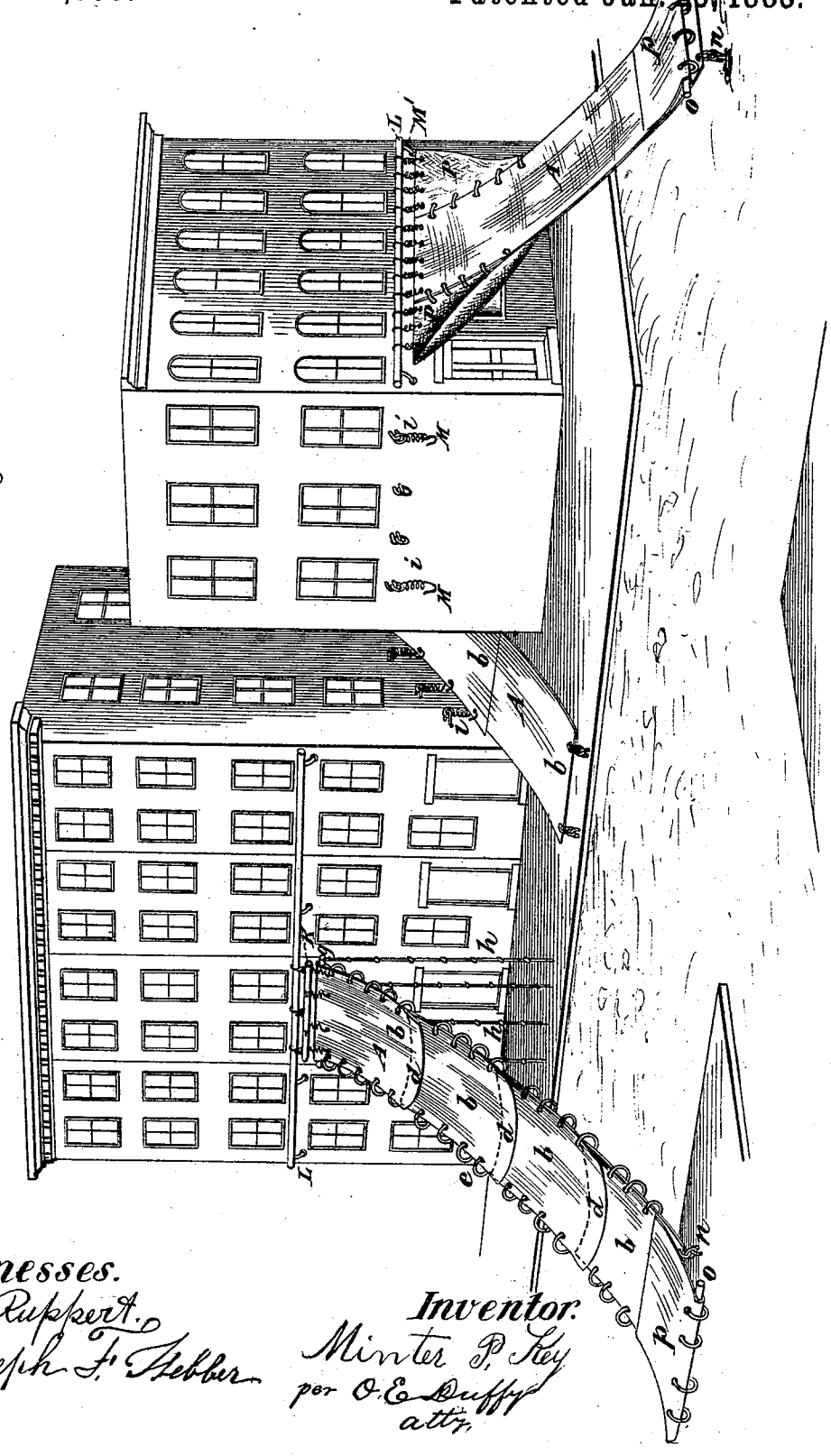
(No Model.) 2 Sheets—Sheet 1.

M. P. KEY.

FIRE ESCAPE.

No. 270,955. Patented Jan. 23, 1883.

Fig. 1.



Witnesses.
A. Ruppert.
Joseph F. Hebber

Inventor.
Minter P. Key
per O. E. Duffy
attn.

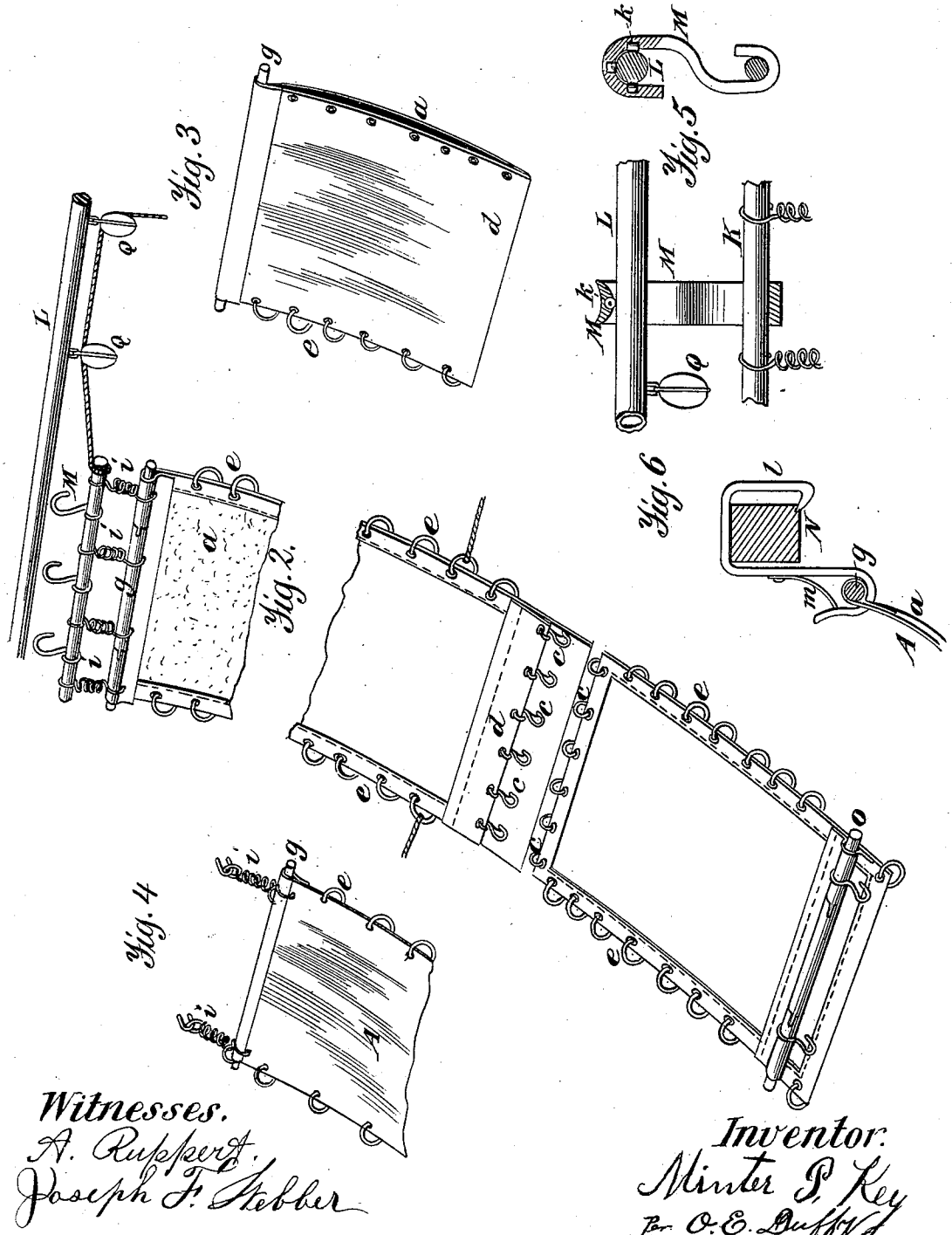
N. PETERS, Photo-Lithographer, Washington, D. C.

(No Model.) 2 Sheets—Sheet 2.

M. P. KEY

FIRE ESCAPE.

No. 270,955. Patented Jan. 23, 1883.



Witnesses.
A. Ruppert Jr.
Joseph F. Stobber

Inventor:
Minter P. Key
per O. E. Duffy
atty

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

MINTER P. KEY, OF MEMPHIS, TENNESSEE, ASSIGNOR TO THE KEY INCLINED PLANE FIRE ESCAPE COMPANY, OF WASHINGTON, D. C.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 270,955, dated January 23, 1883.

Application filed August 23, 1882. (No model.)

To all whom it may concern:

Be it known that I, MINTER P. KEY, of Memphis, in the county of Shelby and State of Tennessee, have invented certain new and useful Improvements in Inclined-Plane Fire-Escapes for Buildings; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form part of this specification.

This invention relates to that class known as "fire-escapes," and has for its object the preservation of human life from conflagrations, as well as from fires of single burning houses, places of amusements, factories, or any class of buildings of more than one story high.

To this end my invention consists in an improved means of applying a canvas or other fabric or flexible material to houses, buildings, &c., in such manner as that when the house or building is on fire the inmates thereof may escape through the windows or from roofs in great numbers and in quick succession, or together without fatal injury.

It further consists in means for partially protecting said canvas or sheet of flexible material from the fire of a building to which it is attached; and, further, to details of construction, as will hereinafter be more fully described, and pointed out in the claims.

For a clearer understanding of my invention, I will refer to the accompanying drawings, and to the letters of reference marked thereon, which letters will denote like parts in all the figures.

Figure 1 of the drawings is an illustration of the application of my invention, in which is shown a row of tenement-houses on one side of the drawings and a theater or a house of amusement on the other, and showing an alley between the buildings, the one incline plane in the alley serving the purpose of both buildings when an escape is necessary. On the tenement-building is shown an incline-plane fire-escape, made of a series of sections arranged to fasten and lap each other at their lower ends, each one of the sections being detachable and interchangeable, and each section is also capable of being independently used for a jumping-sheet, when found necessary, as the whole incline plane is provided with handles its entire length. Fig. 1 also shows escape-ropes hanging below it, so that persons may lower themselves, by catching onto the ropes, from the windows located beneath the cloth to the ground below. These ropes are used when required, for moving the fire-escape along the railing provided for that purpose. This cloth is slightly bellied in the middle, so that persons jumping upon its face will be guided toward the center thereof, although such construction is not necessary, the cloth being eighteen feet in width—or it may be more or less, as occasion may require. On the portion of the drawing representing the theatre is shown a sheet or incline plane not made in sections, for the reason that it is so near the ground and easily handled that it requires much less cloth in its length, but is equal in width to the one previously described. On the sides or edges of this cloth I provide wings or projections of same material, and may extend the entire front of the building. These wings are removably fastened, and, when necessary, may be attached to the tenement-house escape. The wings are triangular in form, except that the sides along the main sheet and house are parallel therewith. The other or third side runs to a point terminating about one-third the length of the cloth from the building, as may be seen by the drawings. Sheet 1 also plainly shows various means of attachment of the fire-escape to the buildings, which are very simple, cheap, and effective, although it is obvious that any suitable means may be employed.

Fig. 2, Sheet 2, illustrates an inverted perspective view of the fire-escape detached from the building, and shows the mode of suspending the same, upon an enlarged scale. I prefer this method for the reason that the bar that is attached to the cloth holds the cloth rigidly in position, preventing it from sagging and disarrangement. The springs connecting the two cross-bars together are for the purpose of permitting the cloth to yield when persons jump

upon it, thus breaking the thud or dead-weight and saving the cloth from overstrain and disintegration. The hooks readily adjust themselves to the sliding bar when the escape is being put in position.

Fig. 3 shows a detached view of the section of the escape which is nearest the building, being underlined with asbestus cloth, and which embodies one of the most valuable and important features of my invention. At the edge will be seen a portion of the cloth (marked *a*) bellied off from the main portion or bed of the escape. This portion *a* is made of asbestus cloth and arranged to slightly sag, the edge turning up to and over the canvas, the object being to protect the canvas from the flames that might come in contact with it from below or at its edge. The space between the canvas and asbestus cloth forms a dead-air space, and which is well known to be a good non-conductor of heat, and arranged in this way so that the heat will be prevented from coming in contact with the canvas cloth by conduction or transmission.

Fig. 4 shows a fire-escape such as may be applied to a private dwelling-house. In this instance staples may be driven in the wall of the house and spring-links fastened thereto for the ready reception of the escape, as may be seen also on Fig. 1. Should it so happen that time will not permit for attaching the escape to the building, then by taking hold of the handles or links of the sheet it may be used as a jumping-cloth.

Fig. 5 shows an enlarged view of the bars and attaching-hooks. These hooks are adapted to slide on the bar or rail by anti-friction rollers, but will work without them. This sliding bar is also provided with pulleys for raising, lowering, or drawing the fire-escape sheet lengthwise the front of the building, as may be desired. This figure, 5, shows a side and end view of the rods and bars.

Fig. 6 shows one form of a grapple-hook having a claw or dog, which in this instance is shown as fastened into the window-sill on the inside of the house and the other end around the bar to which the escape is fastened. It shows a spring staying device, *m*, to prevent the bar from slipping out. It is evident that any form of grapple-hook may be adapted by which the same object could be carried into effect—*i. e.*, for fastening the escape to the window or other object capable of sustaining the weight of the fire-escape and its burden.

A in the drawings is the fire-escape incline-plane sheet, made up of sections *b b b b*. These sections are secured to each other by hooks and eyes *c* or by double hooks. Each section at its lower end is provided with an apron or lap, *d*, which is thrown over the hook-fastenings to prevent them from injuring the persons sliding down upon the incline plane. These laps or aprons *d* have also a tendency to break the force or velocity of the persons sliding down. On the sides or edges of the sheet are handles *e* for more readily handling the same, and also for utilizing each section for a jumping-cloth, if necessary. On the bottom of the sheet, near the pavement, I also fix hooks, rings, and handles for the purpose of holding the cloth, and also links or hooks *f* in the pavement or curbstone for fastening the cloth thereto.

At the ground end of the fire-escape I provide an independent section of cloth at a different angle from the plane of the fire-escape, so that persons sliding down at great velocity will be gently arrested before reaching the pavement, and thus escape injury.

Beneath the cloth escape, and to the cross-bar *g* thereof, I attach knotted ropes *h* for the escape of persons from the window beneath the incline plane. These bars *g*, being about eighteen feet long or more, afford abundant means of escape from the lower story of the building by the ropes.

The bars *g* and *o* may be made in sections and hinged for folding and yielding to irregularities.

i i are the springs connecting the parallel bars together, and *i* also represents the springs and hooks fastened in the sides of the buildings.

K represents the bar provided with attaching-hooks for fastening the escape to the rail L, already on the building, and M the hooks by which the escape is suspended. When the buildings are high and the fire-escape very heavy, I prefer to use anti-friction rollers *k* for more readily sliding the incline plane along the houses or buildings.

N represents a cross-section of a window-sill, showing the grappling-hook *l*, fixed therein, and the escape-bar *g* resting in the end thereof, and held in place by the spring *m*. *n* shows the fastenings in the pavement, and O the hand-rail.

The wing-extensions P are a very important feature to the operation of this invention for the saving of human life, as they enable the fire-escape to extend to the entire front of the crowded theater, so that every opening of escape is utilized for that purpose.

Pulleys Q may be applied to the house-rail, if desired, through which a wire rope or wire may be run for more readily moving along the fire-escape from window to window and building to building, as may be required.

From the foregoing description the operation of the invention may be readily understood; but I will further explain the means of applying the same.

It is presumed, where this fire-escape is adopted, that it will be rigged upon an apparatus such as firemen can readily manipulate, and may be easily carried and put up in position by the hook-and-ladder company of the city fire organization. For large buildings, theaters, and places of amusements it may be housed in proper position for immediate use, so that upon the discovery of a fire all that is to be done is to disengage the fastening, when it immediately spreads itself to the ground,

where willing hands are ready to lay hold and adjust it for the instant escape of their fellow beings from the dreadful fire. At places of amusement, where the buildings are only occupied at certain seasons, of course the fire-escape may be taken down and only used during the season the building is occupied. Thus a fire-escape will last many years. For private houses the fire-escape may be snugly kept in any convenient place for immediate use when necessary. For hotels and factories it should be always in position for instant use and for any emergency. It is well known that persons living in hotels are averse to occupying rooms that are located in the upper stories, for the reason that they are constantly in dread of fire.

By the general use and adaptation of my fire-escape security is assured and the great risk of life greatly lessened and avoided. The recent great fires and the never-to-be-forgotten scenes of torture and loss of life are eternal evidences of the necessities of such inventions as this, the saving of one human life more than counterbalancing a thousandfold the cost of applying this invention.

Having described my invention and the means of carrying the same into effect, I do not wish to be understood as confining myself to the exact form shown nor the materials used, as many of the details may be varied within wide limits without departing from the principles thereof.

I am aware that chutes, sheets, ladders, and other contrivances have heretofore been used for fire-escapes. I am also aware that screens of asbestus cloth have been employed for protection from fire, all of which are more or less beneficial and good as far as they go, and none of which I claim; but I am not aware that an incline-plane fire-escape constructed and applied like mine was ever before used, and while I do not claim broadly or separately any individual feature of the above-described fire-escape,

What I do claim, and desire to secure by Letters Patent, is—

1. A fire-escape forming an inclined plane composed of sections suitably attached to each other and interchangeable, and laps or aprons for covering and lapping the joint of said attachments, substantially as described.

2. A fire-escape forming an inclined plane composed of sections, as described, said plane being provided with spring hook and bar suspension attachments for fastening the escape to the buildings, for the purpose set forth and described.

3. An inclined-plane fire-escape, in combination with side extension-wings detachably secured thereto, and means for fastening said escape and wings to buildings, in the manner set forth.

4. An incline-plane fire-escape, consisting of the incline plane made of woven fabric or other flexible material, cross-parallel suspension-bars, and suitable hooks and springs, whereby the escape may be suspended from the house, and the thud and dead-weight of the persons jumping be broken by the yielding of the springs, substantially as set forth.

5. A fire escape composed of independent and interchangeable sections, said sections having holding-hooks on their edges for handles, and means for uniting them to each other, whereby each of said sections may be utilized as a jumping-cloth when detached, and also adapted for joint operation substantially in the manner and for the purpose set forth.

6. The combination, with an incline fire-escape, of the fastening parallel bars *g* and K, the connecting and interposing springs *i*, and hooks M, the said hooks being adapted to engage the sliding bar L in the manner set forth and described.

7. The combination, in a fire-escape made of woven fabric or flexible material, of an independent section thereof, having a lower lining of asbestus cloth for the protection of the escape fabric against fire, substantially as set forth.

8. In a fire-escape made up of independent and interchangeable sections readily detachable from each other, the uppermost of said sections being provided with a lining of asbestus cloth, arranged so as to form an air-space between the fabric forming the floor of the escape and the asbestus cloth, as shown and specified.

9. The combination of a fire-escape inclined as described, with one section thereof provided with a lining of asbestus cloth made loose to sag, while the floor portion is tight, by which an air-space is formed between them, said asbestus cloth being arranged so as to extend up the sides or edges of the fabric, and fold over said edges, as set forth, whereby the flame is prevented from passing between the lining and the bottom of the escape, as set forth.

10. The combination, in a fire-escape consisting of the incline plane lined with a non-combustible material, and provided with an air-space, as specified, of the fastening parallel bars and hooks at the house end and a holding parallel bar or handles and hooks at the ground end, arranged as shown and specified.

11. The combination, with a fire-escape, as shown, of the double parallel bars *g* and K, and the ropes *h*, suspended from said bars, whereby the escape may be moved and persons beneath the escape may lower themselves from the windows below in the manner shown.

12. The combination, in a fire-escape, of the house-rail L, having pulleys Q Q, hooks M, provided with anti-friction rollers *k*, bars *g* K, and springs *i i*, all arranged for joint operation in the manner specified.

13. The combination, with a fire-escape, as described, of the bars *g* and *o*, links M, springs,

and hooks, the said bars being hinged in sections for the purpose of folding the same, as shown and described.

14. The combination, with a fire-escape constructed as described, and provided with fastenings at its ground end under the independent section, of said independent section or stop arranged at an angle different from the incline plane, whereby persons sliding down said plane with great velocity will be gently arrested before striking the pavement, in the manner described.

In testimony that I claim the foregoing as my own invention I affix my signature in presence of two witnesses.

MINTER P. KEY.

Witnesses:
B. F. MORSELL,
JOSEPH F. WEBBER.