

(No Model.)

2 Sheets—Sheet 1.

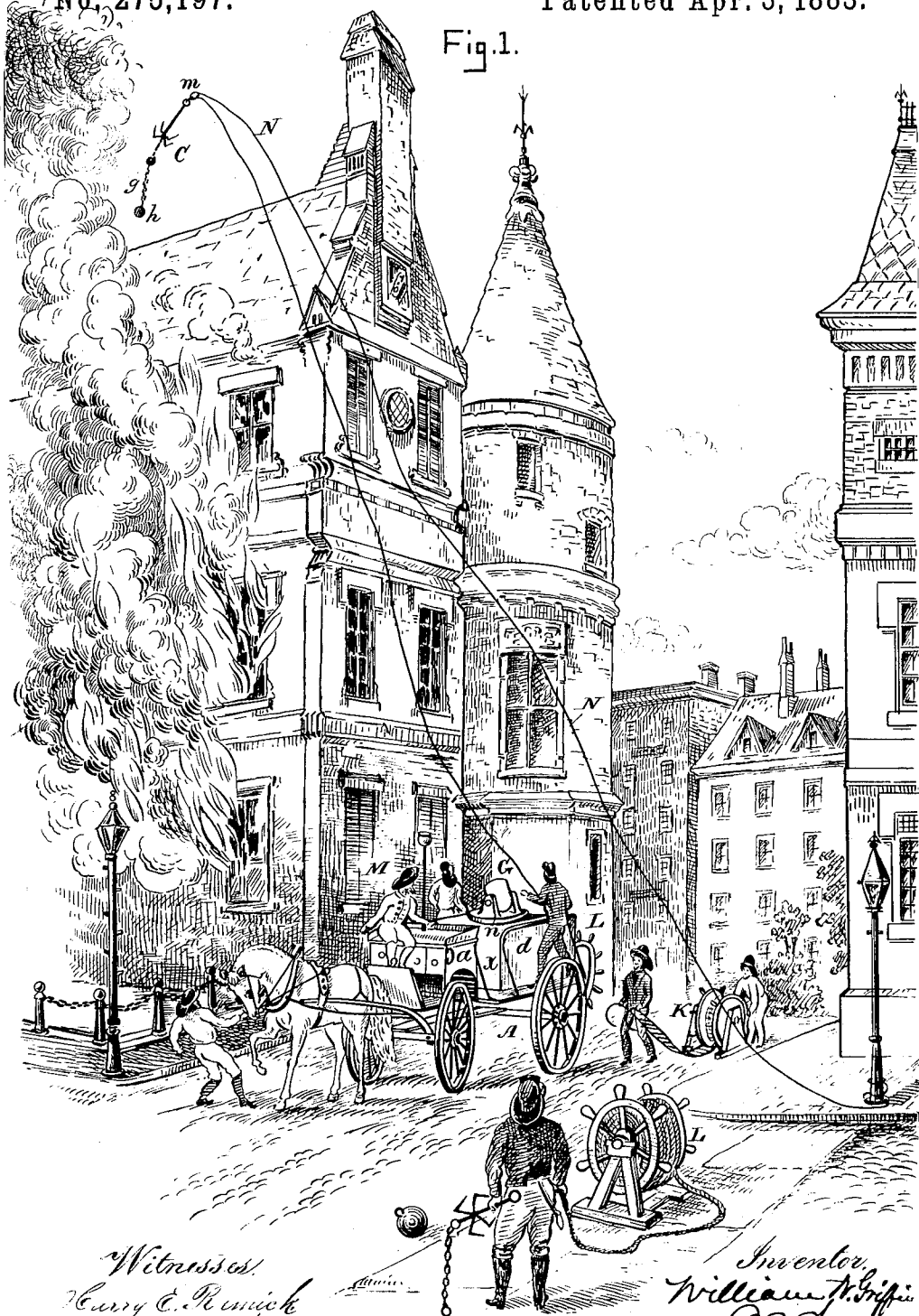
W. W. GRIFFIN.

FIRE ESCAPE.

No. 275,197.

Patented Apr. 3, 1883.

Fig. 1.



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2 Sheets—Sheet 2.

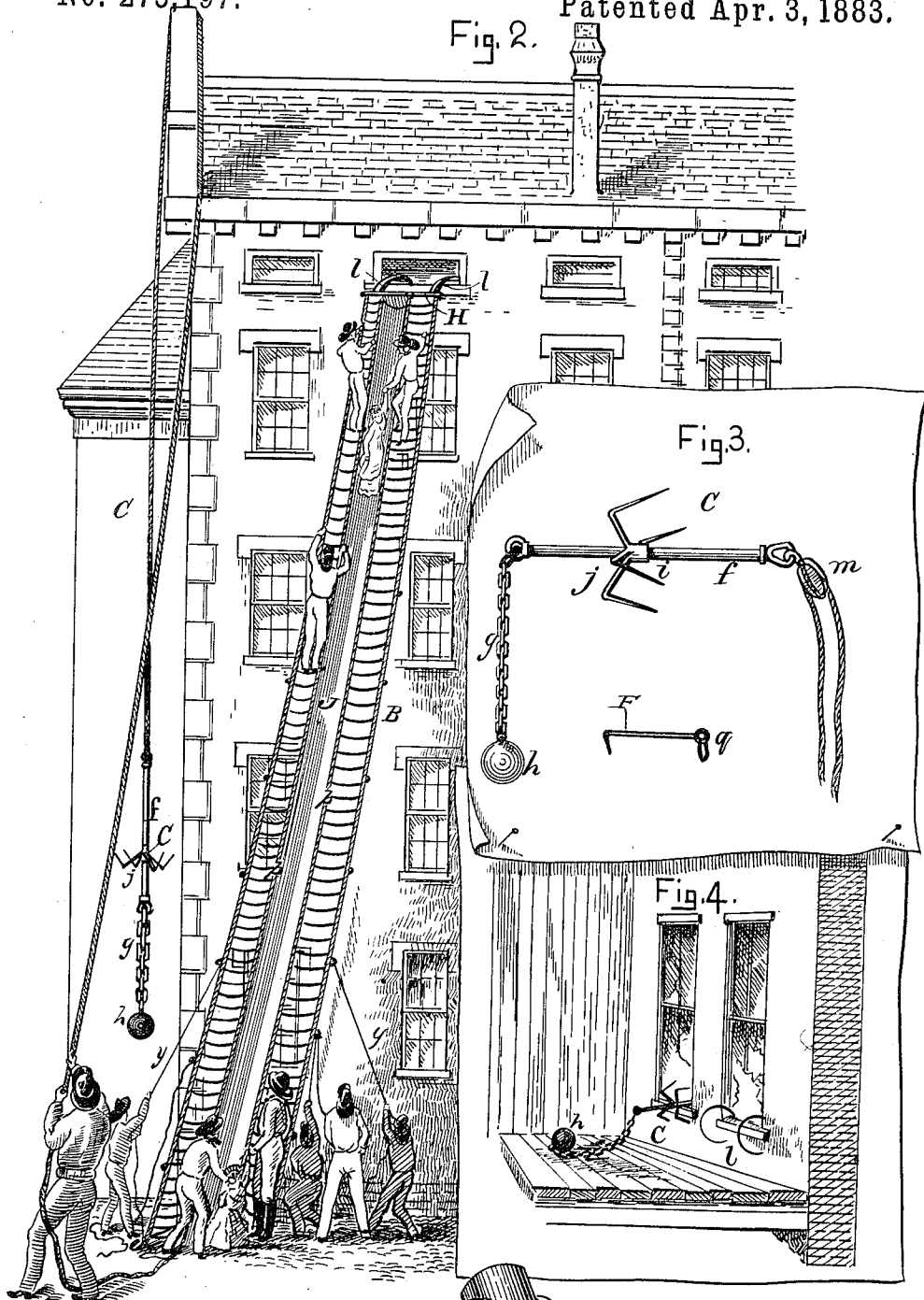
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Fig. 2.



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UNITED STATES PATENT OFFICE.

WILLIAM W. GRIFFIN, OF BOSTON, MASSACHUSETTS.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 275,197, dated April 3, 1883.

Application filed December 15, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. GRIFFIN, of Boston, in the county of Suffolk, State of Massachusetts, have invented a certain new and useful Improvement in Fire-Escapes, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view, showing the carriage and method of firing the grapnel into or over a burning building; Fig. 2, a perspective view of the ladder in position for use; Fig. 3, a view of the grapnel detached; and Fig. 4, an interior view, showing the grapnel and ladder secured to the window-sills of a building.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

My invention relates to that class of fire-escapes which are usually erected during the fire from the ground on the exterior of the burning building; and it consists, first, in a grapnel, having a novel construction and arrangement of parts, to be used in combination with a mortar or gun for firing the same into or over the burning building, and with a ladder for the escape of the inmates thereof; and, secondly, in a carriage provided with a mortar or gun, a light, and a reel or reels, to be used in operating the invention, and forming a part of the same, all as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than is now in ordinary use.

The nature and operation of the improvement will be readily understood by all conversant with such matters from the following explanation, its simplicity rendering an elaborate description unnecessary.

In the drawings, A represents the carriage, B the ladder, and C the grapnel.

The carriage is preferably divided into two sections, *d a*, which are so constructed as to leave the space *x* between the same, section *a* being provided with a seat for the driver, and *d* with the mortar or gun G.

The grapnel C is composed of an iron rod or bar, *f*, provided at one of its ends with the chain *g* and ball *h* and at its other with the block or sheave *m*. A sleeve or collet, *i*, is firmly secured to the bar *f*, and provided with a series of stout flukes or radially-arranged hooks, *j*, inclined at an angle of about thirty-five degrees to the bar *f*, the hooks projecting rearward, or in the direction of the block *m*. The sleeve may be arranged in any desired position on the bar; but it is preferable that it should be located nearest the end to which the chain is attached.

The ladder B, considered as a whole, consists of two distinct ladders, composed of ropes, and arranged side by side, both being secured to the common head-stock or bar H, which is provided with the hooks *l* and ring *z*. Each section of the ladder has its inner side piece, *p*, firmly secured to a canvas sack, J, which is also attached at its upper end to the bar H, and forms a chute, down which a person rescued from the burning building may be readily passed to the ground without injury, as shown in Fig. 2.

Two reels, K L, are disposed on the rear portion of the carriage A, as shown in Fig. 1, the reel L carrying a stout cord, N, of sufficient length, when doubled, to reach to the top of the highest buildings, and the reel K the ladder B. Either or both these reels may be detached from the carriage and used separately, if desired, in Fig. 1 the reel L being represented as detached and also as in position on the carriage, and the reel K as detached; but the reel for the cord may be entirely dispensed with and the cord disposed in section *d* of the carriage or transported in any other convenient manner, although a reel for that purpose is deemed preferable.

A lime or oxyhydrogen light, M, is mounted on the forward part of the carriage, the gas-reservoirs and apparatus for supplying the same being of ordinary construction and located in section *a* beneath the seat of the driver.

The mortar G is mounted on a turn-table or carriage, *n*, in such a manner as to be swiveled or turned in any desired direction, and, when necessary, may be detached from the carriage A and used on the ground, as shown in Fig. 2.

In the use of my improvement one end of the cord N is passed through the sheave-block *m* and secured to a post or other convenient fastening, as shown in Fig. 1. The mortar or gun 5 *G*, being first loaded with a powder-cartridge, the ball *h* is then inserted in the same, after which it is pointed and fired in a direction to carry the grapnel either over the burning building or into one of its windows, as may be desired. After the mortar has been fired and 10 the grapnel has effected a lodgment on the building or attached itself to a window-sill by means of the hooks *j*, as shown in Fig. 4, one end of the cord N is secured to the ring *z* in the bar *H* and the ladder drawn up against 15 the building by pulling on the other end of the cord, as shown in Fig. 2, where it is held in position by passing the hooks *l* into a window, as seen in Fig. 4, or by attaching them to any 20 other convenient support, after which the cord may be detached from the ladder and the grapnel lowered to the ground, if desired.

In Fig. 1 the free end of the cord, or end opposite that on the reel *L*, is represented as secured to the lamp-post *Q*; but instead of being so secured, after its end has been passed through the sheave a sufficient quantity of the cord to reach onto the burning building may be unwound from the reel and coiled on the 30 ground, so that when the mortar is fired the cord will pass through the sheave *m* with less resistance than where one end is secured to the reel and the other to some permanent fixture, like a post or ring-bolt. The entire cord may 35 also be doubled in the form of a loop, if preferred, and wound onto the drum of the reel, the block *m* being previously attached in the bend of the loop, as shown in Fig. 4, and provided with means for securing it readily to the 40 bar *f*, so that when the grapnel is fired from the mortar both parts of the cord will unwind from the reel but not pass through the sheave during the flight of the ball, the ladder being drawn up in such case in the same manner as

when one end of the cord is secured to a post 45 or other fixture and the other to the reel.

A dog, *F*, provided with a ring, *g*, through which a cord may be passed and secured to the ring *z*, is used to lower the ladder to the ground, the dog being driven into or attached to the 50 roof or any other contiguous portion of the building when it becomes necessary to remove the ladder.

The ladder and also the chute may be rendered fire-proof by saturating them with proper chemicals for that purpose or in any other 55 suitable manner, and guy-ropes *y* may be employed to steady the same, if necessary.

I do not confine myself strictly to the use of a ladder constructed as shown in Fig. 2 or to 60 a grapnel and carriage of the precise construction shown in Fig. 1, as all the parts of my improved fire-escape may be varied considerably without materially departing from the spirit of the invention. Neither do I confine myself to 65 the use of the grapnel in a fire-escape, as it is evident that it may be used for various other purposes; nor to the use of a ladder, as it will also be evident that the cord N may in many instances be used, instead of a ladder, to escape 70 from the burning building.

Having thus explained my invention, what I claim is—

1. In a fire-escape, the improved grapnel described, the same consisting of the bar *f*, provided with the hooks *j*, chain *g*, and ball *h*, constructed and arranged to operate substantially 75 as set forth.

2. The improved fire-escape described, the same consisting of the grapnel *C*, mortar *G*, cord N, reels *K L*, and carriage *A*, constructed, 80 combined, and arranged to operate substantially as set forth and specified.

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Witnesses:

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