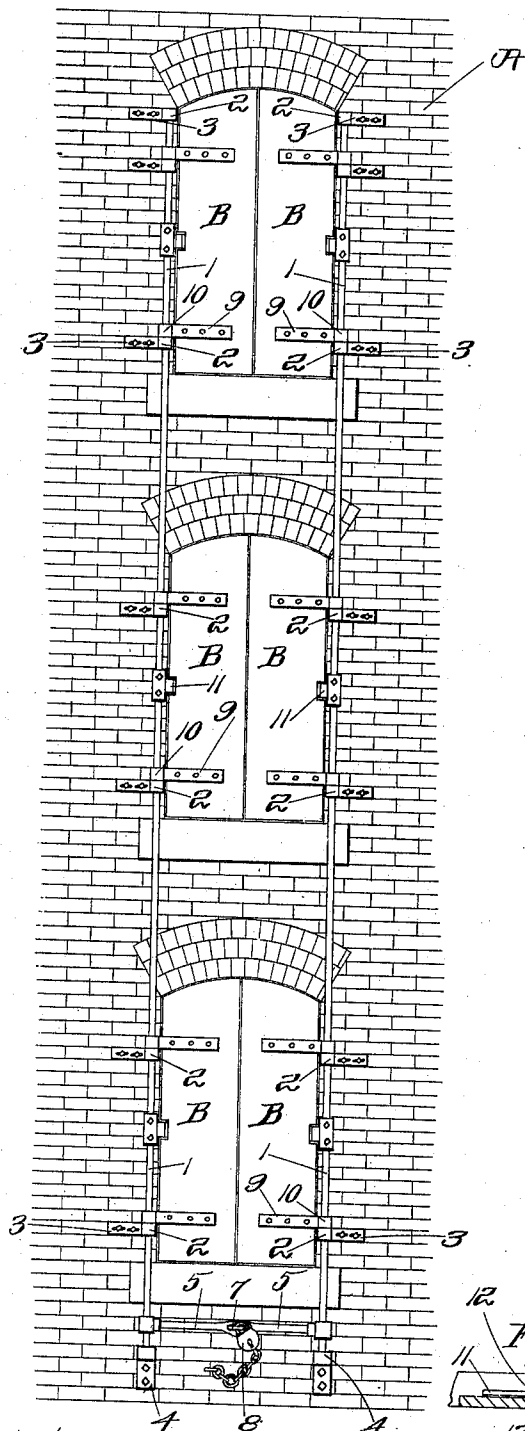


H. KRAKE.
FIRE SHUTTER CONTROLLER,
APPLICATION FILED OCT. 19, 1910.

980,536.

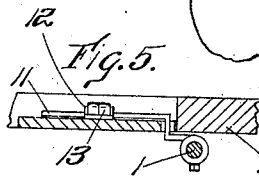
Patented Jan. 3, 1911.

2 SHEETS-SHEET 1.



Witnesses:
John H. Parker
Alvin Tarr

Fig. 1



by Macleod, Colver, Capeland & Lile
Attorneys.

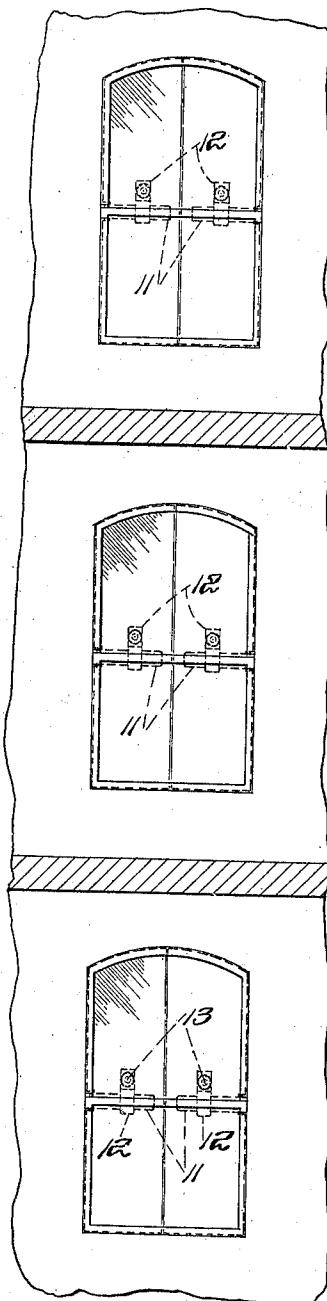


Fig. 2.

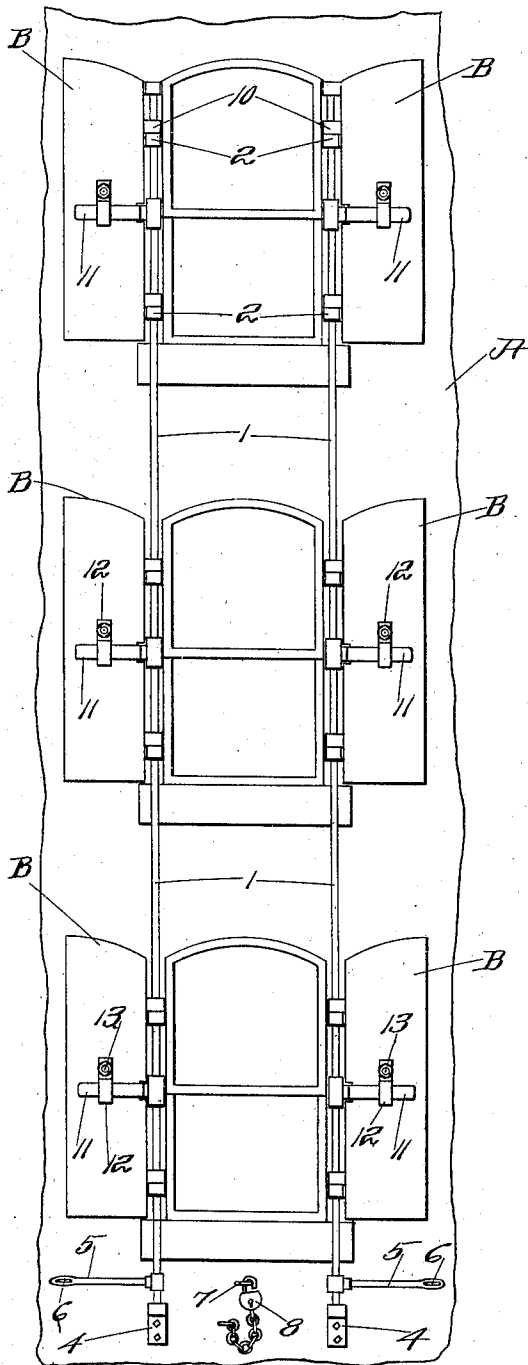
INVENTOR:
Henry Krake

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2 SHEETS—SHEET 2.



Witnesses:
John H. Parker
Aline Tarr

Fig. 3.

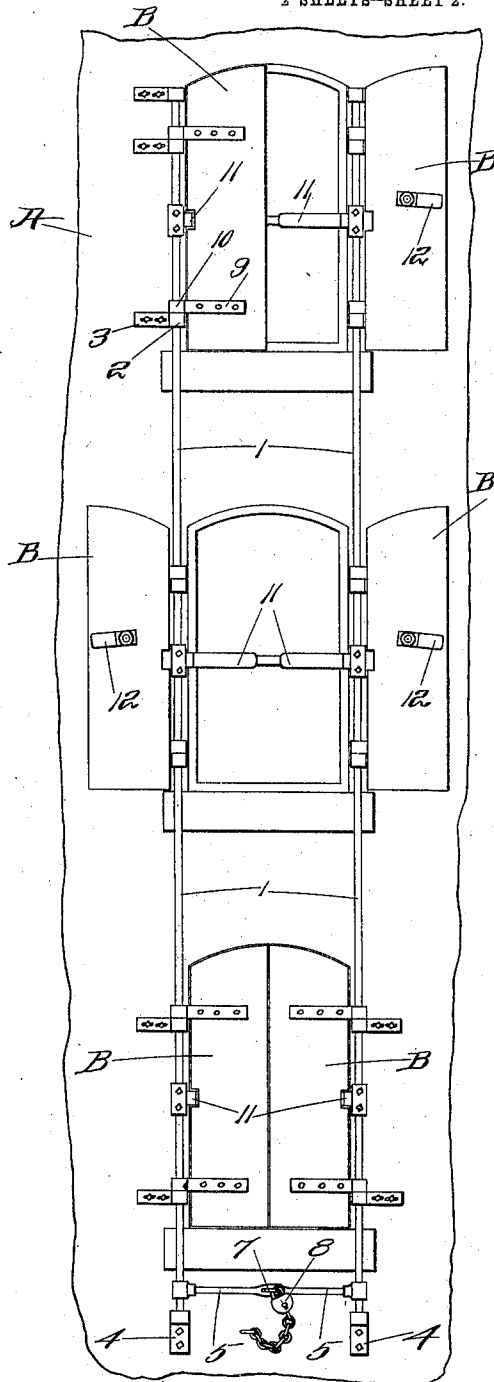


Fig. 4. INVENTOR:
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ATTORNEYS.

UNITED STATES PATENT OFFICE.

HENRY KRAKE, OF BOSTON, MASSACHUSETTS.

FIRE-SHUTTER CONTROLLER.

980,536.

Specification of Letters Patent.

Patented Jan. 3, 1911.

Application filed October 19, 1910. Serial No. 587,845.

To all whom it may concern:

Be it known that I, HENRY KRAKE, a citizen of the United States, residing at Boston, county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Fire-Shutter Controllers, of which the following is a specification, reference being had therein to the accompanying drawings.

Many factories, warehouses, hotels and other large buildings, situated near other large buildings, have their windows provided with fire resisting shutters for protection against fires which may originate outside of the buildings so protected. Such shutters are usually closed and barred on the inside at the close of each day's work and so remain until the following morning or such other time as the work is to be resumed or it is desired to open up the building. Whenever a fire occurs within a building equipped with such shutters while the shutters are closed and locked or barred on the inside in the usual manner, much valuable time is lost by firemen in opening them from the outside as they usually have to do from ladders and by the use of axes and other tools. Oftentimes the attempt to open them has to be abandoned at critical points and in such cases the shutters are the cause of heavy loss to the building and contents because of the inability to gain access to the inside or to throw the water through the windows protected. It is oftentimes dangerous to the fireman to make the attempt to open the shutter from a ladder in the manner already described, even if successful, because it being perhaps fifty feet or more above the ground, he, standing on the ladder, cannot avoid the broken glass and other materials forced out by the fire and it usually results in cuts and other injuries.

The object of the present invention is to provide a shutter controlling device whereby all of the shutters which are in vertical alinement with each other on each floor of the building can be operated simultaneously from the lowermost window of the series and yet so constructed that a person on the inside of each room in the series can independently operate the shutters of his room without operating the shutters of any other room, above or below in the series, so that the occupant of each room may each morning open his shutters or at night close and lock them without at all interfering with

the opening or closing of the others in the series.

In addition to the safety to the firemen provided by my improved device and also the advantage of opening the shutters so that a stream of water can be thrown in, it insures quick ventilation, as is sometimes desired, to lessen the danger of back drafts or what are sometimes called hot air explosions.

The invention will be fully understood from the following description taken in connection with the accompanying drawings and the novel features will be pointed out and clearly defined in the claims at the close of the specification.

In the drawings,—Figure 1 is a front elevation of a portion of the outside wall of a building equipped with fire shutters and controlling device embodying the invention showing the shutters closed. Fig. 2 is an elevation partly in section taken from the inside and facing outward showing the shutters in the same position as in Fig. 1 for the purpose of showing the inside face of the shutters when closed and locked. Fig. 3 is a front elevation from the outside showing the same parts in Fig. 1 with the shutters opened by operation from the outside. Fig. 4 is a front elevation from the outside showing some of the shutters closed and some of them open as they will appear if they are unlocked and opened from the inside. Fig. 5 is an enlarged sectional view showing the means for rigidly connecting the shutter with the hinge rod at the will of the person inside the room.

Referring now to the drawings,—A represents the outer face of a portion of a building showing one window on each of three stories. Each window is provided with a pair of fire shutters B. A single rod 1, on both the right and left hand sides of each window, extends from the top story window down below the lower end of the bottom window and is journaled in knuckle bearings 2 which have straps or brackets 3 secured to the wall of the building, the lower end of the rod being stepped in a bearing 4 to prevent the rod from slipping down through. Made fast to the rod 1 at the lower end thereof is a lever or handle 5 whereby the rod 1 may be turned in its bearings. Preferably means are provided whereby the companion levers 5, 5 connected with each pair of rods 1, 1, may be locked so that they can-

not be tampered with by anyone who does not have a key. One means for so locking them is to form each lever 5 with a slot 6 which when the levers are turned into the locking position will engage with a hasp 7, and a padlock 8 is provided whereby the levers may be locked in their closed position. As shown in the drawings one hasp and padlock is made to answer for locking both 10 levers. It is obvious that the levers 5 may be made so as not to overlap and a separate lock may then be used for each, if desired.

Each shutter has secured to the outer face thereof straps 9, preferably at least two for each shutter having knuckle bearings 10 which turn loosely on the hinge rod 1 so that each shutter is independently hinged on the rod 1. Means are provided, however, whereby each shutter may be also independently made fast to the rod 1 so that the shutter cannot turn on the rod 1 but can be opened or closed only by turning the rod 1. The means shown are as follows:—Secured fast to the rod 1 at intervals corresponding with the number of the windows are a series of arms 11 made with an offset, so as to extend transversely of the face of the shutter on the inside and each shutter is also provided with a button 12, pivoted at 13 which may be turned down to engage the arm 11 so as to clamp the shutter to the arm and the arm and shutter therefore will have to move together. Inasmuch as the arms 11 are made fast to the long hinge rod 1 and the hinge rod 1 is pivoted in its bearings 2 and 4, it follows that when the hinge rod 1 is turned in its bearings, by means of the operator or otherwise, all of the shutters in the series must turn with the hinge rod 1 to either 40 open or close them as the case may be. A person on the inside, however, may, by turning the button 12 to disengage it from the arm 11 swing the shutter on its hinge bearings 10 which will swing on the hinge rod 1 without turning the hinge rod 1, while the rod is locked against turning. In case of fire, the firemen may break the padlock or the firemen may be provided with keys which will fit the lock; or as the shutters are 50 mainly intended for fire protection rather than as protection against burglars, the fastening need not be locked.

What I claim is:—

1. In combination with a shutter, a hinge 55 rod, a hinge connection between said shutter and said rod whereby said shutter may be turned on said rod, hinge bearings for said rod secured to the wall of a building, said hinge rod being adapted to be rotated at will, means for rigidly clamping at will said 60 shutter to said rod whereby when the shutter is thus rigidly connected the shutter may be operated by turning the hinge rod and means for locking the hinge rod against rotation whereby when the said rod is locked

and the rigid connection between the shutter and said rod is disconnected the shutter may be turned on the hinge rod without rotation of said rod.

2. In combination with a shutter, a hinge 70 rod, a hinge connection between said shutter and said rod whereby said shutter may be turned on said rod, hinge bearings for said rod secured to the wall of a building, said hinge rod being adapted to be rotated in 75 said bearings, means for locking said rod at will against rotation, means for rigidly clamping at will said shutter to said rod whereby when the shutter is rigidly connected with the hinge rod, the shutter may be 80 operated by turning the hinge rod, means for locking the hinge rod against rotation whereby when the hinge rod is locked and the rigid connection between the shutter and the hinge rod is disconnected the shutter may 85 be turned on the hinge rod without rotation of the rod, the locking means for the hinge rod being located on the outer face of the wall and the clamping connection between the shutter and the hinge rod being on the 90 inside face of the shutter.

3. A fire shutter controller comprising a hinge rod, a series of bearings on the outer wall of a building in vertical alinement with each other and at one side of a series of win- 95 dows located in vertical alinement with each other, said hinge rod being rotatable in said bearings, shutters for said windows, a hinge connection between a shutter for each of said windows and said hinge rod 100 whereby each shutter may be turned on said hinge rod independently of the other shutters, and means located on the inside of the shutters for clamping at will each shutter to said hinge rod whereby when the hinge 105 rod is turned it will operate all of the shutters in the series.

4. A shutter controller for controlling the opening and closing of shutters on a building of several stories in height having win- 110 dows in vertical alinement with each other, comprising a rod of sufficient length to extend alongside of all of the windows in the vertical series whose shutters are to be controlled, a series of bearings for the rod at- 115 tached to the building, said rod being rotatable in said bearings, each shutter having an independent hinge connection with said rod whereby the shutter is adapted to be turned on said hinge without turning said 120 rod, means connected with the inside face of the shutter whereby at the will of the person on the inside, the shutter may be clamped fast to said hinge rod so that the shutter can be turned by turning the hinge 125 rod and means connected with the lower end of said hinge rod whereby said hinge rod may be normally turned to open all of said shutters in the series simultaneously.

5. A shutter controller for controlling 130

the opening and closing of shutters on a building of several stories in height having windows in vertical alinement with each other, comprising a rod of sufficient length to extend alongside of all of the windows in the vertical series whose shutters are to be controlled, a series of bearings for the rod attached to the building in vertical alinement with each other, said rod being rotatable in said bearings, each shutter having an independent hinge connection with said rod whereby the shutter is adapted to be turned on said hinge rod without turning said rod, means connected with the inside face of the shutter whereby at the will of the person on the inside, the shutter may be clamped fast to said hinge rod so that the shutter can be opened by turning the hinge rod, a handle connected with the lower end of said hinge rod whereby said rod may be turned to open all of said shutters in the series simultaneously, and means for locking said rod against rotation.

6. A shutter controller comprising a hinge rod, bearings for said hinge rod secured to the outer wall of the building at one side of the window containing the shutter, said hinge rod being rotatable in said bearings, hinges secured to the outer face of the shutter having bearings for said hinge rod whereby the shutter and hinges may be turned on said rod without turning the rod, an arm fast to said rod passing through to

the inner face of the shutter and extending transversely of the inner face of the shutter, means located on the inner face of the shutter for clamping the shutter to said arm whereby the shutter is then rotatable only by rotating the hinge rod and means whereby the hinge rod may be manually rotated from the outside thereby actuating the shutter.

7. A shutter controller connected with a series of shutters on different stories of a building whereby all of the shutters in the series may be operated simultaneously and separate hinge connection whereby each shutter may at will be opened or closed independently of the actuation of said common shutter controller.

8. A shutter controller comprising a rod having outside hinge connection with a plurality of shutters in vertical alinement with each other whereby each of said shutters may be independently turned on said rod without turning said rod, and means on the inside of each shutter for rigidly connecting it with said rod whereby all of said shutters may be opened or closed simultaneously by turning said rod.

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

HENRY KRAKE.

Witnesses:

GEORGE P. DIKE,

ALICE H. MORRISON.