

No. 702,259.

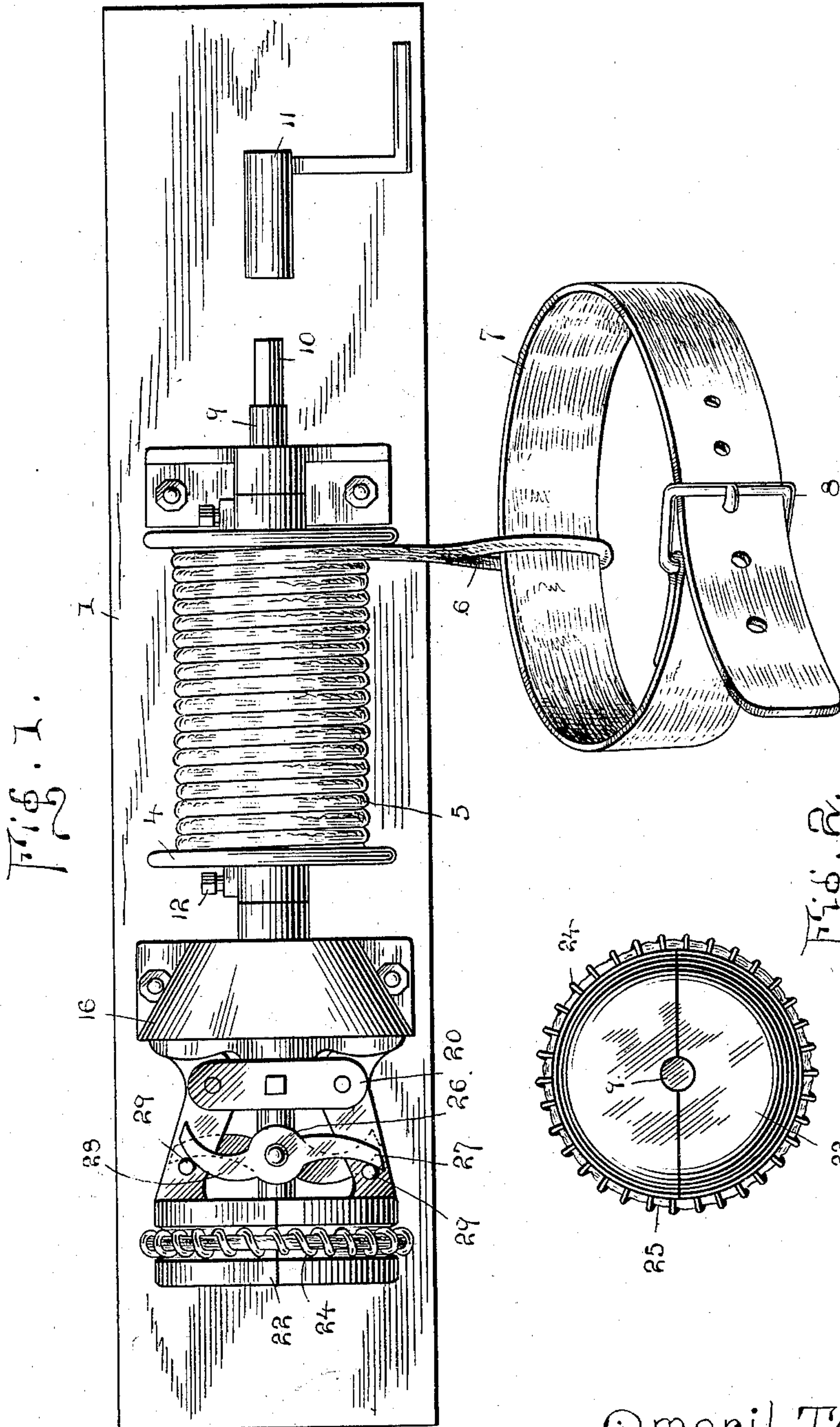
Patented June 10, 1902.

O. TARDIF.
FIRE ESCAPE.

(Application filed July 13, 1901.)

(No Model.)

2 Sheets—Sheet 1.



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Fig. 3.

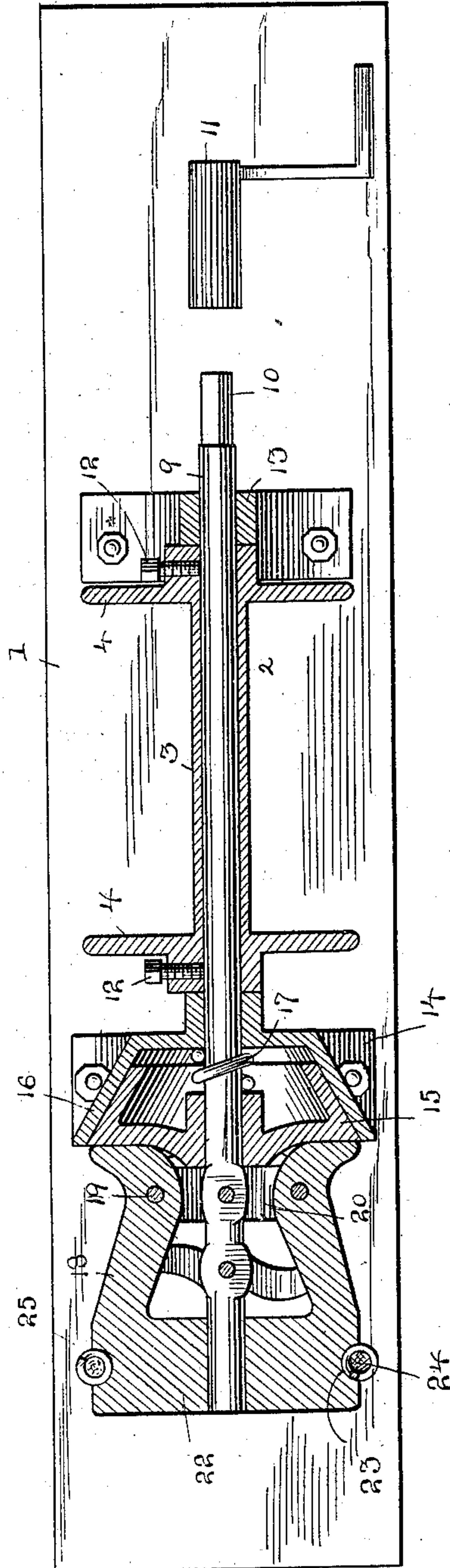


Fig. 4.

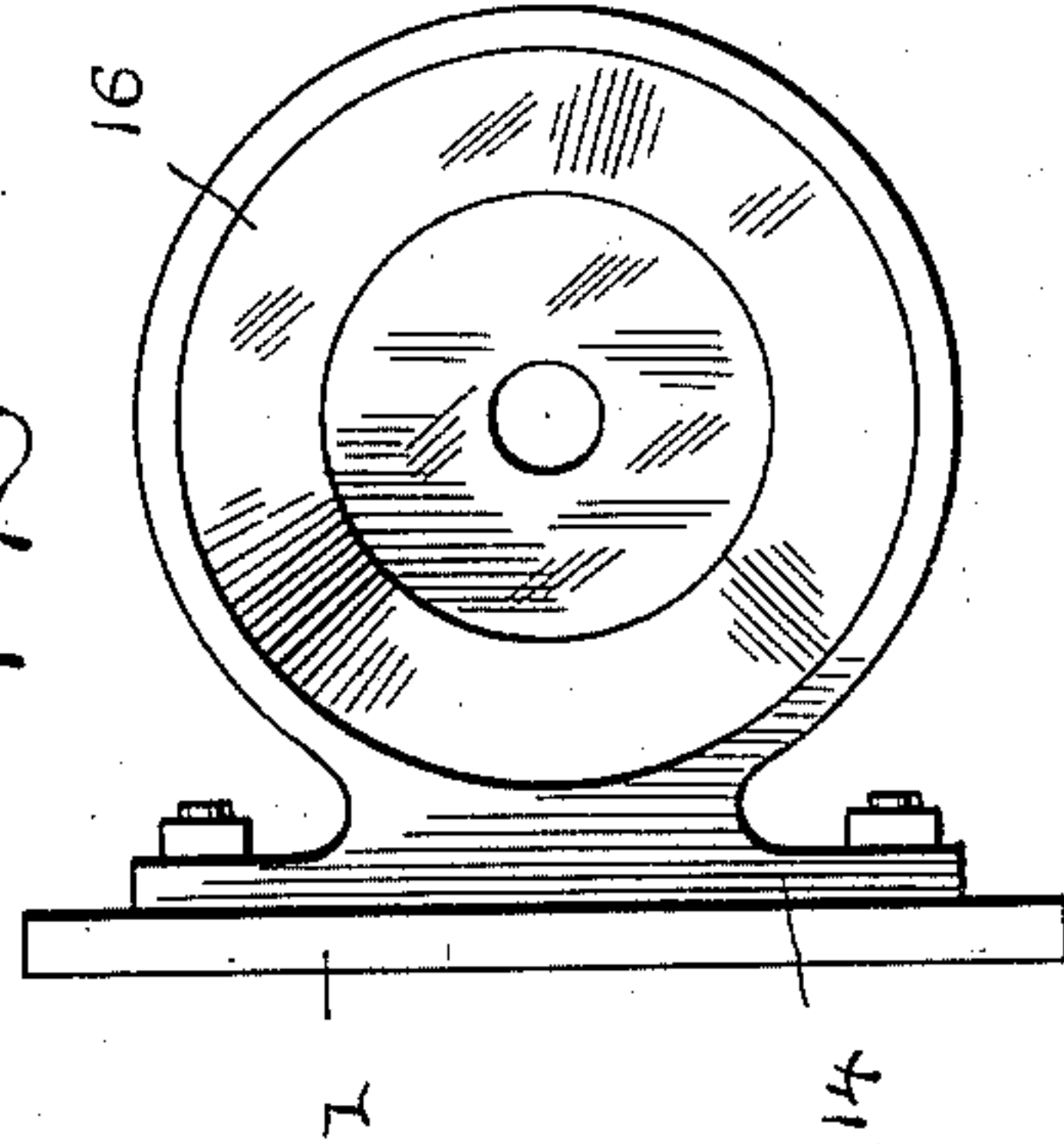


Fig. 6.

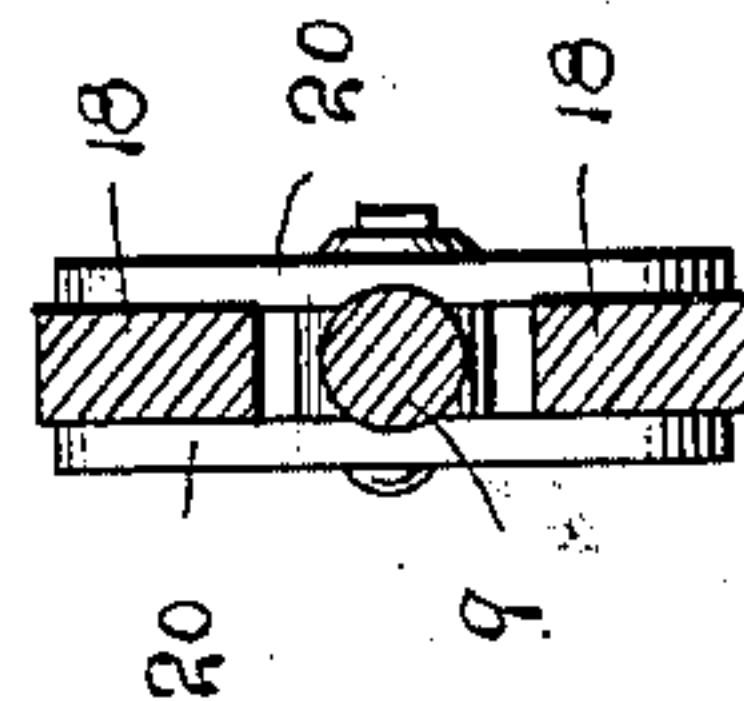
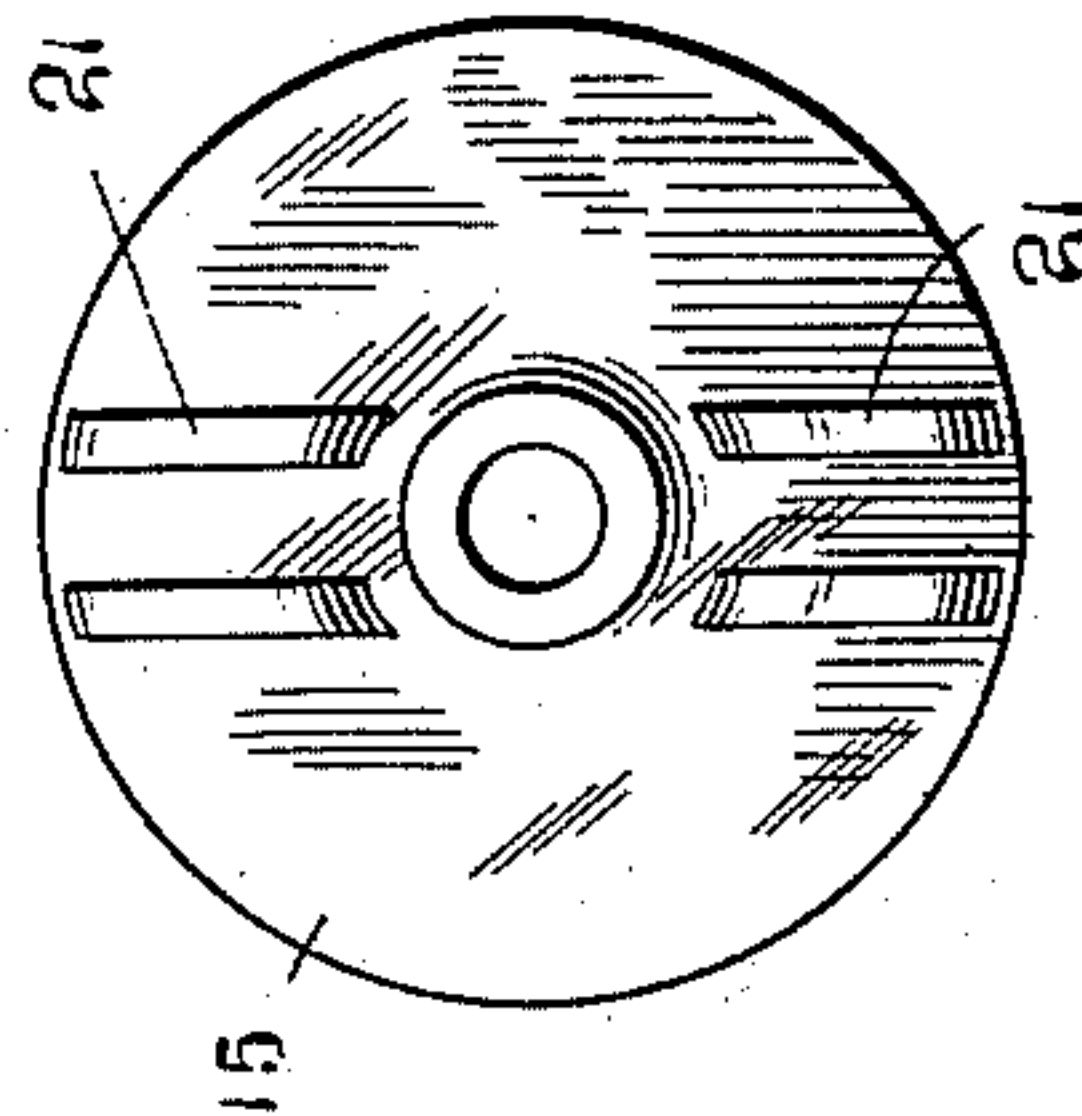


Fig. 5.



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UNITED STATES PATENT OFFICE.

OMERIL TARDIF, OF PLESSISVILLE, CANADA.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 702,259, dated June 10, 1902.

Application filed July 13, 1901. Serial No. 68,260. (No model.)

To all whom it may concern:

Be it known that I, OMERIL TARDIF, a citizen of the United States, residing at and whose post-office address is Plessisville, in the Province of Quebec and Dominion of Canada, have invented new and useful Improvements in Fire-Escapes, of which the following is a specification.

This invention relates to fire-escapes of the windlass type, the object in view being to provide a fire-escape which may form either a permanent attachment to a building or which may be carried about from place to place by tourists.

The improved fire-escape contemplates the use of a reel containing a coil of rope, preferably formed of strands of wire and wrapped about a windlass, the shaft of which is journaled in suitable bearings upon a board or base, which may either be concealed within a recess in the outer wall of the building and covered and concealed by a door or flap or provided with means whereby it may be attached to a window-sill or to the cap or lintel of a window or any other convenient place in case of emergency. Associated with the coil of rope is a belt adapted to be strapped about the waist of the wearer, and the shaft of the windlass has associated therewith a self-governed clutch or brake which will only permit the user of the fire-escape to descend at a predetermined rate of speed, any excessive speed being checked by means of the clutch or brake.

With the above and other objects in view the invention consists in a fire-escape embodying certain novel features and details of construction hereinafter fully described, illustrated, and claimed.

In the accompanying drawings, Figure 1 is a front elevation of a fire-escape constructed in accordance with the present invention. Fig. 2 is an end view of the clutch or brake mechanism. Fig. 3 is a longitudinal section through the device, taken in line with the windlass-shaft. Fig. 4 is a detail elevation of the female member of the clutch or brake. Fig. 5 is a detail elevation of the male member of the clutch or brake. Fig. 6 is a cross-section taken adjacent to the plates between which governor-arms are pivotally mounted.

Similar numerals of reference designate

corresponding parts in all the figures of the drawings.

Referring to the drawings, 1 designates a base, which preferably consists of a board of requisite size and strength to have mounted thereon the operative parts of the fire-escape. This board may be seated in a recess in the cap or lintel of a window-frame or in the sill thereof and, together with the operative mechanism, concealed by means of a cover or door.

2 represents a windlass, which comprises a tubular hub 3, provided with end flanges 4, between which a wire rope or cable 5 is wound, as shown in Fig. 1, said cable having one end connected fast to the windlass, while the other end is provided with a retaining-loop 6, through which passes a belt 7, provided with an adjusting-buckle 8, the said belt being adapted to be placed around the waist of the person to be lowered by means of the fire-escape.

The windlass 2 is mounted upon a windlass-shaft 9, provided with a squared end 10, adapting it to receive an operating-crank 11, having a squared opening to receive the end 10 of the shaft, whereby the lowering cable or rope may be rewound after the person has reached the ground, so that the fire-escape may be used repeatedly. The windlass is held fixedly upon the shaft 9 by means of set-screws 12, while the shaft 9 is mounted in bearing-brackets 13 and 14, fastened in any convenient manner to the board or base 1.

In order to prevent the too rapid descent of a person using the fire-escape, I provide a clutch or brake mechanism embodying a male member 15 and a female member 16, the female member being in the form of a hollow cone, formed integrally with or connected fast to the bearing-bracket 14, as illustrated in Figs. 1, 3, and 4. Fitting within the member 16 is the male member 15, which is also of conical shape and mounted loosely upon the shaft 9, and interposed between said parts is an expansive relief-spring 17, as illustrated in Fig. 3. The clutch or brake members are thrown into engagement with each other by means of a pair of governor-arms 18, which are pivotally mounted at 19 between the oppositely-projecting arms 20, connected and rotatable with the shaft 9. The arms 18 are

rounded at their inner ends where they bear against the male clutch member 15, and such rounded ends are held between guide-flanges 21 on the outer surface of the member 15, as shown clearly in Figs. 1 and 5. The opposite ends of the governor-arms are in the form of semicircular weights 22, which are provided with half-cylindrical openings at their meeting edges to fit the end of the shaft 9. The said weighted ends of the governor-arms are also provided with an annular groove 23, in which is fitted a circular coiled spring 24, which acts to hold the weighted ends of the governor-arms together and in engagement with the shaft 9, the spring 24 being prevented from stretching too far by means of a flexible limiting device or cord 25, which passes through the coils of the spring. In order to cause the governor-arms to move equally outward or inward, I provide a pair of oppositely-located regulating-levers 26, each of which has reversely-curved oppositely-extending arms 27 and 28. The arms 27 and 28 of one lever are curved in the reverse direction from the corresponding arms of the oppositely-located lever, and all of the arms operate against laterally-projecting pins or stops 29, projecting laterally from the arms, as clearly illustrated in Fig. 1. Thus as one of the governor-arms begins to move outward it serves to vibrate one or the other of the equalizing or regulating levers, which in turn operates against the oppositely-located governor-arm, with the result that both of the governor-arms are caused to move outward or inward to the same extent.

From the foregoing description it will be seen that as a person jumps from a window after having placed the belt around his waist the cable begins to unwind rapidly from the reel or windlass, which has the effect of throwing out the governor-arms, and they in turn force the clutch or brake members into engagement with each other and with a force proportionate to the rapidity with which the windlass or reel is rotated. As a result the clutch or brake members operate to resist the rotation of the reel and the unwinding of the cable, and thus the descent of the operator is checked sufficiently to prevent him from being precipitated with violence upon the ground beneath. The factor of safety is thus incorporated in the fire-escape and adds greatly to the practical value and utility thereof. The mechanism employed is of a simple character and not liable to easily get out of order. The device is therefore reliable in practice, and being compact may be readily carried about by travelers and tourists and used whenever occasion requires.

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. The combination with a fire-escape embodying a rotatable reel or windlass and a cable wound thereon; of brake mechanism for resisting the rotation of the reel or wind-

lass, said mechanism comprising cooperating clutch members one of which is stationary and the other loosely mounted upon the windlass-shaft, governor-arms rotatable with the shaft and pivotally connected therewith and adapted to force the clutch members into engagement with each other, a spring for relieving the governor-arms, and means for causing the governor-arms to move equally toward or away from the windlass-shaft.

2. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft and a lowering-cable wound thereon; brake mechanism for resisting the rotation of the reel or windlass comprising male and female clutch members, one of which is fixed and the other loosely mounted upon the windlass-shaft, oppositely-located grooved governor-arms pivotally connected to the shaft and having a sliding engagement with one of the clutch members, and a contractile spring encircling the governor-arms for normally relieving the pressure between the governor-arms and the adjacent clutch member.

3. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other movable on the windlass-shaft, flanges on one of the clutch members, governor-arms pivotally carried by the windlass-shaft and having their corresponding ends operatively associated with the flanged clutch member, a groove in the outer end of each of the governor-arms and a contractile spring fitted in the said grooves and encircling the governor-arms, and operating to normally relieve pressure between the governor-arms and the adjacent clutch member.

4. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft and a cable wound thereon; in combination with brake mechanism consisting of a pair of clutch members one of which is stationary and the other movable on the windlass-shaft, governor-arms pivotally connected with the shaft and adapted to force one of the clutch members into engagement with the other clutch member, means for normally relieving pressure between the governor-arms and clutch member, pins projecting laterally from the governor-arms against which they bear, and means for equalizing the movement of the governor-arms consisting of a regulating-lever fulcrumed intermediate its ends and having oppositely-extending and reversely-curved arms cooperating with the projections on the governor-arms.

5. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft, and a cable wound thereon; in combination with brake mechanism comprising male and female clutch members, governor-arms pivotally connected with the windlass-shaft and operating against one of the clutch members, pins projecting laterally from the governor-arms,

means for normally relieving the pressure between the governor-arms and clutch member, and regulating-levers arranged on opposite sides of the windlass-shaft and governor-arms and comprising oppositely-projecting and reversely-curved arms which cooperate with the pins on the governor-arms.

6. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other loosely mounted on the windlass-shaft, guide-flanges on the outer surface of the male member, projecting arms connected to and rotatable with the windlass-shaft, governor-arms pivotally connected to the projecting arms and having their inner ends operatively associated with the flanged clutch member whereby when their outer ends are thrown outward their inner ends will force the flanged clutch into frictional contact with the female member.

7. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other movable on the windlass-shaft, a pair of governor-arms pivotally carried by the windlass-shaft and having their inner ends operatively associated with one of the clutch members and having their outer ends formed of semicircular weights having openings in their meeting edges to embrace the said shaft, and a contractile spring encircling the outer ends of the governor-arms and operating to normally relieve pressure between the governor-arms and the adjacent clutch members.

8. A fire-escape embodying a rotatable reel

or windlass, a windlass-shaft and a lowering-cable wound thereon; in combination with brake mechanism comprising male and female clutch members, one of which is stationary and the other movable on the windlass-shaft, flanges on the movable clutch member, a pair of governor-arms pivotally carried by the windlass-shaft and having their inner ends operatively associated with the flanged clutch member, semicircular weights secured on the outer ends of the governor-arms and having their meeting edges provided with half-cylindrical openings to embrace the reel-shaft and having their curved edge provided with an annular groove, and a contractile spring in the annular groove of the said weights operating to normally relieve pressure between the governor-arms and the adjacent clutch member.

9. A fire-escape embodying a rotatable reel or windlass, a windlass-shaft, and a cable wound thereon; in combination with brake mechanism comprising male and female clutch members, an expansible relief-spring interposed between said clutch members, governor-arms pivotally connected with the windlass-shaft and operating against one of the clutch members, pins projecting laterally from the governor-arms, means for normally relieving the pressure between the governor-arms and clutch members, and regulating-levers arranged on opposite sides of the windlass-shaft and governor-arms which cooperate with the pins on the governor-arms.

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

OMERIL TARDIF.

Witnesses:

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J. A. TARDIF.