

No. 713,372.

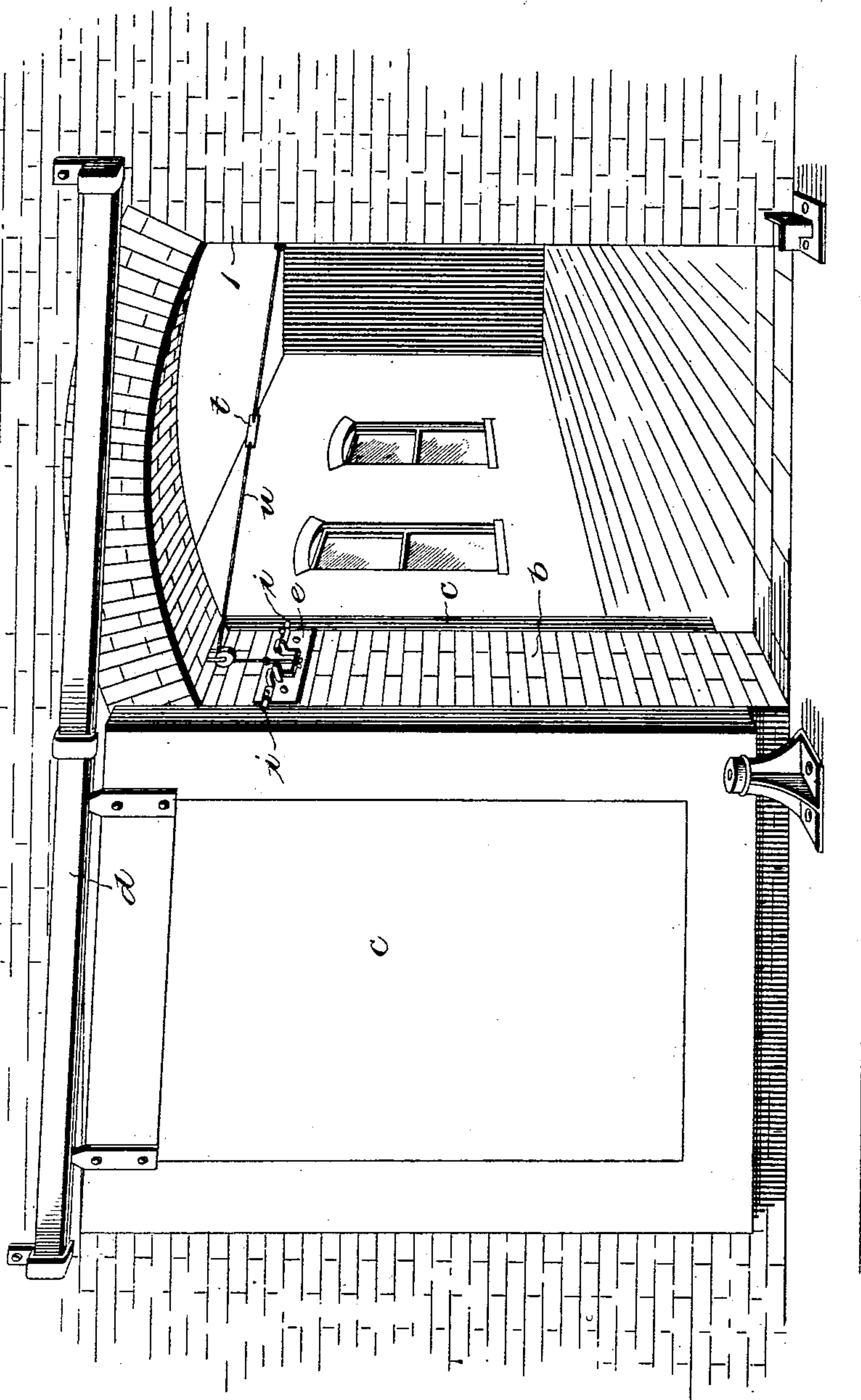
Patented Nov. 11, 1902..

G. ALBRECHT.
LOCK FOR FIRE DOORS.
(Application filed May 17, 1902.)

(No Model.)

2 Sheets—Sheet 1.

Fig. 1.



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2 Sheets—Sheet 2.

Fig. 2.

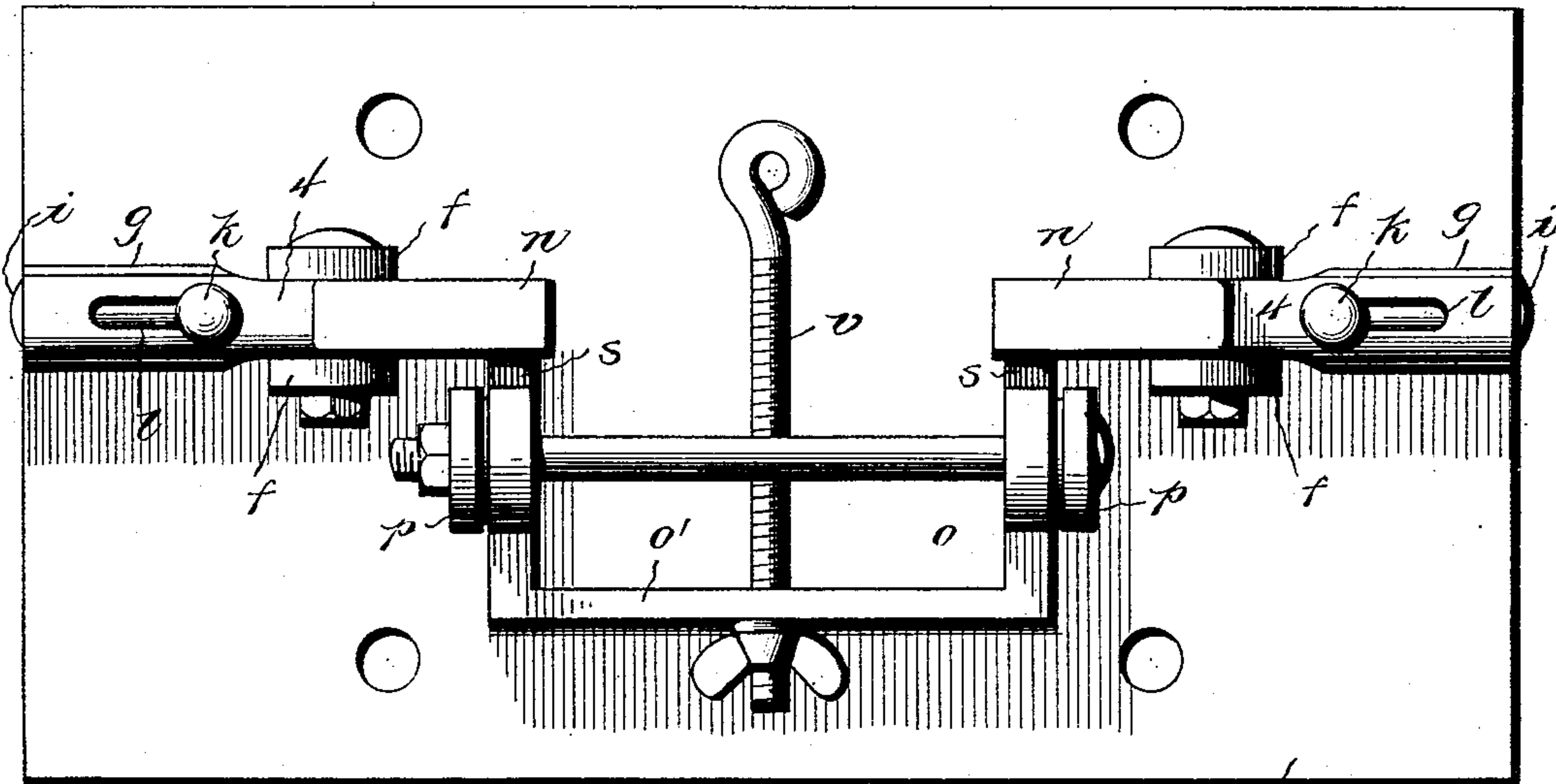


Fig. 3.

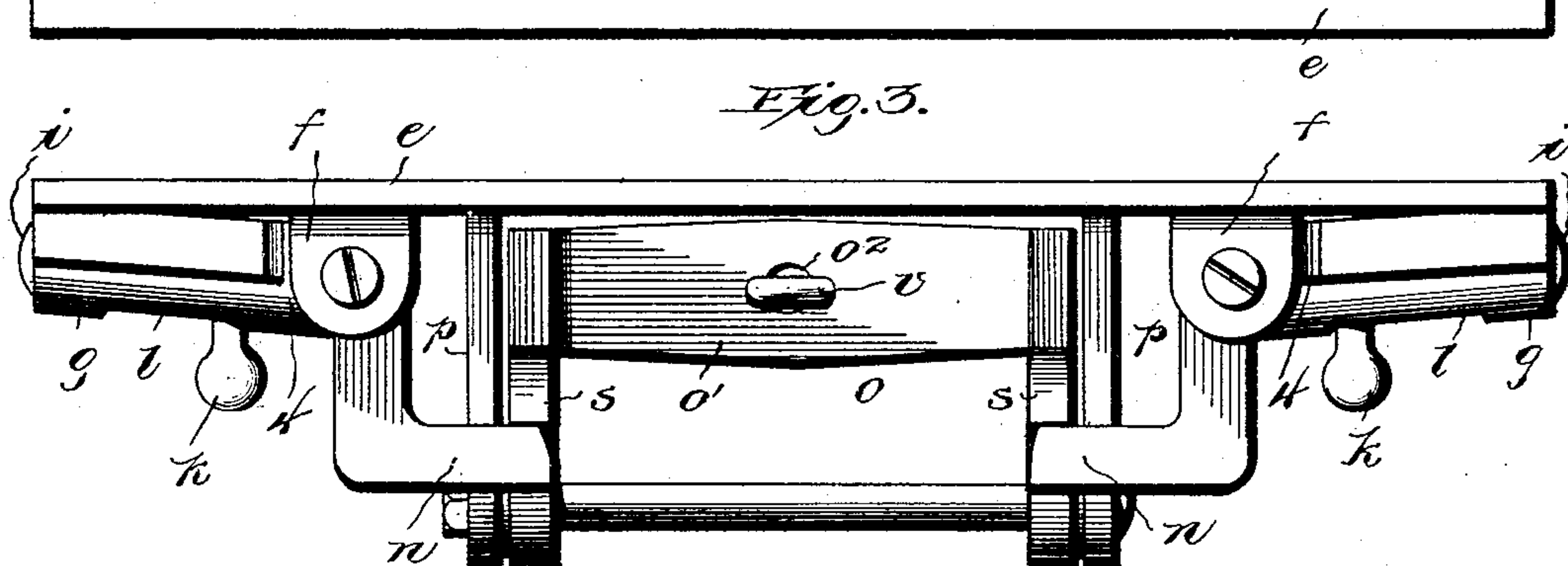
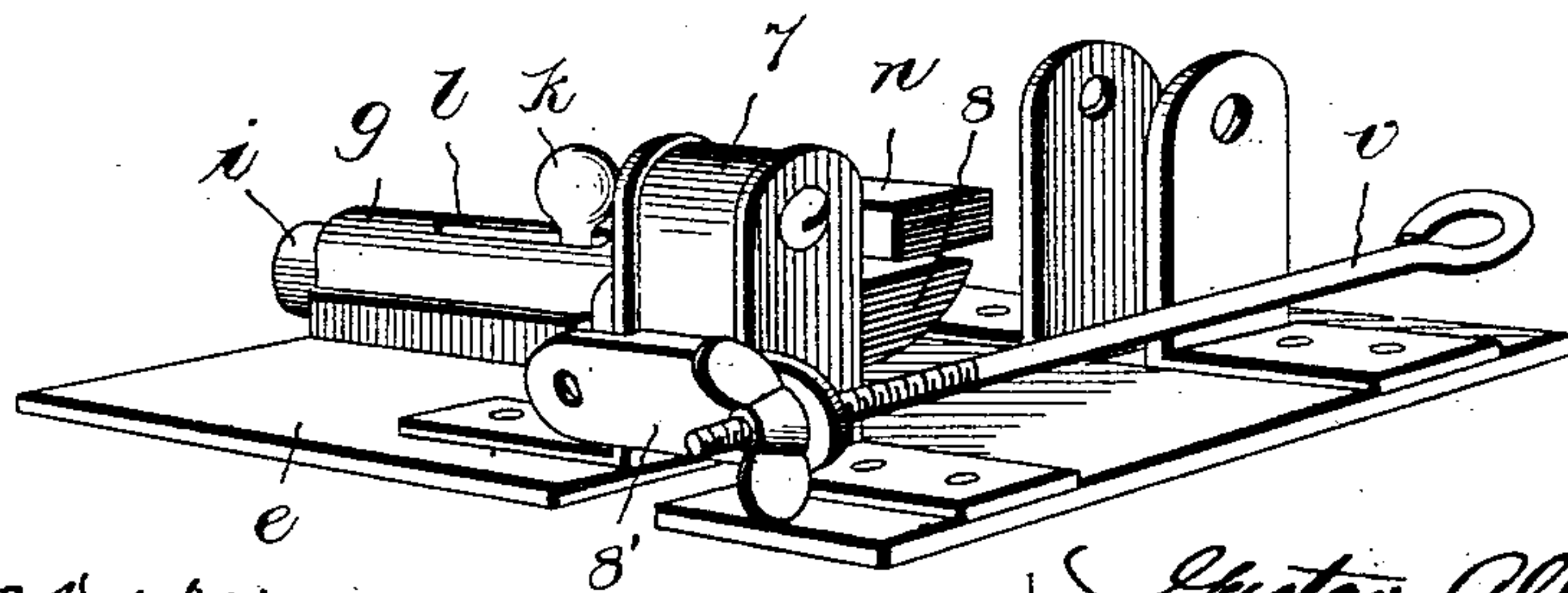


Fig. 4.



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LOCK FOR FIRE-DOORS.

SPECIFICATION forming part of Letters Patent No. 713,372, dated November 11, 1902.

Application filed May 17, 1902. Serial No. 107,756. (No model.)

To all whom it may concern:

Be it known that I, GUSTAV ALBRECHT, a citizen of the United States, residing at Louisville, in the county of Jefferson and State of Kentucky, have invented certain new and useful Improvements in Locks for Fire-Doors, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to an improvement in door locks or retainers primarily intended to be associated with fire-doors of the type which are designed to be locked in open position and to close automatically when released; but the application of the improved lock is not limited to this single employment, but is available for various uses, as will be appreciated when the nature of the invention is better understood.

The object of the invention is to provide a retainer or lock which may be automatically released and which is also adapted to be released independently of the automatic mechanism and without disturbing the same.

A further object is to provide a strong, durable, simple, and effective lock for accomplishing the purposes referred to which will operate without the employment of springs or like elements.

To this end the invention comprises the parts and combination of parts and the details of construction to be hereinafter described, and particularly pointed out in the claims.

Although in the accompanying drawings but two embodiments of the invention are shown, of which one is substantially a duplication of the other, it will be understood that this particular mechanism is susceptible of various changes that will readily suggest themselves without departing from the spirit of the invention.

In the drawings, Figure 1 is a perspective view showing a double fire-door with one form of the improved lock or retainer associated therewith. Fig. 2 is a front elevation of the type of lock or retainer which is associated with a double fire-door. Fig. 3 is a plan view of the same, and Fig. 4 is a perspective view of the form of lock which is particularly designed to be associated with a single fire-door.

Referring to the accompanying drawings, Fig. 1 illustrates one type of fire-door construction with which my invention is designed

to be associated. In this figure the numeral 1 represents a partition-wall between two rooms provided with a doorway *b*, which is designed to be closed by the sliding doors *c*, hung by suitable carriages upon inclined tracks *d*, arranged on opposite sides of the partition 1, so that said doors when freed will automatically close the doorway.

As before premised, the present invention relates to an improvement in locks or retainers for holding the doors in open position, which may be released automatically or manually, the lock being so constructed that the latter operation can be performed without affecting in any wise the automatic mechanism.

In the embodiment of the invention disclosed in Figs. 1 to 3, inclusive, of the accompanying drawings the locking mechanism proper is shown as carried by a plate *e*, designed to be secured by suitable bolts or screws to the wall of a doorway *b*. Projecting from the face of this plate are two pair of lugs *f*, between the members of which bolt-carriers 4 are pivotally supported, said carriers being provided with barrels *g* to retain and guide sliding bolts *i*, located therein. The bolt-carriers are so located that their free outer ends will aline with the side edges of the plate *e*, and the side edges of the latter are preferably arranged substantially coincident with the sides of the partition 1, so that when the bolts are projected beyond the outer end of the carriers they will lie in the paths of movement of the doors *c*. The bolts are operated manually by means of knobs *k*, secured thereto and projecting through slots *m*, extending longitudinally of the barrels *g*, said knobs coacting with the walls of the slots to prevent the bolts from being accidentally separated from the carriers or from dropping out of the barrels. When the doors are in retracted position, they rest against the bolts which are then projected beyond the ends of the carriers, and as said doors are suspended from inclined ways their weight is sufficient to tilt the carriers on their pivots if the same are not locked, and thereby push the bolts out of their paths and move into closed position. Consequently means must be provided to normally hold the carriers locked, and the present invention comprehends the provision of means for this purpose which includes a

fusible element or plate which will release said carriers when said element or plate is melted by the heat from a fire burning adjacent to the doorway.

5 The locking mechanism shown in the accompanying drawings comprises an angular tailpiece *n* upon the rear of each carrier, with which a pivoted locking member *o* coacts, the latter being controlled by a fusible plate or
 10 element. As shown, each tailpiece has its end portion arranged parallel to the barrel *g*, so that when the latter rests against the face of the plate *e* said tail portion will lie parallel thereto. From the face of said plate two
 15 arms or brackets *p p* extend, between which the ends of the locking member *o* are pivoted. This member includes side arms and a cross-plate *o'*, connecting the same at their free ends. The pivotal connection between said
 20 arms and the brackets *p p* is preferably secured by a single bolt extending through alining openings in the ends of the arms of said brackets and corresponding openings in the ends of the arms of the locking member.
 25 From the upper face of each of the latter arms a lug *s* projects, having a flat face adapted to come into contact with the inner face of the adjacent tailpiece when the locking member occupies a horizontal position—that is,
 30 with its arms substantially parallel to the arms of the brackets *p p*. This member is so weighted that when it is unrestrained or free it depends from its pivot or rests in substantially a vertical position, with the lugs *s* thereof out of
 35 engagement therewith and below the paths of movement of said tailpieces. When the parts are in this position, the carriers are perfectly free or unrestrained. When the device is in use, however, this locking member is normally
 40 maintained in a horizontal position, with its lugs *s* coacting with the tailpieces to lock the carriers against movement by means which will automatically release the same. This means should preferably include a fusible
 45 element, and in the particular arrangement illustrated in the accompanying drawings said element is shown in the form of a plate *t*, associated with a cable *u*, connected at one of its ends to the wall of the doorway opposite
 50 the locking device and extending across said doorway and around a guide-pulley secured to the wall of the doorway, near the top of the same, and above the locking device, the opposite end of said cable being connected to
 55 the cross-bar *o'* of the locking member. To provide means for readily attaching the cable to said cross-bar which will also provide for securing the proper adjustment of the parts, a threaded bolt *v* is interposed between the
 60 end of said cable and said cross-bar. This bolt is provided at one end with an eye to receive the end of the cable, while its shank is suitably threaded and passed loosely through an opening *o²* in the cross-bar *o'*. A suitable
 65 nut is then screwed upon said shank and finds a bearing upon the under side of the cross-bar. As will be appreciated, the shank of the

bolt can be readily passed through the opening *o²* and the nut placed thereon and screwed up upon the same until the lugs *s* of the locking member press firmly against the tailpieces
 70 of the carriers, the outward movement of said tailpieces under pressure from the lugs being arrested by the abutment of the barrel portions of the carriers against the face of the
 75 plate *e*. The parts are thus securely locked in position and the fusible element is located in such a position in the length of the cable that it will come centrally of the doorway when the parts are set. 80

Should a fire break out in one of the rooms and the flames or excessive heat sweep through the doorway, the fusible plate will be quickly melted and part the cable. The locking member then being unsupported will immediately
 85 drop and release the bolt-carriers, the weight of the doors pressing upon the ends of the latter will immediately swing the same upon their pivots, and the bolts being thereby carried out of the paths of said doors the latter
 90 will automatically move into closed position.

As will be appreciated, it is quite often desirable to shut the doors under ordinary circumstances, as when the day's business is over and precautions are taken against the
 95 spread of a fire breaking out during the night, it not being desired to unnecessarily place dependence in the automatic releasing mechanism and the automatic closing of the doors when released or for other reasons which will
 100 suggest themselves. To close the doors, it is necessary, of course, to move the locking-bolts out of the paths of the same; but it is not desirable on such occasions to disturb the automatic releasing mechanism, and the device
 105 hereinbefore set forth permits of the doors being released without affecting this automatic mechanism. As before stated, the bolts *i* have movement with and independently of their carriers, and consequently they
 110 can be moved out of the paths of the doors by simply pushing them back in the barrels without in any wise disturbing the automatic releasing mechanism, and the doors are as readily locked again by throwing the bolts
 115 forward in the barrels to project the ends thereof beyond the ends of the carriers.

In Fig. 4 a form of the invention is shown intended to be associated with a single automatically-closing fire-door. As will be noted,
 120 this form of the invention is substantially duplicated in the forms hereinbefore described, and illustrated in Figs. 1 to 3, inclusive, of the accompanying drawings; but provisions are made for reversing the lock, so that it
 125 may be secured to either vertical wall of the doorway or operate to coact with a door arranged on either side of the partition in which the doorway is located. In this embodiment of the invention the type of bolt-carrier before described is employed and the tailpiece thereof extends in between two pairs of arms or brackets 7. The locking member 8, which
 130 coacts with said tailpiece, comprises an arm

9, adapted to be pivoted between either pair of said arms 7, having a lug extending from one edge thereof designed to interlock with the tailpiece, and two lateral lugs or offsets 10, extending in diametrically opposite directions from its opposite edge. Each of said lugs or offsets is provided with an opening to receive the shank of the bolt which connects said locking member with the cable *u*. As will be appreciated, by simply transferring the locking member from one pair of arms 7 to the other the lock may be reversed.

From the foregoing the construction, operation, and effect of the invention will be readily understood, and it will be realized that an exceedingly durable, simple, and effective mechanism is provided for accomplishing the ends desired.

I claim—

1. In an improved lock and in combination, a base-plate, a bolt-carrier pivoted thereto, a bolt associated therewith, a tailpiece extending from the carrier having a face lying parallel with the longitudinal axis of the carrier, and locking means for the carrier coacting with said face of tailpiece, substantially as described.

2. In an improved lock and in combination, a base-plate, an engaging member pivotally supported from said plate and adapted to lie thereagainst, an angular tail extending therefrom, a locking member coacting therewith, and a controller for said member, substantially as described.

3. The combination with an automatically-closing door, of a retainer therefor comprising a base-plate, a bolt-carrier pivoted thereto having a tailpiece, a locking member adapted to be interposed between the face of said plate and said tailpiece, and a controller therefor, substantially as described.

4. In an improved lock and in combination, a base-plate, a bolt-carrier pivoted thereto provided with an offset tailpiece, a pivoted locking member adapted to engage with said tailpiece, and controlling means therefor, substantially as described.

5. In an improved lock, and in combination, a base-plate, a bolt-carrier pivoted thereto having a barrel, a bolt guided therein, a tailpiece extending from the carrier having a part extending at right angles to the carrier and an end extending parallel therewith, an overbalanced locking member pivotally supported from said plate and coacting directly with said tailpiece, and controlling means

therefor including a fusible element, substantially as described.

6. In an improved lock and in combination, a base-plate, a pair of bolt-carriers pivoted thereto, sliding bolts associated therewith, brackets projecting from said plate, a single locking device pivoted between the same common to all of said carriers, having a part extending at right angles to the carrier and an end extending parallel therewith, and means for controlling said locking devices, substantially as described.

7. In an improved lock and in combination, a base-plate, a pair of bolt-carriers pivotally supported therefrom, a bolt associated with each carrier, a single locking member coacting with both carriers, and means for controlling said member including a fusible element, substantially as described.

8. In an improved lock and in combination, a base-plate, a pair of bolt-carriers pivotally supported therefrom, a bolt associated with each carrier, a single locking member coacting with both of said carriers, said member comprising a pair of pivoted arms, a cross-bar connecting the same and lugs projecting from said arms, tailpieces extending from said carriers coacting with said lugs, and controlling mechanism for said locking member connected to the cross-bar thereof, substantially as described.

9. In combination in a lock, a base-plate, a bolt-carrier pivotally supported therefrom, a bolt associated therewith, a locking member supported from said plate and adapted to swing toward and from the same, and means carried thereby adapted to pass between the engaging part of the carrier and the plate to interlock therewith and prevent the tilting of said carrier, substantially as described.

10. In combination in a lock, a base-plate, a bolt-carrier pivoted thereto having a barrel in advance of its pivot, a tailpiece having a part extending at right angles to the carrier and a part extending in an opposite direction thereto, a bolt guided in said barrel and a locking member automatically controlled located behind the carrier and engaging the tailpiece, substantially as described.

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

GUSTAV ALBRECHT.

Witnesses:

JAMES T. A. BAKER,
C. L. HOKE.