

(No Model.)

W. F. HIGH.

FIRE ESCAPE.

No. 316,969.

Patented May 5, 1885.

Fig. 1.

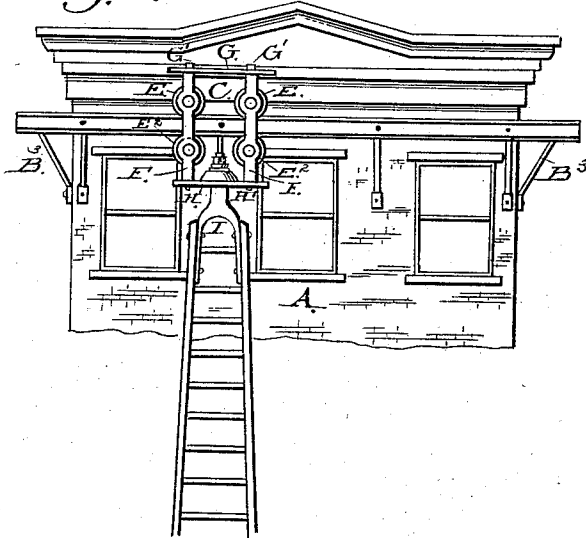


Fig. 2.

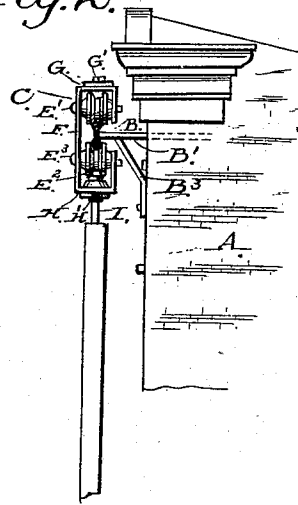


Fig. 3.

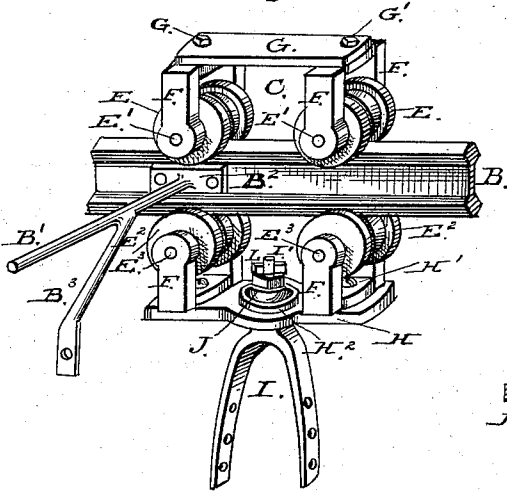


Fig. 4.

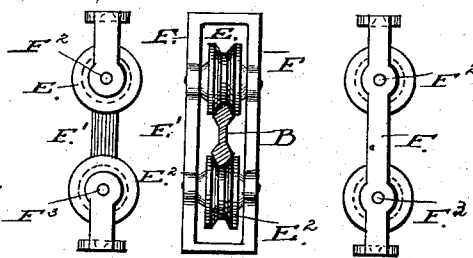
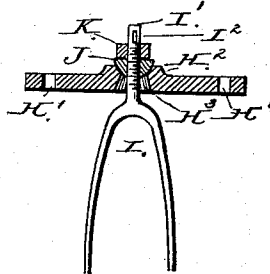


Fig. 5.



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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 316,969, dated May 5, 1885.

Application filed January 31, 1885. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM F. HIGH, a citizen of the United States, residing at the city of Reading, county of Berks, State of Pennsylvania, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification.

This improvement is more particularly related to changes in my patent of September 9, 1884, No. 304,730.

The object of the improvement is to simplify the construction and to add additional flexibility to the apparatus.

The above objects are attained in the use of the improvements shown in the accompanying drawings, similar letters in which indicate similar parts.

Figure 1 is a partial front elevation of a building, showing my improvement in place thereon. Fig. 2 is a partial side elevation of the same; Fig. 3, a reversed view in perspective of the truck detached from the building, and a portion of the rail upon which it is to run, showing the universal joint connection of the truck with the suspended ladder; Fig. 4, rear, side, and front elevations of the carriage-yoke and carrier and retainer wheels; Fig. 5, a longitudinal section of the lower connection-plate, universal joint, and ladder-iron.

A represents the building; B, the track, its section of the form shown in Fig. 3; B', supporting-iron; B², foot; B³, brace attached to the building in a suitable manner, and to the track-rail by bolts or rivets in the feet B²; C, the flexible truck as a whole; E, carrier-wheels; E', axles for same; E², retainer-wheels; E³, axles for same; F, yokes or truck ends; F', gap in rear face of same; F², bearings for carrier-wheel axles; F³, bearings for retaining-wheel axles; G, top connection; G', pivotal connection with the yokes; H, lower connection; H', pivotal connection with the yokes; H², seat for the spherical base of the ladder-suspension joint; H³, coned perforation of the seat; I, top bow of upper ladder; I', threaded stem; I², keyway; J, semi-spherical joint-piece; J', perforation for stem of ladder-bow; K, nut, and L spring-key.

The construction is as follows: The track-rail I have made of the special section shown in Fig. 3, whereby lightness and stiffness are both secured. The weight per foot lineal of

a rectangular bar, devoid of stiffness between supports, when rolled in the form of section shown, gives all the stiffness desired, and yet retains the necessary strength between supports.

I prefer to have the support B', its foot B², and brace B³ integral with each other. The supports will be introduced as often as necessary to give the track a proper support. The iron B' may be threaded at its inner end, and be passed entirely through the wall of the building, and be secured by a washer and nut, or its inner end may be bent at right angles with its vertical face, and be built within the wall as the same is being built. The foot of the brace may be secured in any convenient manner to the face of the wall.

Upon the track, as described, is mounted a flexible truck composed of two independent yokes, F, each provided with one carrying and one retaining wheel, the faces of which are grooved to conform with the top and bottom edges of the track-rail. The yokes F have their front faces, top and bottom, and portions of their rear faces in one unbroken piece. At the rear the yokes terminate just beyond the bearings for the axles of the carrying and retaining wheels, leaving a gap, F', in the yoke, which permits the easy adaptation to or withdrawal of the same from the track. This gap also enables the yokes of the carriage to pass around the building upon the track without interfering with the supporting irons or braces thereto.

To secure steadiness of movement upon the track, I combine, as in my Patent No. 304,730, September 9, 1884, two of the yokes F, as described, by a link-connection, G, at the top, pivotally connected at G', while below, instead of the swinging-jaw connection of my former patent, I make use of a link, H, provided with a central boss or seat, H², having a semi-spherical recess therein. The link is pivotally connected with the yokes at H'. A half-ball or semi-spherical washer, J, of slightly less diameter than the seat, is perforated to slip over the stem I' of the ladder-bow I, and rests within the seat H². The base of the seat is perforated with a coned perforation.

The yokes are passed over the track and the carrier and retainer wheels put in place and the connecting-links G and H attached. The

ladder has its bow-stem I' inserted from below through the semi-spherical seat. The washer J is slipped over the stem and dropped into the seat H². The nut K is then run down upon the thread until the keyway I³ is exposed, when a spring-key, L, is inserted, and the truck is ready to be moved as desired upon the track.

It is desirable to have the ability to change the position of the ladder of an outside fire-escape at an angle to the right or left of a vertical line through its point of suspension, and with the rungs or rounds of the ladder at right angles with, instead of parallel with, the face of the building, as usually suspended from or attached thereto. This my semi-spherical joint enables me to do. The ladder may be revolved on its axis of suspension in any direction, and the coned perforation of the seat at H³ permits the placing of the ladder at any reasonable angle across the face of the building.

Inmates of a building, particularly females, invalids, and elderly persons, will much more readily attempt the descent of a ladder the rungs of which are lying at right angles with the face of the building, and in which the consecutive rungs, instead of falling vertically under each other, lie successively upon an inclined plane.

The ladder, with this arrangement of flexible truck and universal swiveling joint, may be constructed of a length sufficient, when vertically suspended, to reach the ground. The lower end, when not in service, may be drawn

up from the ground to prevent the use of the same by thieves, particularly if drawn up with its face or rungs parallel with the plane of the building.

This improvement in the form of the truck-connection with the ladder and the track permits a much closer location of the track to the building, and thereby increases the strength of the supports.

Having shown my improvement, its construction, adaptation, and use, I desire to secure by Letters Patent the following claims thereon:

1. In combination with a track-rail as described, a flexible carriage, C, provided with carrier and retainer wheels adapted to said rail, and provided with a lower link-connection, H, having pivotal connection with the yokes F at H', and a central semi-spherical seat, H², cone perforated at H³, with a semi-spherical joint-piece, J, adapted to said seat for the purpose substantially as declared.

2. In combination with a flexible fire-escape truck as described, shown, and for the purpose declared, the joint-piece J, seat H², cone perforation H³, stem I', nut K, and key L of a ladder-bow iron I, whereby the ladder attached thereto may be suspended vertically, swung to either side, and be made to lie with its rungs parallel with or at right angles to the face of the building, as set forth.

WILLIAM F. HIGH.

Witnesses:

THOMAS P. KINSEY,
F. PIERCE HUMMEL.