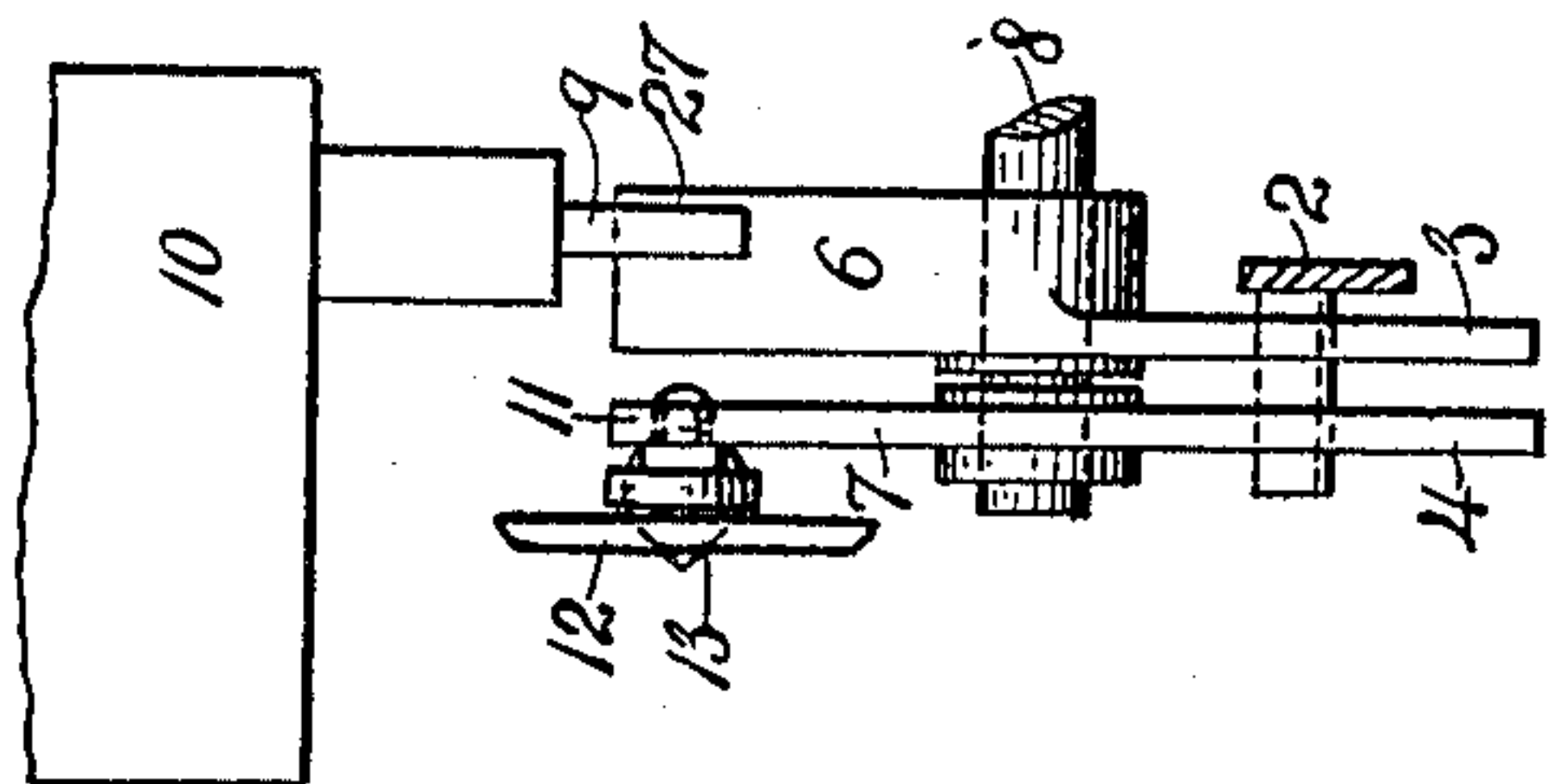
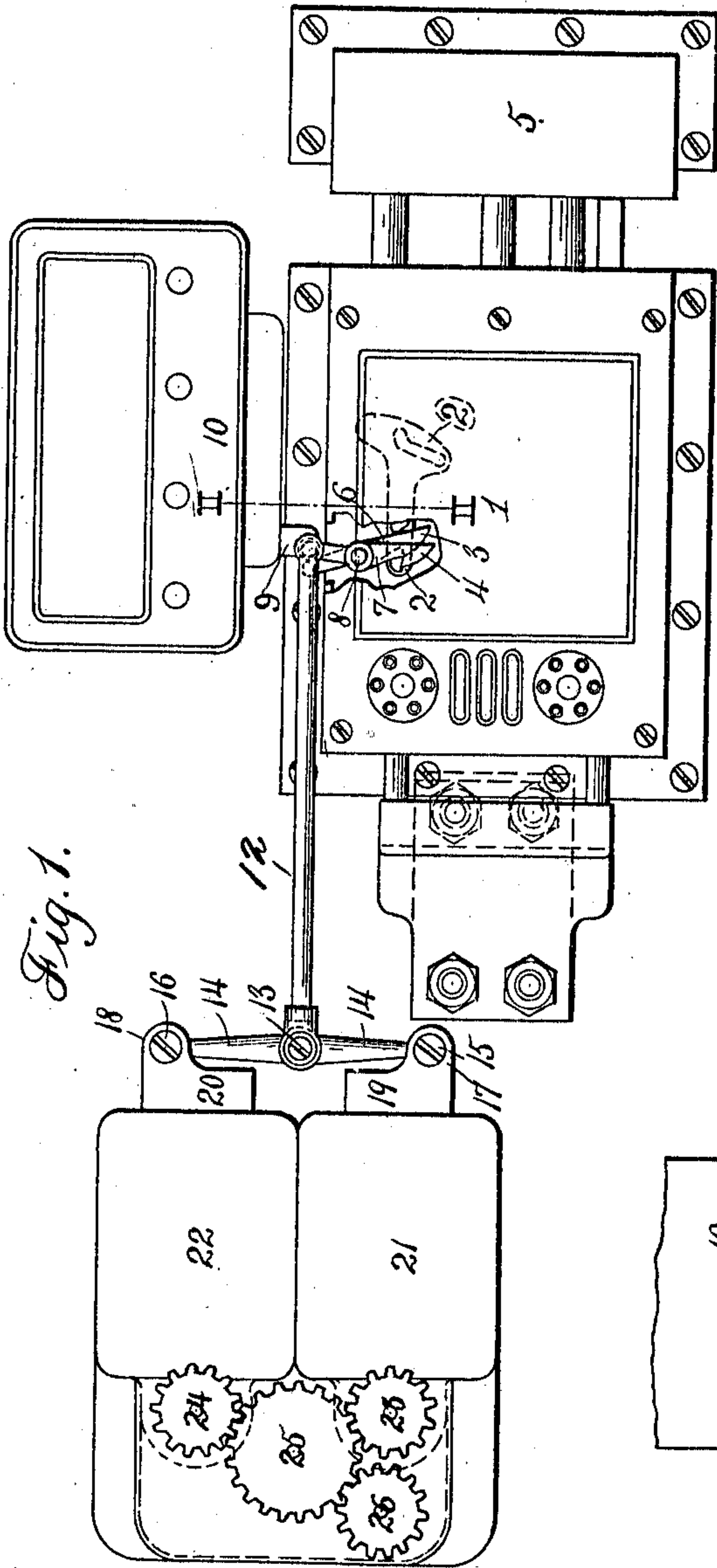


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CONTROLLING DEVICE FOR BOLT OPERATING MECHANISMS.
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956,889.

Patented May 3, 1910.



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UNITED STATES PATENT OFFICE.

GEORGE L. DAMON, OF PITTSBURG, PENNSYLVANIA.

CONTROLLING DEVICE FOR BOLT-OPERATING MECHANISMS.

956,889.

Specification of Letters Patent.

Patented May 3, 1910.

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To all whom it may concern:

Be it known that I, GEORGE L. DAMON, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Controlling Devices for Bolt-Operating Mechanisms, of which the following is a specification.

In known automatic bolt-operating devices, a system of levers is usually provided, whereby a time-lock is adapted to automatically effect the release of the bolt-operating mechanism at a certain predetermined moment.

The present invention relates to mechanisms for controlling bolt-operating devices; and has for its main object to provide means whereby the combination-locks may be caused to act upon the bolt-work of the safe, through the medium of the automatic bolt-operating mechanism in a manner similar to that in which the time-lock is made to act. By means of this arrangement, after the time-lock has automatically relinquished its control over the bolt-operating mechanism, said mechanism is still held in check by the combination locks until the latter are manipulated in the usual manner.

One of the objects of this invention is the combination of a double combination lock actuated by a single dial spindle, with a suitable system of levers whereby the action of said automatic bolt-mechanism is more efficiently effected.

Other and further objects will appear in the following specification and in the claims appended thereto.

In the drawings,—Figure 1 is an elevation of an automatic bolt-operating device provided with my improvement; and Fig. 2 is a section on the line II—II, Fig. 1.

Referring more particularly to the drawings, an automatic bolt-operating device 1, comprising a release-lever 2 which is held in inoperative position (as shown in Fig. 1) by the lock-controlled detent-hooks 3 and 4, is rigidly fastened upon the inner face of the safe door and provided with the usual draw-block 5 which is actuated simultaneously with the locking bolts (not shown) by the said automatic device. Detent-hooks 3 and 4 form the lower ends of levers 6 and 7 which are coaxially pivoted on the pin 8 in the upper portion of the casing of said bolt-operating device. The upper end of lever

6 is provided with a broad cam surface 27 whereby said lever is adapted to be actuated by a pin or other suitable member 9 in operative connection with a time-lock 10, thus providing the usual means for controlling the action of the automatic bolt-operating mechanism.

In order to provide an additional safeguard against the unauthorized opening of the safe, while at the same time avoiding the necessity of retracting the bolts by manually operated means, the present invention embodies the following device: The aforesaid lever 7 pivoted at 8, is provided with a detent-hook 4 on the lower end thereof while its upper end is enlarged at 11 in such manner as to adapt it to receive and carry a stud by means of which one end of the connecting rod 12 is pivotally connected therewith. The other end of said connecting rod is pivotally connected at 13 to the center of a cross-bar 14 which is in turn provided with pivotal connections 15 and 16 in the slotted lug-ends 17 and 18 formed integrally with the sliding blocks 19 and 20 of the combination locks 21 and 22. Connected with these combination dial locks and in the rear of the same, are gears 23 and 24 through which said locks are operated by means of an idler 25 driven from a pinion 26 keyed to the actuating dial spindle which extends through from the outside face of the safe door in the usual manner. While there is no intention in the present application, to claim the paired combination locks in combination with but a single dial spindle by means of which they may be manipulated from the outside face of the door, the combination of such structure with the mechanism for controlling the operation of the automatic bolt-operating mechanism, has its peculiar advantages. Thus *e. g.* the parts in the mechanism are reduced in number by operating two locks by a single dial spindle. Moreover the added advantage is gained that greater travel of the connecting rod 12 is obtained when both dial locks are operated simultaneously by one spindle than when either one is operated alone. By reason of this greater travel of rod 12, a longer power arm on the lever 7 with a corresponding increase in the available force for disengaging the detent hook 4 from the release lever 2 is made possible. Another advantage gained by this combination, is that the action of the release mechanism is made more rapid and concise than it would be were only one

of the dial locks manipulated or were they manipulated successively.

While I have shown my invention embodied in well-defined structures, it is evident that many slight changes might be made in the design and relative arrangement of parts, without departing from the spirit of my invention. Thus *e. g.* there may be one or more pairs of combination locks or said locks can be arranged singly to actuate the releasing mechanism. Furthermore, the scope of my invention is not confined to the particular means shown in the drawings for actuating the release-lever from the combination locks.

Having thus described my invention, the following is what I claim as new and desire to secure by Letters Patent:

1. The combination with an automatic bolt operating mechanism and a time lock for controlling the same, of a plurality of dial locks, and means actuated by said dial locks independently of the time-lock whereby the movement of the bolt-operating mechanism may be controlled after its release by the time-lock.

2. The combination with an automatic bolt-operating mechanism and a time lock, of a lever by means of which said bolt-operating mechanism is controlled by the time lock, a second lever for controlling the bolt operating mechanism independently of both the time lock and the other lever, and a combination dial lock for operating said second lever, each of said levers being operable independently of the other lever.

3. The combination with two combination locks actuated by a single gear, of an automatic bolt-operating mechanism provided with a release-lever, means operated by said locks for controlling the movement of said release lever, a time lock, and means operated by said time lock and independently of the means operated by the combination locks, whereby the time-lock is adapted to control the movement of the release lever independently of the control exerted by said combination locks.

4. In combination with an automatic bolt-operating mechanism and a time-lock provided with means for automatically controlling the operation of said automatic mechanism; of a combination lock; and means connecting the combination lock to the automatic bolt-operating mechanism whereby the former is adapted to control the action of the latter when not under the control of said time lock, said last-named means acting independently of the time-lock.

5. In combination with an automatic bolt-operating mechanism including a release lever; of a pair of levers, each of which

is adapted to engage the release-lever; and means for actuating either lever of said pair independently of the other.

6. In a locking mechanism for safes, an automatic bolt-operating mechanism, a pair of levers, each adapted to control said mechanism independently of the other, a combination lock operably connected with one of said levers, and a time lock operably connected with the other of said levers.

7. In a locking mechanism for safes, the combination of an automatic bolt-operating mechanism including a release-lever provided with a lug; with a pair of coaxially mounted levers provided with hooks for engaging the lug on said release-lever; a time-lock; means adapting said time-lock to actuate one of said hooked levers; a combination lock; and means connecting the other hooked lever to the combination lock whereby said lever is moved into and out of engagement with the release-lever.

8. In a locking mechanism for safes, the combination of an automatic bolt-operating mechanism including a release-lever; and a casing for said mechanism; with a pair of levers coaxially pivoted in the upper portion of said casing and adapted to releasably engage the release-lever; a time-lock adapted to automatically actuate one of said levers to disengage it from the release-lever; a combination lock; and a connecting rod adapted to be moved by the combination lock and pivotally connected at one end to the other of said levers.

9. In combination with an automatic bolt work for safes, a release lever controlling said bolt work, a time lock releasably connected to said release lever, and a combination lock likewise connected to said lever; said locks adapted to operate independently of each other whereby the release lever may be controlled by either of the locks.

10. In combination with automatic bolt work for safes, bolt controlling mechanism in controlling relation thereto, a release lever controlling said mechanism, independent release hooks each adapted to restrain said release lever, and thereby prevent actuation of the bolt work, an automatically operated releasing device controlling one of said release hooks, and an independently actuated device for releasing the other of said release hooks.

The foregoing specification signed at Pittsburgh, Pa. this 13th day of April, 1908.

GEORGE L. DAMON.

In presence of two witnesses—

R. B. COONEY,
J. C. BILY.