

(No Model.)

3 Sheets—Sheet 1.

A. A. GOUBERT.
SHUTTER FASTENER.

No. 456,115.

Patented July 14, 1891.

Fig. 1.

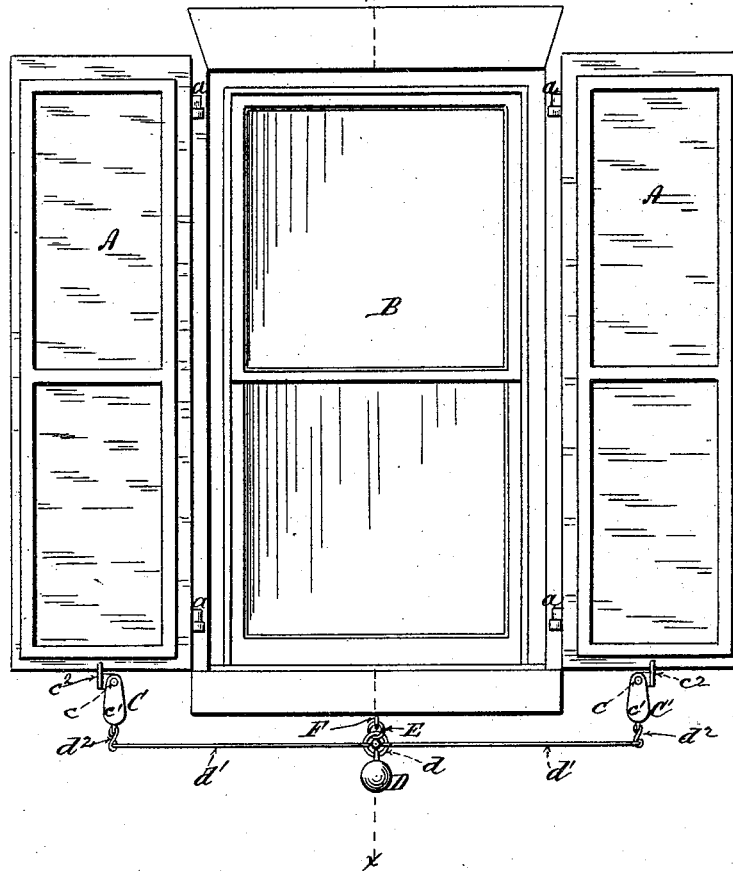
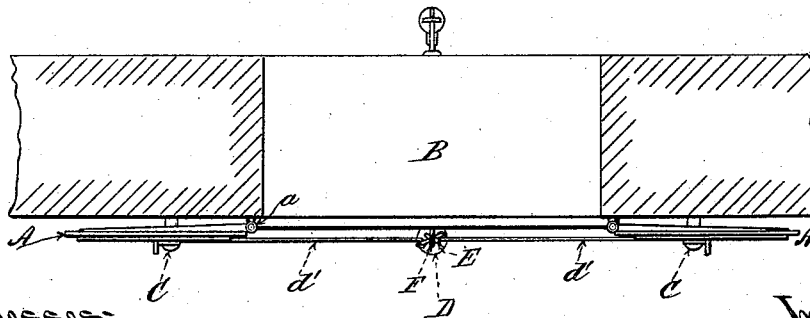


Fig. 2.



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Fig. 3.

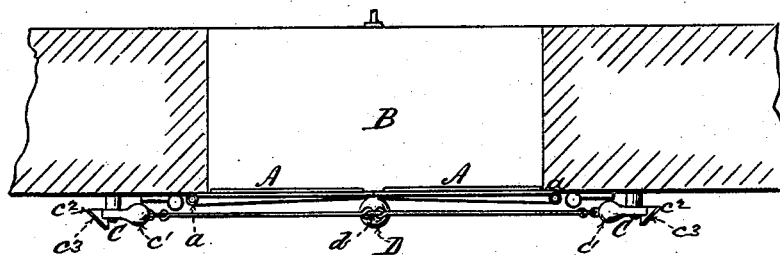
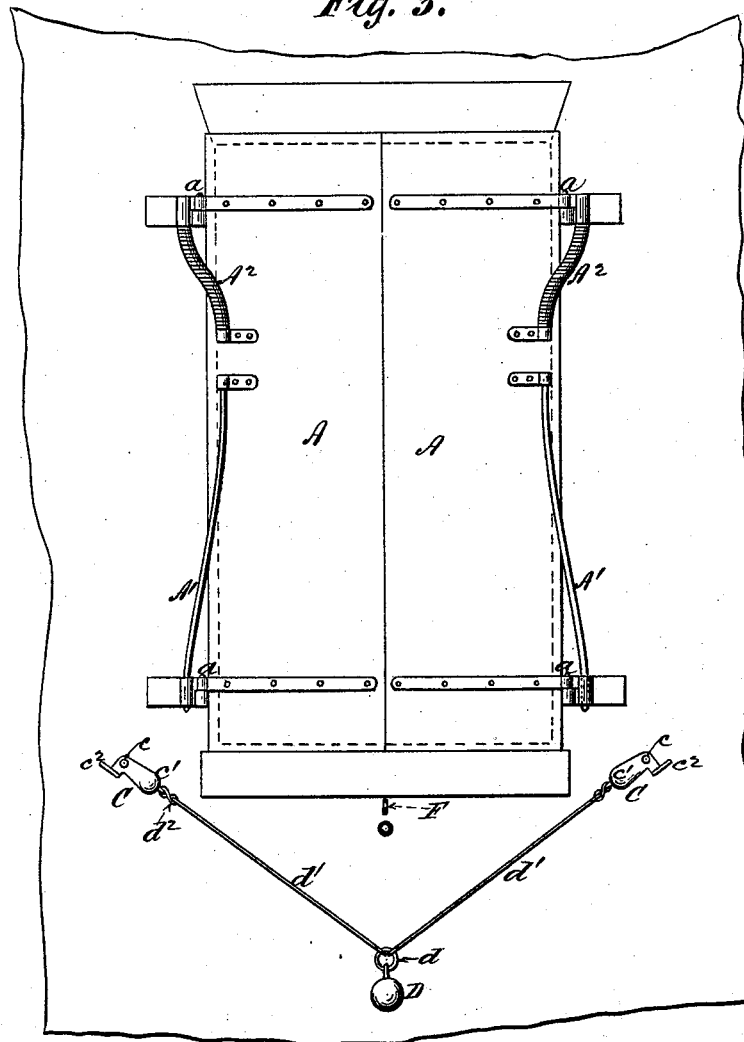


Fig. 4.

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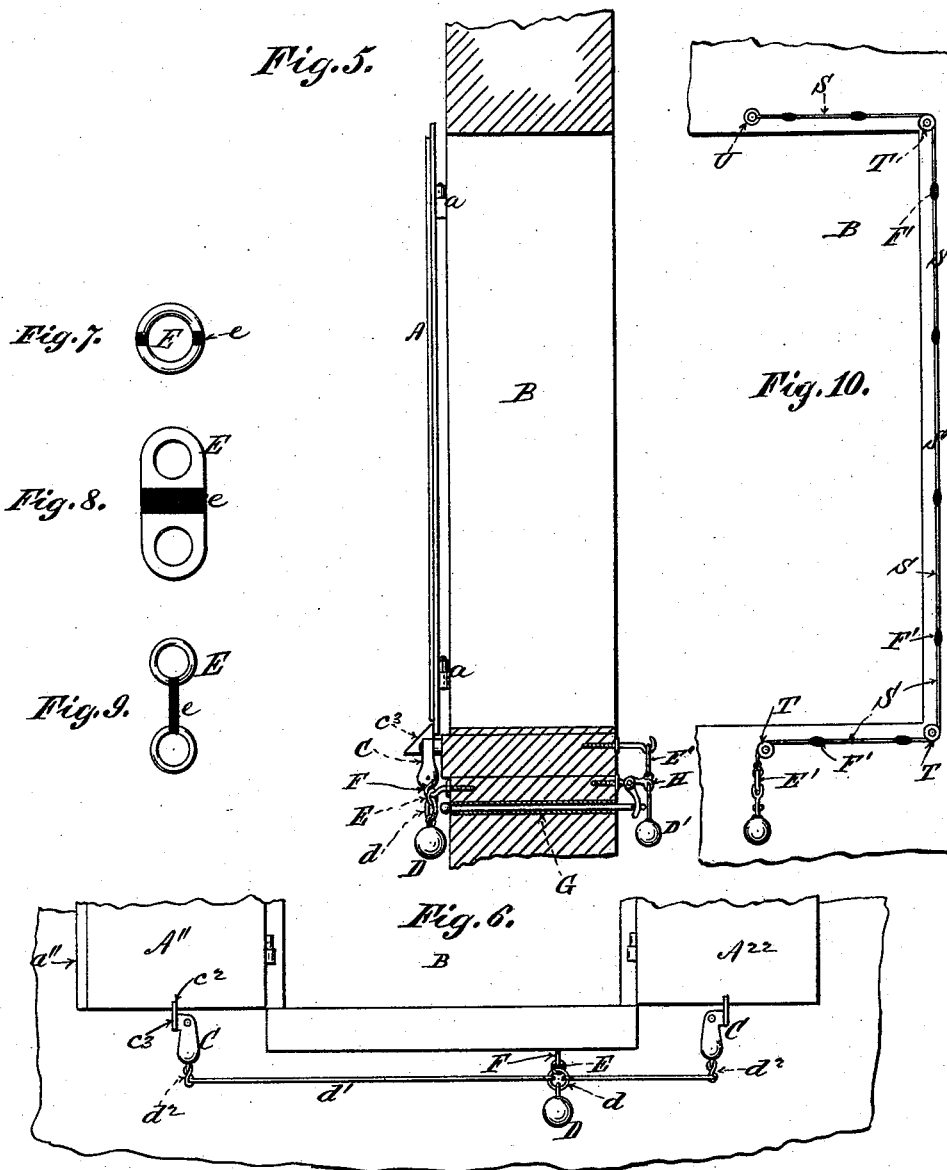
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UNITED STATES PATENT OFFICE.

AUGUSTE A. GOUBERT, OF BROOKLYN, ASSIGNOR TO FRANZO O. MATTHIESSEN,
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SHUTTER-FASTENER.

SPECIFICATION forming part of Letters Patent No. 456,115, dated July 14, 1891.

Application filed June 21, 1890. Serial No. 356,175. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTE A. GOUBERT, a citizen of the United States, residing in the city of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Destructible Fastenings for Iron Shutters, of which the following is a description sufficient to enable those skilled in the art to which the invention appertains to make and use the same.

My improvements relate to the metallic shutters applied to buildings for the purpose of protecting them against external fire, and more especially to the class of automatically-closing shutters held by fusible connections or fastenings, substantially as set forth in the patent to F. O. Matthiessen, dated April 11, 1882, No. 256,439.

As heretofore used no provision has been made for controlling the shutters from the interior of the building in case of fire within the building itself, under which circumstances it is desirable that the shutters shall be prevented from closing, in order to admit of convenient access to the interior through the windows.

In my application for patent concurrent herewith, filed June 21, 1890, Serial No. 356,174, I describe a method of overcoming this difficulty by means which automatically disconnect or render inoperative the shutter-closing mechanism whenever the interior heat is sufficient to release a fusible connection by which said closing mechanism is maintained in position normally, and thus prevent the closing of the shutters, even though the exterior fusible shutter-fastenings be severed.

In my present application I effect the same result by means which automatically lock the shutters and their closing mechanism under like conditions, the invention consisting, essentially, in the combination, with exterior shutter-fastenings adapted to hold the shutters open against automatically-closing mechanism by means of a destructible or fusible coupling or link, of a locking device held normally out of engagement with said exterior shutter-fastenings by a fusible connection within the building, but capable upon the melting of said interior fusible connection

of automatically blocking or holding the exterior shutter-fastenings against displacement, thereby preventing the closing of the shutters.

My invention also includes special features of arrangement and construction of parts whereby I am enabled to secure both shutters of a window by a single fusible exterior coupling or connection, and to provide for the closing of the shutters either simultaneously or one slightly in advance of the other upon the melting of the fusible exterior coupling.

I do not confine myself herein to the use of springs for effecting the automatic closing of the shutters when released, as weights may be used for this purpose, as in my concurrent application hereinbefore referred to, or equivalent means may be used for effecting a like result, the action of both the exterior and interior fastening and releasing mechanism being independent of any special means for moving the shutters.

It is to be understood herein that the word "fusible" in connection with the destructible suspenders or links referred to is used in a restricted sense only, a compound melting at a temperature of in the neighborhood of, say, 160° Fahrenheit being used, either in whole or in part, in the formation of such suspending devices, the design being to afford a suspender that, while sufficiently strong at ordinary temperatures to perform its functions as such, will upon a dangerous increase above normal temperature suffer disintegration and release the parts with which it has been connected, thereby either causing or preventing the closing of the shutters, as the case may be, according to its position at the exterior or interior of the building, as hereinafter more fully set forth.

In the accompanying drawings I illustrate means for carrying out my improvements practically, although I do not wish to confine myself strictly to the identical form and construction of parts shown, since it is obvious that various modifications may be made therein without departing from the essential features of my invention.

Figure 1 is an elevation of a window provided with two iron shutters held open by

ordinary shutter - catches controlled by a single destructible fastening or fusible suspender. Fig. 2 is a plan of the parts in the position shown in Fig. 1, the window space being indicated without sashes or frame. Fig. 3 is an elevation similar to Fig. 1, showing the shutter-fastenings released and the shutters closed. Fig. 4 is a view similar to Fig. 2 of the parts in the position shown in Fig. 3. Fig. 5 is a central vertical section on plane of line $x x$, Fig. 1; Fig. 6, an elevation of the lower portions of window-opening, shutters, &c., showing a modified arrangement of the shutter-fastening device, whereby one shutter will be released slightly in advance of the other when the fusible suspender is severed. Figs. 7, 8, and 9 represent modifications in the form and construction of the destructible suspending - links, which are used for sustaining in their normal positions the shutter-fastening devices and the automatic locking mechanism therefor. Fig. 10 is a partial representation of the inner side of a window-opening, illustrating a modified form of the destructible suspender for the automatic locking device.

The shutters $A A$ are of ordinary construction, hinged at $a a$, so as to cover the window-opening B when closed.

As before intimated, the automatic closing of the shutters $A A$ may be effected by any suitable means, the accompanying drawings illustrating the use of springs for this purpose, as in the patent to Matthiessen, hereinbefore referred to, $A' A'$ representing torsion-springs, and $A^2 A^2$ spiral springs, tending constantly to close the shutters $A A$.

The shutters $A A$ are held open against this tendency of the springs by the catches C C , pivotally attached to the outer wall of the building, as at $c c$. These catches are formed with counter-weights $c' c'$, which maintain the catches $C C$ upright and in position to hold the shutters open by means of the locking arms or projections $c^2 c^2$. The outer sides of the locking-arms $c^2 c^2$ are formed with inclined surfaces $c^3 c^3$, which cause the depressing of the locking-arms $c^2 c^2$ against the counter-weights under the action of the lower edges of the shutters as the latter are opened and turned against the wall. The catches $C C$ are connected with a weight D , suspended upon a fusible link or holder E in such manner that upon the softening of said fusible means of suspension by external heat the catches $C C$ are drawn into position to release the shutters $A A$, as illustrated in Figs. 3 and 4, when the springs $A' A^2$ force the shutters together over the window-opening B .

The form and arrangement of the fusible link or suspender E may obviously be varied to suit the requirements of special use, the principle involved consisting in preventing the action of suitable tripping or releasing mechanism under ordinary conditions by means of a fusible connecting or suspending device, which, when exposed to an unusual

degree of heat, melts, and thereby allows the shutter-releasing mechanism to act.

Each catch C may be provided with an independent releasing-weight D and fusible suspender E , if desired, although I prefer to connect the catches $C C$ of the shutters $A A$ of a window with a drop-weight D common to both.

As shown in the drawings, the fusible coupling E consists of a link or ring made in whole or in part of a fusible compound e , which will melt at a given temperature above that which is normal. By this link E the weight D is suspended from a stationary hook or fastening F , attached to the wall. A ring d , attached to the weight, serves to afford means for connection with the fusible link E and with the catches $C C$ through the medium of the rigid rods $d' d'$ and links $d d$, the latter being sufficiently long and loose to permit of the turning of the catches $C C$ by hand to release the shutters without disturbing the fusible link E and weight D when it is desired to close the shutters by hand. When the shutters are of equal width and do not overlap when closed, the releasing weight D and fusible link E are placed centrally, as shown in Figs. 1, 2, 3, and 4, so that upon the melting of the link E and descent of the weight D the shutters will close simultaneously. Where, however, the shutters overlap when closed it is of course desirable that one shall close slightly in advance of the other, and this I accomplish by arranging the releasing-weight D and fusible suspender E farther from the shutter A'' , which is formed with the overlapping edge a'' and comparatively close to the other shutter A^{22} , as illustrated in Fig. 6, so that upon the descent of the releasing weight D the catch of the latter shutter A^{22} will be withdrawn from its lower edge an instant before the overlapping shutter A'' upon the other side is released, thus insuring the folding of the edges of the shutters in proper relation to each other under the action of the springs $A' A^2$ or equivalent shutter-actuating mechanism.

It will be seen from the foregoing that ample provision is made for the automatic release and closing of the shutters should there be an excess of exterior heat, in which case it is desirable to protect the interior; but in case of internal fire the automatic closing of the shutters would be objectionable, in that it would impede the work of the fire department, and this objection is the main obstacle in the way of the general adoption and use of this class of automatically-closing shutters. I therefore use in conjunction with the exterior releasing mechanism an automatic bolting or dogging device, which in case of excess of heat within the building is released in such manner as to engage with and prevent the subsequent action of the exterior shutter-releasing mechanism.

This locking device may obviously be varied considerably in construction and ar-

rangement without deviating from my inven-
 tion in this respect. A simple form of device
 for this purpose is shown in the drawings,
 consisting of a bolt G, extending through a
 5 tube *g* in the wall, the outer end *g'* of the
 bolt G projecting in line with the ring *d* of the
 exterior releasing mechanism, while the inner
 end of the said bolt engages with one arm *h* of
 10 a bell-crank lever H, the other arm *h'* of said
 lever having a weight D' attached to it which
 tends to force the bolt out into engagement
 with the ring *d*. The bolt G is held back in its
 normal position by means of a destructible sus-
 pender or link E, which connects the arm *h'*
 15 of the bell-crank lever H with a fixed support
 I, (shown in the drawings in the form of a
 hook,) thus sustaining the weight D' under
 ordinary circumstances of use until the de-
 struction of the suspender E' by an excess of
 20 interior heat, when the weight will drop and
 shoot the bolt G into engagement with the ex-
 terior shutter-releasing mechanism.

As regards the form of engagement of the
 bolt G with the exterior shutter-releasing
 25 mechanism I do not wish to confine myself to
 the use of the ring *d* for this purpose, since
 any construction of parts which will permit
 of the engagement of the outer end of the
 bolt G when projected to effect the dogging
 30 or locking of the shutter-releasing mechan-
 ism will be equally effective and within the
 principle of my invention in this particular.

In order to render the operation of the in-
 terior locking mechanism as sensitive and
 35 prompt as possible, the suspender E' may be
 connected to and supplemented by a series of
 cords, chains, or wires S, connected by fusi-
 ble couplings E'' and extending over suit-
 able pulleys T, arranged around the window-
 40 opening B, or extending to any desired point
 in the interior, where the end is secured, as
 at U in Fig. 10. Thus the interior locking
 mechanism may be released by an excess of
 heat acting upon any one of the series of
 45 flexible couplings F'', extending over a com-
 paratively large area.

I have herein shown and described weights
 as employed for furnishing the necessary
 power to operate both the exterior and in-
 50 terior releasing and locking mechanism auto-
 matically, although it is obvious that springs
 may be substituted for the weights, if pre-
 ferred.

What I claim as my invention, and desire
 55 to secure by Letters Patent, is—

1. The combination, with a self-closing shut-
 ter and with an exterior catch for holding it
 open, substantially as described, of a weight
 independent of said catch, suspended normally
 60 on the exterior wall by a fusible holder and
 being linked to the exterior catch, so that upon

the release of the weight by the melting of
 its said fusible holder the weight will with-
 draw the catch and release the shutter, sub-
 stantially as set forth.

2. The combination of the self-closing shut-
 65 ters A A, catches C C, formed with the counter-
 weight *c' c'* and locking-arms *c² c²*, the con-
 necting-links *d² d²*, rods *d' d'*, weight D, and
 fusible suspender E, substantially in the man-
 70 ner and for the purpose described.

3. The combination of the self-closing shut-
 75 ters, catches C C, connecting-rods *d' d'*, weight
 D, and fusible suspender E, said weight and
 fusible suspender being arranged nearer to
 one shutter than to the other for the purpose
 of effecting the release of one shutter before
 the other, substantially in the manner set
 forth.

4. The combination of a self-closing shut-
 80 ter, a catch for holding said shutter open, an
 exterior automatic device for withdrawing
 said catch and releasing said shutter, sub-
 stantially as described, and mechanism for
 automatically locking said exterior releasing
 85 device upon the severance of a fusible sus-
 pender in the interior of the building, sub-
 stantially in the manner and for the purpose
 set forth.

5. The combination, with an exterior auto-
 90 matic device for releasing self-closing shut-
 ters, substantially as described, of the bolt G
 for locking said exterior shutter-releasing
 mechanism, said bolt being held normally out
 of engagement with said exterior shutter-re-
 95 leasing mechanism by a fusible suspender
 within the building and being connected with
 means for projecting it outward upon the
 severance of said fusible suspender, substan-
 tially in the manner and for the purpose set
 100 forth.

6. The combination of the self-closing shut-
 105 ters A A, catches C C, connecting-rods *d' d'*,
 weight D, ring *d*, and fusible suspender E
 with the bolt G, bell-crank lever H, weight
 D', and flexible suspender E', arranged and
 operating substantially in the manner and for
 the purpose set forth.

7. The combination of the self-closing shut-
 110 ters, means for automatically releasing said
 shutters, a device for automatically locking
 said shutter-releasing mechanism, and a fusi-
 ble suspender for said automatic locking de-
 vice, consisting of a series of flexible sections
 115 connected by a series of fusible couplings, ar-
 ranged and operating substantially in the
 manner and for the purpose set forth.

AUGUSTE A. GOUBERT.

Witnesses:

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 D. W. GARDNER.