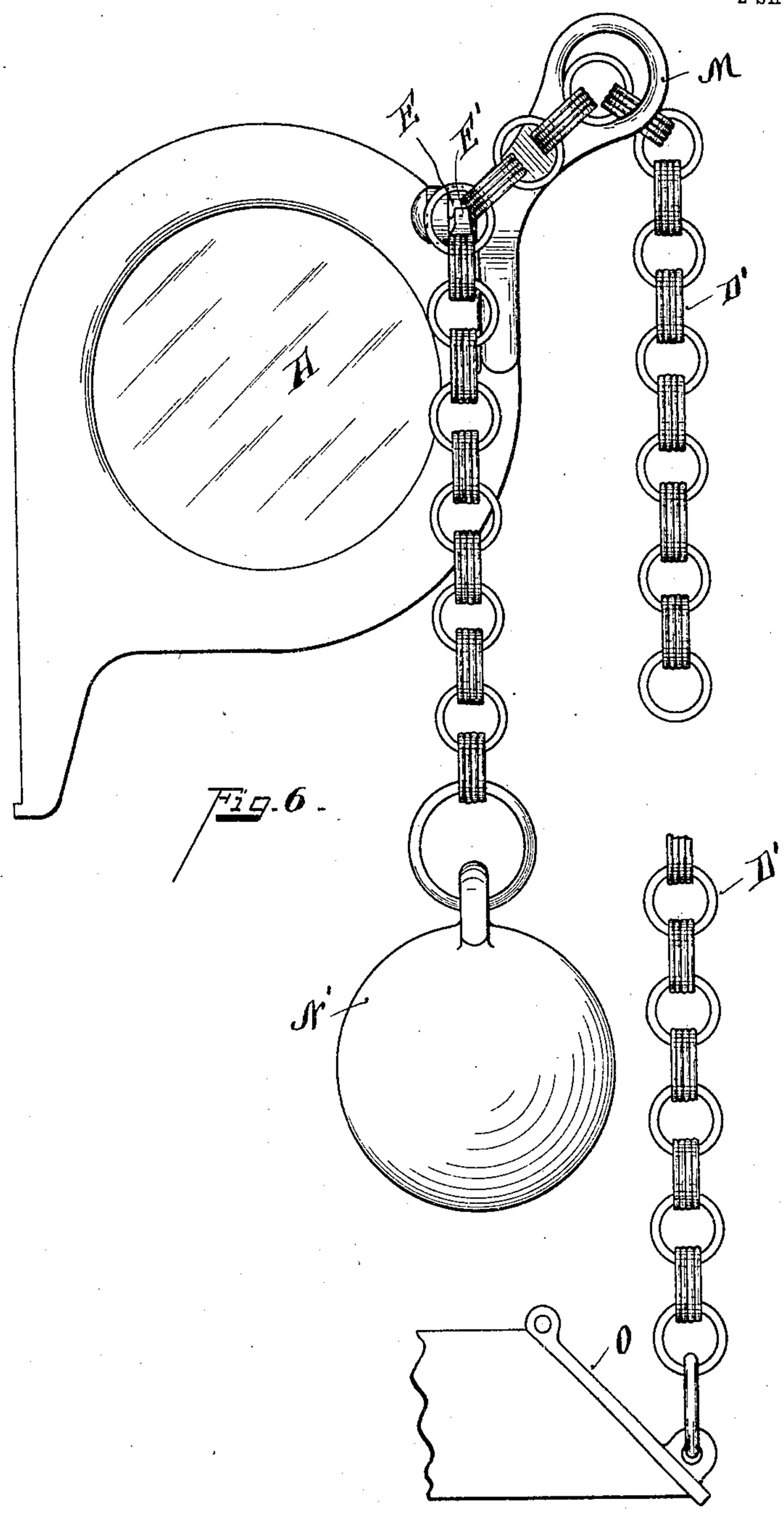

Fig. 6.

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UNITED STATES PATENT OFFICE.

SILAS B. BROWN, OF CINCINNATI, OHIO.

TIME-CONTROLLED DAMPER.

No. 808,896. Specification of Letters Patent. Patented Jan. 2, 1906.

Application filed January 30, 1905. Serial No. 243,263.

To all whom it may concern:

Be it known that I, SILAS B. BROWN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Time-Controlled Damper Mechanism, of which the following is a specification.

My invention relates to a time-controlled damper mechanism, the object being to positively drop the released member, disconnecting it from the clock entirely, the construction being such that the resetting is accomplished by simply picking up the released member and suspending it from or engaging it with a releasing member.

The features of the invention are more fully set forth in the description of the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a front elevation showing my improvement attached to a clock. Fig. 2 is a side elevation. Fig. 3 is a rear elevation. Fig. 4 is a detailed plan view of a part of the internal clock mechanism. Fig. 5 is an elevation, partly in section, taken on line *x x*, Fig. 4. Fig. 6 is a front elevation of the invention applied to a furnace-draft.

A represents the clock having the usual alarm mechanism.

a represents a shaft journaled in the clock-casing and having one end exposed, preferably at the rear of the clock, to which projected end is fixed a releasing member C, which is shown in its preferred form as a ratchet-wheel. Within the clock-casing is mechanism of a conventional nature for locking shaft *a* normally against rotation, but unlocking it at a predetermined hour to which the index is set. This interior mechanism is shown in Figs. 4 and 5, and preferably consists of the following details. Upon the shaft *a* is a gear-wheel *b*, meshing with the pinion *c*, fixed upon a shaft *d*. *e* is an escapement-wheel fixed on shaft *d*. *f* is a fulcrum upon which is pivoted the rocking trip *g*. This trip has the bent finger g' and the straight finger g^2 on one side of the fulcrum, while extended upon the other side of the fulcrum is the tripping-rod g^3. (See Fig. 4.) *h* represents the shaft for setting the index-finger *i*. Upon shaft *h* is loosely mounted a sleeve *j*, carrying a gear-wheel *k*. The sleeve *j* is provided with a beveled peripheral notch *l*, terminating in an abrupt shoulder. The shaft *h* is provided with a pin *m*, adapted to engage into and out of the notch *l*. Attached to the casing is a spring-latch *n*, the latch end of which is adapted to engage over the rod g^3 of the rocking trip *g*. The shaft *h* passes through the spring-latch *n*, and this latch bears against a projecting end of the sleeve *j*, forcing the said sleeve normally away from the casing when the latch is disengaged, as shown in Fig. 5. *o* represents one of the train of gears of the regular clock mechanism which is intermeshed with the gear-wheel *k*. The operation will be readily understood. The rotation of gear-wheel *k* engages the bevel of the notch *l* with the pin *m* of the shaft *h*, thereby forcing the sleeve *j* inward on shaft *h* and engaging the latch-finger *n* over the trip-arm g^3 in the position shown in Fig. 3, in which position the escapement-wheel *e* is locked against rotation between the fingers g' g^2 of the rocker *g*. When the designated hour presents the notch *l* opposite the pin *m*, the spring *n* pushes the sleeve *j* forward on shaft *h*, unlocking the trip-arm g^3 and unlocking the escapement-wheel *e*. The weight of the released member will then cause the gear-wheels *b c e* to rotate, rocking the gear *g*, which will continue until the released member is dropped bodily from the clock. The continued rotation of gear-wheel *k* will again engage the latch *n* with the tripping-arm g^3. This trip and escape mechanism is generally understood; but in previous devices of this character it was customary to suspend the member to be released upon a string which was wound around the shaft *a;* but this arrangement necessitated the rewinding of shaft *a* after each releasing operation. It also necessitated a special construction of the case to permit the string to be inserted into the interior of the clock. This construction and operation are open to many objections, which are entirely overcome by my improvement. With my device the weight of the released member is sustained by the releasing mechanism, which is held normally rigid, except at the designated hour. There are several ways in which this releasing mechanism may be caused to support the weight of the released member; but the following is the preferred form: D represents the released member, which is, in fact, a chain, the lower end of which may be attached to the draft of a furnace, the switch of an electric-light system, or other mechanisms which are to be turned off or on at a given hour. Pivoted to the side of the clock is a lever E, the front end of which extends in front of the clock and constitutes support E′, over which

a link or ring of the chain is engaged. On the opposite side of the fulcrum the lever E extends to the rear of the casing, and from the end is pivotally suspended a hook-pawl F, the end of which is adapted to engage into the teeth of the ratchet-wheel C.

It is obvious that when the shaft *a* is unlocked the weight of the released member will strain the releasing mechanism, causing shaft *a* to rotate until the ratchet-tooth of the releasing member C disengages the hook-pawl, when the lever E will fly upward, as shown in Fig. 2, disengaging the chain, which will drop. The weighted end of lever E when thus freed of the chain will fall, causing the hook-pawl to automatically engage into the teeth of the wheel C, and all that is necessary for resetting will be to lift the chain and suspend it over the front end of the lever E.

In Fig. 6 I have shown the preferred method of applying my invention—say to a furnace-draft. The clock-casing has attached thereto a ring M, forming a sheave through which the chain D′ passes. One end of the chain carries the weight N. The other end of the chain is attached to the damper O of the furnace. A link of the chain between the sheave and the weight is suspended over the support E′ of the releasing mechanism with the draft closed, as shown in Fig. 6. At the set hour the chain will be dropped. The weight will drag the chain over the sheave, lifting the damper O. At night to reset the device for a next operation it is only necessary to lift the weight, closing the damper, and engaging the link of the chain over the support E′.

Having described my invention, I claim—

1. In a time-controlled damper mechanism, a clock, a lever lighter at one end than the other, a trigger on the lighter end of the lever adapted to support a weight, a clock-controlled ratchet-wheel on the rear of the casing under the heavier end of the lever adapted to be held normally against rotation and to be periodically released, and a pawl pivotally suspended from the heavier end of said lever adapted to automatically drop into engagement with the teeth of said ratchet-wheel after the releasing operation, substantially as described.

2. In a time-controlled damper mechanism, a clock, a shaft extended through the casing, clock-actuated mechanism within the casing adapted to lock said shaft normally against rotation and to periodically release the same, a lever, a damper-controller adapted to be suspended on the lighter end of the lever, and devices on the heavier end of the lever and upon said shaft adapted to be automatically engaged after each releasing operation, substantially as specified.

In testimony whereof I have hereunto set my hand.

SILAS B. BROWN.

Witnesses:
OLIVER B. KAISER,
LUISE BECK.