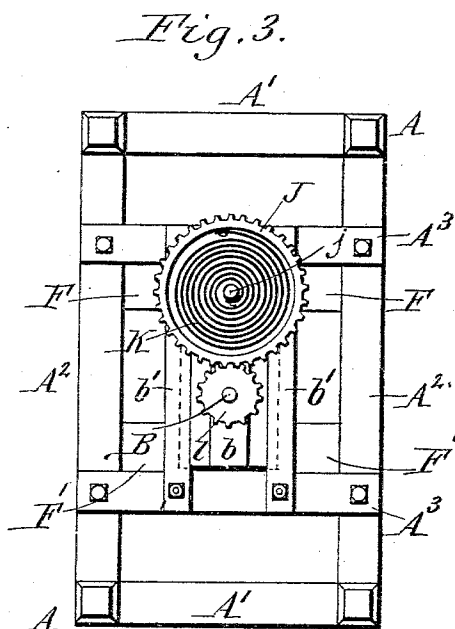
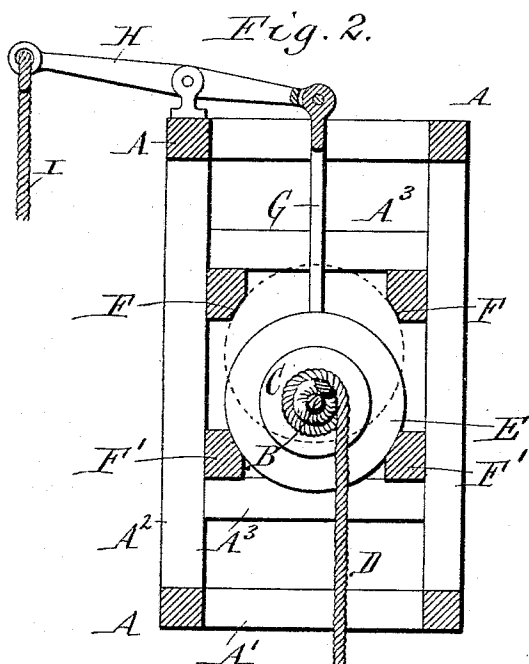
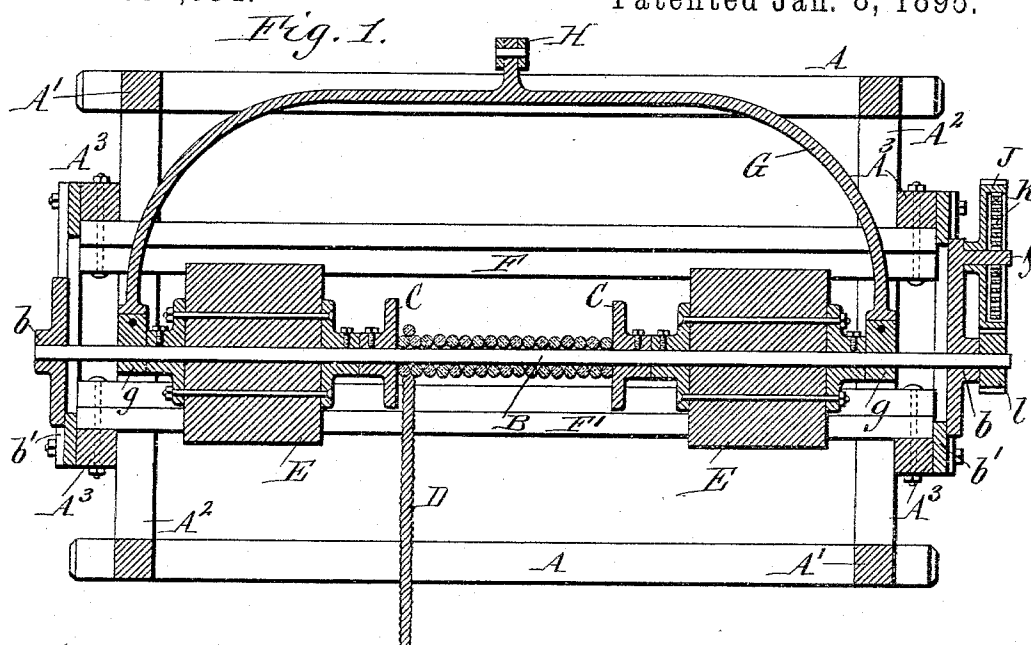


(No Model.)

J. J. HALLER.
FIRE ESCAPE.

No. 532,054.

Patented Jan. 8, 1895.



Witnesses:

Chas. F. Burkhardt.
Thos. L. Popp.

J. J. Haller Inventor.
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Attorneys.

UNITED STATES PATENT OFFICE.

JACOB J. HALLER, OF WESTFIELD, NEW YORK.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 532,054, dated January 8, 1895.

Application filed March 16, 1894. Serial No. 503,867. (No model.)

To all whom it may concern:

Be it known that I, JACOB J. HALLER, a citizen of the United States, residing at Westfield, in the county of Chautauqua and State of New York, have invented a new and useful Improvement in Fire-Escapes, of which the following is a specification.

This invention relates to that class of fire escapes which consist essentially of a drum upon which is wound a rope or cable whereby the fugitives descend to the ground, and a brake or retarding device whereby the rotation of the drum is controlled.

My invention has the object to produce an inexpensive fire escape of this character which is safe and convenient in use.

In the accompanying drawings:—Figure 1 is a longitudinal sectional elevation of my improved fire escape. Fig. 2 is a transverse section thereof. Fig. 3 is an end view of the same.

Like letters of reference refer to like parts in the several figures.

The operative parts of the fire escape are supported in a stationary frame composed preferably of longitudinal bars A, cross bars A', posts A², connecting the upper and lower sets of longitudinal bars, and intermediate horizontal bars A³ connecting said posts.

B is a longitudinal drum shaft arranged to move vertically in the stationary frame and journaled at its ends in bearings b, which are free to slide vertically between upright guides b', secured to the intermediate bars A³, of the frame.

C, C represent disks or flanges secured to the central portion of the shaft B, and forming with the latter a rotary drum upon which is wound the rope or cable D, which is seized by the occupants of the burning building in descending from an upper story to the ground. If desired a basket or other receptacle may be attached to the free end of this rope.

E E represent friction wheels or pulleys secured to the shaft B, on opposite sides of the drum and adapted to run in contact with either of two brakes F and F', arranged above and below such pulleys, respectively. Each of these brakes preferably consists of two longitudinal bars extending from end to end of the stationary frame and secured at their ends to the intermediate frame bars A³. The

upper brake bars form an auxiliary or safety brake and are arranged at such a distance from the lower or main brake bars, that when the friction wheels rest upon the lower bars they do not come in contact with the upper bars, but such upper bars are yet so near to the upper side of these friction wheels that when the latter are lifted higher than is necessary to clear the lower bars, they come in contact with the upper bars.

G is a yoke or frame whereby the drum shaft is raised in the stationary frame, for releasing the friction wheels from the lower brake bars, in case the wheels are caused to bear against these bars so forcibly as to arrest the rotation of the drum. This yoke is provided at its ends with perforated lugs g through which the shaft B passes, and it is connected at its upper portion to the inner arm of a lifting lever H, pivoted to one of the upper longitudinal bars A.

I is a releasing cord or cable attached to the other arm of the lifting lever and extending from the latter to the ground so that it may be seized by the descending persons at any point between the lifting lever and the ground.

In using the fire escape, the fugitive grasps the main rope D. His weight causes the friction wheels to bear against the lower brake bars, and the latter thus retard the rotation of the drum, allowing him to descend at a safe speed. In case the weight of the person is sufficient to arrest the movement of the friction wheels, he may release the wheels by pulling downward on the releasing rope which causes the wheels to be lifted from the lower brake bars through the medium of the lifting lever H and the yoke G, thereby allowing the friction wheels to turn with more or less freedom according to the force with which they are permitted to bear against the lower brake bars. Should the operator by a frantic pull on the releasing rope, lift the friction wheels clear of the lower brake bars they will be drawn against the upper or auxiliary brake bars, as shown by dotted lines in Fig. 2, thereby guarding against the unrestrained rotation of the drum which would result, under the above mentioned circumstances, in the absence of the upper brake bars.

An automatic device for rewinding the rope upon the drum, when released, is preferably

combined with the fire escape. This device consists of a hollow gear wheel J, turning on an arbor *j*, secured to one of the shaft bearings *b* and containing a coiled return spring K, which is secured at one end to the rim of the gear wheel and at its other end to the arbor *j*. This gear wheel meshes with a pinion *l*, secured to the adjacent end of the drum shaft. As the rope is unwound from the drum, the gear wheel is caused to turn in the proper direction to wind up its spring and as soon as the unwound rope is released, the strained spring reacts and turns the gear wheel in the opposite direction, thereby turning the drum shaft accordingly and rewinding the rope upon the drum ready to be used by another person.

My improved fire escape may be secured above a window or other exit opening of a building, either inside or outside of the building.

I claim as my invention—

1. In a fire escape, the combination with a supporting frame, of a main or lower brake arranged in said frame, an auxiliary brake arranged above the main brake, a rotary drum arranged between said main and auxiliary brakes, and an axle carrying said drum and capable of moving toward and from said brakes, the latter being fixed relatively to the drum whereby the drum bears normally against the lower brake and is restrained by

the upper brake when abnormally withdrawn from the lower brake, substantially as set forth.

2. In a fire escape, the combination with a supporting frame, of a drum journaled in said frame and movable at right angles to its axis, a brake whereby the rotation of the drum is retarded, and a lifting device whereby the drum is released from said brake, substantially as set forth.

3. In a fire escape, the combination with the supporting frame, of a vertically movable drum, brakes arranged above and below said drum, a lifting yoke or frame connected with said drum and a releasing rope connected with said yoke or frame, substantially as set forth.

4. In a fire escape, the combination with a supporting frame, and a vertically movable drum-shaft, of a friction wheel mounted on said shaft, brakes arranged above and below said friction wheel, a yoke for lifting the drum shaft, a lifting lever connected with said yoke and a releasing rope connected with said lever, substantially as set forth.

Witness my hand this 28th day of February, 1894.

JACOB J. HALLER.

Witnesses:

THEO. L. POPP,
ELLA R. DEAN.