(No Model.) 5 Sheets—Sheet 1.

J. O'NEIL.

FIRE GUARD AND ESCAPE.

No. 260,229. Patented June 27, 1882.

Fig. 1.

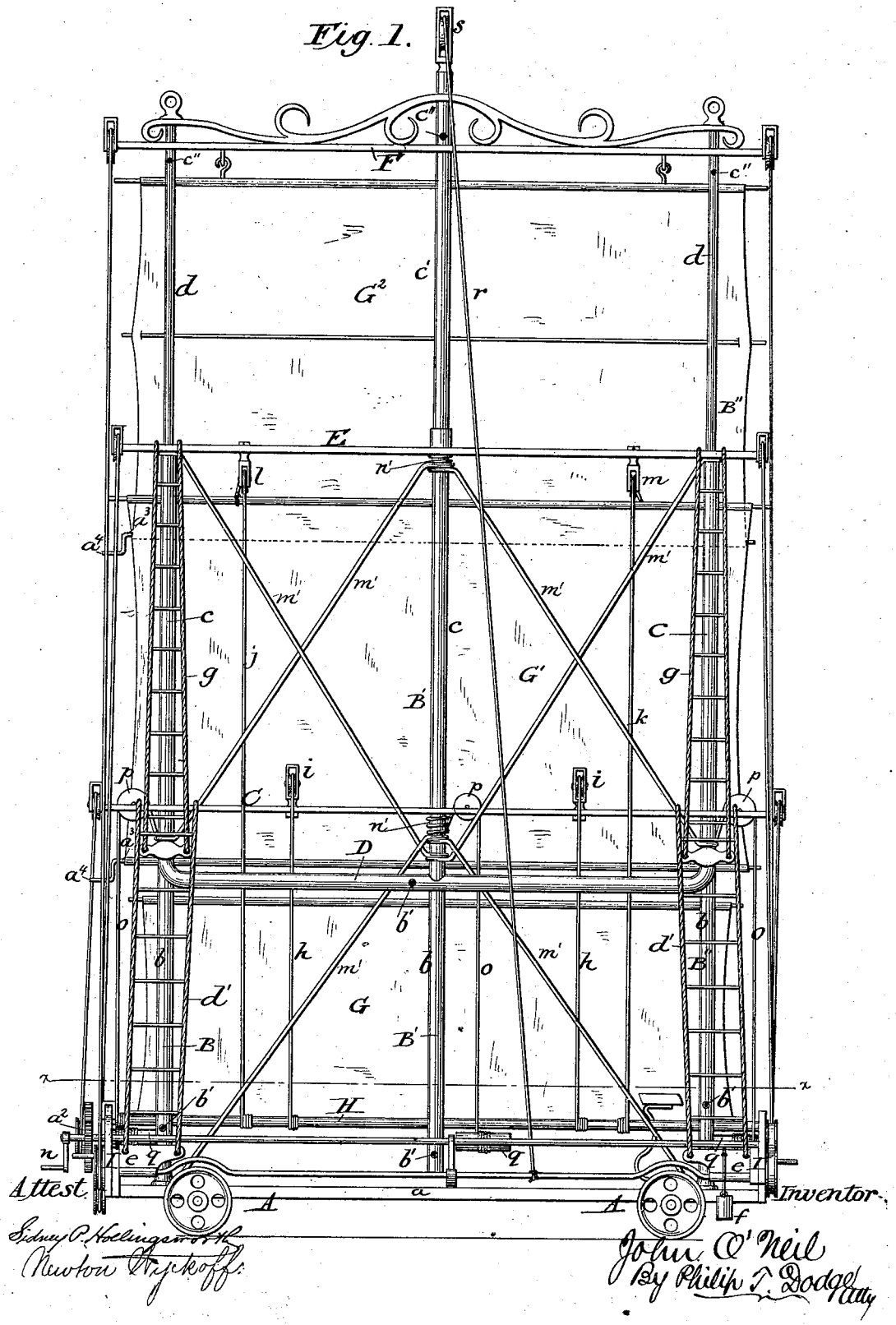

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Fig. 2.

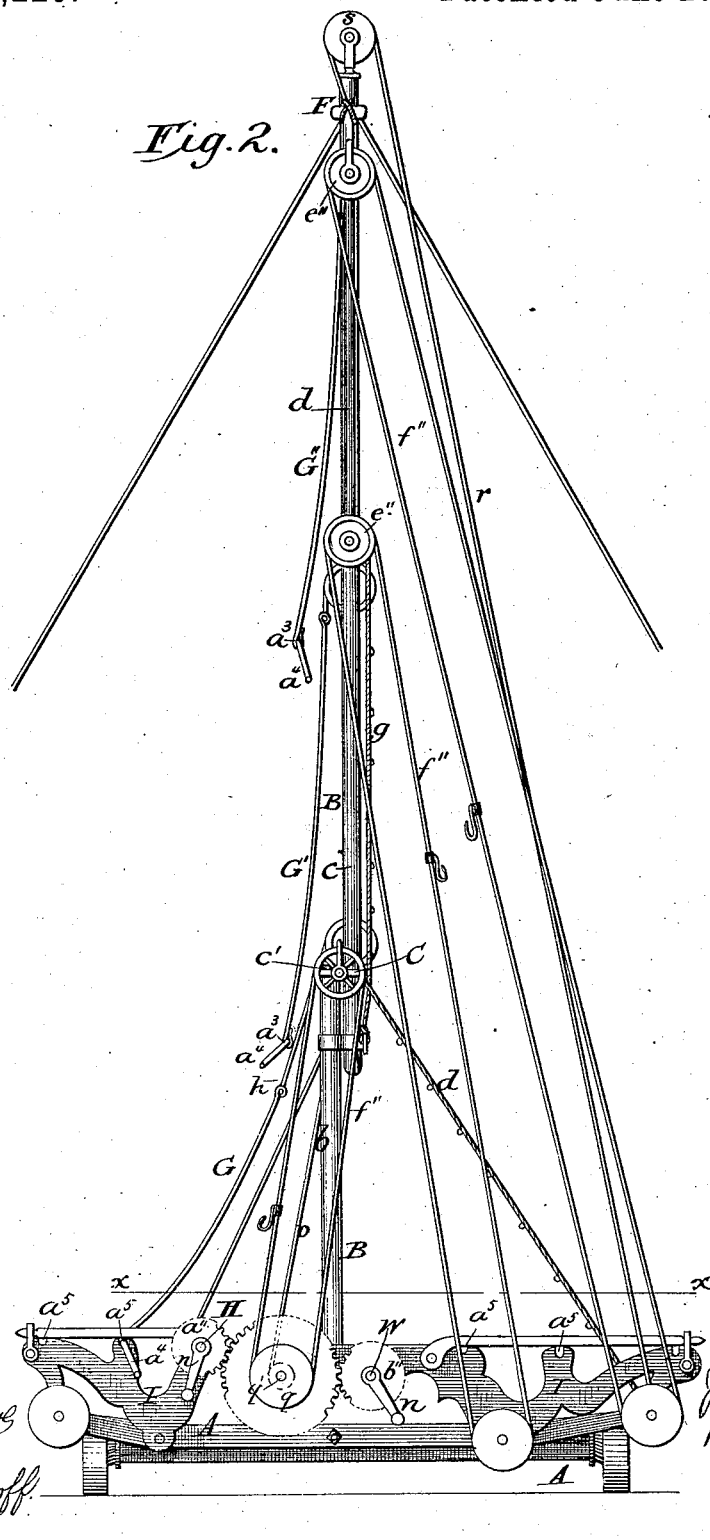

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Fig. 3.

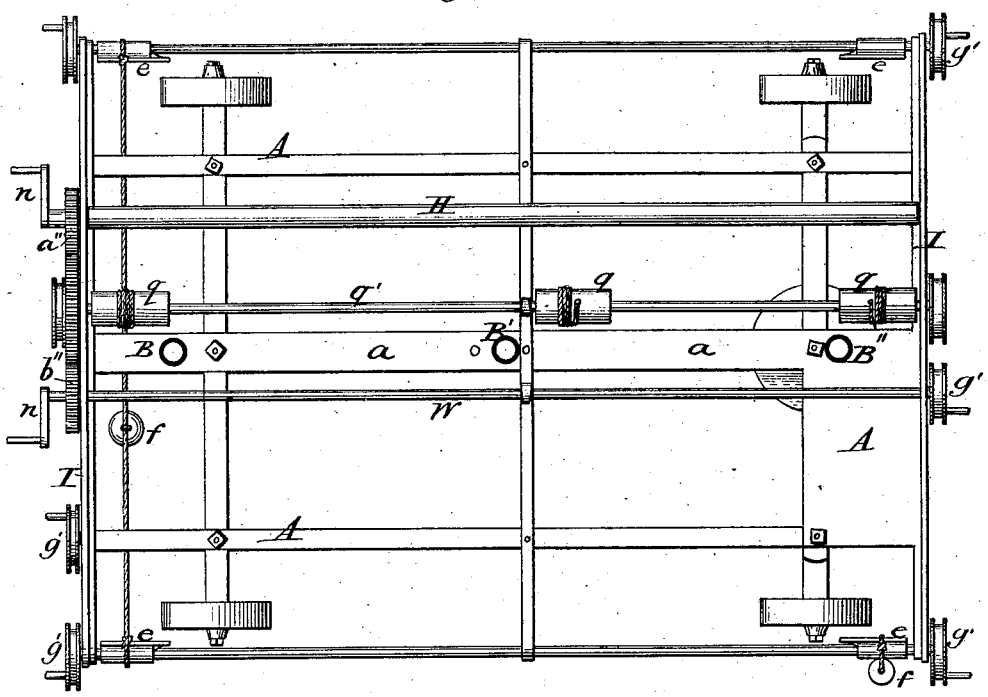
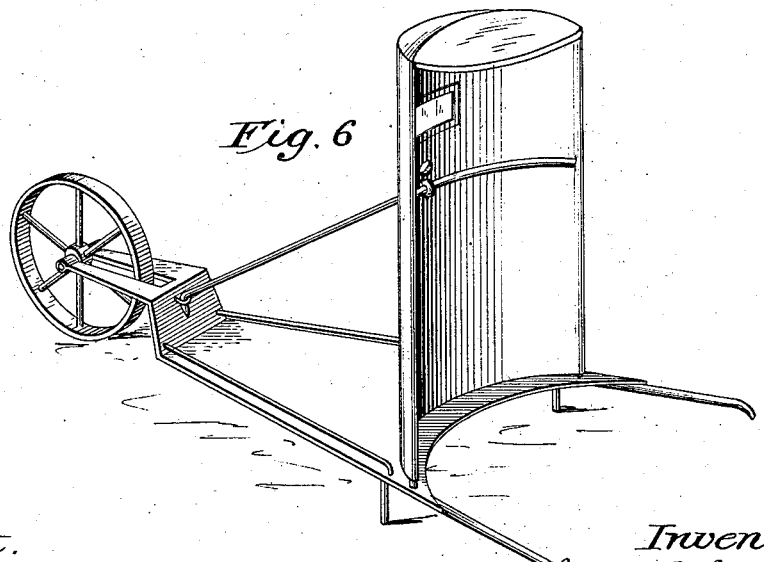


Fig. 6



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FIRE GUARD AND ESCAPE.

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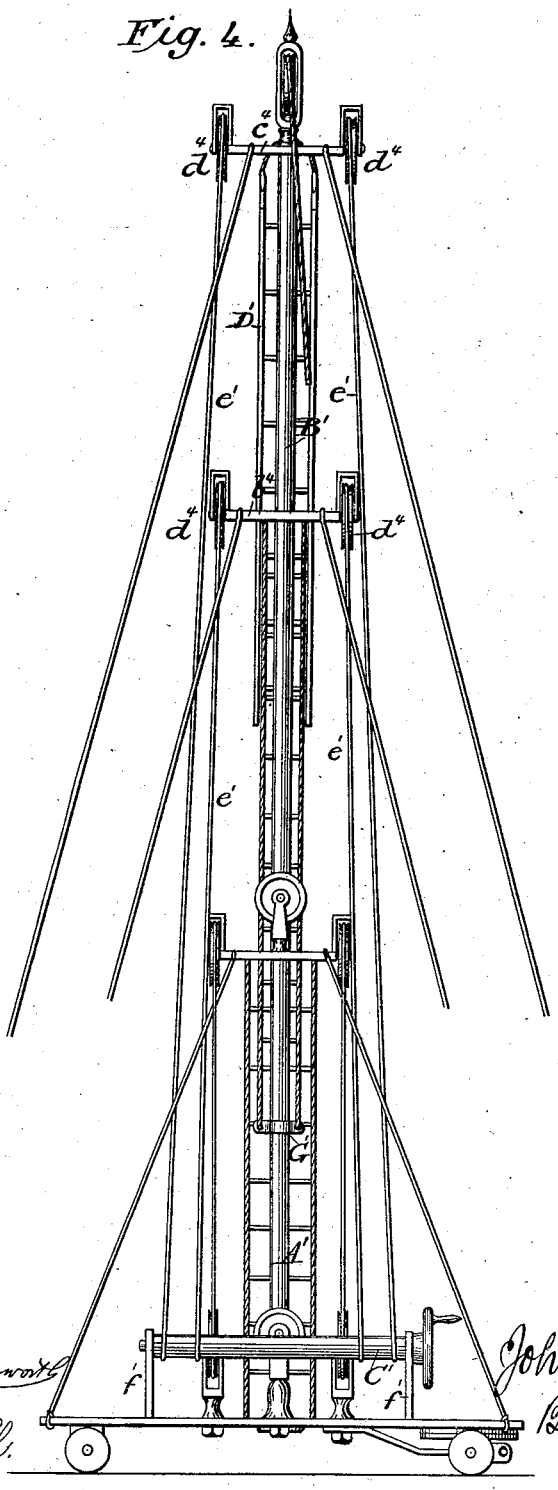
Fig. 4.



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(No Model.) 5 Sheets—Sheet 5.

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FIRE GUARD AND ESCAPE.

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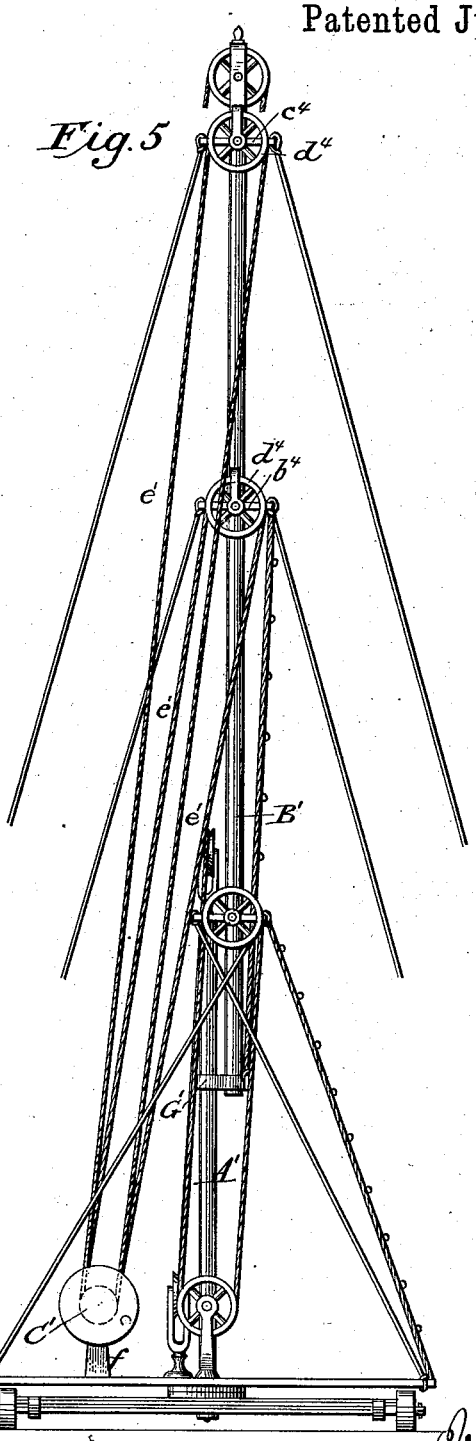
Fig. 5



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Philip T. Dodge

UNITED STATES PATENT OFFICE.

JOHN O'NEIL, OF PAKENHAM, ONTARIO, CANADA.

FIRE GUARD AND ESCAPE.

SPECIFICATION forming part of Letters Patent No. 260,229, dated June 27, 1882.

Application filed March 10, 1882. (No model.)

To all whom it may concern:

Be it known that I, JOHN O'NEIL, of Pakenham, in the county of Lanark, North Riding, Province of Ontario, Canada, have invented certain Improvements in Fire Guards and Escapes, of which the following is a specification.

My invention relates to improvements in appliances for preventing the spread of fire, affording protection from heat to those engaged in extinguishing flames and saving property from destruction, and at the same time furnishing a means of escape from the upper portion of burning buildings.

The apparatus consists essentially of a strong body mounted on wheels and provided with a series of masts or frames capable of being extended to any required height, said masts being provided with a system of pulleys, cordage, &c., by means of which they are elevated, and with curtains or screens and appliances for elevating the same upon the masts, as hereinafter described.

Referring to the accompanying drawings, Figure 1 represents a side elevation of my fire guard and escape. Fig. 2 is an end elevation of the same. Fig. 3 is a horizontal section of the same on the line *x x*. Fig. 4 is a side elevation of a single-masted wagon intended for use in connection with the main apparatus. Fig. 5 is an end elevation of the same. Fig. 6 represents a tender or wheelbarrow designed to accompany the apparatus.

Referring to Figs. 1, 2, and 3, A represents a strong truck or base-frame mounted on wheels, and containing a strong longitudinal beam, *a*, located in the center, and upon which three upright masts, B B′ B″, are carried, the masts being hollow and made in sectional lengths. The lower sections, *b*, of the masts have their lower ends secured rigidly upon the center beam, *a*, of the truck, while their upper ends are passed through and secured rigidly within a cross-girder, C, by which they are connected with each other. In the second section the outer masts *c* and a horizontal pipe, D, connecting them at their lower ends, are formed of one continuous piece of pipe by bending the two ends of the same upward, as shown in the drawings. These upturned ends or mast-sections *c* slide vertically through and are sustained in the girder C, and have their upper ends passed through and securely attached to a second cross-girder, E, by which they are connected. The center mast-section, B′, unlike those at the sides, has its second or upper section, *c′*, continued upward a considerable distance above the girder E, being connected at its lower ends firmly to the horizontal pipe D. The outer masts *d* of the third or top section are arranged to telescope or slide vertically into the corresponding masts, *c*, of the second section, and are connected at their top ends by the girder F.

It will be seen that the above construction admits of the top section being lowered within the second section, and the latter being in turn lowered past or by the side of the bottom section, the parts occupying in the latter case a compact form, so that the entire apparatus may be readily moved upon its wheels from place to place.

In order to prevent the masts from becoming overheated, they are provided with tubular necks *b′*, adapted to receive a hose for the purpose of filling them with water from an engine, hydrant, or other source of supply. The masts are also provided near the upper ends with openings *c″* to permit the escape of any steam that may be generated within them. These holes may also admit of a circulation of water being established through the masts, if desired. The upper openings, *c*, may be provided, if desired, with necks adapted for connection with the hose, in which case water may be pumped through the same, and thence through the hose at the top. This arrangement will in many cases greatly facilitate the application of water at the desired points upon the fire.

For the purpose of bracing the lower mast-sections and of facilitating the escape of the occupants from burning buildings, rope ladders *d′* are extended from the first girder, C, downward on opposite sides to the base-frame, the lower ends of the ladders being attached to plates *e*, which are hinged to the frame near its corners, and provided with weights *f*, by means of which the ladders are kept under tension and caused to serve as guys to the

masts, while at the same time an allowance is made for the expansion and contraction of the mast and ladders.

As an additional means of escape from the upper stories of buildings, ladders *g* are extended from the upper to the lower ends of the second mast-section, *c*, these secondary ladders being arranged to slide through the upper ends of the lower ladders in order to form a continuation thereof, as shown in the drawings.

As a means of elevating or lifting the secondary section *c'* of the masts, chains or ropes *o* are attached to the lower portion of the second section and extended thence over the pulleys *p* upon the girder C, and downward to the drums *q*, around which they are wound, said drums being sustained on a transverse shaft, *q'*, which is extended longitudinally of the base-frame and supported in brackets I. One end of the shaft overhangs its bracket, and is provided with a gear-wheel engaging with pinions *a''* *b''*, fixed respectively on the end of a roller, H, and on a shaft, W.

The pinions *a''* and *b''* are provided with hand-cranks *n*, by turning which motion will be communicated to the drums *q*, causing the latter to operate the chains *o* and raise or lower the second mast-sections, according to the direction of the movement.

The top girder, F, and upper mast-sections are elevated by means of a rope, *r*, attached to the girder and passing thence over a pulley, *s*, at the upper end of the middle mast, and thence downward to the base-frame.

It is intended to operate the rope *r* by hand; but, if preferred, it may be operated by a drum or other winding device.

As a means of protecting persons and property from the flames, I provide the apparatus with three large curtains or screens, G, G', and G'', which may be made of canvas suitably treated or protected to prevent its combustion, or of asbestus or other suitable material. These screens are designed to be hoisted one above another and sustained by the respective mast-sections. The curtain G of the first or lower section is drawn up and sustained, when in use, by the ropes *h*, connected to its upper end, and extended thence downward over the pulleys *i* on the girder C to the roller H, which is journaled in the brackets I on the base-frame. To this roller is attached the before-mentioned pinion *a''*. The curtain G' is raised by the ropes *j* and *k* passing over the pulleys *l* and *m* on the girder E, and thence downward to the roller H. This roller is provided with and rotated by means of a hand-crank, *n*, on one of its ends, and is also provided with the before-mentioned pinion *a''*, connected with the gear through which the second mast-sections are elevated, so that the rotation of the hand-cranks serves to elevate the curtain-sections at the same time that the second mast-sections, *c*, are elevated. The top curtain, G'', is suspended by hooks, or otherwise, from the top girder, F, so as to be raised or lowered therewith; but it may be raised by cords or pulleys, if preferred. The lower edge of each curtain-section is attached to a shaft, a^3, provided at its end or ends with hand-cranks a^4. The base-frame is provided with notches or bearings a^5, into which the curtain-shafts may be seated when the curtains are lowered, so that by turning the cranks at the ends the curtains may be wound into a compact form around their respective shafts, and thus carried upon the frame.

In order to strengthen and stiffen the entire structure, diagonal braces *m'* are extended between the mast-sections *c*, as shown in the drawings. In order to permit the expansion and contraction of the metal, the braces are constructed at their upper end to clasp the masts, and spiral springs *n'* are inserted between them and the girder F, as shown in the drawings.

As it will sometimes be necessary to use supplemental screens extending sidewise from the main apparatus, as hereinafter more fully explained, I provide the ends of the girders with pulleys e^2, and with ropes or chains f^2, passing vertically around the same, as indicated in the drawings. These ropes or chains will serve as a convenient means of elevating one end of the supplemental screens, which may be temporarily secured thereto in any suitable manner. The base or truck frame may be provided, as shown in the drawings, with one or more extra drums, *g'*, having hand-cranks by which they are turned. These drums will be found convenient for the purpose of winding up the various halyards, guys, ropes, and other lines which may be used in connection with the apparatus.

In order that the supplemental screens or apparatus may be extended sidewise from the main apparatus or carried around the corners of buildings, &c., I provide an auxiliary apparatus, such as represented in Figs. 4 and 5, for use in connection with the main apparatus above described. This second apparatus consists mainly in a platform-wagon of substantially the same character as the one above described, provided with a single extensible mast made in two parts, one fixed permanently to the wagon and the other movable, the fixed part A' corresponding in height with the fixed mast on the main apparatus, and the movable part B' with the height of the second and third sections of the main apparatus.

On the upper end of the fixed apparatus part A' is secured a cross-tree, and on the movable section B' are fixed the cross-trees b^4 and c^4. Upon each cross-tree is journaled a pair of pulleys, d^4, over which pass the endless ropes *e'*, connecting them with the roller C', journaled in bearings *f'* on the wagon-platform. These endless ropes and pulleys are intended to actin connection with the previously-described ropes *f''* of the main apparatus, one end of the auxiliary curtain being attached to the ropes *f''* of the main apparatus, and the opposite end

attached to the ropes e^4 of the supplemental apparatus, so that by operating the two ropes in unison the supplemetal screens may be elevated and sustained in position. By means of a suitable number of these smaller single-masted machines located at suitable distances apart the curtains may be extended and supported in a continuous series for any required distance.

Referring now to the details of the secondary apparatus represented in Figs. 4 and 5, it will be seen that the movable portion of the mast B′ is guided in its vertical movement on the lower or fixed mast by the cross-tree through which it slides, and by a clasp, G′, attached to the foot of the movable section and passing loosely around the main mast, upon which it slides. The single apparatus is provided with a bracing-ladder arranged in the same manner as those upon the main machine. It is also provided with a detachable ladder, D′, which may be raised or lowered by means of pulleys at the top of the mast and ropes passing over the same. This ladder is intended to serve as a means of escape from the upper stories of buildings, the ladder being provided at one end with hooks which may be caused to engage with a window-sill.

In making use of both the main and secondary machine or apparatus above described, they will be steadied and braced by means of ropes or guys attached to the top, and extended thence to a distant point and secured to stakes or other fixed devices.

For the purpose of protecting the firemen while adjusting the apparatus in position, as well as when employing the hose to deliver water upon the fire, I provide a tender or barrow, such as represented in Fig. 6, having on the front a semicircular screen or fender provided with a window of mica or equivalent transparent material, and also with an opening through which the hose may be passed.

Having thus described my invention, what I claim is—

1. In combination with the sustaining-frame provided with notches or shaft-bearings, the adjustable screens having their edges provided with crank-shafts, as described, whereby the screens may be wound into rolls for transportation on the frame.

2. In combination with the base-frame and the girder C, the ladders d', secured at their upper ends to the girder, and attached at their lower ends to the frame by means of the hinged weighted connections, substantially as shown.

3. The base-frame, mast-sections b, and screen G, in combination with the ropes h and the winding-shaft H, provided with an operating-crank.

4. In a fire-guard, tubular extensible masts provided with appliances, substantially as shown, to sustain a curtain, and with openings at the top and bottom to permit the passage of water through them.

5. In combination with the masts and girders, the intermediate braces, m', and spring n', as and for the purpose set forth.

6. In combination with the truck, its masts, and girders, pulleys mounted thereon and provided with endless ropes or chains f'', bearing appliances, as shown, for elevating and supporting the supplemental curtain.

7. The combination of the main wheeled truck, the three extensible masts mounted thereon, appliances for extending the masts, and the three flexible curtains and appliances, substantially as shown, for elevating said curtains independently of each other.

8. In combination with the base-frame, the extensible masts and the screens, the ropes or chains for elevating the masts and screens, winding-shaft H, winding-drums q and their shafts, the gear-wheels connecting the two shafts, and the hand-cranks, as shown.

9. In combination with the main wheeled truck, its masts, curtains, and belts f'', the supplemental single-masted truck provided with the elevating-ropes l', as described, whereby it is adapted to co-operate with the main apparatus to elevate a curtain suspended between the two.

JOHN O'NEIL.

Witnesses:
J. COURSOLLE,
F. E. NOËL.