No. 666,185. Patented Jan. 15, 1901.

G. L. DAMON.

THERMOSTATIC APPLIANCE FOR BOLTWORK.

(Application filed Feb. 9, 1898. Renewed Dec. 11, 1900.)

(No Model.)

Fig. 1.

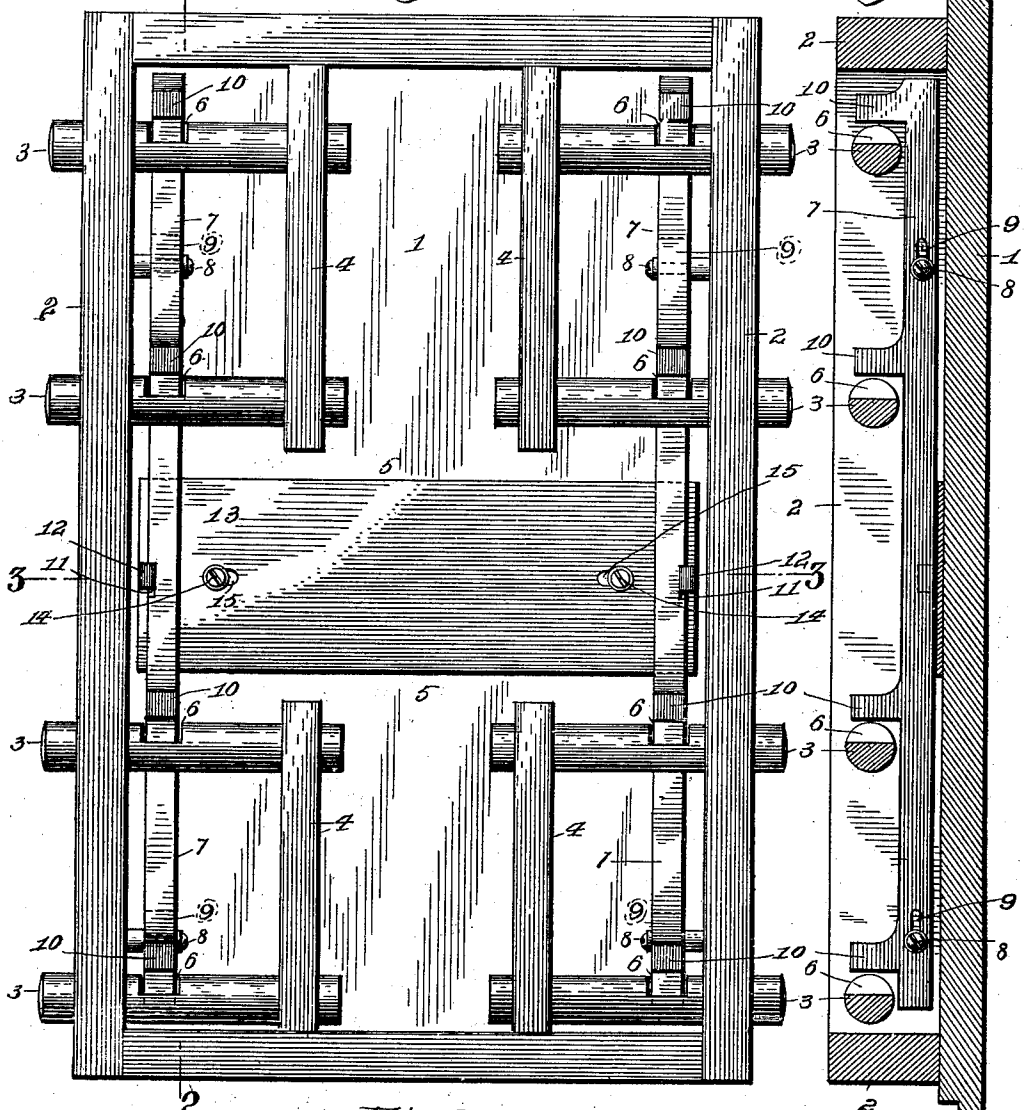
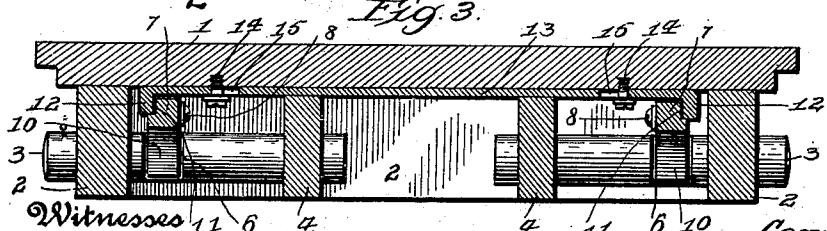


Fig. 2.

Fig. 3.



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UNITED STATES PATENT OFFICE.

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THERMOSTATIC APPLIANCE FOR BOLTWORK.

SPECIFICATION forming part of Letters Patent No. 666,185, dated January 15, 1901.

Application filed February 9, 1898. Renewed December 11, 1900. Serial No. 39,542. (No model.)

To all whom it may concern:

Be it known that I, GEORGE L. DAMON, a citizen of the United States, and a resident of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Thermostatic Safety Appliances for Boltwork, of which the following is a full, clear, and exact specification.

My invention is designed as a safeguard against opening the doors of safes by the method of forming an opening in the door or wall by application of very high or melting temperatures—as, for instance, through the medium of a blowpipe or electric arc. The method of procedure in thus attacking a safe or vault is to burn or melt into or through the vault-door a sufficient opening to admit the hand and to then release the automatic or time mechanism or other means employed for controlling the boltwork.

I have for many years employed in connection with boltwork certain dogging devices which would come into play and dog the bolts in case jarring resulting from explosions or concussion were resorted to or which would come into play in the event that the structure were slightly displaced from its normal position; but the recent resort to heat as a means for forming openings through the door has rendered such forms of actuating means unavailing. It has long been common to employ fusible metals in connection with various forms of mechanism which would render said mechanism ineffectual or inactive until released by the application of heat to the fusible retaining device. It has even been proposed to apply a fusible detent to the dogging devices heretofore released by concussion, &c., so that said dogging devices would be released in the event that heat were applied to force an entrance; but this method is found to be undesirable, because the fusible retaining medium would necessarily melt and lock the door in the event of a conflagration, so that the vault or safe could not be opened after cooling, as is usual. Moreover, it is difficult to obtain the requisite sureness of operation under attack from all points within reach of the lock-releasing mechanism.

My invention accomplishes all the desired results and presents a system which may be embodied in wholly reliable mechanism by using a thermostatic medium or member which will be moved positively into and out of engagement with means arranged to prevent movement of the boltwork—as, for example, the dogging device. The thermostatic member is preferably in the form of a plate, which may be applied to the inside of the door and made to cover the full area of attack and be so interposed behind the lock-releasing mechanism as to absolutely preclude access to the latter by application of heat without expanding the thermostatic member so as to positively release the dogging device. At the same time the thermostatic member would not be thus affected by any heat that would possibly be transmitted through the vault-wall as a result of a conflagration.

My invention will be fully understood upon reference to the accompanying drawings, wherein is illustrated one of many embodiments of the principles of my invention.

In said drawings, Figure 1 is an inside elevation of a vault-door, with the boltwork of which is combined an appliance embodying my said invention. Figs. 2 and 3 are, respectively, a vertical section on the line 2 2 and a horizontal section on the line 3 3, Fig. 1.

1 represents the door of a vault or safe having customary bolt-bars 2 and yoke-plates 4, through the medium of which the bolts 3 may be controlled by any suitable mechanism.

5 represents the intermediate space in which the time or permutation lock or other bolt-releasing mechanism is located, and which space is the area of attack in making openings from without for the purpose of actuating the releasing mechanism and causing a withdrawal of bolts.

It is the object of my present invention to cause suitable dogging devices or equivalent safeguards to be put into effect in the event that an attempt is made to penetrate the door at any point in this area or at any other point liable to attack.

I prefer to use a dogging means as the safety appliance, and to accomplish this the bolts 3 are provided with notches or shoulders 6, while in rear of said bolts I mount gravitating dogging-bars 7, guided upon pins 8, se-

cured to the bolt-bars and projecting through slots 9 in said dogging-bars. The dogging-bars may be provided with projections 10, which will enter the notches 6 or engage the shoulders formed thereby when the dogging-bars drop, so as to dog the bolts and prevent their withdrawal.

In order to hold the dogging means normally elevated, I provide detents 12, which engage in notches 11 in said dogging-bars. These detents are brought under control of a thermostatic plate 13, which is located in the space 5, so that access cannot be obtained to the releasing mechanism without penetrating said plate. The plate may be mounted upon pins 14, projecting from the inner face of the door, which pins project through the slots 15 in the plate. The detents 12 preferably engage on the outer sides of the bars 7, so that there is no possibility of their becoming displaced except by the expansion of the plate 13. With the parts arranged as explained any attempt to gain access to the releasing mechanism by the application of heat will necessarily expand the plate 13, so as to withdraw the detents 12 and the bolts will be permanently dogged.

The substance of the thermostatic plate 13 is preferably a metal whose coefficient of expansion would be sufficient to impart a slight movement to the detents 12 as a result of raising the temperature of the plate 13.

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

1. In combination with boltwork and a normally-withheld dogging device therefor, the herein-described thermostatic plate controlling said dogging device and positively releasing the same by expansion upon the application of high temperature, substantially as and for the purpose set forth.

2. In combination with the boltwork of a vault or safe, a dogging device therefor, a detent for said dogging device and a thermostatic plate for moving said detent positively by the movement of expansion upon application of high temperature, located adjacent to the point of attack, substantially as and for the purpose set forth.

3. In combination with the boltwork of a vault or safe, having notches or shoulders, gravitating dogging-bars having projections which drop into engagement with the notches or shoulders, detents engaging said dogging-bars for holding them normally elevated, and a thermostatic plate moving said detents positively, when expanded, substantially as and for the purpose set forth.

4. In combination with the boltwork of a vault or safe, dogging-bars for engaging the boltwork on opposite sides of the vault or safe, notches in corresponding faces of said dogging-bars, and a thermostatic plate carrying detent projections engaging in the respective notches, and confined against displacement except by expansion edgewise, substantially as set forth.

5. In combination with the door of a vault or safe, and the boltwork thereof, provided with notches or shoulders, gravitating dogging-bars in rear of the bolts, mounted upon guides and having projections for engaging the notches or shoulders, and having outwardly-presented detent-notches, a thermostatic plate applied to the inner face of the door over the area of attack and having its ends projecting in rear of the gravitating dogging-bars and carrying detents which enter the detent-notches but are positively displaced therefrom by expansion of the thermostatic plate under high temperature, substantially as and for the purpose set forth.

GEORGE L. DAMON.

In presence of—
WALTER H. CHABOT,
I. G. RITCHIE.