L. DAN.

PORTABLE FIRE ESCAPE.

APPLICATION FILED DEC. 27, 1912.

1,085,097.

Patented Jan. 20, 1914.

2 SHEETS—SHEET 1.

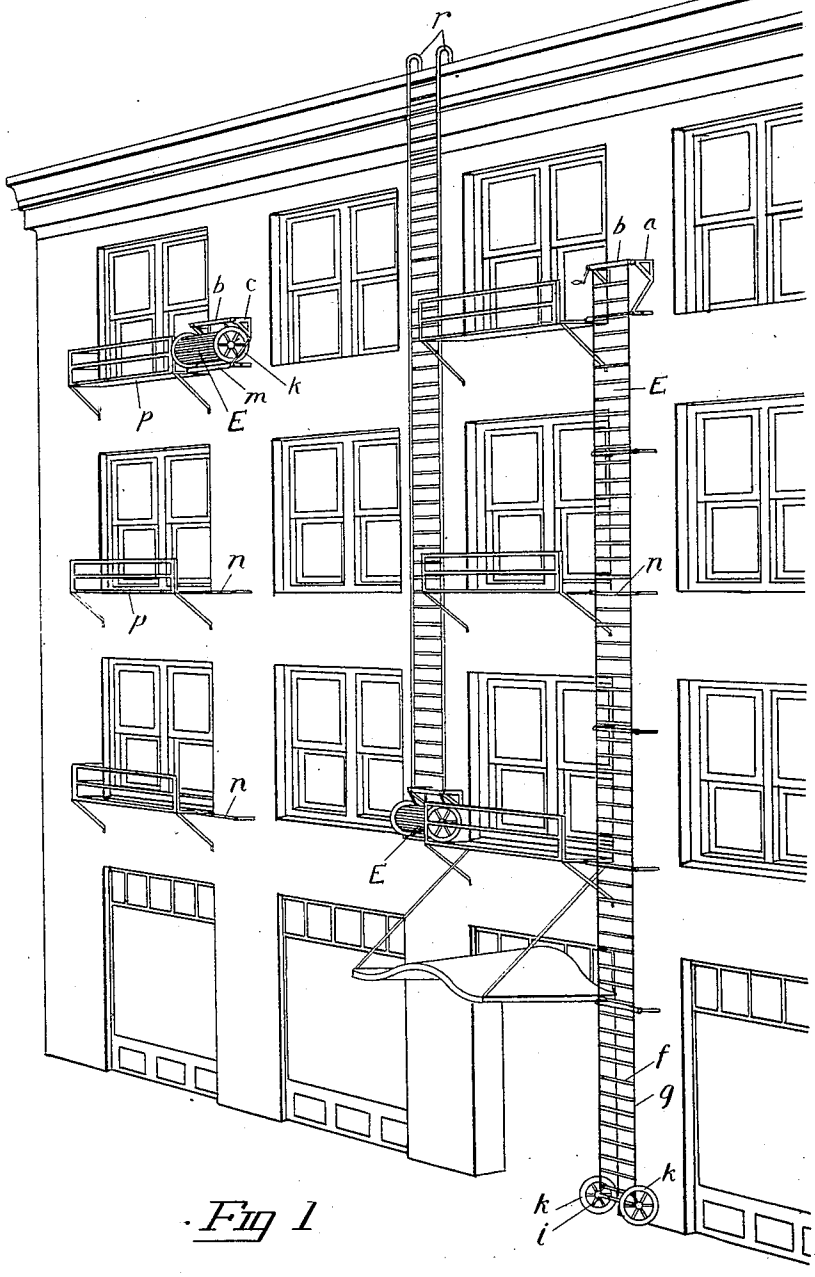


Fig 1

WITNESSES:

Wm. F. Schmitt

Cecil Long

INVENTOR

Leung Dan

BY J. J. Geisler

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

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PORTABLE FIRE ESCAPE.

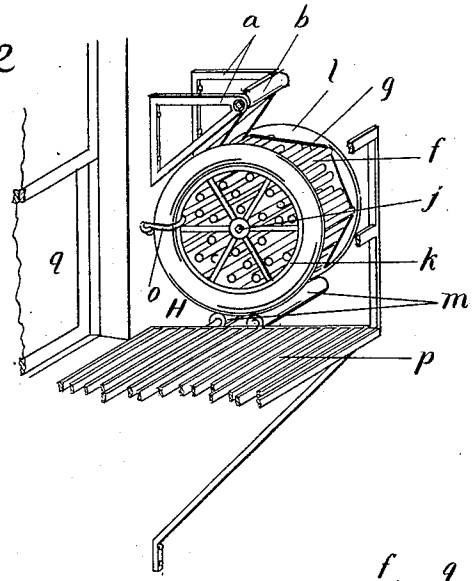
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2 SHEETS—SHEET 2.

Fig 2



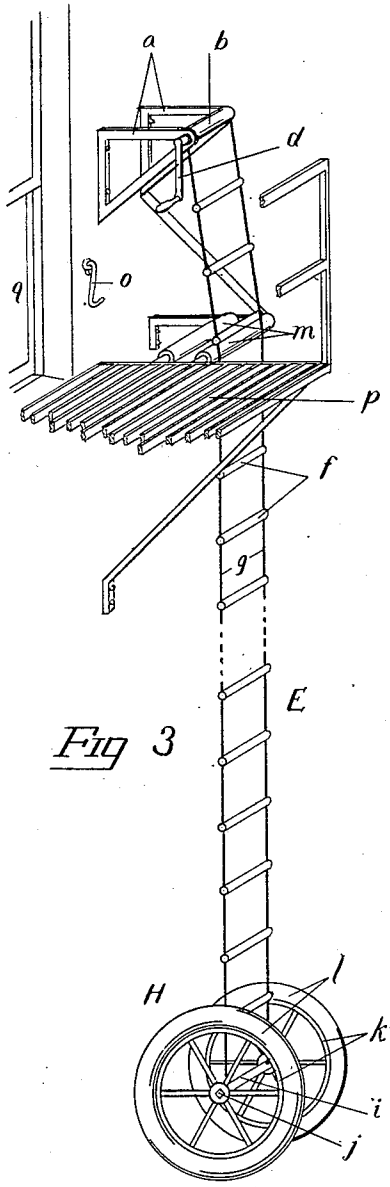


Fig 3

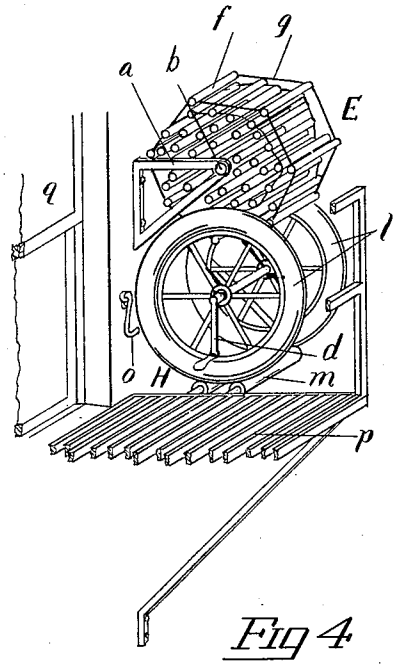


Fig 4

WITNESSES:

Wm. F. Schmitt

Cecil Long

INVENTOR

Lung Dan

BY

J. Geisler

ATTORNEY

COLUMBIA PLANOGRAPH CO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

LUNG DAN, OF PORTLAND, OREGON.

PORTABLE FIRE-ESCAPE.

1,085,097. Specification of Letters Patent. Patented Jan. 20, 1914.

Application filed December 27, 1912. Serial No. 738,962.

To all whom it may concern:

Be it known that I, LUNG DAN, a citizen of the Republic of China, and a resident of Portland, county of Multnomah, and State of Oregon, have invented a new and useful Improvement in Portable Fire-Escapes, of which the following is a specification.

This invention relates to fire-escapes, particularly to that type adapted for temporary installation.

In the modern construction of buildings, it is found to be too expensive to build fire-escapes from each individual window, but by not having such fire-escapes a certain element of danger is introduced, for the fire-escape may be located in that part of the building in which the fire is already fiercely burning, and hence bars escape.

The main object of my invention therefore is to provide an inexpensive fire-escape which may be installed by the individual tenant of a building at some position convenient to his room, and which may later be readily moved by him to any other building. I have also so constructed and arranged my device as to adapt it for use on any building.

I attain my objects by a reeled-up flexible fire ladder constructed, arranged and used as hereinafter fully described.

In the accompanying drawings: Figure 1 is a perspective view of a building showing my invention used in connection therewith; this view further illustrates the positions assumed by the parts comprised in my invention when the latter is in its inoperative state, and when in its operative state as in a case of fire; Fig. 2 is a detailed perspective view showing the arrangement of my device when it is reeled up out of the way, that is to say, the flexible ladder has been wound on the shaft of the reel and the latter is supported in such a position that it may be instantly dropped down, causing the flexible ladder to unwind and become extended; Fig. 3 is a perspective view showing my device as appearing after the ladder has been dropped down ready for being used by a person escaping from the building through the window near which my device is located; and Fig. 4 is a perspective view showing the device at another phase; as here shown the ladder is reeled up on the rotatable shaft, and in order that the device will be arranged as shown in Fig. 2, it will be necessary for the ladder to be afterward rewound on the shaft of the reel.

A pair of brackets, *a*, affixed to the face of a building, A, supports a rotatable shaft *b*, the latter being provided with a squared end, *c*, for receiving a crank, *d*, to rotate the shaft. A flexible ladder, E, is fastened to the shaft, *b*, so that when the latter is rotated the ladder will be wound thereon, and when unwound the ladder will be suspended from the shaft. The rungs, *f*, of this ladder are preferably made of some light, stiff material, wood, for example, and the stiles, *g*, are made of a flexible material—rope or cable—which permits being easily wound on a shaft of small diameter.

A reel, H, is attached to the lower end of the ladder E, said reel consisting of a shaft *i*, having one end, *j*, squared in a manner for receiving a crank, similarly to the end, *c*, of the shaft *b*. A pair of wheels, *k*, are rotatably mounted on the ends of the shaft *i*, and the wheels are provided with pneumatic tires, *l*, serving as shock absorbers when the reel strikes against an obstruction. The weight of the wheels of the reel also serves to aid in holding the ladder extended after having been dropped. A mere weight in other than wheel form would not efficiently answer, for such other form of weight might get caught on a projection of the building.

A pair of rollers, *m*, are located beneath the shaft *b*, and auxiliary rollers, *n*, located at intervals in alinement with the rollers *m*, keep the suspended ladder, E, spaced from the wall of the building. The rollers, *m*, also serve as a support for holding the reel, H, when the ladder is wound up, and the rollers, *n*, also act as roller bearings which the ladder runs on while being rewound after having been dropped.

A hook, *o*, attached to some fixed point, as shown in Figs. 2, 3 and 4, may be provided for holding the reel, H, in place on the rollers *m*. The crank, *d*, is arranged to fit the ends of both the shaft *b* and the shaft *i*, and may be kept in some convenient place near the window.

When the device has been reeled upon the shaft *b*, and is arranged as shown in Fig. 4, the crank, *d*, is applied to the shaft, *i*, of the reel H. The wheels, *k*, will now serve as a bearing, permitting the shaft, *i*, to be revolved, thereby rewinding the ladder on said reel, and re-arranging my device as shown in Fig. 2.

A common form of fire-escape platform is represented by *p*.

The action of my device is as follows: In case of fire and the tenant seeks to escape from the building through the window designated by *q*, he would step upon the platform fire-escape *p*, disengage the hook, *o*, from the reel H (see Fig. 2) and push the latter off its supporting rollers *m*. Because of the manner in which the ladder is wound on the reel H, the former will be unwound its full length (see Fig. 3) and hang from the shaft, *b*, in position for the person to descend from the platform *p* to the ground. The pneumatic tires on the reel will prevent the ladder from being injured by swinging against the wall.

I prefer to locate my fire escape between two windows, so as to be accessible from either window.

Instead of fastening my fire-escape at one end to a shaft, as *b*, it may be provided with scaling hooks, like *r*, in Fig. 1. The reeled-up ladder would in such case be located on the roof and rolled to and dropped from that side of the building where an escape is to be provided. A portable ladder of this type should be provided on all larger buildings for emergencies.

I claim:

1. In a fire-escape comprising a flexible ladder suspended from a winding shaft and bearing on its lower end a reel; means supporting the reel, such means adapted to permit the reel to be rotated in place on its axis, whereby the ladder is unwound from the winding shaft and rewound on the axle of the reel for the purpose set forth.

2. In a fire escape for buildings the combination of a winding element, a flexible ladder supported at its upper end from the latter, a reel consisting of an axle having wheels at its ends, such reel attached to the lower end of the ladder, and supporting means for such reel adjacent said winding element, such supporting means adapted to permit the reel to be rotated in place on its axis, to thereby unwind the ladder from the winding element and wind the same on the axle of the reel for the purpose set forth.

3. In a fire escape for buildings the combination of a winding element, a flexible ladder supported at its upper end from the latter, a reel consisting of an axle having wheels at its ends, such reel attached to the lower end of the ladder, and a pair of parallel rotatable rods located adjacent the winding element for supporting said reel so that the latter may be rotated in place on its axis, to thereby unwind the ladder from the winding element and wind the same on the axle of the reel for the purpose set forth.

LUNG DAN.

Witnesses:
CECIL LONG,
LEM C. SCHMITT.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."