No. 686,458. Patented Nov. 12, 1901.

I. R. JOHNSON.

FIRE ESCAPE.

(Application filed May 31, 1901.)

(No Model.) 3 Sheets—Sheet 1.

Fig: 1.

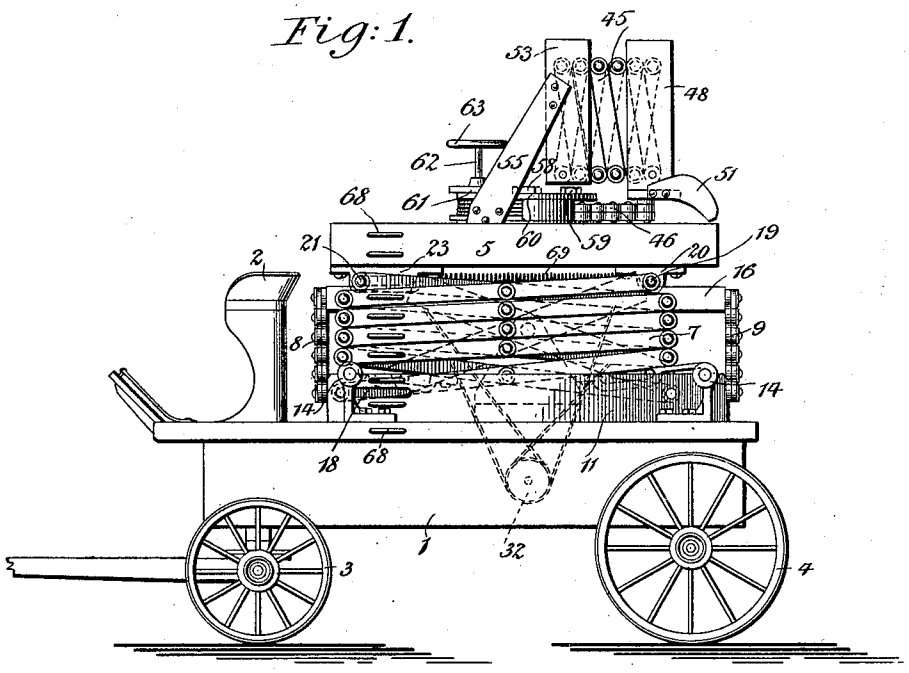
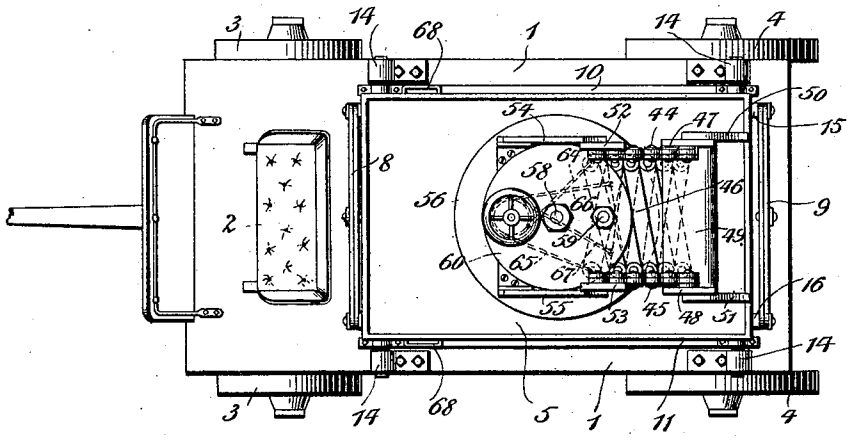


Fig: 2.



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

No. 686,458. Patented Nov. 12, 1901.

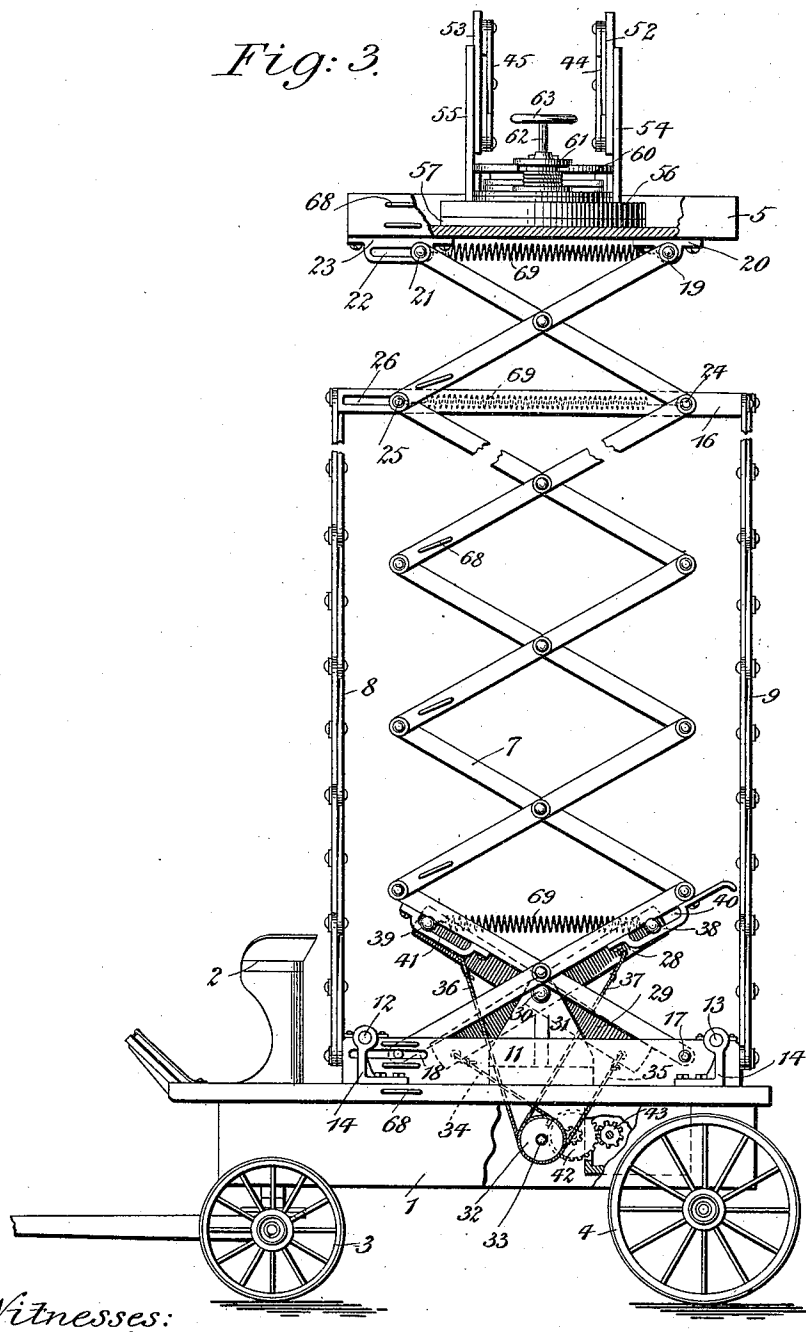
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(No Model.) 3 Sheets—Sheet 2.

Fig: 3.



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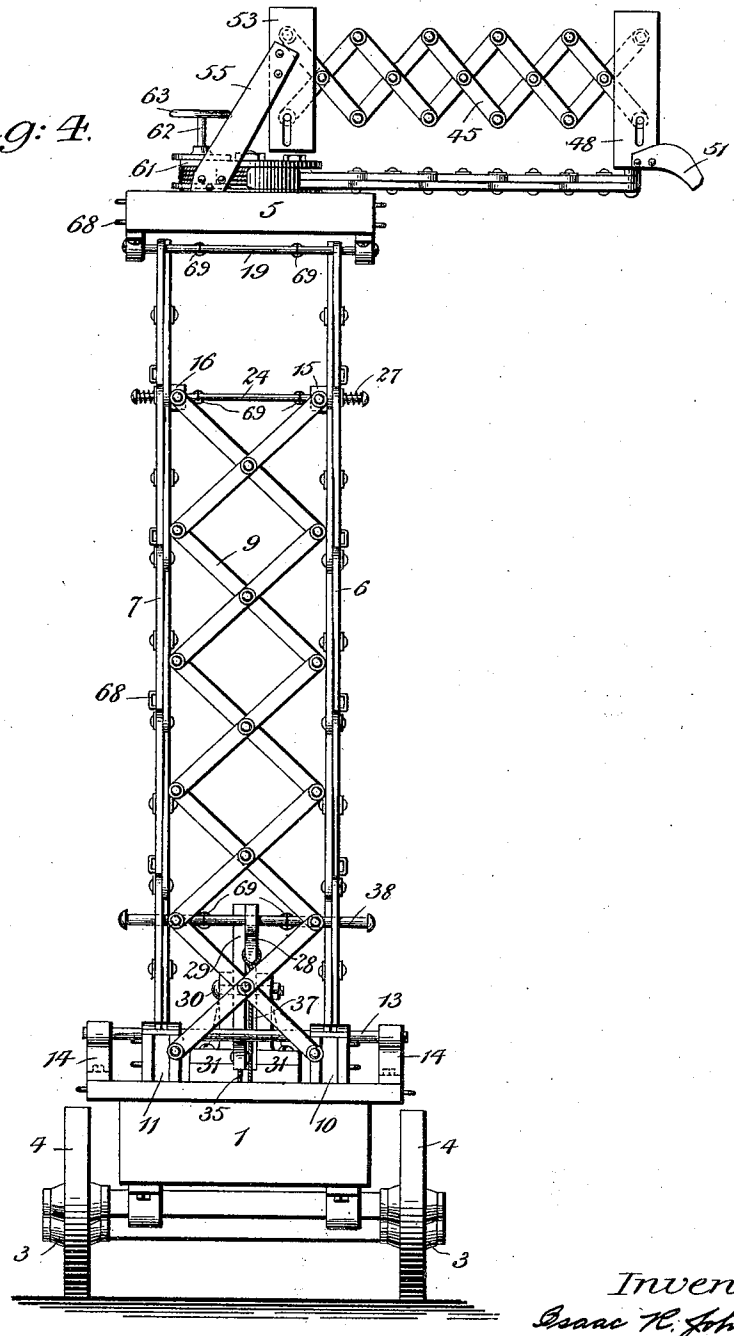
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FIRE ESCAPE.

(Application filed May 31, 1901.)

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Fig. 4.



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UNITED STATES PATENT OFFICE.

ISAAC R. JOHNSON, OF NEWPORT, RHODE ISLAND, ASSIGNOR OF FIFTY-ONE ONE-HUNDREDTHS TO HENRY WINTHROP GRAY, OF NEW YORK, N. Y.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 686,458, dated November 12, 1901.

Application filed May 31, 1901. Serial No. 62,452. (No model.)

To all whom it may concern:

Be it known that I, ISAAC R. JOHNSON, a citizen of the United States, and a resident of Newport, in the county of Newport and State of Rhode Island, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification.

My invention relates to an improvement in fire-escapes, and has for one of its objects to provide a fire-escape which is mounted on wheels and which comprises a suitable supporting-base, a platform, and interposed series of extension-levers, consisting of two side series so connected that they will form a rigid support for the platform in its various extended positions.

A further object is to provide a fire-escape having a suitable supporting-base, a platform, interposed series of extension-levers, a turn-table mounted on the platform, and an extension-bridge carried by the turn-table, so that the bridge may be extended from the platform in any desired direction.

A further object is to provide a fire-escape of the above character in which the weight of the platform, its turn-table, and extension-bridge carried thereby is substantially counterbalanced by means of springs engaging the extension-levers.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Figure 1 represents the fire-escape mounted on a truck, the several parts being in their contracted or closed positions. Fig. 2 is a top plan view of the same. Fig. 3 is a side view of the same with the parts at substantially the limit of their extended positions. Fig. 4 is a rear view of the escape, the bridge being shown extended to one side of the escape.

The supporting-base for the fire-escape is shown in the accompanying drawings as consisting of a suitable truck having a body 1, the usual seat 2, and front and rear wheels 3 and 4.

The platform of the fire-escape is denoted by 5 and is here shown as of rectangular form, with a sufficient floor-space to accommodate a number of persons. Four series of extension-levers of the lazy-tongs type are shown as interposed between the truck-body 1 and the platform 5. The two side series of extension-levers are denoted, respectively, by 6 and 7, and the two end series are denoted by 8 and 9. These levers are all connected, so as to form a rigid support for the platform in its several extended positions, in the following manner: Two longitudinal side bars 10 and 11 are fitted to slide toward and away from the sides of the truck on front and rear cross-bars 12 and 13, mounted in side brackets 14, bolted securely to the top of the truck-body 1. Two upper longitudinal side bars 15 and 16 are connected to the upper ends of the front and back series of extension-levers 8 and 9, and the lower ends of the said levers are hinged to the front and rear ends of the lower side bars 10 and 11, so that when the extension-levers 8 and 9 are extended and contracted the two sets of side bars 15 10 and 16 11 will be moved toward and away from each other, the side bars 10 and 11 being guided in their movements on the cross-bars 12 13. The lower end of one of the lower pair of levers of the series of side extension-levers 7 is hinged at 17 to the rear end of the lower side bar 11, and the lower end of the other lever of the lower pair is fitted to slide in an elongated groove 18 in the front end of the said side bar. The rear upper end of one of the upper pair of levers of the series of extension-levers 7 is hinged on the cross-bar 19, mounted in suitable bearings 20 on the bottom of the platform 5, so that the said end may slide laterally thereon. The forward upper end of the said pair of levers is fitted to slide laterally upon a cross-bar 21, which cross-bar is mounted to slide longitudinally in an elongated slot 22 in a bracket 23, carried by the platform 5. The rear lower end of one lever of the top side pair of levers and the rear upper end of one of the levers of the next succeeding pair of side levers are hinged to slide laterally on a cross-bar 24, extended through the upper side bars 15 and 16. The corresponding front ends of the levers of the said two pairs of side levers are hinged to slide laterally upon a cross-bar 25, which is fitted to slide longitudinally in corresponding elongated slots 26 in the front ends of the upper side bars 15 and 16. The said upper side bars 15 and 16 are there-

fore guided in their inward and outward movements upon the cross-bars 24 25 as the extension-levers are extended and contracted. The said cross-bars 24 and 25 may be provided with suitable springs 27, interposed between their heads and the levers for yieldingly centering the front and rear levers and their connected side levers with respect to the said bars, if so desired. The series of extension side levers 6 are connected to the side bars 10 and 15 and the platform 5 in a manner quite similar to the connection between the series of side levers 7 and the side bars 11 16 and the said platform. By the arrangement hereinabove set forth the four series of levers are so connected that they will form a rigid support for the platform in whatever position the platform may be placed, which support was movable where the lazy-tongs were all mounted on the same or parallel axes, as has hitherto been common.

The means which I employ for positively extending and contracting the levers is constructed and arranged as follows: A pair of cross-levers 28 and 29 are hinged intermediate their ends upon a stud-axle 30, carried by suitable brackets 31, secured to the truck-body 1. A spool 32 is fixed to a cross-shaft 33, mounted in suitable bearings in the truck-body, from one side of which spool lead extension-cords 34 35, connected with the lower ends of the levers 28 29, and from the other side of said spool lead contraction-cords 36 37, connected to the upper ends of said levers. The upper ends of the said levers are provided with cross-pins 38 39, fitted to travel in corresponding elongated slots 40 41 in the upper ends of the arms of the lowermost pairs of the series of the two side levers 6 and 7. The drum 32 may be rotated in either direction by applying a crank-handle to the shaft 33 or, as is more preferable, the said drum may be rotated in either direction through intermediate gearing 42, leading to a suitable motor, represented, conventionally, by 43, located within the truck-body. As the drum is rotated in one direction the levers will be extended, and as the drum is driven in the opposite direction the levers will be positively contracted should the weight of the platform not be sufficient to contract the levers when the drum is disconnected from the motor.

An extensible and contractible bridge is mounted on a turn-table located on the platform 5, so that the bridge may be extended in any direction from the said platform. The bridge and the turn-table are constructed and arranged as follows: Two series of side extension-levers 44 45 and a bottom series of levers 46 are connected at their outer ends to two side uprights 47 48 and a bottom board 49, from which the uprights project. The bottom board 49 is provided at its opposite ends with brackets 50 51, which are fitted to rest upon the sill or other projecting portion of a building to obtain a rest for the outer end of the bridge when the bridge is in its extended position. The inner end of the two series of side extension-levers are connected to uprights 52 53, supported by brackets 54 55, rigidly secured to the turn-table 56. The turn-table 56 is pivoted upon a bed-plate 57 by means of a central bolt 58. The inner pair of bottom series of extension-levers 46 are pivoted upon a bolt 59, which extends between the turn-table 56 and a top plate 60.

The bridge is positively extended and contracted by the following means: A spool 61 is fixed to a vertical shaft 62, having a suitable handle 63. This spool 61 is located between the turn-table 56 and the top plate 60. Two extension-cords 64 65 lead from one side of the spool to the inner arms of the inner pair of levers of the bottom series of levers 46, and two contraction-cords 66 67 lead from the other side of the spool to the outer arms of the said inner pair of levers, so that when the spool is rotated by the handle 63 in one direction the bridge will be extended and when rotated in the other direction the bridge will be contracted. The handle-shaft 62 being mounted on the turn-table eccentric to its pivot 58 the said shaft may be utilized in swinging the turn-table, and thereby the bridge, into any desired position with respect to the platform.

For facilitating the access to the platform I provide a plurality of ladder-rungs 68, securely fastened to the sides of the truck-body, the platform, and the side extension-levers.

To serve as a partial counterbalance to the weight of the platform and its turn-table and groove, so as to render the raising of the platform easier, I provide a plurality of counterbalance-springs 69, located in position to draw the opposite ends of the two series of extension side levers 6 and 7 toward each other.

The fire-escape constructed and arranged as above described is very rigid, thus permitting the platform to be raised to a considerable height without danger of upsetting the vehicle. The bridge may be extended in any direction from the platform because of the turn-table. The bottom of the bridge is formed by the bottom series of extension-levers, thus rendering the bridge much more compact than it has been common hitherto. Furthermore, the means for extending and contracting the several series of levers is quite simple and effective, means being employed to positively contract the levers as well as to positively extend the same.

The platform is preferably made large enough to permit several persons to be gathered thereon when so desired.

It is evident that slight changes might be resorted to in the form, construction, and arrangement of the several parts without departing from the spirit and scope of my invention. Hence I do not wish to limit myself strictly to the structure herein set forth; but

What I claim is—

1. In a fire-escape, a suitable supporting-base, a platform, front and rear series of ex-

tension-levers, upper and lower side bars separate from the base and platform and connecting the upper and lower ends of the front and rear series and two side series of extension-levers connected with the platform and the said upper and lower side bars, substantially as set forth.

2. In a fire-escape, a suitable supporting-base, a platform, front and rear series of extension-levers, upper and lower side bars separate from the base and platform and connecting the upper and lower ends of the said front and rear series, cross-bars on which the upper and lower side bars are fitted to slide laterally and two series of side extension-levers connected with the front and rear series and the platform, substantially as set forth.

3. In a fire-escape, a suitable supporting-base, a platform, front and rear series of extension-levers, side bars connected with the upper and lower ends of the levers, cross-bars carried by the base on which the lower side bars are fitted to slide, cross-bars carried by the platform and by the upper side bars and two series of side extension-levers connected at their lower ends to the lower side bars and having their upper ends fitted to slide on the cross-bars carried by the platform and at points intermediate their upper and lower ends mounted to slide laterally on the cross-bars carried by the upper side bars, substantially as set forth.

4. In a fire-escape, a suitable supporting-base, a platform, interposed series of extension-levers and means for positively extending and contracting the same comprising a pair of cross-levers having a pin-and-slot connection with certain of the extension-levers on the upper arms of the said cross-levers, a rotary spool, extension-cords leading from one side of the said spool to the lower arms of the said cross-levers, contraction-cords leading from the other side of the said spool to the upper arms of the said cross-levers, substantially as set forth.

5. In a fire-escape, a platform, a turn-table mounted thereon, an extension-bridge carried by the turn-table comprising a bottom and side series of extension-levers and means carried by the turn-table for extending and contracting the bridge comprising a spool, extension-cords leading from one side of the spool to the inner arms of the inner pair of bottom extension-levers and contraction-cords leading from the other side of the spool to the outer arms of the inner pair of bottom extension-levers, substantially as set forth.

6. In a fire-escape, a platform, a turn-table mounted thereon, an extension-bridge composed of series of extension-levers carried by the turn-table, a winding-drum mounted on a shaft eccentric to the axis of the turn-table, and extension and contraction cords connecting the levers with the drum for extending and contracting the bridge, and a handle carried by said drum-shaft for operating the turn-table and the said drum, substantially as set forth.

7. In a fire-escape, a platform, a turn-table mounted thereon, a top plate, an extension-bridge having a bottom series of extension-levers having their inner pair pivoted between the top plate and the turn-table and cords connecting the several arms of the inner pair of bottom levers with the drum whereby when the drum is operated, the bridge will be extended or contracted, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of two witnesses, this 22d day of May, 1901.

ISAAC R. JOHNSON.

Witnesses:
FREDK. HAYNES,
HENRY THIEME.