

(No Model.)

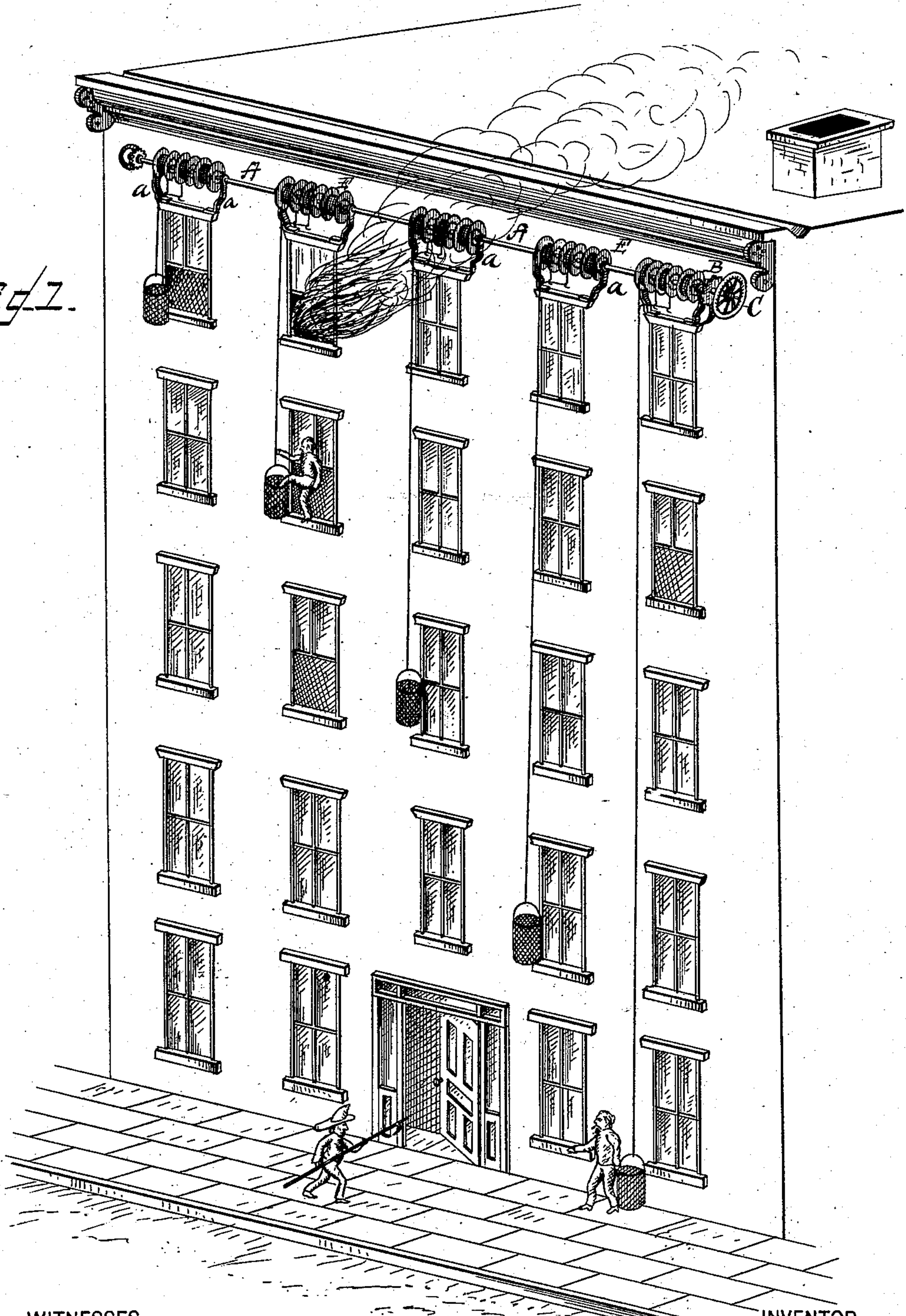
2 Sheets—Sheet 1.

A. J. HEAVNER.
FIRE ESCAPE.

No. 287,540.

Patented Oct. 30, 1883.

Fig. 1.



WITNESSES
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(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

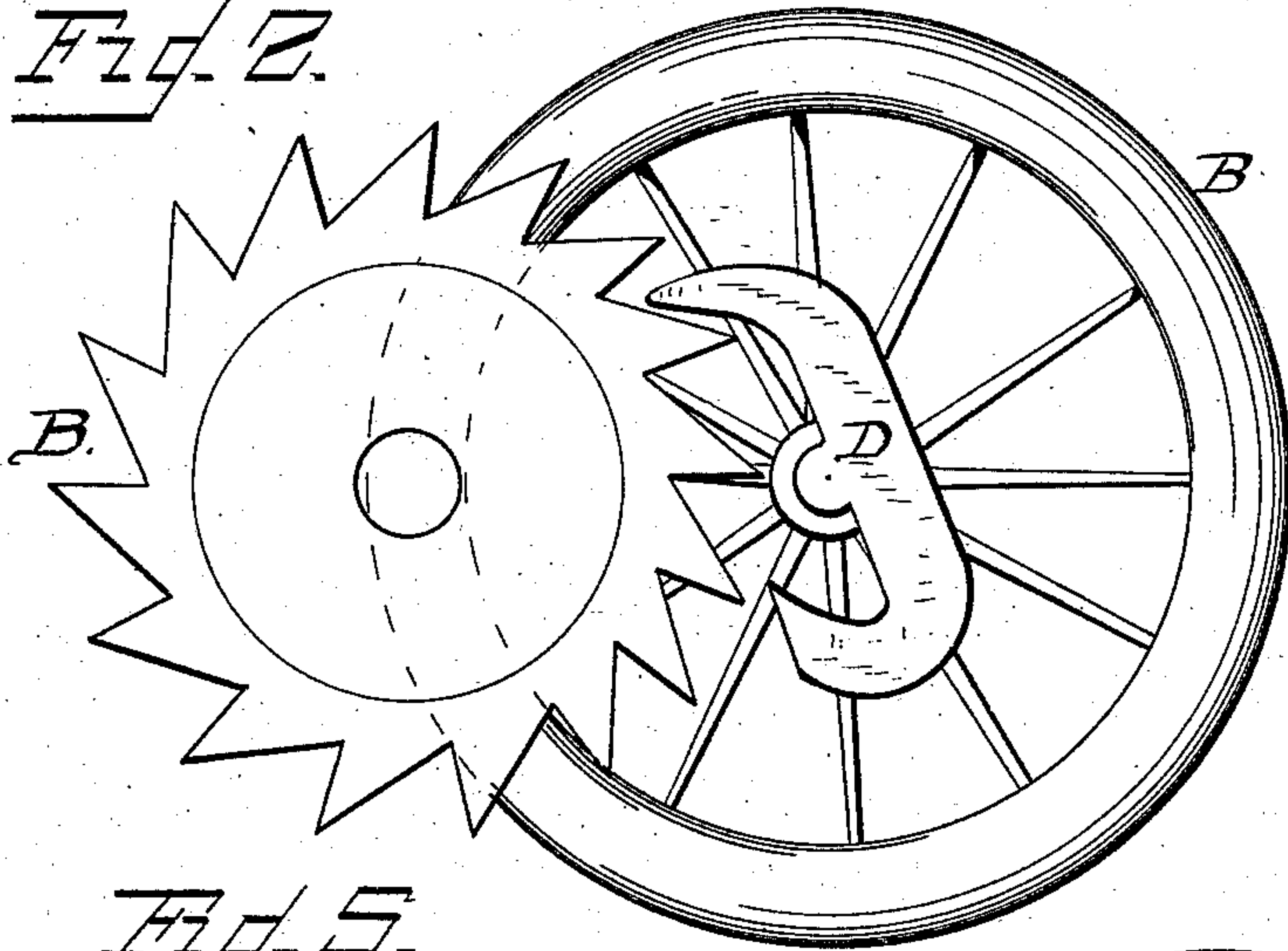


Fig. 5.

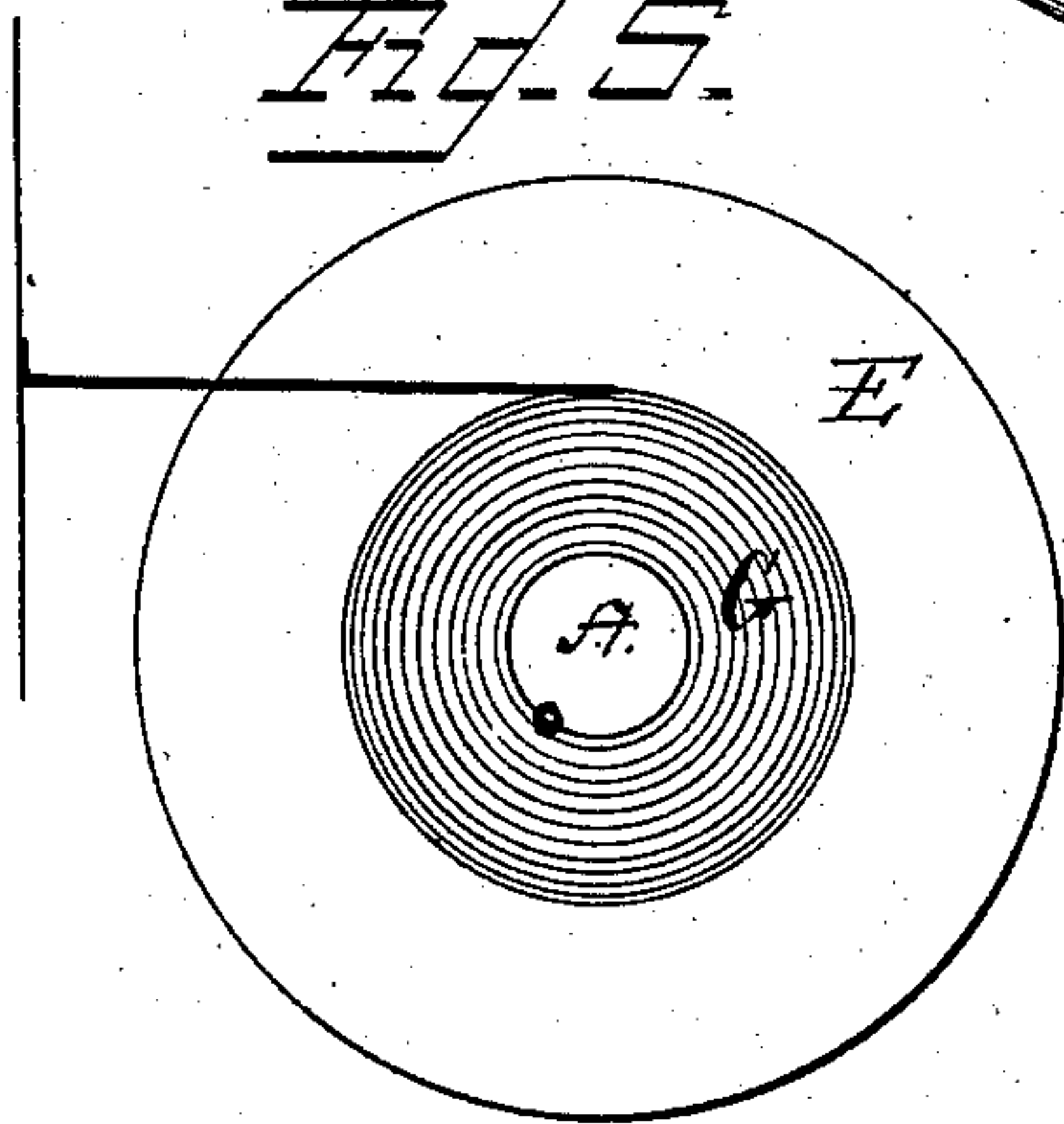


Fig. 3.

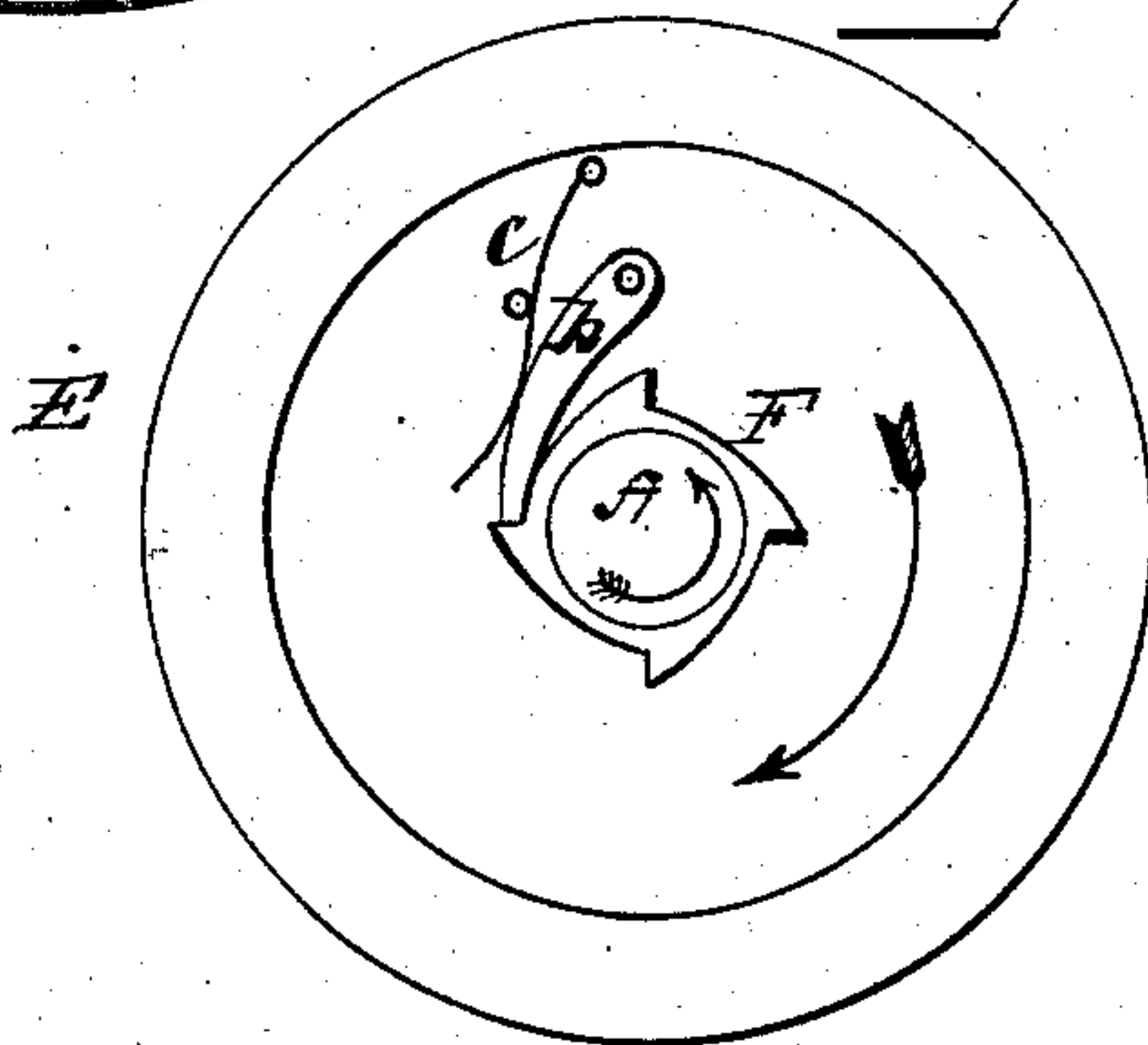
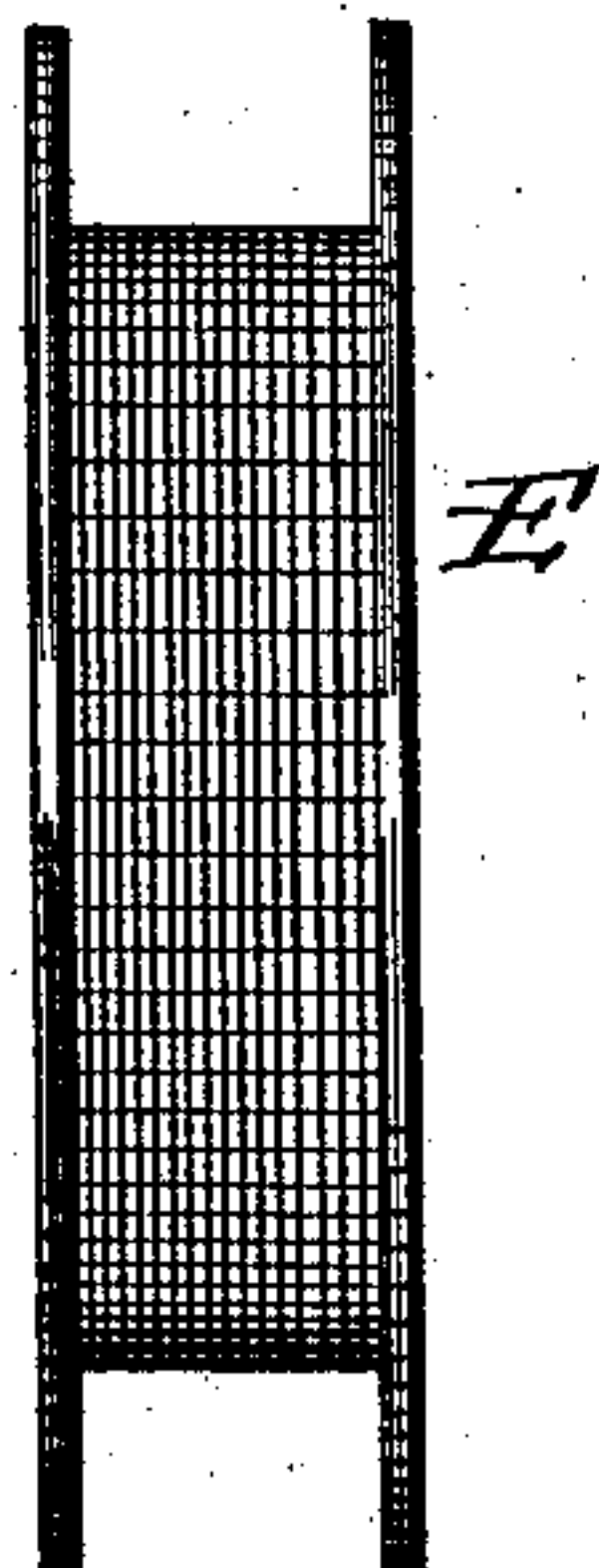


Fig. 4.



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UNITED STATES PATENT OFFICE.

ANDREW J. HEAVNER, OF PITTSFIELD, ILLINOIS, ASSIGNOR OF ONE-HALF
TO WILLIAM T. SMITH, OF SAME PLACE.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 287,540, dated October 30, 1883.

Application filed March 26, 1883. (No model.)

To all whom it may concern:

Be it known that I, ANDREW J. HEAVNER, a citizen of the United States of America, residing at Pittsfield, in the county of Pike and State of Illinois, have invented certain new and useful Improvements in Fire-Escapes; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention has relation to improvements in fire-escapes for buildings.

The object of the invention is to provide for one person, or for many, a safe and reliable means for escape from a burning building.

To this end my invention consists in the novel construction and combination of parts, as will be hereinafter more fully described, and specifically claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 shows my improved fire-escape attached to the side of a building. Fig. 2 is a side view of the balance-wheel with escape-wheel. Fig. 3 is a side view of the loose pulley, with ratchet collar and spring and pawl. Fig. 4 is a front view of the reel-pulley for holding the escape-cord, and Fig. 5 is a side view of the loose pulley, showing the return-spring fixed therein.

The letter A represents a shaft of such length as may be desired or needed, and of such diameter as will afford sufficient strength to meet the strain of all exigencies to which it may be subjected. This shaft is suitably secured under the cornice or above the window of the building by any means which will assure its permanency in use. It may be made in sections and put together by fast couplings. In the instance shown in Fig. 1 the shaft is sustained in journal-bearings formed in brackets *a*, secured to the upper window-sill; but it is obvious any other means suitable to attain the object may be adopted.

On one end of the shaft A, or on the free end, where the shafting extends on more than one side of the building, is fixed the escape-wheel B, of such size and strength as may be required; and to the building is also secured the balance-wheel C, having keyed or other-

wise secured to it or to its shaft the pallet D, which operates in the teeth of the scape-wheel B, and thus serves to regulate the motion of descent.

The letter E represents the cord-pulleys, having side flanges extending above their faces far enough to provide plenty of room for winding up the escape-cord. These pulleys work loose on the shaft A, being held from lateral displacement by any suitable means, and being in number according to whatever demand may be made for use in case of fire, generally one pulley for each room under the shaft. On one side of each pulley is fixed the pawl *b*, operated by a spring, *c*. This pawl *b* engages the ratchet F, fixed to the shaft A by means of a set-screw or other suitable means. On the other side of the pulley E is the return-spring G, likewise so adjusted and secured that its force shall be exerted to reverse the motion of the loose pulley when the escape-cord has been run out, and thus wind up the cord on the pulley, ready for use again.

When it is necessary or desired to extend the shafting on more sides of the building than one, on the cord-shaft A is fixed a beveled-gear wheel, which engages with the like wheel on the end of the shaft on the next side of the house or building, and so on until the building is surrounded or the desired limit is reached.

Escape-cords are attached to each pulley, of such requisite length and of such proper material as will serve the purposes intended, and to the cords are attached baskets, crates, or other devices to hold the person in the descent. These crates, baskets, &c., are detachable, and until their use is required they can be stored away in a convenient and known place in each room.

It will be observed that each pulley is independent in its action on the shaft, and not liable to forward motion until the weight of the person brings the pawl against the ratchet on the shaft, when the shaft turns with that particular pulley, or with others so engaged.

The operation of the escape is automatic after the person or persons are in the basket and during the course of descent, since by the

breaking force of the escape-wheel the momentum of the descent is regulated and the dangers of a swift one avoided.

To use the escape, the baskets are attached to the respective cords, which, for convenience, are arranged by the free ends to the respective windows, when the person steps into the basket, and the weight then causes the pawl and ratchet to engage, the pulley and shaft turn, and the speed is regulated, as stated, by the escape-wheel. The operation is the same whether one or more persons use the escape. After the cord or cords are drawn out and the basket or baskets are relieved of their weights the force of the springs reverses the pulleys and winds up the respective cords.

The advantages I claim for my improved fire-escape are that the pulleys carrying the escape-cords are independently arranged and operated on the shaft; that many persons may use the escape means at the same time without in any way interfering with the descent of each other, and that the course of descent is automatically adjusted and regulated.

I claim the right to vary the construction and arrangement of parts without departing from the spirit of the invention.

In the application of the escape to new buildings, the shaft and pulleys, with gearings, may be suitably provided for in the inside of the building, so that only the escape-cords shall be on the outside, and even in the attachment to some buildings already erected the escape may be fixed inside.

To increase the speed of the descent, gear-wheels may be interposed, engaging a cog-wheel on the end of the shaft and connected by a short shaft carrying the scape-wheel, engaging with the pallet on the balance-wheel.

I am aware that heretofore fire-escapes have been constructed with cord-carrying pulleys controlled on their shaft by a ratchet and pawl and provided with a return-spring, the descent

of the weight being also regulated by a pallet and scape-wheel; but my improvements in this relation consist in a balance-wheel having thereto fixed a pallet which engages with the scape-wheel on the end of the shaft, and operating as hereinbefore set forth.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. In combination with a shaft fixed to a building and carrying a series of loose cord-carrying pulleys and a scape-wheel, a balance-wheel having fixed thereto a pallet to engage with the scape-wheel, substantially as described.

2. In combination, a suitable supported shaft having one or more ratchet-wheels, with one or more independent pulleys revolving loosely on said shaft, with attached pawls engaging the ratchet-wheels on the shaft, and a return-spring, substantially as described.

3. In combination with a suitably-supported shaft carrying a scape-wheel engaging a pallet on a balance-wheel, and having one or more ratchet-wheels secured thereon, one or more loose pulleys carrying pawls, and a return-spring, substantially as described.

4. In a fire-escape, the combination of the following organized parts, to wit: a horizontal shaft suitably supported on the upper portion of a building, said shaft being provided with a plurality of independent pulleys revolving loosely thereon, and having attached thereto spring-pawls engaging with ratchet-wheels fixed on said shaft, and provided with return-springs, a scape-wheel, a balance-wheel with a pallet to engage with the scape-wheel, a plurality of suspension-baskets, and operating mechanism.

In testimony whereof I affix my signature in presence of two witnesses.

ANDREW J. HEAVNER.

Witnesses:

JAMES A. KELLY,
W. E. WILLIAMS.