P. O'THAYNE.

FIRE ESCAPE.

APPLICATION FILED MAY 2, 1908.

922,323. **Patented May 18, 1909.**

Fig. 1.

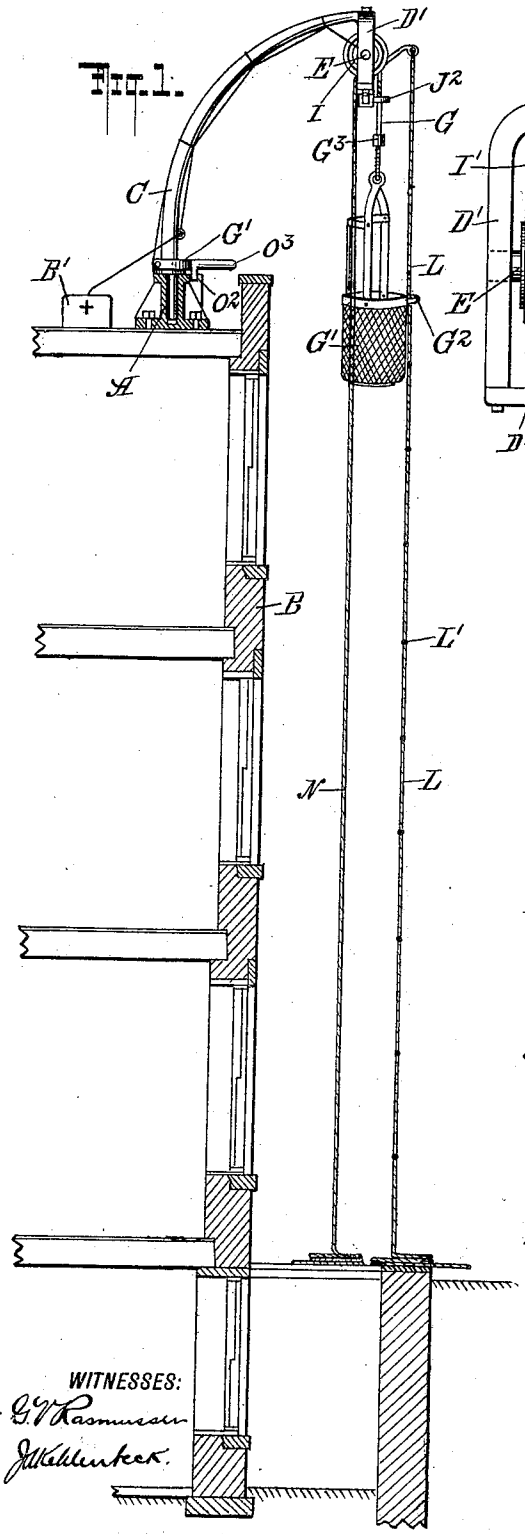


Fig. 2.

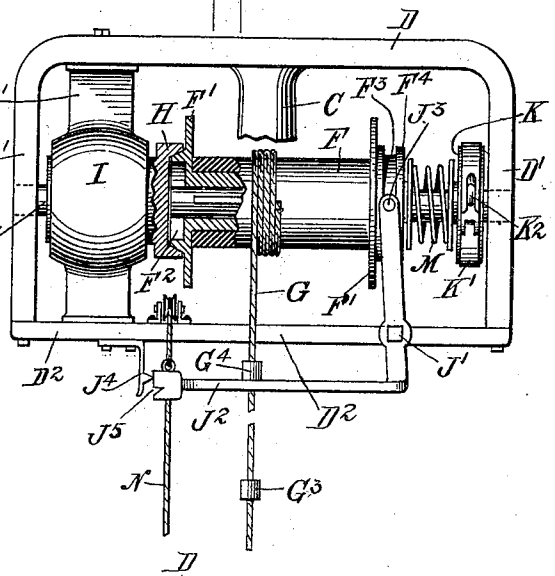


Fig. 3.

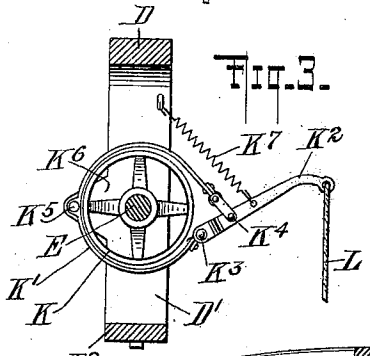
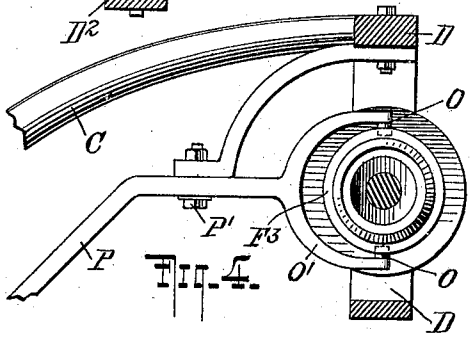


Fig. 4.



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FIRE-ESCAPE.

No. 922,323. Specification of Letters Patent. Patented May 18, 1909.

Application filed May 2, 1908. Serial No. 430,437.

To all whom it may concern:

Be it known that I, PATRICK O'THAYNE, a citizen of the United States, and a resident of the borough of Manhattan, city, county, and State of New York, have invented certain new and useful Improvements in Fire-Escapes, of which the following is a specification.

My invention relates to fire escapes and has for its object to provide a safe and efficient device for facilitating escape from burning buildings, which device is easily operated and controlled.

My invention will be fully described hereinafter and the features of novelty will be pointed out in the appended claims.

Reference is to be had to the accompanying drawings in which—

Figure 1 is a sectional view of the building with my invention in operative position thereon and Figs. 2, 3 and 4 are enlarged sectional views of portions of the device.

My improved fire escape comprises a socket A preferably secured to the roof of the building B near the edge of the same, into which projects the end of a bent supporting bar or davit C. The supporting bar C is provided with an enlargement C′, which engages the upper portion of the socket A and serves as a bearing to permit the bar C to be rotated about its axis. The free end of the bar C has secured to it a cross-piece D with downwardly projecting lugs D′, which form bearings for a shaft E.

F is a drum having side members F′ and keyed on the shaft E so as to rotate therewith and to be slidable lengthwise thereof under certain conditions, as will be more fully described hereinafter. A cord or rope G has its one end secured to the drum F and at its free end carries a basket G′ in which the person intending to descend sits. The drum F is further provided with a clutch member F^2, which coöperates with a mating member H, forming part of, or secured to the rotating part of the motor I. This motor is mounted loosely on the shaft E and is supported by means of brackets I′. The two clutch members F^2 and H are periodically brought into and out of engagement with each other by means of the following mechanism: A bell crank lever is pivoted at J′ to a cross bar D^2 secured to the lugs D′ and is provided with a slot in one of the members J^2 through which the cord G passes. The other end of said lever J is forked and carries pins J^3 which extend into the annular groove F^3 of a member F^4 which is secured to or forms part of one of the side members F′ of the drum F. The rope or cord G is provided with projections G^3 and G^4 which alternately engage the member J^2 of the lever J to engage and disengage the clutch members F^2 and H. A spring catch J^4 is provided adjacent to the free end of the member J^2 for the purpose of maintaining the clutch members F^2 and H in their disengaged condition.

K is a disk securely mounted on the shaft E to rotate therewith, and K′ is a metal band partly surrounding said disk and having its ends pivotally secured to the lever K^2 at K^3 and K^4. The metal band K′ is fastened at K^5 to a bracket K^6 forming part of or secured to one of the lugs D′.

L is a cord or rope secured to the free end of the lever K and provided throughout its length with enlargements L′, which may be simply knots or collars, as desired. This rope extends through a ring or eyelet G^2 of the basket G′ and serves as a means for controlling the speed with which the basket descends, it being understood that as the rope L is pulled the lever K^2 will cause the band K′ to be thrown into frictional engagement with or to clamp the disk K so as to act as a brake. This brake may be operated either by the person in the basket, or by some one on the ground, as may be found necessary, the rope L being long enough to reach from the lever K^2 to the ground or side-walk.

K^7 is a spring for returning the parts just described to their normal position, or in other words, for loosening the brake band K′ after the cord L is released.

M is a coil spring surrounding the shaft E and having its one end in engagement with the member F^4 and its other end in engagement with the disk K. The spring exerts a pressure on the said drum F in a direction toward the motor I. The motor I is connected in any suitable manner with a source of electrical energy, such as a battery B′, which may be located at any convenient point.

Under normal conditions the apparatus is swung inward, that is with the free end of the bar C swung to the left in Fig. 1 and the basket G′ resting on the roof, the rope G being wound on the drum F and the brake cord L being coiled in the basket or on the roof, as desired. In the position of rest the clutch

members H and F^2 are disengaged from each other, or in other words, the drum F in the opposite position from that shown in Fig. 2 being held in this position by the catch J^4. In case of fire the person intending to descend first closes a suitable switch to start the motor I, which, it is to be understood, continuously runs in a direction to wind the rope on the drum. The person now enters the basket G' after which the bar C is swung to the position shown in Fig. 1 either by the occupant of the basket or by a companion remaining on the roof. In this position the basket hangs clear of the wall of the building and is free to descend with more or less speed, according to the pull exerted on the rope L and the consequent pressure of the brake K' upon the disk K until the basket reaches the side-walk after which the occupant of the basket may step out. An instant before the basket reaches the side-walk or simultaneously therewith the projection G^4 will engage the upper surface of the member J^2 and will swing the forked end of the lever J to the left in Fig. 2 and thus slide the drum F on the shaft E until the clutch members F^2 and H are brought into engagement with each other, the spring M serving to maintain the parts in this position. It is to be understood that the pull exerted on the lever J by the projection G^4 is strong enough to disengage the member J^2 from the catch J^4. The parts are now in the position illustrated in Fig. 2 with the drum thrown into driving engagement with the motor, which, as before stated, is rotating in a direction to rewind the rope G on the drum and thus raises the basket until the projection G^3 on the rope G is brought into engagement with the lower side of the member J^2. As the motor now continues to rotate a pull in the opposite direction will be exerted on the member J^2 which will cause the forked end of the lever J to be moved to the right in Fig. 2, thus sliding the drum along the shaft E toward the right and disengaging the clutch members F^2 from the member H. The member J is swung far enough upward to permit the end of the catch J^4 to snap into the notch J^5 and thus maintain the parts with the clutch members disengaged. The movement of the supporting bar C about its axis is limited by the stop O^2 abutting against a projecting portion of the socket A and if desired a handle O^3 may be provided for facilitating the swinging of the supporting bar into and out of operative position. The enlargements L' are provided for the purpose of preventing the rope L from running freely through the hands of the person using the device and thus burning or tearing the flesh.

A cord N is secured to the member J^2 and passes over a pulley N' and reaches to the side-walk so that if desired the basket may be stopped at any one of the windows. In this case a pull is exerted on the cord N to swing the lever J and release the clutch members from each other, in the same manner as when the projection G^3 engages the said member J^2. The basket is then swung toward the window and the person or persons descending in the same way as from the roof. In some instances it may be desirable to have the support C fixed in the position shown in Fig. 1 instead of being rotatable about its axis as shown and described.

In Fig. 4 I have shown a mechanism for throwing the clutch members H and F^2 into engagement with each other manually instead of automatically as shown in Figs. 1 and 2. In this form of my invention the shaft E serves merely as an axle and may be fixed against rotation if desired, it being understood that both the moving parts of the motor and the drum F are mounted loosely thereon. The drum F is provided with a grooved member F^3 into which project pins O of a fork O' forming part of an operating lever P. This operating lever P is pivoted at P' to a support secured to the cross-piece D of the bar C and is preferably bent and supplied with an operating handle located near the roof, in a position to be readily accessible. In this form the clutch members are thrown into and out of engagement with each other by swinging the lever P on its pivot P', thus causing the drum to move on the axle E toward and away from the motor. This swinging of the lever is of course performed by some person remaining on the roof who when he wishes to descend simply disengages the clutch members and enters the basket and descends in the manner hereinbefore described. If desired the support may be used simply as a device from which to suspend a rope which may be provided with a hook arranged to be hooked into an eye in the end of the said support. This rope is to be used for descending hand over hand.

I claim:—

1. A fire escape comprising a support, a shaft journaled on said support, driving mechanism and a rotatable drum mounted on said shaft, one of said elements being secured to said shaft to rotate therewith, mating clutch members on said driving mechanism and said drum, means for automatically moving one of said elements lengthwise of the shaft to engage or disengage said clutch members and a basket arranged to be raised or lowered as said drum rotates in one direction or the other.

2. A fire escape comprising a support, driving mechanism and a rotatable drum carried by said support, one of said elements being movable toward and away from the other, mating clutch members on said driving mechanism and said drum, means for automatically shifting said movable element

bodily to engage or disengage said clutch members and a basket connected with said drum and arranged to be raised or lowered as the drum is rotated in one direction or the other.

3. A fire escape comprising a support arranged to swing about its axis, a rotatable drum mounted on said support, driving means for causing said drum to rotate in one direction, a device for moving said drum bodily to disengage it from said driving means to permit said drum to rotate freely in the opposite direction, means for shifting said drum bodily back into engagement with said driving means and a basket connected with said drum and arranged to be raised or lowered as the drum is rotated in one direction or the other.

4. A fire escape comprising a support arranged to swing about its axis, a shaft journaled on said support, a drum slidably mounted on said shaft, a clutch member on said drum, driving means loosely mounted on said shaft, a mating clutch member on said driving means, mechanism arranged to slide said drum lengthwise of said shaft to engage or disengage the two clutch members, a basket connected with said drum and arranged to be raised when the two clutch members are in engagement with each other, and which is free to descend the moment the clutch members are disengaged and a brake for controlling the speed of the basket as it descends.

5. A fire escape comprising a support, driving mechanism mounted on said support, a rotatable drum carried by said support and movable into and out of engagement with said driving mechanism, a bell crank lever fulcrumed on said support and connected with said drum, a rope secured to the drum so as to be wound on or unwound therefrom during rotation, a projection on said rope arranged to swing said bell crank lever to disengage said drum from said driving mechanism and a carrying device secured to the free end of said rope.

6. A fire escape comprising a support, driving mechanism mounted on said support, a rotatable drum carried by said support and movable into and out of engagement with said driving mechanism, a bell crank lever fulcrumed on said support and connected with said drum, a rope secured to the drum so as to be wound on or unwound therefrom during rotation, a projection on said rope arranged to swing said bell crank lever in one direction to disengage said drum from said driving mechanism, a second projection on said rope arranged to swing said bell crank lever in the other direction to reëngage said drum and said driving mechanism and a carrying device secured to the free end of said rope.

7. A fire escape comprising a support, driving mechanism and a rotatable drum mounted on said support and arranged to be engaged with or disengaged from each other, means for disengaging and engaging the rotatable drum and the driving mechanism, a catch resilient for maintaining said drum and driving mechanism in their disengaged condition, means for releasing said catch to permit said drum and driving mechanism to be reëngaged and a carrying device secured to said drum.

8. A fire escape comprising a support, driving mechanism and a rotatable drum mounted on said support and arranged to be engaged with or disengaged from each other, means for disengaging and engaging the rotatable drum and the driving mechanism, a resilient catch for maintaining said drum and driving mechanism in their disengaged condition, means for releasing said catch, resilient means for forcing said drum and driving mechanism into engagement with each other when the catch is released and a carrying device secured to said drum.

9. A fire escape comprising a support, driving mechanism mounted on said support, a rotatable drum carried by said support and movable into and out of engagement with said driving mechanism, a bell crank lever fulcrumed on said support and connected with said drum, a rope extending to the sidewalk and secured to the free end of said lever for manually operating said lever to move said drum bodily to engage or disengage said drum and driving mechanism and a carrying device secured to said drum.

10. A fire escape comprising a support, driving mechanism and a rotatable drum mounted on said support in axial alinement with each other, one of said elements being movable relatively to the other in the direction of its axis to disengage or engage said elements, means for automatically moving said movable element to engage or disengage it from the other element and a carrying device secured to said drum.

11. A fire escape comprising a support, driving mechanism and a rotatable drum mounted on said support in axial alinement with each other, one of said elements being movable relatively to the other in the direction of its axis to disengage or engage said elements, means for automatically moving said movable element to engage or disengage it from the other element, a brake for controlling the speed of the drum as it rotates and a carrying device secured to said drum.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses, this 30th day of March, 1908.

PATRICK O'THAYNE.

Witnesses:
JOHN A. KEHLENBECK,
JOHN LOTKA.