No. 838,891. PATENTED DEC. 18, 1906.

A. S. OLNEY.

PORTABLE FIRE ESCAPE.

APPLICATION FILED DEC. 19, 1905.

7 SHEETS—SHEET 1.

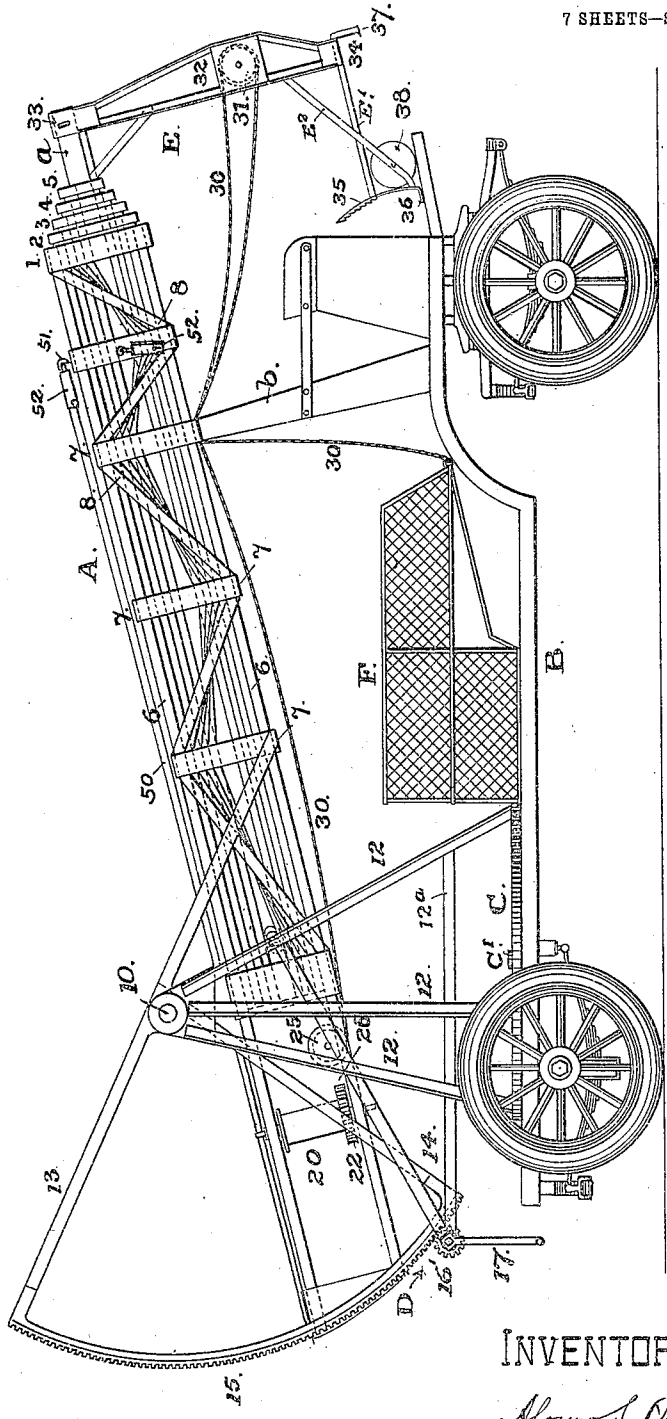


FIG. 1.

WITNESSES
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W. Colton.

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No. 838,891. PATENTED DEC. 18, 1906.

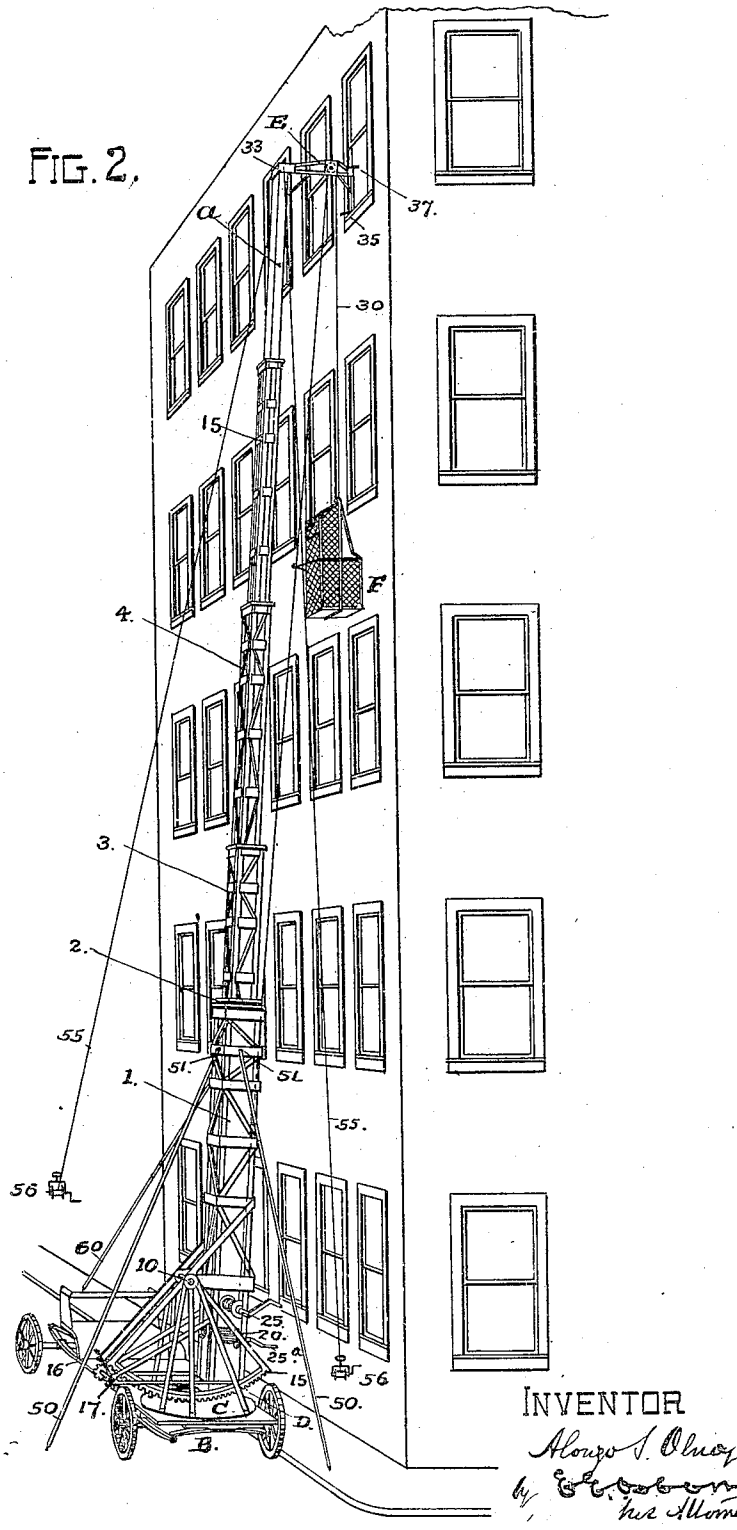
A. S. OLNEY.

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7 SHEETS—SHEET 2.

FIG. 2.



WITNESSES

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7 SHEETS—SHEET 3.

FIG. 3.

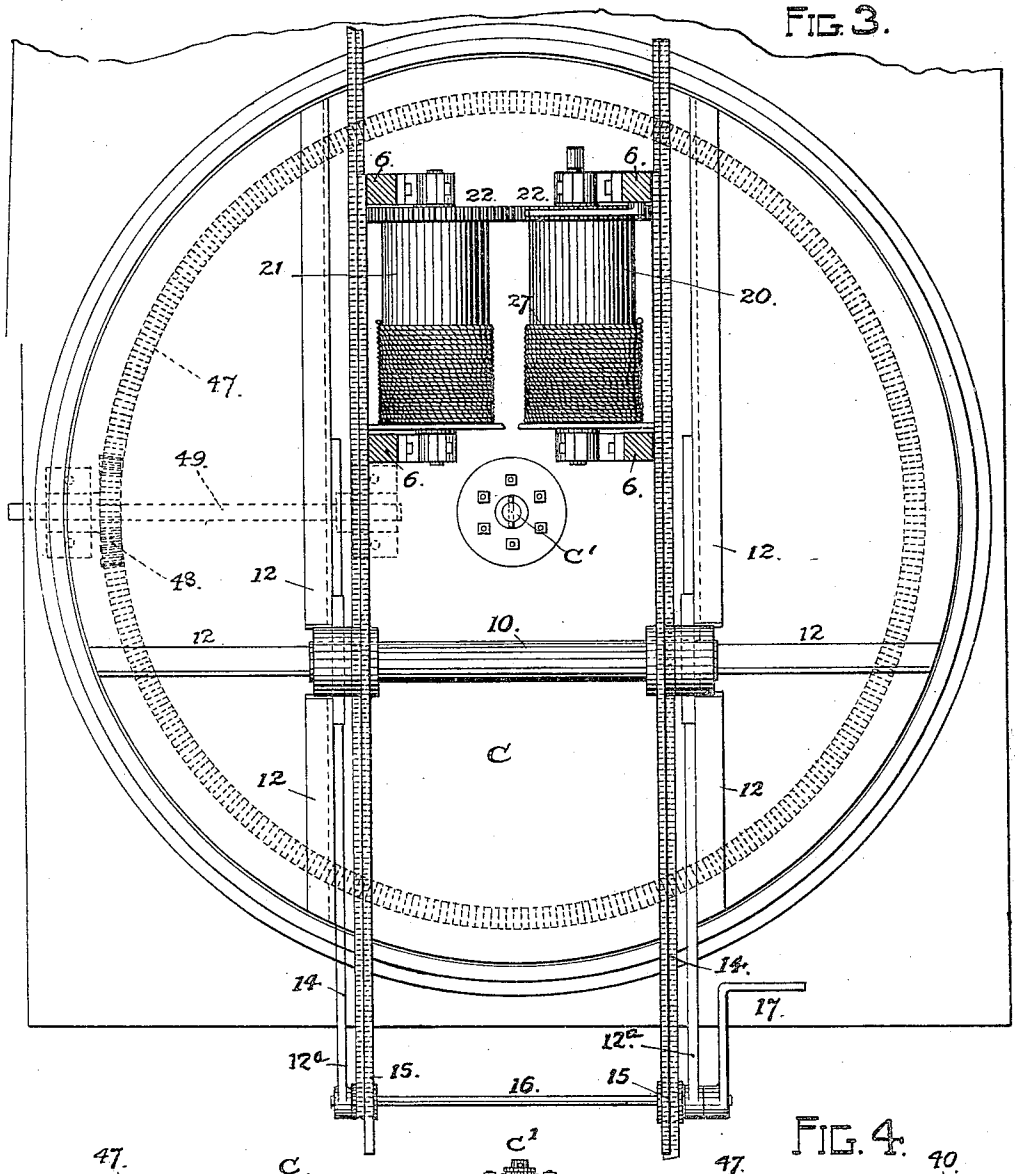
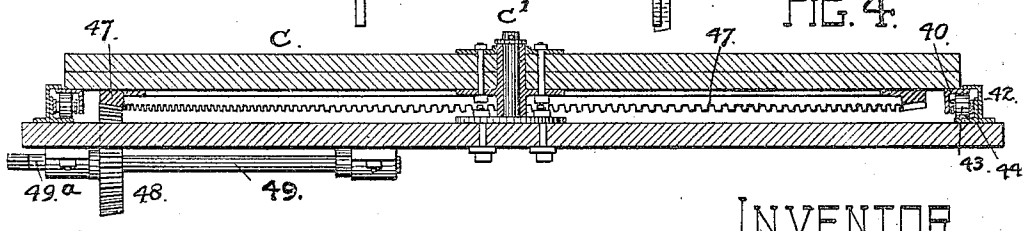


FIG. 4.



WITNESSES

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7 SHEETS—SHEET 4.

FIG. 7.

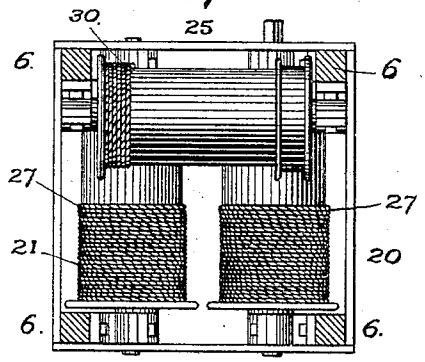


FIG. 5.

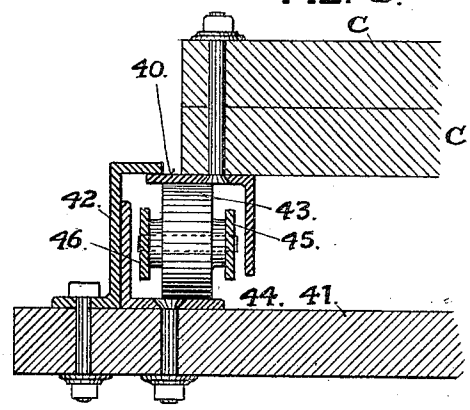


FIG. 9.

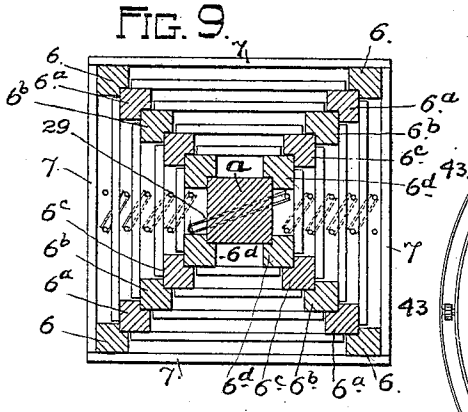


FIG. 6.

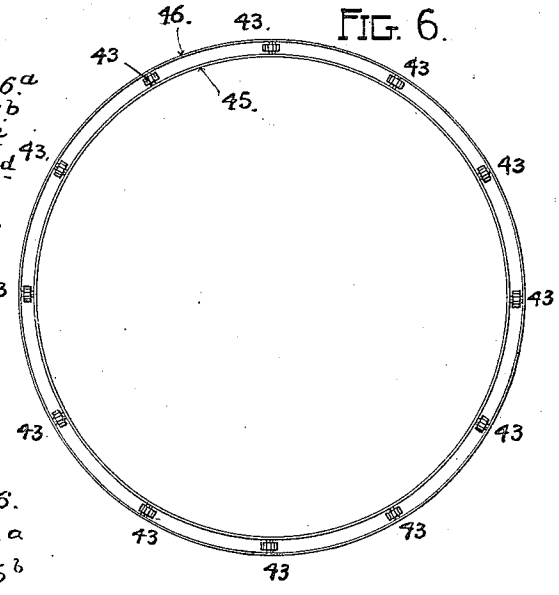
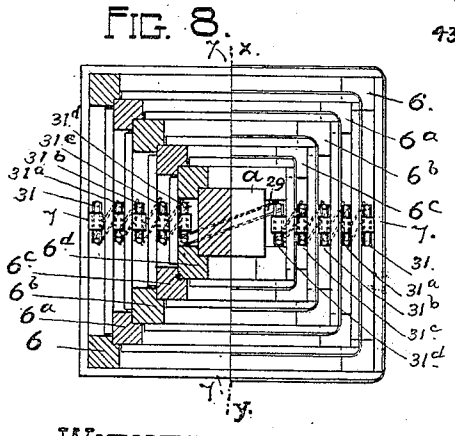


FIG. 8.



WITNESSES

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No. 838,891. PATENTED DEC. 18, 1906.

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PORTABLE FIRE ESCAPE.

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7 SHEETS—SHEET 6.

FIG. 11

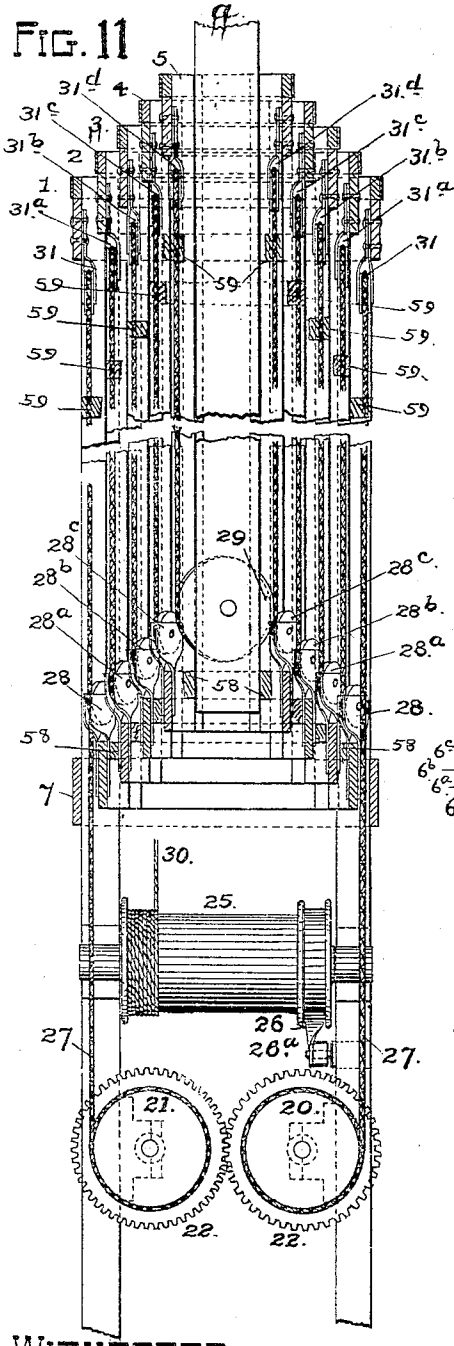


FIG. 10.

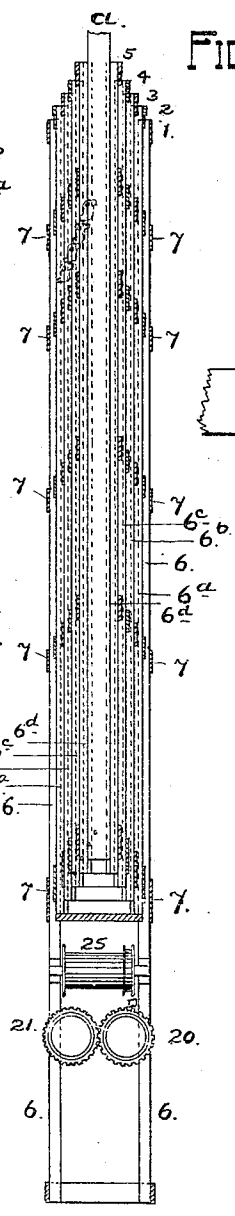
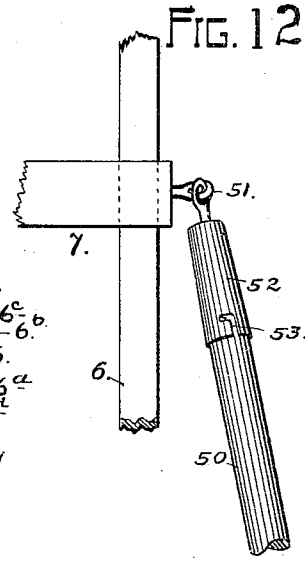


FIG. 12.



WITNESSES

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7 SHEETS—SHEET 6.

FIG. 14.

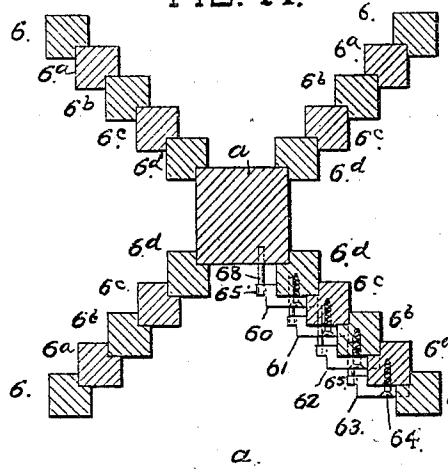


FIG. 15.

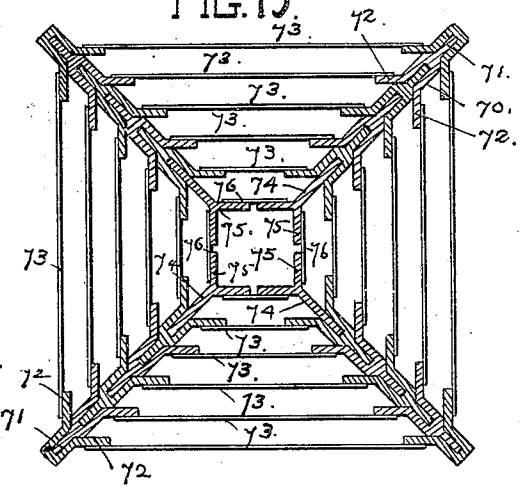


FIG. 13.

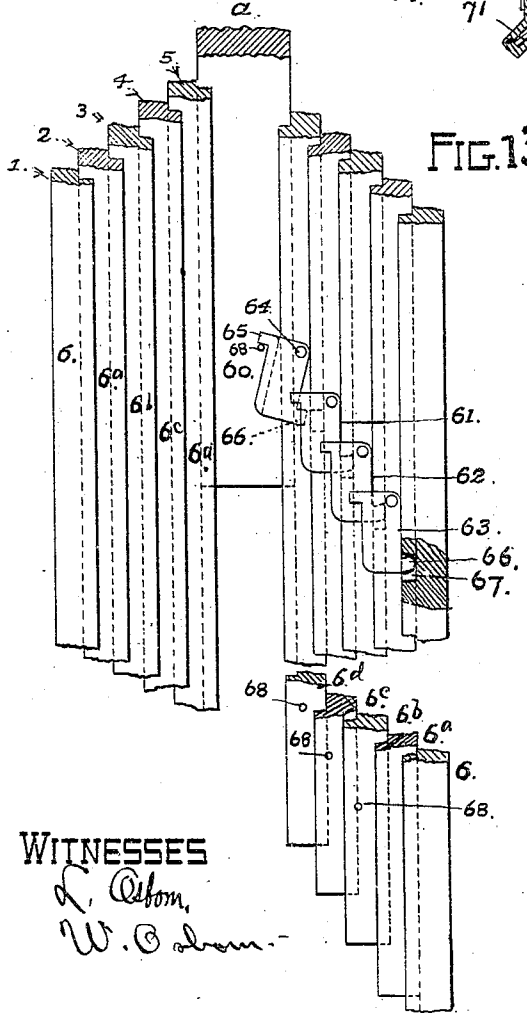
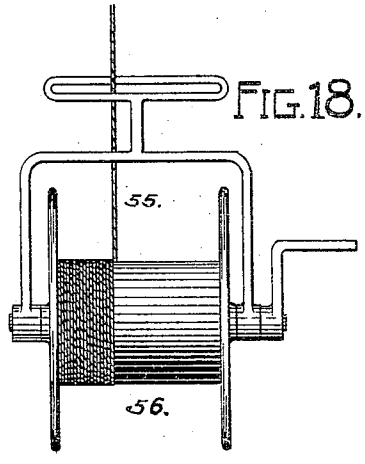


FIG. 18.



WITNESSES

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No. 838,891. PATENTED DEC. 18, 1906.

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7 SHEETS—SHEET 7.

FIG. 17.

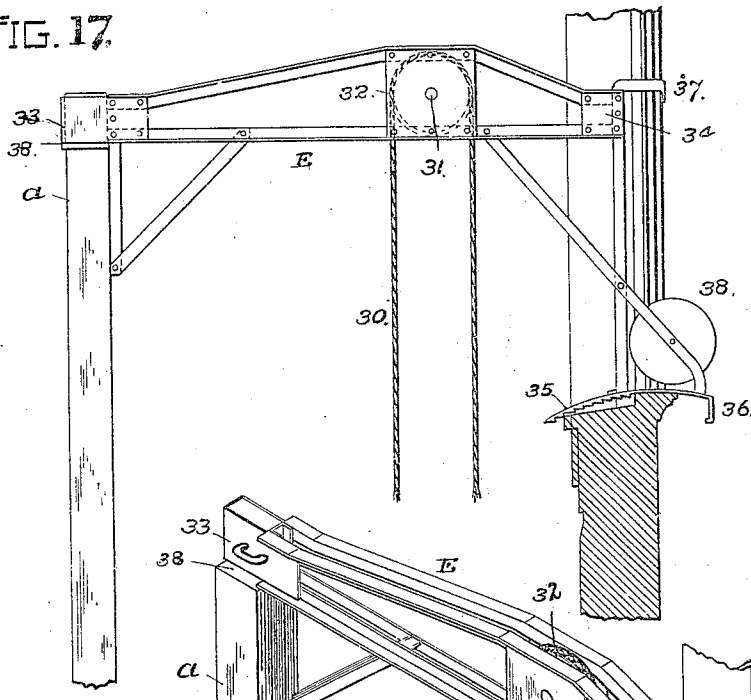
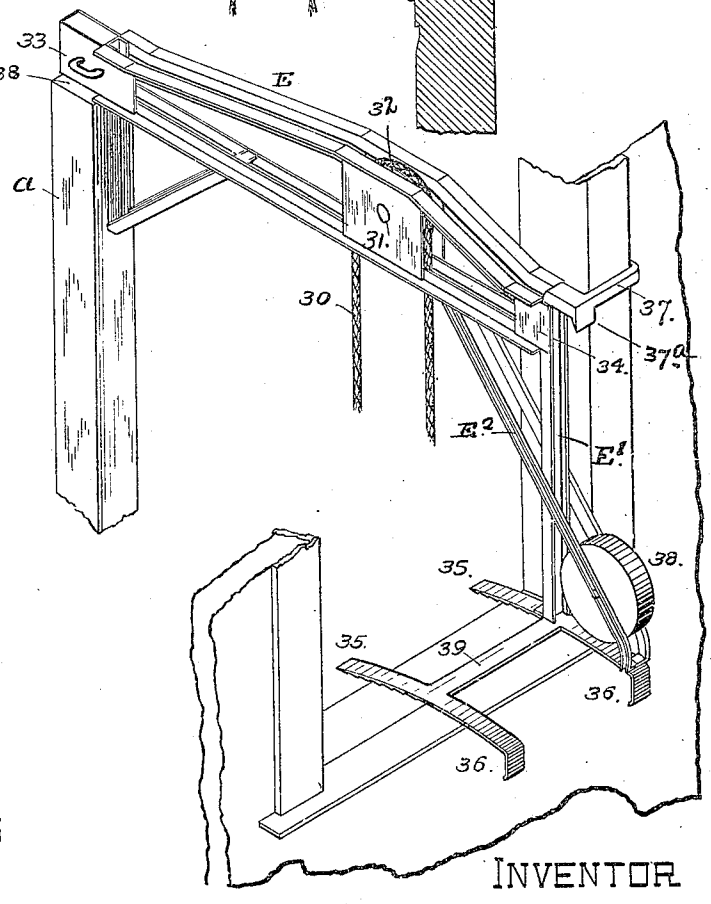


FIG. 16.



WITNESSES

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UNITED STATES PATENT OFFICE.

ALONZO S. OLNEY, OF OAKLAND, CALIFORNIA.

PORTABLE FIRE-ESCAPE.

No. 838,891. Specification of Letters Patent. Patented Dec. 18, 1906.

Application filed December 19, 1905. Serial No. 292,487.

To all whom it may concern:

Be it known that I, ALONZO S. OLNEY, a citizen of the United States, residing in Oakland, in the county of Alameda and State of California, have invented new and useful Improvements in Portable Fire-Escapes, of which the following is a specification.

This invention relates to improvements in the construction of a portable fire-escape of that class or description in which an extensible mast or frame capable of being raised or extended to reach the upper part of a building is provided with means for hoisting or elevating a cage, basket, or other receptacle, into which persons may be taken from the upper windows at a considerable height and lowered safely to the ground.

The object of the invention is chiefly to provide or produce a simple, strong, and relatively light portable apparatus of the kind capable of being handled and operated with considerable rapidity, of being moved or drawn by a single horse, and having the quality of being raised or extended to a considerable height by hand-power and the cage or receptacle operated by the same power without loss of time.

To these ends and objects the invention comprises certain novel construction and combination of mast composed of slidable telescoping sections mounted on a wheeled truck and having means for raising the same from a position approximately horizontal to an upright position and for maintaining it during operation in its upright working position; also, the combination therewith of means for temporarily attaching the top section of the mast to a window-sill or other projection on the building to support and steady the structure.

The said improvements further embrace elevating mechanism of novel construction and arrangement combined with the movable sections of the mast for raising and lowering the same; also, hoisting mechanism for raising and lowering a cage, basket, or other receptacle to and from the top of the extended mast; also, a novel construction and combination of extensible mast, wheeled truck, and mechanism for raising and lowering the mast and for varying the position and inclination thereof with respect to the front of the building against which it is to be raised.

The improvements further embrace a novel combination of wheeled truck, extensible mast, means for raising the mast to position and for varying the height thereof, and hoisting mechanism for handling and operating a cage, the whole producing an improved fire-escape or fire apparatus capable of being drawn about and quickly raised to place and operated by hand for taking persons from the upper stories of a building.

The nature of the said improvements and the manner in which I proceed to construct, produce, and carry out the same are explained at length in the following description, in which reference is had to the accompanying drawings, forming part thereof.

Figure 1 is a side elevation of a fire-escape apparatus embodying my invention, showing the mast closed and lowered to place on the truck. Fig. 2 of the drawings is a view in perspective of the apparatus, showing the same in working position against the front of a building and the cage being raised to the top of the mast. Fig. 3 is a top view of the turn-table and the stationary bed, showing the lower end of the mast and a portion of the hoisting-gear mounted on the turn-table. Fig. 4 is a cross-section taken diametrically through the turn-table. Fig. 5 is a detail cross-section, on an enlarged scale, of the roller-bearings and track of the turn-table. Fig. 6 is a top view of the roller-bearings that are placed under the turn-table. Fig. 7 is a top view of the hoisting-drums on the lowest section of the mast. Fig. 8 is a top view of the mast, showing the extensible sections or members closed one within another, the members being shown in horizontal section on one side of the center line $x\ y$. Fig. 9 is a cross-section taken horizontally through all the extensible members of the mast when they are closed. Fig. 10 is a sectional view of the stationary lowermost member and the extensible members of the mast, the same being a longitudinal section with the central member broken off. Fig. 11 is a similar sectional view on an enlarged scale. Fig. 12 is a detail of the coupling by which braces or steadying-poles are attached to the sides of the lowermost member of the mast. Fig. 13 is a detail, on an enlarged scale, of the automatic locking devices on the extensible members, by which each member is positively locked and held down while the extensible member within it is being raised to position. Fig. 14 is a horizontal cross-section showing the arrangement and relative position of the corner-posts or slides of the extensible mem-

bers. Fig. 15 represents a modification in which the slides and the principal parts of the extensible members are formed of metal. Fig. 16 is a perspective view of the head or bracket-like extension on the top of the mast, which carries the sheave for the hoisting-cable of the elevator-cage and also serves to support and steady the mast when raised to position and temporarily attach it to the front of the building. Fig. 17 is a side elevation of Fig. 16, showing the arm attached to the casing or frame of a window. Fig. 18 is a view, on an enlarged scale, of one of the guy-ropes and its reel which are attached to the head on the top of the central extensible member for controlling the mast at the time it is being raised.

In the following description of my improved fire-escape the principal parts are designated as the extensible mast A, the wheeled truck B, the turn-table C, the elevating-gear D, the head E, and the elevator-cage F.

The mast embraces a novel construction and combination of stationary lower member mounted permanently on the truck, extensible telescoping members arranged to slide one within another, and automatic locking devices of novel character operating to lock or rigidly hold each member in the mast as the next member is being drawn out.

The hoisting-gear for drawing the extensible members from the stationary member includes novel arrangement and combination of drums, cables, and equalizing-sheaves by which the power is applied in a successive manner and with equal strain upon the extensible members to form a stiff mast composed of a greater or less number of sections or extensible members, according to the length of mast required.

The head or laterally-extending arm on the end of the mast is also of novel construction in the several features of forming both a brace for the top of the mast and operating to hold it rigidly at a proper distance away from the front of the building. To such end it is provided with or involves in its structure a means for temporarily fastening the end of the head to the sill, frame, or casing of a window or to other projecting part on a wall or building and also forms a support for a sheave for the hoisting-cable of the elevator-cage.

In the construction of the mast, which will be described in detail with reference more particularly to Figs. 7, 8, 9, 10, 11, 13, 14, and 15, each member, with the exception of the central member *a*, is formed of four corner-posts or slides 6, united by rigid transverse bars 7 and diagonal braces 8, secured together by bolts or permanent fastenings in such manner that a stiff skeleton frame of rectangular shape is produced.

The central member *a* is preferably formed of a solid stick of timber fitted to slide in the corner-posts of the next largest section or member 5, the corner-posts of each slidable member being properly grooved or rabbeted, as seen in Figs. 13, 14, to receive the outer corners of the posts of the next smallest member of the mast. By virtue of this arrangement each slidable member is held in position and guided both by the member within it and also by the next largest member surrounding it. The slidable members thus mutually support and are supported each by the next one when they are drawn out from one another to the extent of movement provided. In the present construction the first or stationary member 1 and four slidable members 2 3 4 5, with the central member *a*, form when in extended relation a mast sufficiently stiff and firm to sustain the cage F and its load and capable of raising the cage to a height of seventy feet from the ground, to which end the sections should have each a length of twelve feet, or thereabout, in order to let the foot of one section set into the head of the next lowest section a proper distance to secure stiff joints at those points. Excessive angular deflection and strain upon the sections or members of the mast when it is raised to its fullest extent is avoided by providing on the top of the pole or central member a device for temporarily, but rigidly, attaching or fixing the upper end of the pole to some projecting portion or member of the building against which the mast may be raised, thereby holding that end away from the building at a proper distance for the cage to run up and down between the mast and the building.

Two winding-drums 20 21 and a cable 27 form the means for drawing out the slidable members 2 3 4 5 *a* from the stationary member 1 and for supporting the extended members when raised to place, a novel arrangement of sheaves fixed on the several members at top and bottom, rendering it possible to use a single cable for that purpose. A set of sheaves 31, one on each side, is fastened to the inside of the stationary member 1 at the top, and similar sheaves 31^a 31^b, &c., are secured to the top braces or cross-pieces at the top of the slidable members and on the same members at the bottom, sufficient space being provided between the outer member and the one next to it for the cable to run between the members without binding. The sheaves 28 and 31^a on the second member 2 and others 28^a 28^b 28^c and 31^b 31^c 31^d on the remaining members 3 4 5 are arranged for carrying the cable alternately upward and downward between the members from opposite sides toward the central member *a*. At the foot of the last-named member the cable 27 is carried around a sheave 29, in the grooved rim of which it is confined, while being free to run. The manner in which the cable is carried alternately up and down in

the spaces between the members of the mast renders it necessary to place the sheave 29 diagonally across the foot of the central member, as well as to fix the sheaves of the bottom sets in similar diagonal positions, as illustrated in Figs. 8, 9, and 11.

The single cable 27 is carried from one drum 20 upward on the inside of the stationary member 1 to the sheave 31 at the top on that side, over which it is turned downward to the sheave 28, whence it is returned upward and carried around the sheave 31^a on the next smallest member 2 and down to the sheave 28^a on the foot of the next member, and so on, alternately upward and downward over the remaining sheaves in succession until it passes finally on that side downward between the central member *a* and the surrounding member 5, where it returns around the equalizing-sheave 29, and thence alternately upward and downward over the similar sheaves on the opposite side, and finally downward to the other winding-drum 21, to which the cable is made fast. By virtue of this arrangement the several sections or members are elevated in succession as the two drums are rotated. Uniform strain on the cable is secured by the equalizing-sheave 29 and by gearing the two drums 20 21 together, as seen at 22, Fig. 11. When the drums are turned by the hand-cranks 25^a provided for that purpose the strain brought to bear on the cable acts first upon the pole or central member, so as to draw it out of the next largest member 5 to its full extent and afterward to draw out as many of the remaining members in successive order as the cable is caused to act on by being wound up on the drums.

The means provided for securing this upward movement of the slidable members in the required successive order consists of a series of gravity locking-dogs 60 61 62 63, pivotally attached to the slidable members and so formed and arranged that while each member is normally locked by its dog to the next largest member and will resist the strain or pulling force exerted by the cable to draw the member out the dog will be automatically thrown off or caused to release its member from the next one in which it works as soon as the member inside is drawn to its full extent from such next largest member. The form and the operation of these locking-dogs will be understood from Figs. 13 and 14, in which a dog is placed on one of the corner-posts of each slidable member.

Each dog hanging loosely on a pivot 64 against the side of the post 6 is provided with a lug 65 on one side of its head, and a similar lug 66 at the foot projecting laterally on the opposite side of the pivot 64 extends into a recess 67 in the corner-post of the next largest member. By engaging this recess in one corner-post the dog on the next post acts to lock the two posts together, and, on the other hand, the lug 65 on the opposite side of the pivot being arranged in line with a stop 68 on the corner-post of the next smallest slidable member acts to throw the dog out of the recess and set it in position to ride on the edge of the corner-post as soon as the stop 68 on the post of the member being raised is brought against the lug 65 of the dog on the adjacent post of the next largest member. When the dog hangs in its normal position, the lug 66 engaging the slot in the opposite corner-post of the next slidable member locks one member to the other, but as soon as the central member *a*, which is always in condition to respond to the strain brought on the cable 29, reaches the end of its upward movement the stop 68 on the lower part of the member *a* will come in contact with the lug 65 of the dog 60 and by throwing that dog out of the recess 67 of the member 4 unlocks the slidable member 5 and allows it to move upward with the central member *a*. The continued winding up of the cable 27 will therefore draw out the slidable member 5 until the stop 68 at the foot of that member strikes the dog 61 on the post 6^c of the next member, whereupon that member will be unlocked and will be free to move upward with the member 5. Each upwardly-moving member as it reaches the end of its upward movement acts in this manner to unlock the next largest slidable member, and the several members are added in regular succession to increase the length of the central member until all the slidable members are drawn out of the stationary member or the winding operation is stopped. The stop 68 on each slidable member is so arranged with relation to the locking-dog on which it acts that the dog is held back by the stop, as shown in Fig. 13, where the dog 60 is represented in unlocked position, when the stop-blocks 58 on the foot of the member *a* come in contact with the stop-blocks 59 on the upper part of the next member 5.

The inclined position in which the dog 60 is held by the stop 68 has the effect to set the lower end of the dog in the path of the stop, so that when the member *a* is drawn down again the stop acts to press the dog against the post 6^c and make it engage the recess 67 without fail, and this action is the same with regard to all the other dogs.

The length of the mast or the point to which it may be required to raise the central member is thus readily controlled from the winding-drum.

It will be obvious also that the elevated sections or members of the mast will be maintained in position by locking the cable or the drums. In the present construction a ratchet-wheel on the drum and a dog on the frame furnish a means for holding the sec-

tions in the elevated position. By virtue of this arrangement the strain is so evenly distributed upon the cable that the combined weight of the slidable members when all are brought into use is quite equally distributed on the cable, and the loaded cage can be safely borne by a cable of comparatively small diameter. In the details Fig. 13 the central member is shown drawn out of the next member 5 to its full extent and the dog 60 disengaged from the corner-post of the next slidable member 4. The continued strain on the cable 27 will draw the released member 5 out from the next member 4, and the stop on the lower end of the member 5 will release the member 4 when it strikes the dog 61 of the last-named member. A cross-piece 58 on each slidable member fixed at a point above the end of the member arrests further outward movement by striking a brace or cross piece 59, fixed on the upper part of the next larger member below the head or upper end. The distance of this stop 59 below the head determines the length of lap left at each joint between every two members.

A modification of the construction, shown in Figs. 7, 8, 9, 11, 13, 14, in which the corner-posts and other parts are made of wood, is also provided for when it may be desirable to substitute metal corner-posts and braces for those of wood, and I have illustrated in Fig. 15 a preferred form of corner-post, which has the advantage of being rolled to shape out of comparatively light metal and of furnishing a guide for the corresponding post of the next smaller member and of being guided in turn by the similar post of the next larger member. Each post 70 is formed with a rib 71, fitted to slide between the parallel sides of the post, and the sides extend in flanges 72 extending at right angles to each other on opposite sides of the groove or recess that receives the rib of the post of the next smaller section.

The lateral braces 73 being riveted to the flanges 72 unite the four posts together in a stiff frame. The ribs 74 at the corners of the central member are formed integrally with angle-irons 75, which are bolted to the mast *a*, if the same be made of wood, or the same parts can be joined together by braces for cross-pieces 76 to form a hollow mast.

The head E is an arm extending out at right angles to the central member, on the end of which it is fixed, and carrying a sheave 32, mounted on an axle 31 to take the cable 30, the arm being of such length that when its outer end is placed on some projecting part of a building, such as a window-sill or a cornice, or is inserted through a window there will be room for the cage to be raised and lowered by the cable between the mast and the building without striking or running foul of either.

On the inner end of the head is a socket 33 to receive the end of the central member *a*. On the opposite end is provided a grappling member, properly shaped to fit over the sill of a window and also to embrace the side of the frame or casing of the window, the two parts being so placed or arranged at opposite ends of a perpendicular leg E′ on the outer end of the head that the latter will be supported at proper distance above the level of the window-sill to afford ample room under the head for a person to reach and enter the cage when that part of the apparatus is raised to position after the grappling members on the lower end of the leg have been placed on the sill. The last-named members are composed of two bars 35, extending from opposite sides of a foot 39, projecting from one side of the leg E′ horizontally and at right angles to the arm E. The under side of each bar is notched, as seen in Fig. 16, and the outer end of the bar terminates in a downwardly-turned hook 36. Braces E^2, extending from the outer end of the bar 36, that lies directly under the leg E′, diagonally upward to a point on the arm E behind the leg, furnish both a support for a caster-wheel 38 on the front of the head and serve to strengthen the parts that support its outer end.

The rim of the wheel 38 is set to project beyond the bars 36 in order to prevent those parts from striking the moldings and other projections on the front of a building against which the mast is being raised. By providing this wheel on the head that laterally-extending support on the top of the mast can be set against the front of the building and the mast raised to position without danger of catching and being arrested by the window sills, caps, or other projections on the front of the building.

The hook 37, provided on the outer end of the arm E, is so shaped and placed that it will catch on or fit over the frame or casing on the side of a window-opening. In connection with the bottom bars 35 the hook 37 serves to fix the head stiffly in position upon the window-sill, and particularly to prevent the top end of the mast from moving away from the building. The arm E is also provided with a claw 37^a on the outer end for the purpose of fixing that end of the arm on the top of a window-cap or other projecting portion of a building when the arm E cannot readily be placed in a window-opening. This head E may be placed in working position on the end of the central member *a* at the time of beginning operations to raise the mast to position and detached from it at other times; but ordinarily it is fastened in place so as to remain on the mast ready for use.

For the purpose mainly of raising the mast quickly to position and also for bringing it to a place or locality for use without loss of time the mast is mounted on the wheeled

truck, as shown in Figs. 1 and 2, and an elevating-gear, consisting of a pair of curved racks 15 and a shaft 16, geared into them by pinions 16′, is fixed on the stationary member of the mast A and on the truck, as seen in Fig. 2. The racks 15 are connected to the stationary member 1 by braces 13 14 and are curved concentrically with the trunnions 10, in which that member is hung in the supporting-frames 12 12 on the truck. Bearings for the pinion-shaft 16 are provided in horizontally-extending bars 12ª on the frame 12, and cranks 17 furnish means for applying power to the shaft. For the more readily and quickly adjusting the mast to position after its movable sections or members have been drawn out the supports for the stationary member are mounted on a turn-table C, placed on the rear end of the truck over the rear axle, and a rotatable shaft 49, for which bearings are provided on the stationary bed beneath the turn-table, is connected with the latter by a toothed ring 47 and a beveled pinion 48 for revolving the turn-table by hand.

The construction of the turn-table C involves several novel features, which are shown in the details Figs. 3, 4, 5, and 6. The table C, centered on the king-bolt C′, fixed in the stationary bed of the truck, rests at the rim on a set of rollers 43, for which a circular track 44 is provided on the bed, and a circular plate 40, bolted to the bottom of the turn-table, rests upon and takes the wear of the rollers, so that the latter travel on metal surfaces both on the bed and on the turn-table.

The outer edge or rim of the plate 40 extends under and in contact with or close relation to the top flange of a standing ring 42, which either is formed as a part of the track for the bearing-rollers or is separately formed and secured in place on the bed by bolts. The top of the ring 42 being turned inward at right angles to lie over the top of the plate 40, these two parts extending around the entire circumference of the table have the effect to retain the table in a practically horizontal plane under the different positions in which the weight of the load borne by the table is changed or shifted from one side of the center of revolution to the other. The tendency of the table to tilt under changes in position of the mast is overcome or resisted by this means to such a degree that the table will turn without binding or creating excessive friction on the king-bolt. The bearing-rollers 43 are spaced or retained at proper working distance from one another around the circle by setting them between two rings 45 46 of different diameters, one concentrically placed within the other and both provided with bearings for the axles of the rollers. The shaft 49, by which power is applied through the gears 47 48 in the well-known manner to turn the table C, is formed with a square end 49ª, to take a hand-crank.

Room is provided on the bed B of the truck in front of the turn-table for carrying the cage F, and a support consisting of a standing bar *b* on the forward part of the truck is arranged to hold the mast in an inclined position when the movable members are closed together and the head-carrying end is turned down to rest on the front end of the truck.

On the first or stationary member 1 are bearings both for the winding-drums 20 21 and for a separate drum or windlass 25, by which the cage F is raised and lowered. The hoisting-cable 30, fastened to this drum 25, is carried up to and around the sheave 32 and down to the cage F, at which point it may be permanently fastened, so as to be always ready for use. As means for controlling the descent of the cage a strap-brake 26 of well-known construction is provided on the windlass 25, the lever 26ª of this brake being arranged at the side of the stationary member 1, where it can be readily worked.

To control and hold the mast steady while it is being raised, I provide guy-ropes 55 and a small hand-reel 56 for paying out such rope and holding it under tension as the members are being raised to place. Two of these guy-ropes 55, attached to the upper end of the central member *a* on opposite sides of the mast, are held by men stationed at a distance from the truck, who by throwing more or less weight or strain on one rope than on the other are able to guide the head E to required position at a window-opening after the mast is raised. These guy-ropes are a necessary part of the apparatus, particularly when raising the head E to the greatest height that the mast is capable of doing. If less than the whole number of slidable sections are brought into service and a relatively short mast is required, the guy-ropes may be detached and wound on their reels 56.

The lowest member which is mounted on the turn-table is provided with means for attaching to three of its sides near the top end long braces or poles 50, of such length that they will stand at an angle to the mast when their lower ends are set on the ground, and thereby brace the lowest member on three sides during the operation of raising the other members to position. Each pole 50 is attached to the mast by a socket-iron 52, having a bayonet-fastening 53, by which the pole is fastened on or is readily detached when it is not required. The socket-iron 52 is permanently attached to the mast by an eye-and-staple fastening 51, as shown in Fig. 12. Usually the poles may remain attached to the mast and folded against it

when the latter is lying on the truck; but they can remain detached and be carried on the truck ready for use when needed.

I am aware that fire apparatus of the same character as the present portable apparatus has been constructed with slidable sections and that such apparatus has been mounted on a wheeled truck having a turn-table and do not claim those features which are herein described in connection with my improvements as being novel with me; but

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

1. A portable fire-escape comprising in combination a wheeled truck, a turn-table thereon, a mast composed of extensible telescopic members, the lowest member being pivotally mounted on the turn-table and capable of being raised and lowered to and from an upright position thereon, means for drawing the extensible members in successive order out from the lowest member and from each other, consisting of a single cable, a pair of geared winding-drums, and sheaves on the upper and lower ends of the extensible members, a central extensible member having an equalizing-sheave in the foot thereof to take the said cable, locking devices on the extensible members operating to normally lock each member to the one next to it, means carried by each member for throwing off the lock to release the next member, in the ascending movement and for throwing the same to relock the said members together in the descending movement, a laterally-extending head on the end of the central member having gripping devices on the outer end for engaging the sides and bottom of a window-opening, a sheave on said head, and a windlass on the lowest member of the mast for operating a hoisting-cable carried by the said sheave, and means on the truck for turning the lowest member on its pivots to raise and lower the mast.

2. In a portable fire-escape, an extensible mast comprising a stationary or non-extensible hollow member, a plurality of telescoping extensible members movable into and out from the stationary member and from one another, means for drawing out the said extensible members in succession beginning with the central member consisting of a pair of winding-drums, a single cable secured at the ends to said drums, guide-sheaves arranged in sets secured to each extensible member, excepting the central member, at top and bottom thereof and arranged to turn the cable alternately upward and downward, an equalizing-sheave on the foot of said central member, and locking means normally locking each extensible member to the next one beginning with the extensible member next to the central member, stops on each extensible member adapted in the upward movement of said member to throw off the locking means of the adjacent member when said moving member reaches the end of its outward movement from said adjacent member, and stop-blocks on said members for arresting the outward movement of each extensible member.

3. In portable fire-escape the combination of the stationary outer member, having grooved corner-posts, a plurality of extensible inner members having grooved corner-posts, and fitted to slide one within another, the corner-posts of each member forming guideways for the corner-posts of the next extensible member, means for drawing out said members in successive order beginning with the central member, and means for locking said members normally together consisting of the gravity-dog on each extensible member adapted to normally engage the corner-post of the next largest extensible member and thereby lock each member to the adjacent one in which it is fitted to slide, and a stop on each member operating to throw out of action the dog on the next member, when the said stop-carrying member in its upward movement reaches the limit of its travel out of the locked member.

4. In a portable fire-escape apparatus, a wheeled truck having a stationary bed, a turn-table pivotally mounted thereon, supports on the turn-table having bearings for the trunnions of an extensible mast, trunnions on said mast fitted thereto, means for turning said mast on its trunnions into and out of a perpendicular position, and means for maintaining the turn-table in horizontal position under varying angular adjustment of the mast, comprising the standing ring on the bed having an inwardly-extending flange the projecting plate on the turn-table engaging said flange from beneath and the bearing-rollers between the turn-table and the bed.

5. In a portable fire-escape, the combination with a mast composed of extensible telescoping members, of a head on the end of the top mast member projecting laterally therefrom provided with a sheave, grappling members on said head comprising a hook-shaped bar on the end of the head at right angles on one side thereof, a perpendicular leg extending downwardly from that end of the head and grappling-bars on the lower end of said leg.

In testimony whereof I have hereunto set my name to this specification in the presence of two subscribing witnesses.

ALONZO S. OLNEY.

Witnesses:

EDWARD E. OSBORN.

L. OSBORN.