No. 641,466. Patented Jan. 16, 1900.

A. P. O'BRIEN.

FIRE ESCAPE.

(Application filed June 19, 1899.)

(No Model.)

Fig. 1.

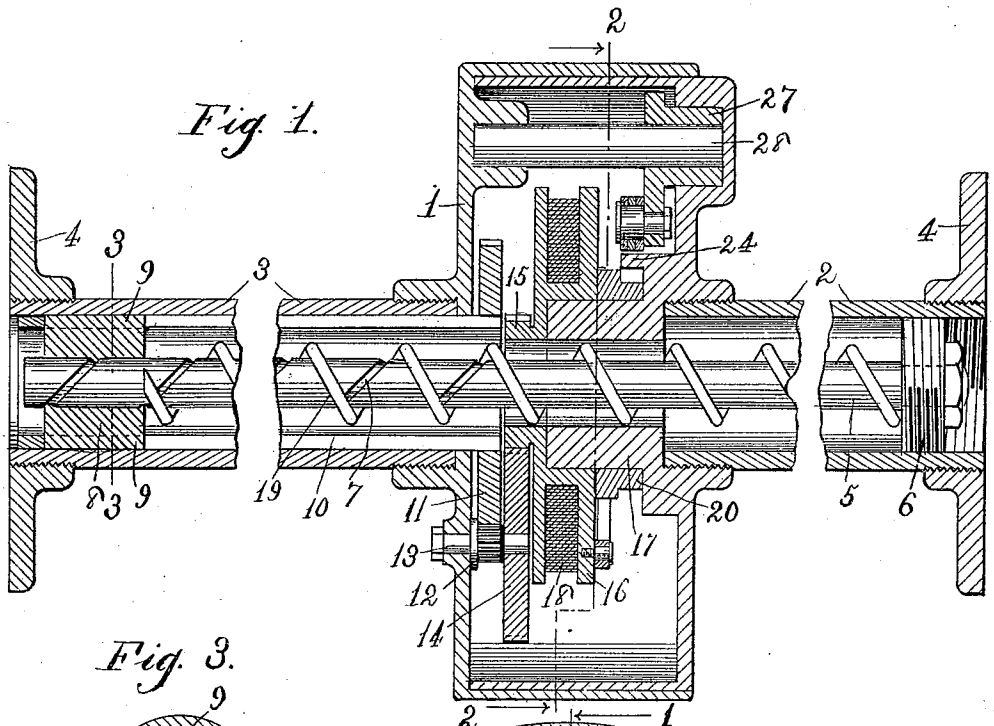
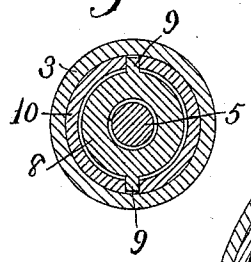


Fig. 3.



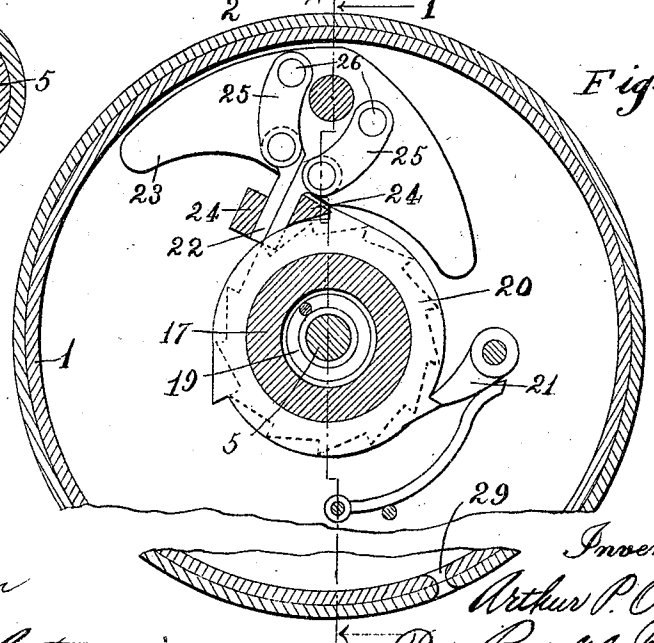


Fig. 2.

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UNITED STATES PATENT OFFICE.

ARTHUR P. O'BRIEN, OF NEW YORK, N. Y.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 641,466, dated January 16, 1900.

Application filed June 19, 1899. Serial No. 721,103. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR P. O'BRIEN, a citizen of the United States, residing at New York, in the county of New York and State of New York, 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.

My invention relates to a novel construction in a fire-escape, the object being to provide a device of this character which can be mounted in a window, where it is always in plain view, without deteriorating the appearance and which is efficient and automatically regulated; and it consists in the features of construction and combinations of parts hereinafter fully described and claimed.

In the accompanying drawings, illustrating my invention, Figure 1 is a vertical longitudinal section of a fire-escape constructed in accordance with my invention on the line 1 1 of Fig. 2. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

One object of my invention is to provide a fire-escape which will permit being mounted in a window on the outside of the sash and about on a level with the meeting-rails of the sash, where it will be in plain view and in a position where it could not fail to attract the notice of a person desiring to escape from a burning building.

Another object of my invention is to provide a fire-escape which is governed in a simple manner to regulate the speed of descent of any person utilizing it to prevent injury to such person.

Another object of my invention is to provide means for returning the tape after the fire-escape has been used by one person to enable it to be used repeatedly.

To these and other ends my device consists of a casing 1, mounted upon the inner ends of two tubes 2 and 3, carrying plates 4 at their other ends, by means of which the device is adapted to be mounted to span a window. Passing centrally through said casing 1 and said tubes 2 and 3 is a shaft 5, which is rigid therewith, being rigidly secured at one end to a collar 6, externally screw-threaded and entering the screw-threaded end of the tube 2. Said shaft 5 is provided on its other end with a forty-five-degree thread or spiral groove 7 and is adapted to receive a similarly-threaded nut or collar 8, which is longitudinally and revolubly movable thereon. Said collar 8 is provided at diametrically opposite points with lugs 9, adapted to fit within and engage longitudinal slots in a tube 10, revolubly mounted in the tube 3. The said tube 10 projects partially into said casing 1 and carries a cog-wheel 11, intermeshing with a pinion 12, revolubly mounted on a stud 13 in said casing 1 and rigid with a gear-wheel 14, which in turn intermeshes with a pinion 15 on a reel 16, revolubly mounted on an inwardly-projecting portion 17 of said casing 1 and carrying a tape 18, adapted to support a descending person and rotate said reel and transmitting its motion to said collar 8, causing same to travel longitudinally on said shaft 5. A spring 19 is trained around said shaft 5 and bears at its ends against said collar 6 and said nut or collar 8, so that when said reel is rotated to unwind said tape said collar 8 will compress said spring 19. Revolubly mounted on said projection 17 of said casing 1, adjacent said reel 16, is a ratchet-wheel 20, carrying two sets of teeth facing in opposite directions, one of said sets of teeth being adapted to be engaged by a spring-actuated pawl 21 on said reel 16 and the other set being adapted to engage plungers 22 to actuate a vibrating disk 23 for governing the speed of said ratchet-wheel 20, and thereby the reel 16, when rotated by the unwinding of the tape 18. Said plungers 22 are reciprocatively movable in guides 24 in said casing 1 and are connected by links 25 with crank-pins 26 on said disk 23 on opposite sides of the center thereof. Said disk 23 is provided with a hub 27 and is mounted on a shaft 28, mounted in said casing 1. Said casing 1 consists, preferably, of two members fitting telescopically within each other and secured together in any suitable manner.

The governor used in my device is termed a "ratchet-and-disk governor" and operates as follows: The plungers 22 project into the path of the teeth of the ratchet-wheel 20, as shown in Fig. 2, and in the position shown in

said figure the tooth engaging the right-hand plunger has just forced the left-hand plunger out of its path, and thus brought the right-hand plunger into the position shown. Further revolution would now cause said tooth to raise the right-hand plunger until the latter is out of its path. Simultaneously the left-hand plunger moves downwardly into the path of the next tooth, and so on, thus rapidly rocking or vibrating said disk.

My device operates as follows: Said tape 18 passes through an opening 29 in the lower portion of said casing 1 and carries suitable devices to be grasped by the person desiring to descend. As such person descends, the reel 16 is rotated in a direction in which the pawl 21 will engage the ratchet-wheel 20 to cause the latter to rotate in unison therewith, thus actuating the governor, and such rotation is likewise transmitted to said collar 8, as before stated, thus compressing said spring 19. When the descending person lands and releases the tape, said spring 19 will force said collar 8 back, thus rotating said reel in the opposite direction and winding up said tape. During the reverse movement of said reel the ratchet-wheel and governor are not actuated, thus permitting the rapid return of the tape.

I claim as my invention—

1. In a fire-escape, a receptacle comprising a casing, tubes secured to each side of said casing and adapted to be secured at their other ends to the sides of a window, a reel in said casing, a tape on said reel adapted to support a descending person, and gearing between said reel and devices for reversing the motion of same when released, substantially as described.

2. In a fire-escape, the combination with a reel, a tape adapted to wind upon same, and a governor adapted to be actuated by the revolution of the tape in one direction, of a spring adapted to be compressed by the rotation of the reel in one direction, a member bearing against said spring, and gearing between said member and said reel for actuating said member to compress said spring, substantially as described.

3. In a fire-escape, the combination with a tubular casing, enlarged at its middle portion and adapted to span a window, of a reel in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, connection between said reel and a governor for actuating the latter to regulate the speed of descent, a rigid shaft passing centrally through said casing, a spring on said shaft, a member longitudinally movable on said shaft and bearing against said spring, and gearing between said member and said reel to move said member to compress said spring during the descent of a person, said spring being adapted to reverse the movement of said reel to wind up said tape when the latter is released, substantially as described.

4. In a fire-escape, the combination with a tubular casing, enlarged at its middle portion and adapted to span a window, of a reel in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, connection between said reel and a governor for actuating the latter to regulate the speed of descent, a partially-screw-threaded rigid shaft passing centrally through said casing, a spring on said shaft, a screw-threaded member longitudinally movable on said shaft and bearing against said spring, and gearing between said member and said reel to move said member to compress said spring during the descent of a person, said spring being adapted to reverse the movement of said reel to wind up said tape when the latter is released, substantially as described.

5. In a fire-escape, the combination with a tubular casing enlarged at its middle portion and adapted to span a window, of a reel pivotally mounted in said enlarged portion of said casing, a tape on said reel adapted to support a descending person, a shaft passing centrally through said casing and said reel, a spring and devices for compressing same carried by said shaft, and gearing between said compressing devices and said reel to compress said reel during the descent of a person, said spring being adapted to reverse the motion of said reel to return said tape when the latter is released, substantially as described.

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

ARTHUR P. O'BRIEN.

Witnesses:
HULDA DANIELS,
HARLEY S. HIBBARD.