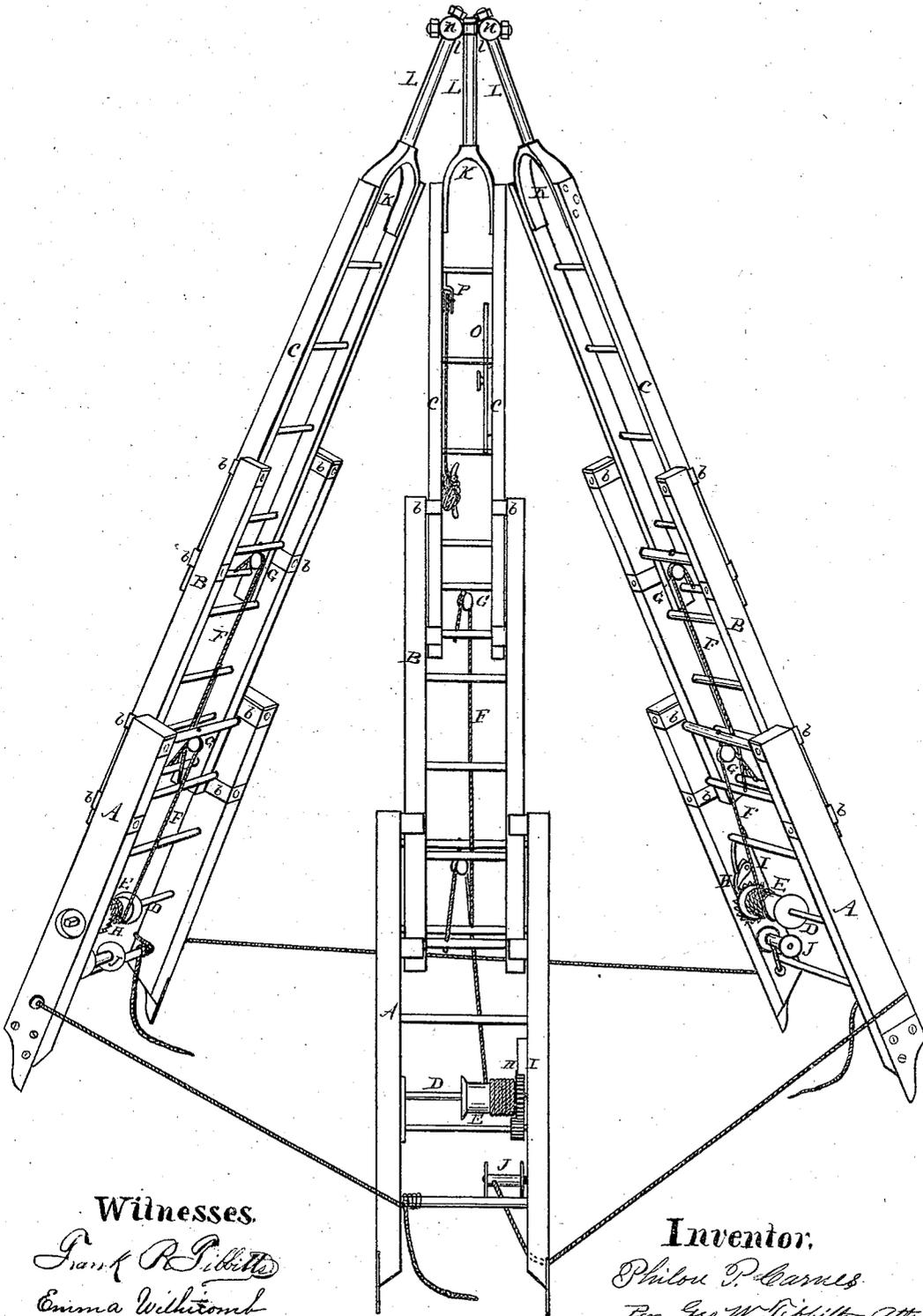


P. P. CARNES.
Firemen's Ladders.

No. 150,394.

Patented May 5, 1874.

Fig. 1.



Witnesses
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Emma Wilkison

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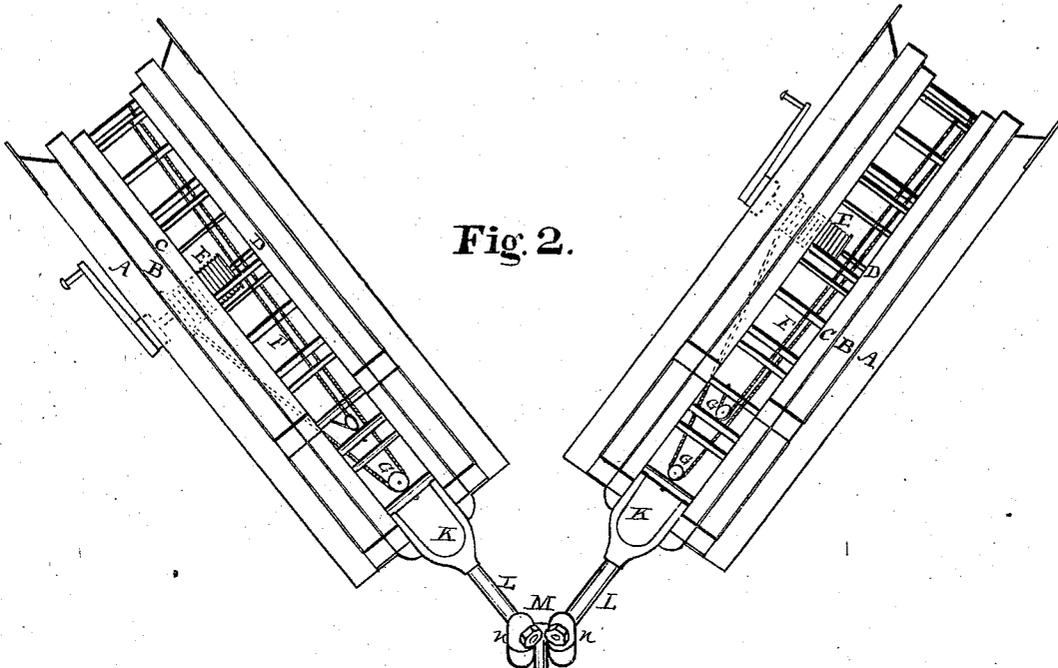


Fig. 2.

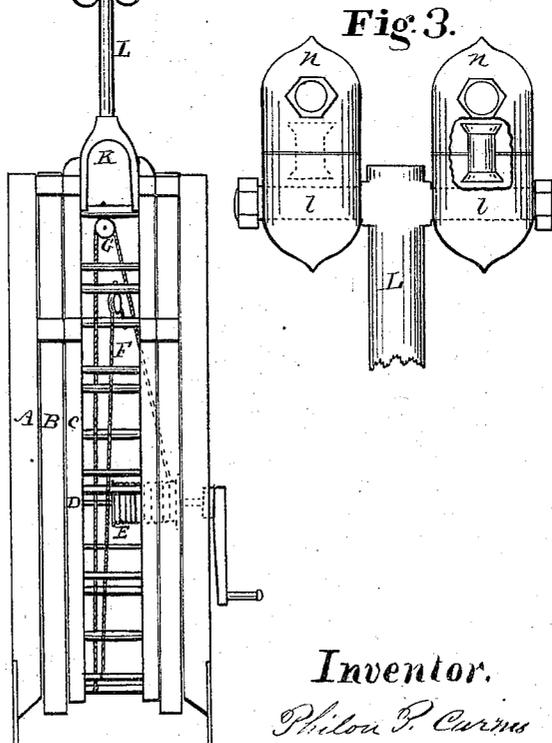


Fig. 3.

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UNITED STATES PATENT OFFICE.

PHILON P. CARNES, OF CLEVELAND, OHIO.

IMPROVEMENT IN FIREMEN'S LADDERS.

Specification forming part of Letters Patent No. **150,394**, dated May 5, 1874; application filed February 5, 1874.

To all whom it may concern:

Be it known that I, PHILON P. CARNES, of Cleveland, county of Cuyahoga and State of Ohio, have invented a Pyramidal Extension-Ladder and Hose-Elevator, of which the following is a specification:

This invention relates to a triple arrangement of extension-ladders united at the top or apex by a universal swivel-joint, and when set up forms a tripod.

The object of the invention is to supply an independent system of short section extension-ladders capable of being easily transported, quickly set up, rapidly extended, and adapted to stand on uneven ground and in narrow streets or alleys, whereby firemen may be elevated with their hose into convenient and safe positions for throwing water onto fires in upper stories of high buildings, and also it supplies a ready and easy fire-escape.

To enable others to fully and readily understand this invention, I will proceed to describe the same in detail with the aid of the accompanying drawings.

Figure 1, Sheet 1, is a perspective view of the ladders set up and extended for use. Fig. 2, Sheet 2, is a plan view of the three ladders in position ready to be extended. Fig. 3 is a detached view of the swivel-joint, enlarged to show its construction.

A A A are ladders of the ordinary construction, at the upper ends of which are attached second ladders B B B set in guide-sockets *b b* firmly secured to the rails of the ladders A A, and in which the ladders B B slide. C C C are third ladders similarly attached to ladders B B. Other ladders may be similarly attached to C C C, and so on, to enable the ladders to be extended to any required height. To the ladders A A A are attached shafts D D D carrying drums E E E, the said shafts being operated by cranks on the outside of the ladder. By means of ropes and pulleys F G and the said shaft and drum, the ladders B B C C are elevated. On the said drums E E are ratchets H H, and on the inside rail of the ladders A A are dogs I I, which play in the ratchets. These serve to keep the ladders extended. Near the base of the ladders A A on the inside are reels J J J, on which are wound ropes to be employed for

tying the bases of the ladders, as seen in Fig. 1, to prevent their spreading. At the top of ladders C C are secured yokes K K K having each an upward-projecting arm, L L L, the said arms at the top being connected with a universal swivel-joint, M. This joint is constructed as follows: One of the arms L has two arms, *l l*, making it in the form of a T, and on the arms *l l* are placed swivels *n n*. The said swivels are placed loosely on, so that they may turn, and are held on by nuts. The ends of the arms L L of the other two ladders are passed through holes in opposite ends of the swivels to those of the arms *l l*, and are secured by nuts. I propose to make the end of the swivel so as to open and close, having a spring-catch, and do away with the nut, as the nut is liable to be lost, and takes more time to adjust. At one side of the ladder C is an adjustable hose-rest, O, for the purpose of relieving the pipeman of the burden of wholly supporting the same. A sack with a rope may be employed in connection with pulley P for lowering persons or property to the ground.

The plan of operating this system of ladders is as follows: The three separate ladders A B C, when disconnected and not extended, may be easily transported on a truck like ordinary ladders, and, being short, say each section A B C to be twenty feet long, will allow a short truck to be used, and is thus capable of turning short corners and passing in narrow lanes or alleys. When arrived at a fire, the three extensible ladders are taken from the truck and placed in the position seen in Fig. 2, Sheet 2, and are all connected together at the swivel-joint, and each raised to an angle of about forty-five degrees, the foot of each ladder A having a sharp point for catching and holding in the ground. Then firemen may mount the ladders with their hose, and other men at the cranks elevate the apex of the ladders by extending the sections by means of the windlasses and ropes.

In this manner firemen with their hose may be elevated to any required height at a sufficient distance from a burning building for safety, and, if necessary, one or two of the sides of the tripod may be lowered a little, so as to tilt it over toward or against a wall.

One great advantage of this arrangement is the form of a tripod, whose base is readily adjustable correspondingly to the height, whereby it is made to stand firmly, and is easily adjusted to stand on uneven ground.

Having described my invention, I claim—
The herein-described tripod-ladder having

its sections secured together by a swivel joint and adjustable or extensible, substantially as set forth.

PHILON P. CARNES.

Witnesses:

GEO. W. TIBBITTS,
CHARLES A. STIBLE.