J. J. SHAULES.

FIRE ESCAPE.

APPLICATION FILED APR. 27, 1914.

1,125,918.

Patented Jan. 19, 1915.

3 SHEETS—SHEET 1.

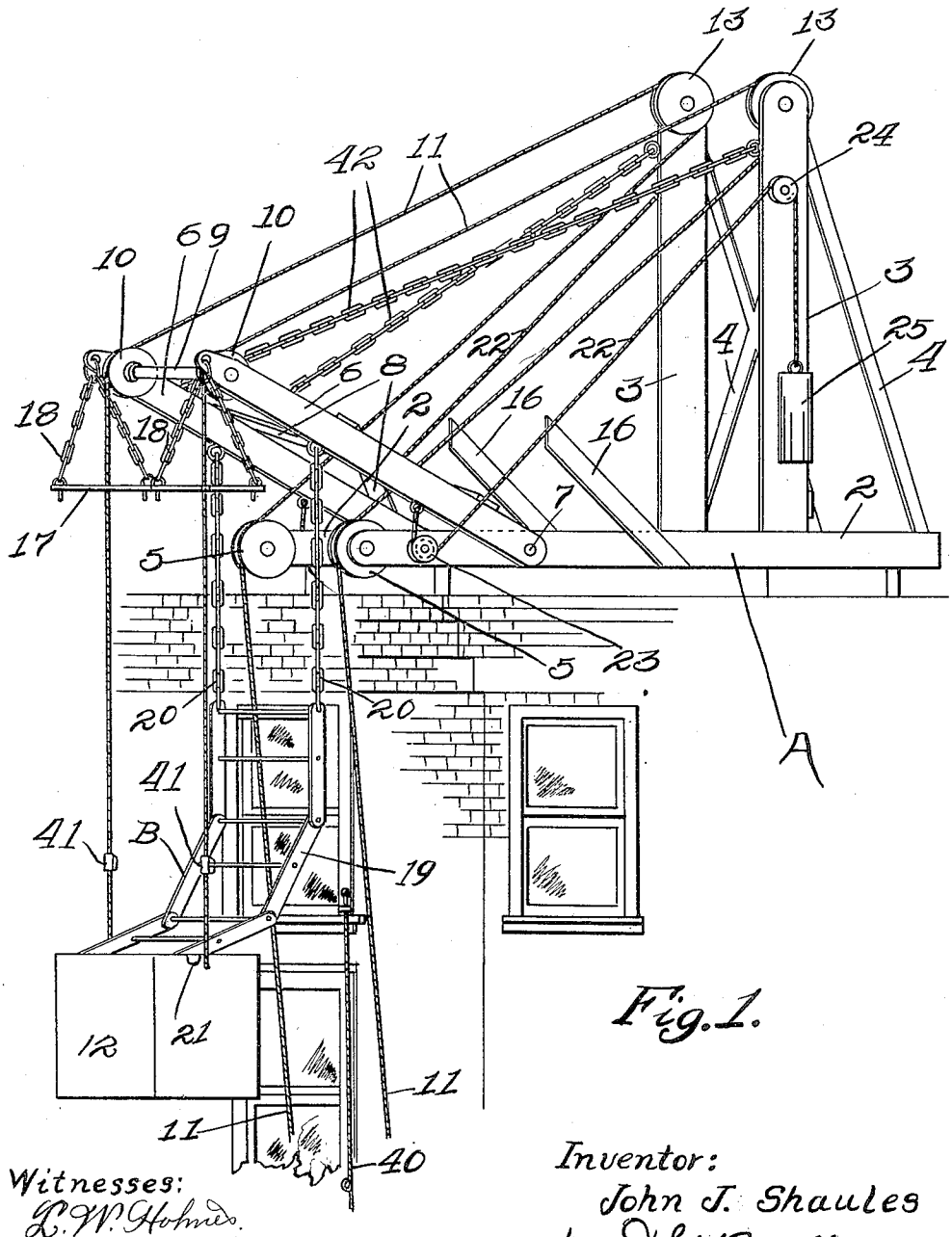


Fig. 1.

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L. W. Holmes.
Stella L. Waschenberger

Inventor:
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THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C

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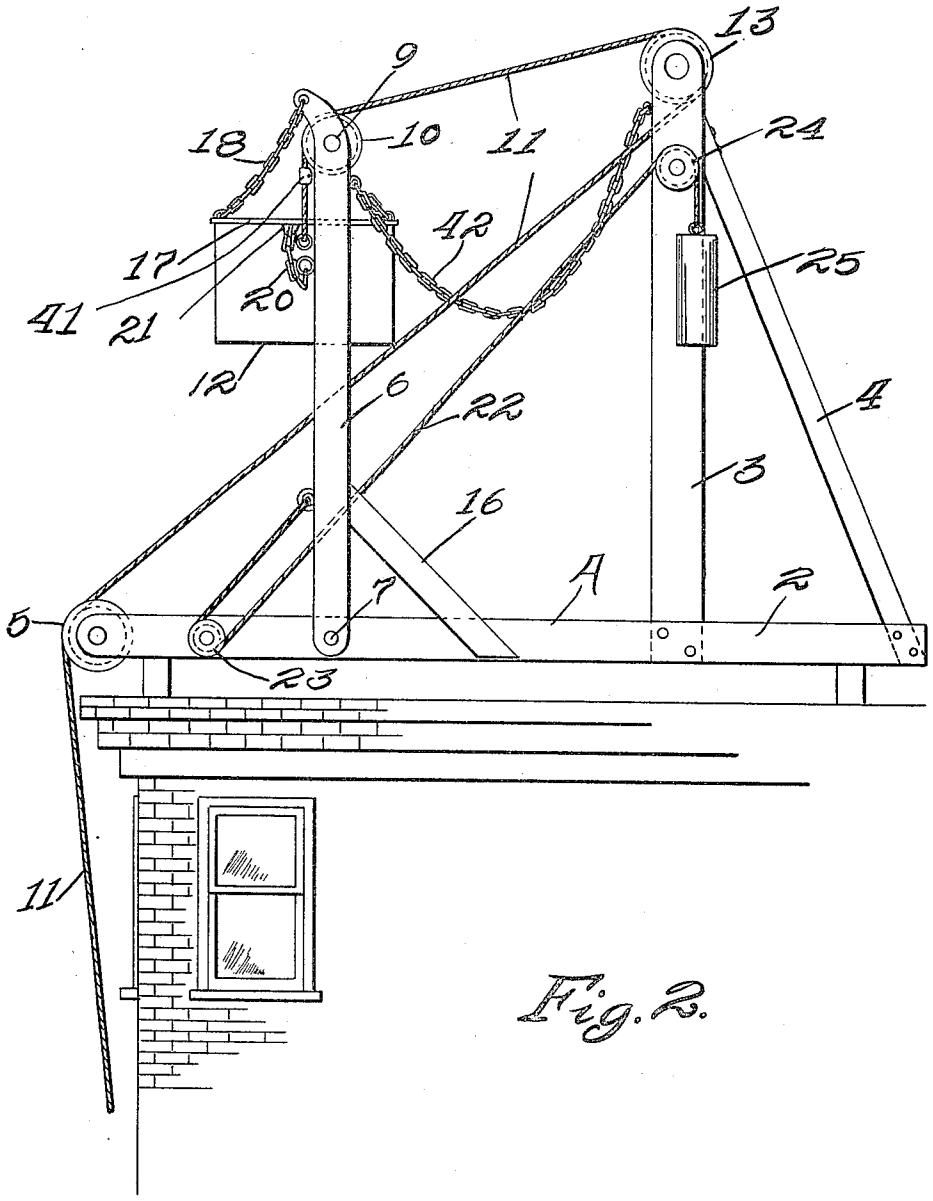


Fig. 2.

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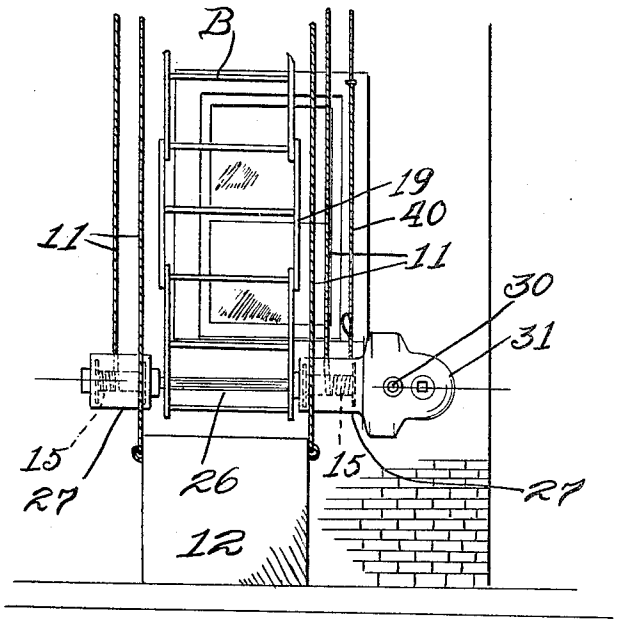
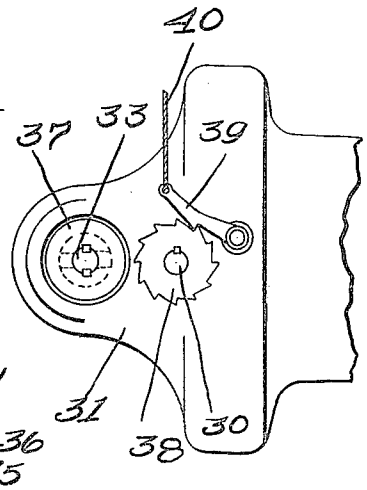


Fig. 3.



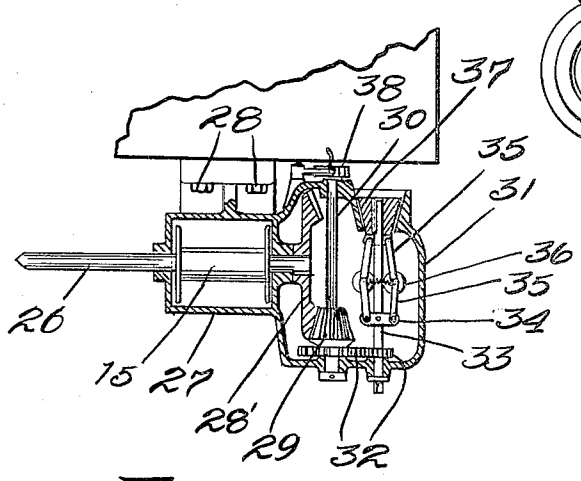


Fig. 4.

Fig. 5.

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UNITED STATES PATENT OFFICE.

JOHN J. SHAULES, OF ST. PAUL, MINNESOTA.

FIRE-ESCAPE.

1,125,918. Specification of Letters Patent. Patented Jan. 19, 1915.

Application filed April 27, 1914. Serial No. 834,686.

To all whom it may concern:

Be it known that I, JOHN J. SHAULES, a citizen of the United States, residing at St. Paul, in the county of Ramsey and State of Minnesota, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification.

The primary object of this invention is to provide a fire escape, which is adapted to hold a ladder in collapsed condition when not in use, and which is easily and quickly operated to extend the ladder in position to instantly provide means for saving life.

My invention also provides means for raising fire hose upon buildings and is movable back out of the way and substantially out of sight on a building when not in use.

These functions are performed by my invention in an efficient manner by inexpensive and strong construction.

In the accompanying drawing forming part of this specification, Figure 1 is a perspective of my invention illustrating the portion of the apparatus which is applied to the upper portion of the building; Fig. 2 is a side elevation of the structure illustrated in Fig. 1 when the parts are in superior position; Fig. 3 is a front elevation of the lower portion of the apparatus forming part of my invention, which is adapted for application to the lower portion of a building within easy reach; Fig. 4 is a section of a detail illustrating the drum and its coöperating mechanism which is employed near the lower portion of the building for winding and unwinding cables for supporting the jib, and Fig. 5 is a side elevation of a detail illustrating part of the drum mechanism.

In the drawings, A indicates a crane having a pair of horizontal base supports 2—2, and a pair of vertical masts 3—3 mounted upon said supports and braced and cross-braced by the bars 4. This structure is adapted to be securely erected upon the top of a building with the ends of the base supports projecting over the side as illustrated in Fig. 1, and provided with sheave pulleys 5—5. Near the ends of the base supports are a pair of arms 6—6 positioned in parallel relation and evenly spaced apart, said arms being journaled by bolts 7 passing through a pair of their ends on the base supports and cross-braced by the timbers 8. This structure forms a jib, which is free to swing out over the side of the building when the fire escape is in use, and to swing back out of the way when not in use, the two positions being illustrated respectively in Figs. 1 and 2. The outer end of the jib is provided with a shaft 9, which is journaled in the ends of the arms 6—6, and carries a pair of sheave pulleys 10—10, over which a pair of cables 11—11 are free to travel. The outer ends of these cables 11—11 are attached to a ladder holding bucket 12, the ladder being adapted to be raised and lowered alongside of the building, and near the windows, so that occupants of the building may use the ladder as a means for descending to the ground in case of fire. The upper ends of the masts carry a pair of sheave pulleys 13—13 over which the cables 11—11 travel, said cables being carried down over another pair of sheave pulleys 5—5 on the outer ends of the base supports, and thence down and around a pair of drums 15—15, which are located within reach of the ground for winding and unwinding the cables and raising and lowering the bucket. A pair of stop arms 16—16 are secured to the base supports in the path of the upward movement of the jib arms 6—6, said stop arms serving to limit the movement of the jib arms when they are raised into vertical and superior position. Chains 42 crossed between their ends and secured to the arms 6—6 and masts 3—3 limit the downward movement of the jib arms and steady them laterally. When the cables 11—11 are wound upon the drums 15—15, the bucket 12 is raised until the cover 17 which is suspended from the outer ends of the jib arms by the chains 18 close the bucket, whereupon the continued winding of the cables owing to stops 41 on the cables 11 striking against the sheaves 10—10 and refusing to travel over the sheave pulleys causes the jib to be raised into superior position by the cables 11—11, leaving the bucket swinging freely between the jib arms, (see Fig. 2). The cover 17 is adapted to seal and protect the contents of the bucket from wet and moisture when the apparatus is not in action.

A ladder B composed of hinged sections 19 is folded into the bucket and is connected by the chains 20 to the jib arms 6—6, so that as the bucket is lowered, the ladder is unfolded clear of the bucket, and caused to hang in front of the windows alongside of the building, leaving it free for use by those

desiring to descend from the building to the ground. The bucket is formed with openings 21 to admit the chains 20 which are connected to the ladder and the jib arms, when the bucket is closed by the cover. The jib arms having secured to them a pair of flexible cables 22—22, which travel down and around sheave pulleys 23 on the outsides of the base supports 2—2, and over another pair of sheave pulleys 24 on the outsides of the upper ends of the masts 3—3. The free ends of these cables are secured to weights 25, having the function of pulling the arms down into position overhanging the side of the building as illustrated in Fig. 1 from vertical position when the cables 11—11 are unwound from the drums 15—15. The act of winding the cables on the drums and raising the jib also raises the weights 25 into superior position.

The winding drums and their immediately coöperating parts may be of any suitable construction desired, that illustrated consisting of a common shaft 26, on which the drums are mounted, said shaft being journaled in suitable casings 27 surrounding the drums and secured by the bolts 28 to the sides of the building. The end of the shaft 26 adjoining one of the drums is provided with a beveled gear 28′, the teeth of which mesh with the teeth of a bevel pinion 29 on a counter shaft 30, which is journaled in the portion 31 of one of the casings 27. This counter shaft is connected by the train of gears 32 to a governor shaft 33, said governor shaft in turn carrying a governor of any suitable design, which is adapted to control the speed at which the bucket 12 lowers, the weight of said bucket being sufficient to tilt the jib down into operative position. The governor illustrated consists of a driving member 34, to which the flexible governor arms 35 are attached, carrying governor balls 36. These governor arms are pivotally attached to a cone 37, the surface of which is adapted to impinge against the conical surface of part 31 of the casing 27. The friction of the cone 37 against the conical surface of the part 31 of the casing is adapted to control the speed at which the bucket 12 lowers. A ratchet wheel 38 mounted upon the counter shaft 30 coöperates with a dog 39, the latter being adapted to engage the teeth of the ratchet wheel to hold the drums 15—15 stationary, and the bucket 12 at any elevation desired. This engagement also serves to hold the drums stationary and the jib with the bucket in superior position when out of use. The dog 39 is connected to an operating cable 40, which is carried up alongside of the windows on the building, and secured by its upper end to the building, leaving it within easy reach of anyone in the building for the purpose of releasing the dog 39 from engagement with the ratchet wheel 38, and starting the apparatus to operate. The remainder of the operation is entirely automatic, the jib and bucket lowering slowly and at a steady speed, leaving the ladder B hanging from the jib within reach of the ground. The weight of ladder, jib, bucket and weight 25 is sufficient to hold the jib down until the bucket is raised and the stops 41 impinge against the sheaves 10. When the ladder has been unloaded from the bucket and hangs freely from the jib, the bucket is entirely free for use independent of the ladder. A handle not shown is adapted to be attached to the end of shaft 33 to turn said shaft and raise and lower said bucket and operate said jib.

In accordance with the patent statutes, I have described the principles of operation of my invention, together with the apparatus, which I now consider to represent the best embodiment thereof, but I desire to have it understood, that the construction shown is only illustrative, and that the invention can be carried out by other means and applied to uses other than those above set forth within the scope of the following claims.

Having described my invention, what I claim as new and desire to protect by Letters Patent is:—

1. A fire escape for use on the exterior of a building, comprising, in combination, a frame adapted to be arranged on the upper portion of a building, having a mast and a laterally extending support adapted to project over the side of the building, a jib hinged on said support and adapted to swing out over the side of the building or back from overhanging position, sheaves arranged on the outer extremities of said support and jib and on the upper extremity of said mast, a winch distanced from said frame, a line adapted to be wound upon said winch and extending over said sheaves on said support, mast and jib having a free end depending from said jib, a load carrier secured to the free end of said line, a collapsible ladder secured to the free end portion of said jib and adapted to be held in folded condition on said carrier when the ladder is in raised position and to be suspended over the side of the building when the load carrier is lowered, and means for limiting the upward movement of said line over the sheave on said jib, whereby the winding of said line on said winch moves the load carrier and the jib back from overhanging position.

2. A fire escape for use on the exterior of a building, comprising, in combination, a frame adapted to be arranged on the upper portion of a building, having a mast and a laterally extending support adapted to project over the side of the building, a jib hinged on said support and adapted to swing

out over the side of the building or back from overhanging position, sheaves arranged on the outer extremities of said support and jib and on the upper extremity of said mast, a winch distanced below said frame, a line adapted to be wound upon said winch and extending over said sheaves on said support, mast and jib having a free end depending from said jib, a load carrier secured to the free end of said line, a collapsible ladder secured to the free end portion of said jib and adapted to be held in folded condition on said carrier when the ladder is in raised position and to be suspended over the side of the building when the load carrier is lowered, means for limiting the upward movement of said line over the sheave on said jib, whereby the winding of said line on said winch moves the load carrier and the jib back from overhanging position, a stop on said winch for preventing the unwinding of said line, means extending from said stop for releasing it and a governor for controlling the operation of said winch to regulate the lowering of said jib and carrier.

3. A fire escape for use on the exterior of a building, comprising, in combination, a frame adapted to be arranged on the upper portion of a building, having a mast and a laterally extending support adapted to project over the side of the building, a jib hinged on said support and adapted to swing out over the side of the building or back from overhanging position, sheaves arranged on the outer extremities of said support and jib and on the upper extremity of said mast, a winch distanced below said frame, a line adapted to be wound upon said winch and extending over said sheaves on said support, mast and jib having a free end depending from said jib, a carrier receptacle secured to the free end of said line, a collapsible ladder secured to the free end portion of said jib and adapted to be held in folded condition on said receptacle when the ladder is in raised position and to be suspended over the side of the building when the receptacle is lowered, means for limiting the upward movement of said line over the sheave on said jib, whereby the winding of said line on said winch moves the receptacle and the jib back from overhanging position, a stop on said winch for preventing the unwinding of said line, means extending from said stop for releasing it, a governor for controlling the operation of said winch to regulate the lowering of said jib and receptacle and a cover secured to said jib and adapted to close said receptacle when the latter is in superior position.

4. A fire escape for use on the exterior of a building, comprising, in combination, a frame adapted to be arranged on the upper portion of a building, having a mast and a laterally extending support adapted to project over the side of the building, a jib hinged on said support and adapted to swing out over the side of the building or back from overhanging position, means for limiting the downward movement of said jib, sheaves arranged on the outer extremities of said support and jib and on the upper extremity of said mast, a winch distanced below said frame, a line adapted to be wound upon said winch and extending over said sheaves on said support, mast and jib having a free end depending from said jib, a carrier receptacle secured to the free end of said line, a collapsible ladder secured to the free end portion of said jib and adapted to be held in folded condition on said receptacle when the ladder is in raised position and to be suspended over the side of the building when the receptacle is lowered, means for limiting the upward movement of said line over the sheave on said jib, whereby the winding of said line on said winch moves the receptacle and the jib back from overhanging position, a stop on said winch for preventing the unwinding of said line, means extending from said stop for releasing it, and a governor for controlling the operation of said winch to regulate the lowering of said jib and receptacle.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses.

JOHN J. SHAULES.

Witnesses:
STELLA L. WASCHENBERGER,
L. W. HOLMES.

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