J. B. ALBERT.

FIRE ESCAPE.

APPLICATION FILED MAY 8, 1908.

942,477. Patented Dec. 7, 1909.

3 SHEETS—SHEET 1.

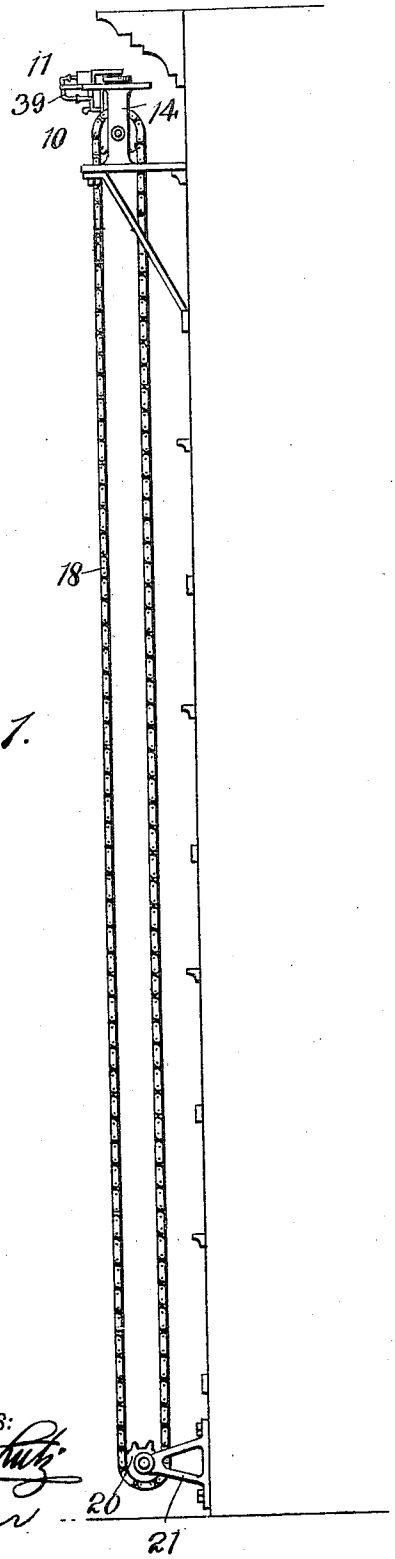
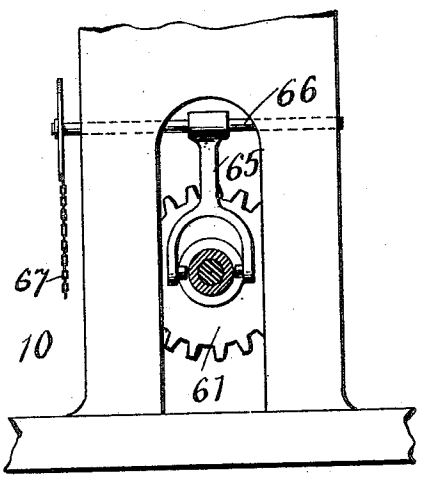


Fig. 1.

Fig. 6.



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3 SHEETS—SHEET 2.

Fig. 2.

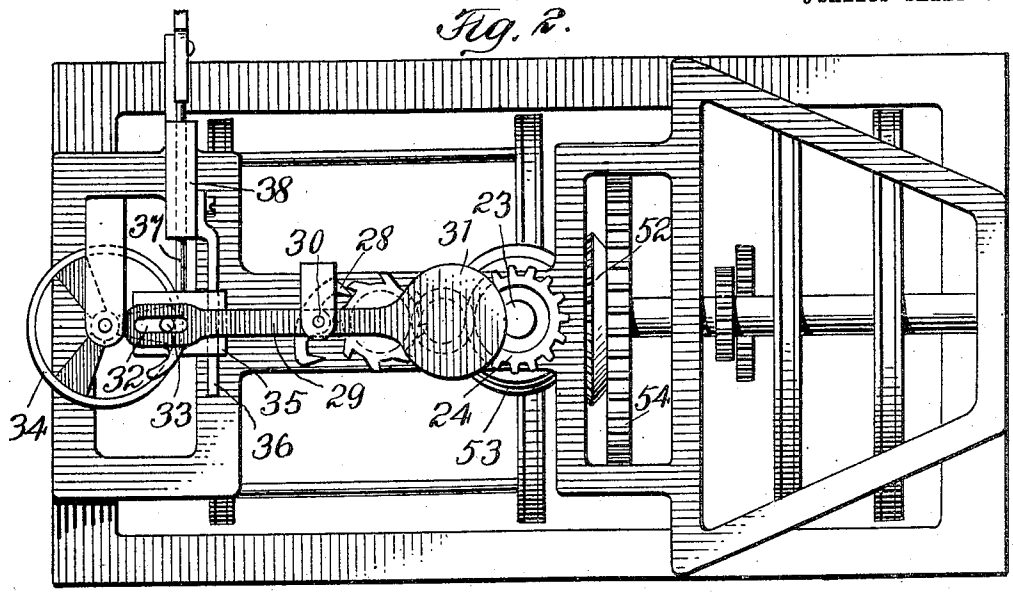
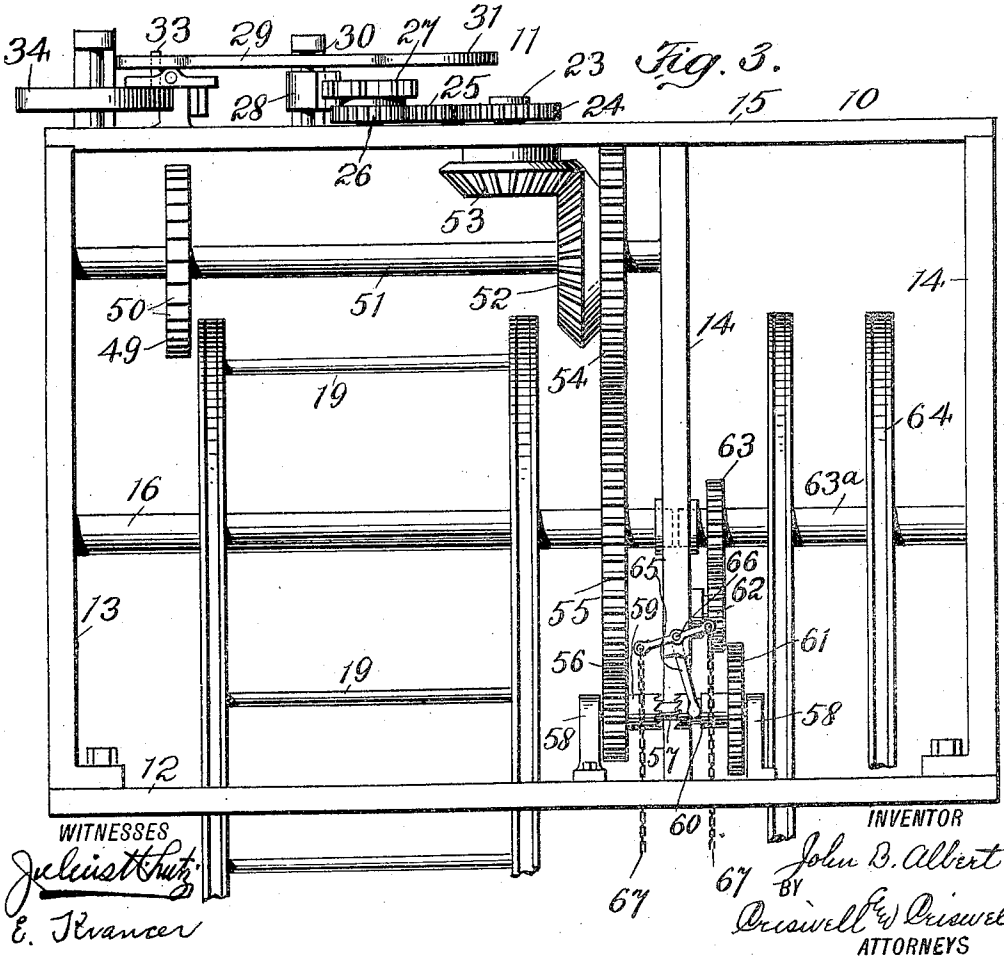


Fig. 3.



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3 SHEETS—SHEET 3.

Fig. 5.

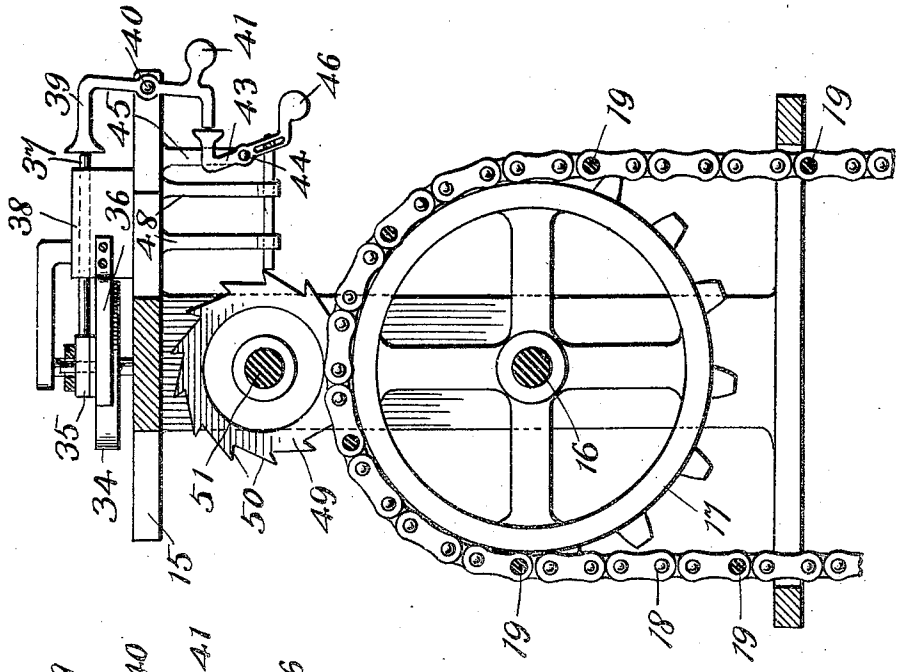
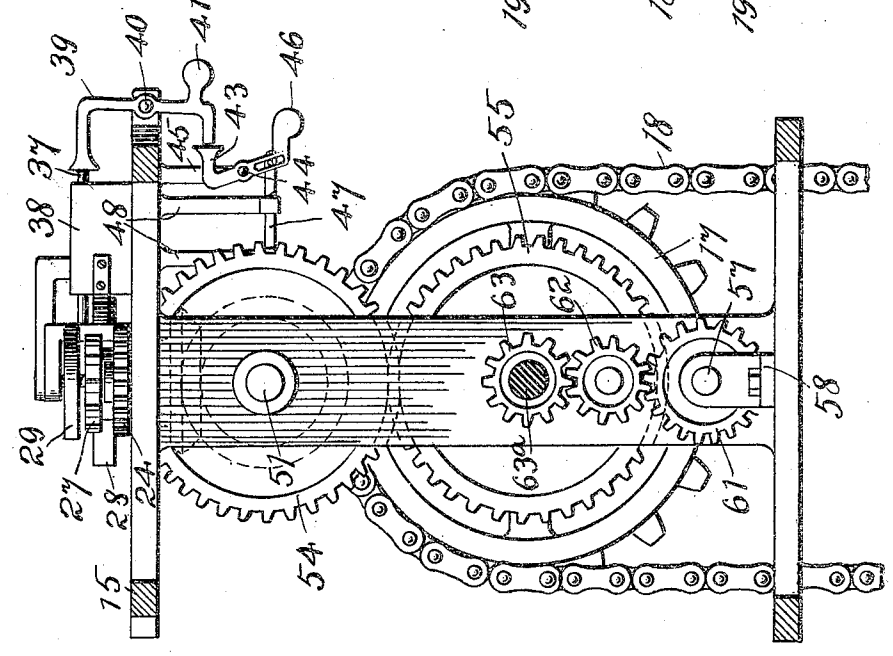


Fig. 4.



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FIRE-ESCAPE.

942,477. Specification of Letters Patent. Patented Dec. 7, 1909.

Application filed May 8, 1908. Serial No. 431,574.

To all whom it may concern:

Be it known that I, JOHN B. ALBERT, a citizen of the United States, and a resident of Bethel, county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a full, clear, and exact description.

This invention relates more particularly to a fire escape adapted to be placed upon a building and which automatically lowers a person supported thereby.

The primary object of the invention is to provide means which may extend the entire height of a building, and is so constructed that it will support a great amount of weight, and in which the movable part adapted to hold the person or persons may be made to automatically lower by the weight of the persons thereon and at a regular and uniform speed, thus avoiding the necessity of a person in danger of fire to operate or to adjust any part whatever, which often results in injury due to excitement and very often injury is likely to occur in cases of this kind.

A further object of the invention is to provide an apparatus in which a person may be elevated or raised from the ground independently or at the same time persons are being lowered as is often the case where firemen or other persons wish to ascend the building very rapidly, and to make the apparatus in such a way that the elevating means may move in opposite directions to avoid the liability of a burglar or other person using the device for the purpose of entering the building to which the apparatus is attached.

With these and other objects in view, the invention will be hereinafter more particularly described with reference to the accompanying drawings which form a part of this specification, and will then be pointed out in the claims at the end of the description.

In the drawings, Figure 1 is a side elevation, partly diagrammatic, showing how the invention may be applied to a building. Fig. 2 is a plan view, partly broken away, showing one form of controlling mechanism for regulating the speed of the lowering element or carrier. Fig. 3 is a front elevation of the mechanism shown in Fig. 2. Fig. 4 is a transverse section, partly in elevation, showing certain parts of the mechanism. Fig. 5 is a vertical section, partly in elevation, of the controlling mechanism; and Fig. 6 is a detail fragmentary view showing how two carriers may be made to work in unison.

The frame 10 of the controlling mechanism 11 may be supported at any desired location along the building and said frame may be of any suitable construction. As shown it comprises a base 12 with suitable uprights or standards 13 and 14, and above the standards or uprights 14 is a table 15. A shaft 16 is held to rotate on the standards 13 and 14 and secured to said shaft are two sprocket wheels 17 forming a drum, and around the sprocket wheels 17 are adapted to travel endless chains 18 and may be joined together by transverse rods 19 or otherwise so as to move in unison, and on said chains, which form a movable carrier or element of the apparatus may be arranged a number of platforms which are adapted to hold and support persons intending to be lowered from a building in case of a fire, though instead of platforms the said carrier may be arranged in the nature of a movable flexible ladder with the rods 19 serving as the support therefor. The carrier 18 may be of any desired length and may reach to the ground, and said carrier may pass around sprocket wheels 20 which may be supported so as to rotate in brackets 21 or in any other desired way. The chain or carrier may move continuously by means of the drums formed by the sprocket wheels, and instead of the controlling mechanism being located at the upper part of the building and the sprocket wheels 20 at the lower part thereof the reverse might take place.

The controlling mechanism may be of any desired form or construction. As shown a stud 23 is journaled in the table 15 and on said stud or shaft is a gear 24. This gear 24 is in mesh with an intermediate gear 25 and the latter gear meshes with the gear 26 on the shaft of which is an escapement wheel 27. The escapement wheel is controlled by the escapement pawl 28 as is usual in devices of this kind, and movable with the escapement pawl is a lever 29. This lever 29 is held to the same pivot as the escapement pawl 28, as at 30, and said lever has one end weighted or enlarged, as at 31 and at its other end is provided with

a slot 32 in which is adapted to move a pin 33. The pin 33 is carried by a balance wheel 34 which is suitably journaled above the bed or table 15, and said pin or projection 33 is engaged by a slotted end of a cross-head or slide 35, so that as the escapement pawl 28 is moved by the escapement wheel 27 to rock the lever 29 on its pivot the said lever will move the pin 33 and through it reciprocate the slide or cross-head 35. This cross-head 35 is adapted to move along a guide 36, and is connected to a rod 37 which is movable in a bracket 38. The rod 37 projects slightly beyond a bracket 38 and has its end arranged in the path of movement of a lever 39, and said lever 39 is pivoted at 40 and weighted as at 41 so as to cause its lower end to normally rest in the path of the end of a lever 43. The lever 43 is pivoted at 44 to a bracket 45 and has its lower end weighted as at 46, and connected to the lever 43 is a rod 47 which is slidingly held in the brackets 48 and is arranged in the path of movement of a cam or cam wheel 49. This cam wheel 49 is provided with a plurality of cam teeth 50, and as the said wheel is rotated, as will be presently described, it will successively operate the rod 47, levers 43 and 39 so as to force the rod 37 inward. This carries the cross-head to what may be called the working position, and in this position the weight on the endless lowering element or carrier will force the cross-head, by means of the lever 29 and mechanism connected therewith, so as to move the cross-head toward the bracket 38, which operation will continue so long as the endless carrier is moved.

The cam wheel 49 is secured to a shaft 51, and this shaft is provided with a bevel gear 52 which meshes with a similar gear 53 arranged on the stud or shaft 23 for operating the controlling mechanism, and movable with the gear 52 is a spur gear 54 which is in mesh with a large gear 55 arranged on the shaft 16. The shaft 16 carries the drum formed by the sprockets 17, so that as said shaft 16 is rotated by the weight of a person or persons on the endless carrier, the cam wheel 49 will be operated as well as the mechanism 11. This mechanism 11 is so constructed and arranged that the speed of the shaft 16 is absolutely controlled and no matter how much weight may be placed thereon its speed will not vary, and the mechanism is so arranged that the endless carrier or element 18 will operate the mechanism by the weight placed thereon, this latter feature serving to prevent a burglar or other person from climbing up the endless carrier.

To permit an elevating device or carrier to be operated by the other mechanism and to control said auxiliary carrier, the gear 55 may be made to mesh with a smaller gear 56 on the shaft 57, which latter is journaled in brackets 58. The gear 56 is provided with a clutch member 59 and this clutch member is adapted to be engaged by a clutch member 60 which is carried by a gear 61. The gear 61 is adapted to mesh with the gear 62, and the latter gear is in mesh with the gear 63 located on the shaft 63^a, and on said shaft is an endless carrier or element 64 which may be operated by sprocket wheels or otherwise carried by the shaft 16. A clutch lever 65 may be pivoted at 66 to the frame of the apparatus, and said clutch lever may be moved in either direction by means of chains 67 so that the auxiliary or elevating means may be operated by the main gear 55 or the said element may be operated independently thereof as desired. By providing the endless carrier 64 or other means operated by the main lowering element, a person, as a fireman, may be elevated and may control the operating mechanism by the chains or cables 67 which operate the clutch member.

While I have shown a single device, it will be understood that the shaft 16 may be extended along the front of a building and a plurality of drums or sprocket wheels arranged to operate a number of endless carriers, and that said shaft may be controlled by a single controlling mechanism, thus adapting the apparatus to operate the endless carriers adjacent to different windows; and that other changes within the scope of the claims may be made without departing from the nature or character of the invention.

From the foregoing it will be seen that an effective apparatus is provided in which one or more endless carriers may be operated and absolutely controlled automatically after being once set, so that no matter how much weight may be placed thereon, the speed of the endless carrier will remain constant and uniform; that the mechanism for the carrier is so constructed that the endless carrier or conveyer always moves downward by the weight; and that the said means for lowering may be also made to operate a supplemental carrier to convey a person to any desired height of the building instead of using ladders as is usually the case.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:—

1. The combination with an endless carrier, of a shaft having means thereon around which the carrier travels, an escapement mechanism, a plurality of gears operating said mechanism from the carrier shaft, and a lever operatively connected to the escapement mechanism and operated thereby, a balance wheel, a cross-head, a rod connected to the cross-head, and operated by the lever

in connection with the balance wheel, a lever adapted to engage the rod at one end, a cam wheel, means operated by the movement of the cam wheel to move the last mentioned lever, and means for operating the cam wheel as the carrier moves.

2. The combination with an endless carrier, of a shaft having means thereon around which the carrier travels, an escapement mechanism, a plurality of gears operating said mechanism from the carrier shaft, a cross-head, a rod connected to the cross-head, a cam wheel, means operated by the movement of the cam wheel for operating the rod in one direction, and means for operating the cam wheel as the carrier moves.

3. The combination with a carrier, of a carrier shaft, an escapement mechanism, a cam, and means operated by the movement of the cam to control the escapement mechanism as the carrier moves.

4. The combination with an endless carrier, of a shaft having means thereon around which the carrier travels, an escapement mechanism, a plurality of gears operating said mechanism from the carrier shaft, a lever operatively connected to the escapement mechanism and operated thereby, a balance wheel, a cross-head, a rod connected to the cross-head, a connection between the lever cross-head and the balance wheel, a lever adapted to engage the rod at one end, a cam wheel, and means operated by the movement of the cam wheel adapted to engage the lever and the rod in one direction as the carrier moves.

5. The combination with an endless carrier, of a shaft having sprocket wheels thereon around which the carrier travels, an escapement mechanism, a plurality of gears operating said mechanism from the carrier shaft, a lever operatively connected to the escapement mechanism and operated thereby, a rod connected to the lever, a cam wheel, means operated by the movement of the cam wheel to move said rod in one direction, and means for operating the cam wheel as the carrier moves.

6. The combination with an endless chain carrier, of a shaft having sprocket wheels thereon around which the carrier travels, an escapement mechanism, means for operating the escapement from the carrier shaft, a lever operatively connected to the escapement mechanism, a balance wheel, a cross-head, a rod connected to the cross-head, a connection between the lever, cross-head and the balance wheel, a second lever adapted to engage the rod at one end to move the same in one direction, a cam wheel, means operated by the movement of the cam wheel to engage the lever to shift the rod and cross-head, and means for operating the cam wheel as the carrier moves.

7. The combination with an endless chain carrier, of a shaft having means thereon around which the carrier travels, an escapement mechanism, a plurality of gears operating said mechanism from the carrier shaft, a lever operatively connected to the escapement mechanism, a cross-head, a rod connected to the cross-head, a connection between the lever and cross-head, a cam wheel, means operated by the movement of the cam wheel and adapted to engage said rod, and means for operating the cam wheel as the carrier moves.

This specification signed and witnessed this 6th day of May A. D. 1908.

JOHN B. ALBERT.

Witnesses:
PETER MCDONALD,
HOWARD H. WOODMAN.