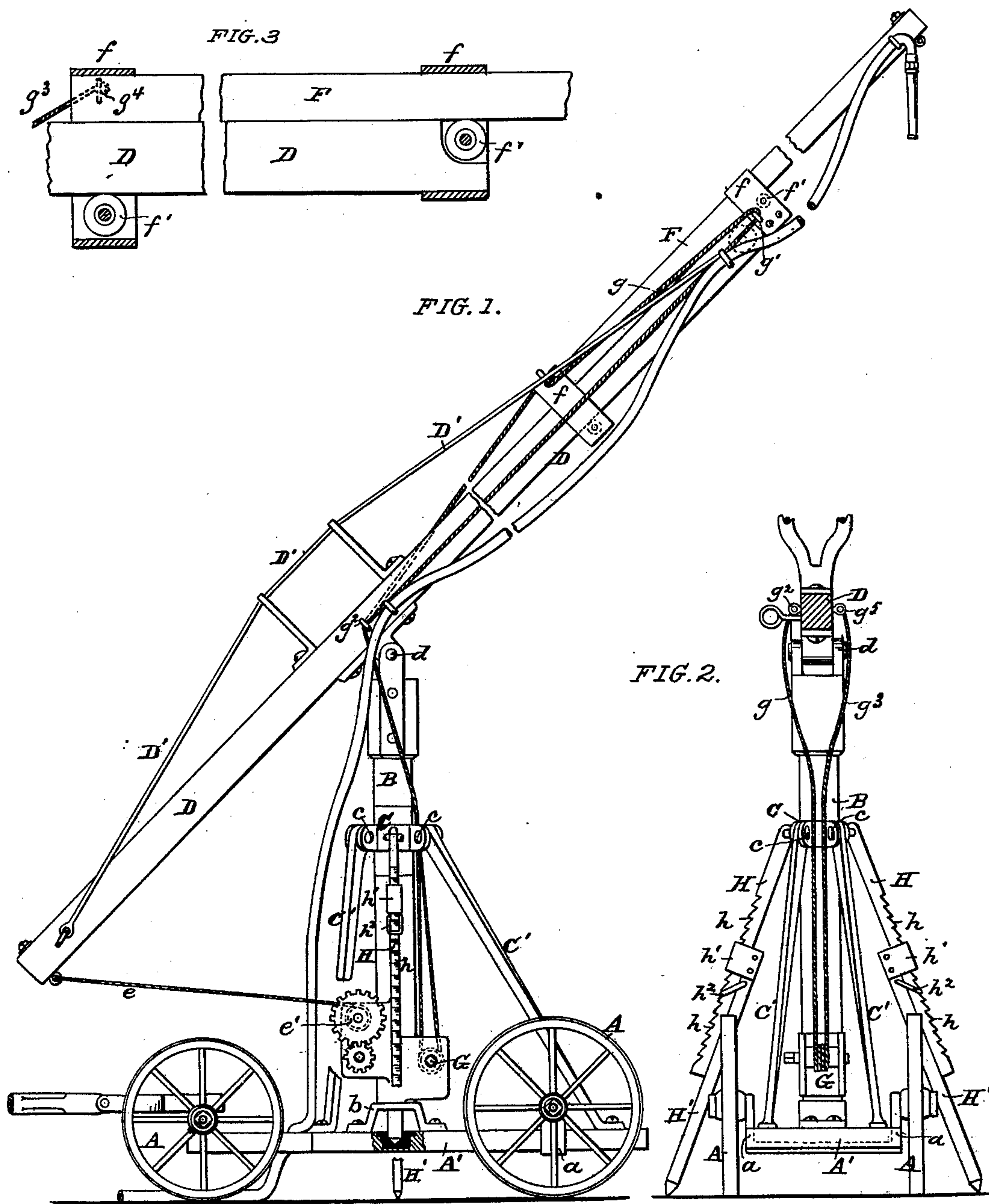


F. & M. MEYER & E. M. STARR.
Hoisting Apparatus and Fire Escape.

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ATTEST:

Ad. Herthel.
Chas. Herthel.

INVENTORS:

Frederick Meyer
Moritz Meyer
Edward M. Starr
per Herthel & Co.

UNITED STATES PATENT OFFICE.

FREDERICK MEYER, MORITZ MEYER, AND EDWARD M. STARR, OF ST. LOUIS, MISSOURI.

IMPROVEMENT IN HOISTING APPARATUS AND FIRE-ESCAPE.

Specification forming part of Letters Patent No. **220,031**, dated September 30, 1879; application filed July 14, 1879.

To all whom it may concern:

Be it known that we, FREDERICK MEYER, MORITZ MEYER, and EDWARD M. STARR, all of St. Louis, Missouri, have invented an Improved Combination Hoisting Apparatus and Fire-Escape, of which the following is a specification.

This invention relates to an improved form of hoisting-machines. It is specially designed for the general uses of heavy work, such as raising, lowering, swinging, transporting, and removal of safes, iron columns, blocks of stones, and other material for building purposes, pulling in boilers and engines, and the better handling of heavy merchandise or great weights of all kinds; also, the constructive nature of our invention adapts it for the uses and general purposes of a fire-escape.

The invention will first be fully described, and the novel combination of parts hereinafter pointed out in the claims.

Of the drawings, Figure 1 is a side elevation, part of the boom being shown extended. Fig. 2 is a rear elevation; and Fig. 3, an enlarged detail, showing arrangement of the extension-boom top of the main boom.

A represents the carriage, truck, or road-wagon employed to render the apparatus portable for its uses.

The carriage is of that ordinary kind having its wagon-bed supported as low to the roadway as possible. Hence, as shown, the rear and fore wheels turn upon their respective axles, the one for the hind wheels being a crank-axle, *a*. The wagon-bed *A'* is secured to the crank-axle, and in front by a swivel-joint to the front axle, so that the fore wheels can turn readily.

The carriage having its wagon-bed suspended as low as shown is specially important in our case, in that it renders the carriage the better able to maintain the line of gravity within the base, steady the entire apparatus with its heavy load, and prevent tipping or overthrow.

B is a vertical post, so supported upon the carriage that the boom carried at top can revolve completely around horizontally in either direction. The post B is arranged centrally. Its lower end passes through a strong bearing, *b*, and turns in a circular casting or step fitted for it in the wagon-bed. (See Fig. 1.)

C is a collar which encircles the post, but so that the latter can freely turn as stated. The collar C has lugs *c*, to which the end of each of the stiffening-rods *C'* connects, the lower end of each rod being secured to the wagon-bed in the diagonal manner indicated. These rods brace, support, and otherwise stiffen the post B, and render it capable of sustaining immense weights.

D is the hoisting-boom, consisting of a strong or heavy timber braced or strengthened by guy-rods *D'*, which stretch from end to end of the boom. (See Fig. 1.)

At *d* the hoisting-boom has its fulcrum turning in proper bearings on top of the vertical post, so that the said boom is capable of being completely raised or lowered, or be made to occupy a level, as the nature of the case requires.

For purposes of manipulating the boom D, one end thereof by rope *e* connects to a windlass, *e'*, which is journaled and housed in the housing forming part of the central post. (See figures.) The windlass *e'* is operated by a crank turning the pinion, which meshes with the large gear on end of said windlass. The coiling or uncoiling of the rope permits the boom to be raised or lowered to or from a perpendicular position, or be adjusted near to a level to reach varying heights or points, and enables the boom to be fastened at any adjusted point.

It can be here stated that the boom so combined with the turn-post B is capable of a two-fold motion—first, to be raised or lowered, as stated; secondly, by turning the said post the swing of the boom can be directed to command any point within its large radius.

The boom D is provided with a sub-boom or extension, F, for purposes of enlarging the reach and field of usefulness for the apparatus. This extension F is a similar long piece of timber, connected by stirrups *f*, so as to slide on the top of the main boom D. (See Figs. 1, 3.) The stirrups *f* have rollers *f'*, to ease and facilitate moving the extension F (in or out) from the main boom.

To operate the extension F the following means are provided: One end of a rope, *g*, passes through eye at *g*¹, thence along the face of the main boom through eye at *g*², thence

down, connecting to the windlass G, which also forms part of the central post, as shown in Figs. 1, 2. This arrangement of rope is more especially to raise or extend the extension F, so as to increase the length or reach of the machine. To lower or diminish the reach, or bring the extension to original position, a similar rope, g^3 , is arranged on the opposite side, one end thereof connecting at g^4 , the inner end of the extension F, (see Fig. 3;) thence said rope passes through eye at g^5 , (see Fig. 2,) thence downward and coils on the same windlass G. As one rope, g , plays out, the other, g^3 , draws in, and thus the extension F can be readily controlled.

As apparent, by extending the extension F its full length, a great reach or height is had to raise or lower weights, also answer for the special needs of a fire-escape. As the latter the highest story or window or roof of a building can be quickly and safely got at, the reach can be swung from one point to another without changing the position of the carriage, and hose can be readily elevated and applied to the point or direction desired; also, by means of a bag suspended by rope tackle from the end of the boom, operators can be raised, and otherwise escape be afforded to remove property and save lives.

H H' are adjusting-rods, for purposes of anchoring or securing the entire apparatus firm in position. The upper end of the rod H is hinged to the collar C, so that this rod and its section H' can be brought to different points for fastening. The rod H has its face formed with teeth h , which act as holdfasts for the link employed. The rod-section H' carries at its upper end a sleeve, h^1 , and link h^2 , the former fitted to slide along the length of the up-

per rod, and the latter to engage the teeth, as just stated. It is the lower rod, H', that is spiked or enters the ground, and as extension can be made, and the lower rod adjusted to any position along the top rod, and the link be secured in any of the ratchets, the sides of the apparatus can be strongly and firmly braced and steadied.

What we claim is—

1. The combination of the carriage A, consisting of a wagon-bed, A', suspended from a crank-axle and hinged to the front axle, the vertical turn-post B, carrying a hinged hoisting-boom, D, with or without its extension-boom F, the collar C, brace-rods C', and rope or windlass parts, substantially as shown and described, as and for the purposes set forth.

2. In combination with the carriage A, its wagon-bed, carrying the turn-post B, hoisting-boom D, the collar C, brace-rods C', windlass parts to operate the boom, the adjustable anchoring-rods, consisting of sections H H', the former having teeth h , and the latter the sleeve and link, all said parts being constructed to operate in the manner and for the purposes set forth.

3. In combination with the hoisting-boom D, the extension-boom F, having stirrups containing rollers, the rope or windlass parts $g g^3$ G, and carriage A, to operate substantially as set forth.

In testimony of said invention we have hereunto set our hands.

FREDERICK MEYER.

MORITZ MEYER.

EDWARD M. STARR.

Witnesses:

WILLIAM W. HERTHEL,
AD. HERTHEL.