(No Model.) 2 Sheets—Sheet 1.

J. H. McPARTLAND.

HYDRAULIC FIRE ESCAPE AND EXTENSION LADDER.

No. 456,382. Patented July 21, 1891.

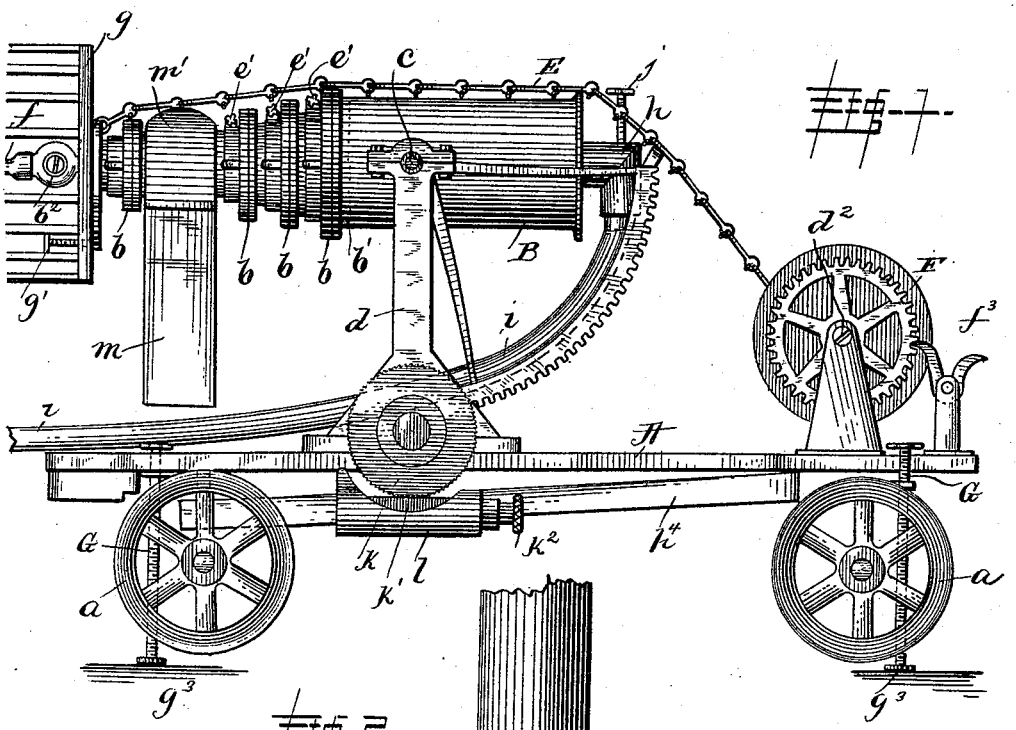

Fig. 1.

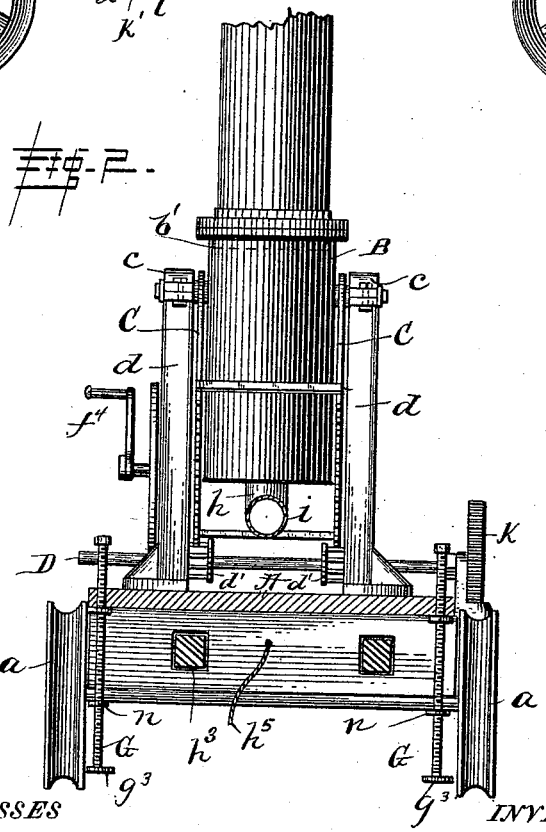

Fig. 2.

WITNESSES

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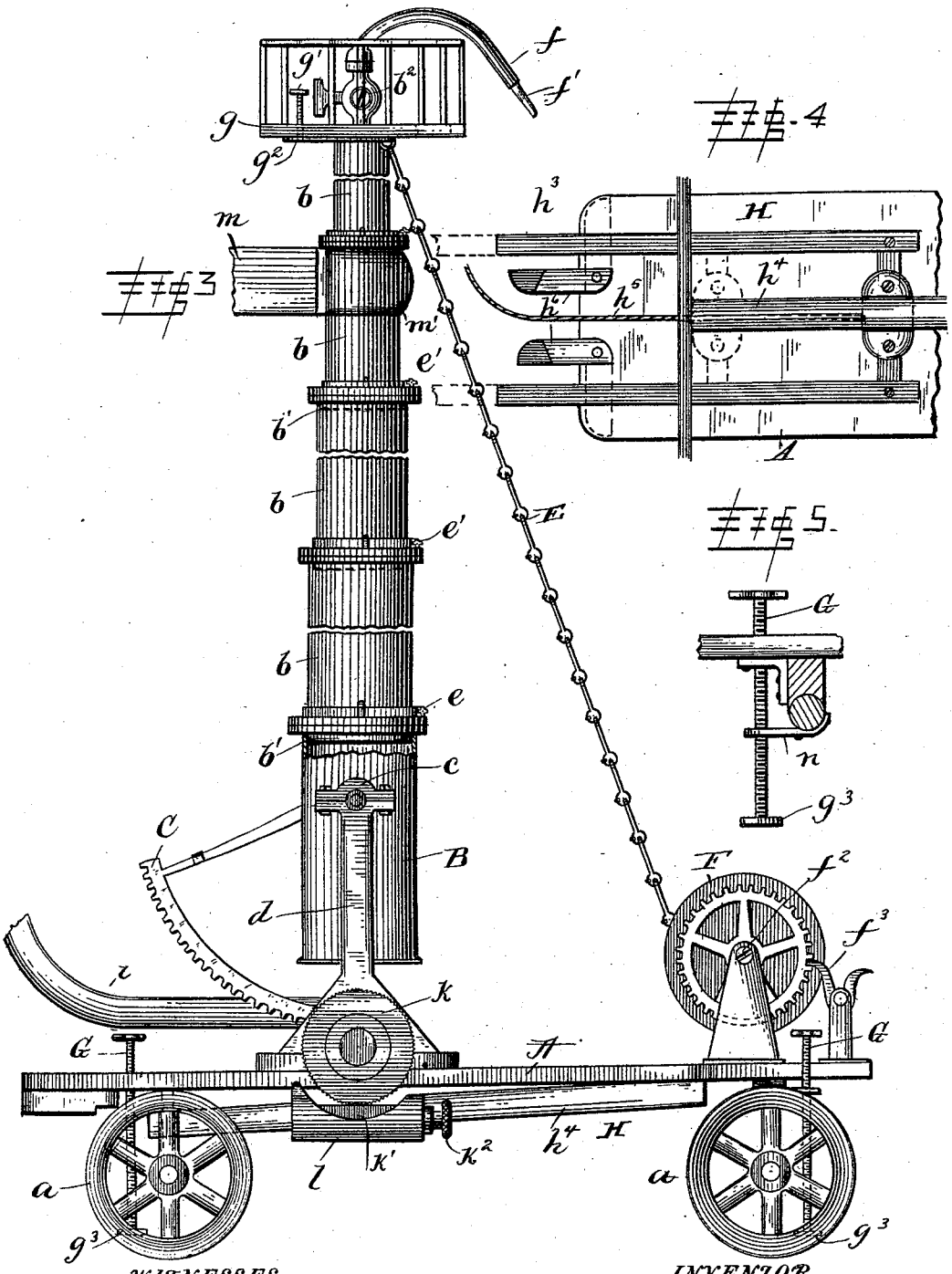

Fig. 4

Fig. 3

Fig. 5.

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UNITED STATES PATENT OFFICE.

JAMES H. McPARTLAND, OF HOULTON, MAINE.

HYDRAULIC FIRE-ESCAPE AND EXTENSION-LADDER.

SPECIFICATION forming part of Letters Patent No. 456,382, dated July 21, 1891.

Application filed March 2, 1891. Serial No. 383,338. (No model.)

To all whom it may concern:

Be it known that I, JAMES H. McPARTLAND, a citizen of the Dominion of Canada, residing at Houlton, in the county of Aroostook and State of Maine, have invented certain new and useful Improvements in Hydraulic Fire-Escapes and Extension-Ladders; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain improvements in combined hydraulic fire-escapes and extension-ladders, having for its object to compactly and expeditiously store the same for transportation; to provide for its handling or manipulation with facility; to effect the erection or extension of the apparatus by the action of the water finally to be thrown through the hose in extinguishing the flames of the burning building; to provide for the adaptation of the device to the height of the structure; to enable the firemen to ascend the ladder unhampered by the unwieldy hose, and to manipulate it (the latter) with perfect control from the top of the apparatus; to provide for bracing the same when extended or erected, holding it off from the house or building, thus avoiding the supporting or resting of the apparatus against the walls, which are liable to fall at any moment when gutted by the fire, and to effect the holding of the device firmly and with stability when in its erected or extended position.

To these ends my invention consists in the novel construction and arrangement of the parts, as will hereinafter be fully set forth, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a side elevation of my combined hydraulic fire-escape and ladder in position for transportation. Fig. 2 is a view showing it partially extended or erected, and Fig. 3 is a view showing it at its full altitude. Figs. 4 and 5 are enlarged detail views of the sliding brace carried upon the under side of the truck and of one of the truck-steadying appliances or screws, respectively.

In the embodiment of my invention I provide the truck A, of suitable construction, whose wheels *a* are preferably provided with grooves in their peripheries, or they may have plain peripheries.

B is a telescopic water-tower consisting of a series of telescoping cylinder-sections *b b*, the largest or lowest section or cylinder having extended from its sides near the top pivots or trunnions *c*, bearing or pivoted in short posts *d d*, secured upon the truck A. These cylinder-sections *b b* are adapted, as above intimated, to successively slide one within the other, and therefore allow the water-tower to be extended and contracted, whereby it is adapted to be adjusted according to the height of the structure or building, to be folded or stored compactly on the truck for convenient transportation, and, by means of the water let into it, to be extended or erected to its full or the required height, as will more fully appear farther on.

The extensible and contractible sections or cylinders *b* are held against longitudinal displacement by means of collars or bands *b'*, secured upon the inclosed ends of said sections, serving as stops to limit their elongation when drawn out to the maximum extent. These sections or cylinders are also fitted, but upon their outer or uninclosed portions near their ends, with spring-metal clasps or clamps *e*, whose straight parallel portions are provided with adjusting or binding screws *e'* to effect the retention of the said cylinders or sections in their extended or elongated position as against collapsing by their own weight.

The upper end of the uppermost cylinder or section *b* is provided with a cock b^2 and adapted to have connected thereto a section of flexible pipe or hose *f*, itself provided with a nozzle *f'* for throwing or directing the water or stream upon the building, the cock serving to provide for cutting off and turning on the water, as desired.

To provide for the convenient manipulation of the hose with its nozzle by the fireman, a stand or platform *g* is suitably secured at this point to the said uppermost section, said stand or platform having a man-hole, up through which the fireman is enabled to pass to stand upon said platform.

In order to provide for maintaining the

platform level while giving the water-tower the desired inclination in bringing its upper end contiguous to the building, a hand-screw g' is seated therein and adapted to bear upon a bracket g^2, secured to the uppermost section or cylinder of the tower, its upper end being adapted to be conveniently actuated by the fireman. Also connected, preferably to an elbow tube or pipe h at the lower or bottom end of the lowest cylinder or section of the water-tower B, is a section of flexible pipe or hose i, adapted to connect with a fire-plug of a water-service pipe on the street or with the pumping-chamber of an engine for filling the tower, and finally ejected or thrown out of the latter by the hose f. A water-cock j is fitted to the elbow tube or pipe h to provide for the escape of waste water, as well as the flushing of the water-tower when necessary.

C C are segmental racks or sectors, secured to the pivots or trunnions c of the water-tower B and to the bottom of the lowest cylinder of said tower by means, preferably, of their rear arms.

D is a transverse shaft passing through and bearing in the short posts d d just above the truck A and having secured thereto trundle wheels or pinions d' d', adapted to engage the racks or sectors C to effect the careening or inclining of the water-tower in adjusting it in position with relation to the building. The shaft D is also provided at one end with a milled disk-wheel k, adapted to engage a corresponding screw k', carried by a cylindric bracket or support l, suitably secured in position at the side edge of the truck A. It will be seen, therefore, by turning the screw or worm k' by grasping its operating-handle k^2 that the wheel k will be actuated, in turn operating the shaft D, with its wheels or pinions, for the purpose of adjusting the tower as to the inclination it is desired to give it, as aforesaid.

An additional stand or platform m is or may be bolted to a yoke m', swiveled upon an intermediate cylinder or section of the tower.

E is the ladder, wholly composed of links, permitting it to be readily wound or reeled up, as presently seen, and having its upper end connected to the plate or bracket g^2 upon the topmost cylinder or section and having its opposite or lower end connected to the central rod or shaft f^2 of a reel F, suitably mounted or supported upon the truck A. The reel F has one end provided with a ratchet or circular series of notches, with which is adapted to engage a lever-pawl f^3, pivoted upon a suitable support to hold the reel against rotation, thus preventing the unreeling or slackening of the ladder when in use. The reel-shaft is extended and provided with a crank or handle f^4 for actuating by hand the reel as required in winding or reeling and unreeling the ladder, according as the water-tower is extended or contracted.

G G are hand-screws, two working in brackets n, secured to the rear axle of the truck A and passing, preferably, through the truck-platform, and two working in brackets n, secured to the front axle, each of said screws being formed or provided with a foot or plate g^3 to give the same a broad bearing at the lower end. It will therefore be seen that by actuating the screws G so as to bring their broad bearing-surfaces or feet upon the ground and to slightly elevate the wheels of the truck from the ground the apparatus will rest solidly in position and its weight be taken off the wheels and be transferred to the screws, as desirable when the water-tower is in use.

H is a brace having pivoted legs or bars h^3, connected to a bar or slide h^4, which bars h^3 are arranged to slide upon the under side of the truck-platform, a line or wire h^5, connected to said slide or bar, passing out rearward through an aperture in the rear axle and adapted to be grasped and manipulated by hand, whereby the pivoted legs or bars h^3 are slid out rearward from under the said platform, and, as they move rearward, to be thrown slightly apart at their outer ends. In this position they are held by means of the button or cam-like pieces h^6, pivoted to the under side of the truck-platform, and are adapted to bear at their outer ends against the wall of the building to steady and brace the apparatus in position while in use. It will be further observed that with the lowest cylinder or section only erected or standing upright and the cock of the uppermost cylinder or section closed it is only necessary, in order to erect or extend the other cylinders or sections, to turn on the water, and its force will elevate the same steeple-like, and after securing said cylinders or sections by their clasps or clamps the water-tower is now ready for use and is adapted to be held out of contact with the walls of the building, thus obviating the liability of the elevated or extended parts going down with the falling walls in event of the collapse of the latter. It will be also observed that with the extension or elevation of the fire or water tower, as just described, the flexible ladder will be simultaneously unreeled and carried or elevated along with said tower, enabling the firemen to ascend the same at once and ply the hose, while by slackening the ladder, so as to allow the firemen standing thereon to conveniently reach and manipulate the clasps or clamps of the tower sections or cylinders, the latter are firmly secured in position.

Having thus fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The combined fire escape and ladder having the water-tower provided with nozzled hose at its upper end and the platform adjustable to the required level as the tower is inclined or careened, and means for reaching said platform, substantially as specified.

2. The combined fire escape and ladder having its truck provided with a brace adapted to slide thereunder and having pivoted bars or legs, in combination with pivoted pieces or buttons engaging said legs or bars, and means for manipulating said brace, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES H. McPARTLAND.

Witnesses:
FRANK M. HUME,
JAMES H. KIDDER.