

No. 703,236.

Patented June 24, 1902.

E. M. CHRIST & W. I. HALDEMAN.

FIRE ESCAPE.

(Application filed Mar. 13, 1902.)

(No Model.)

Fig. 1

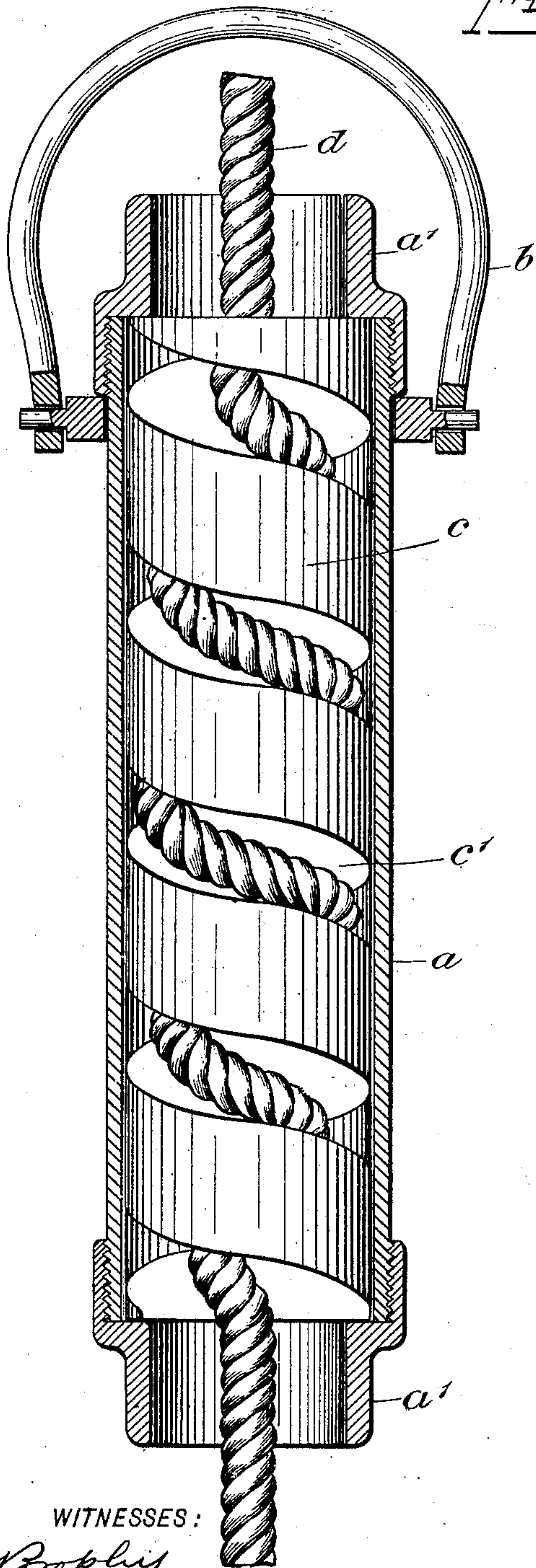
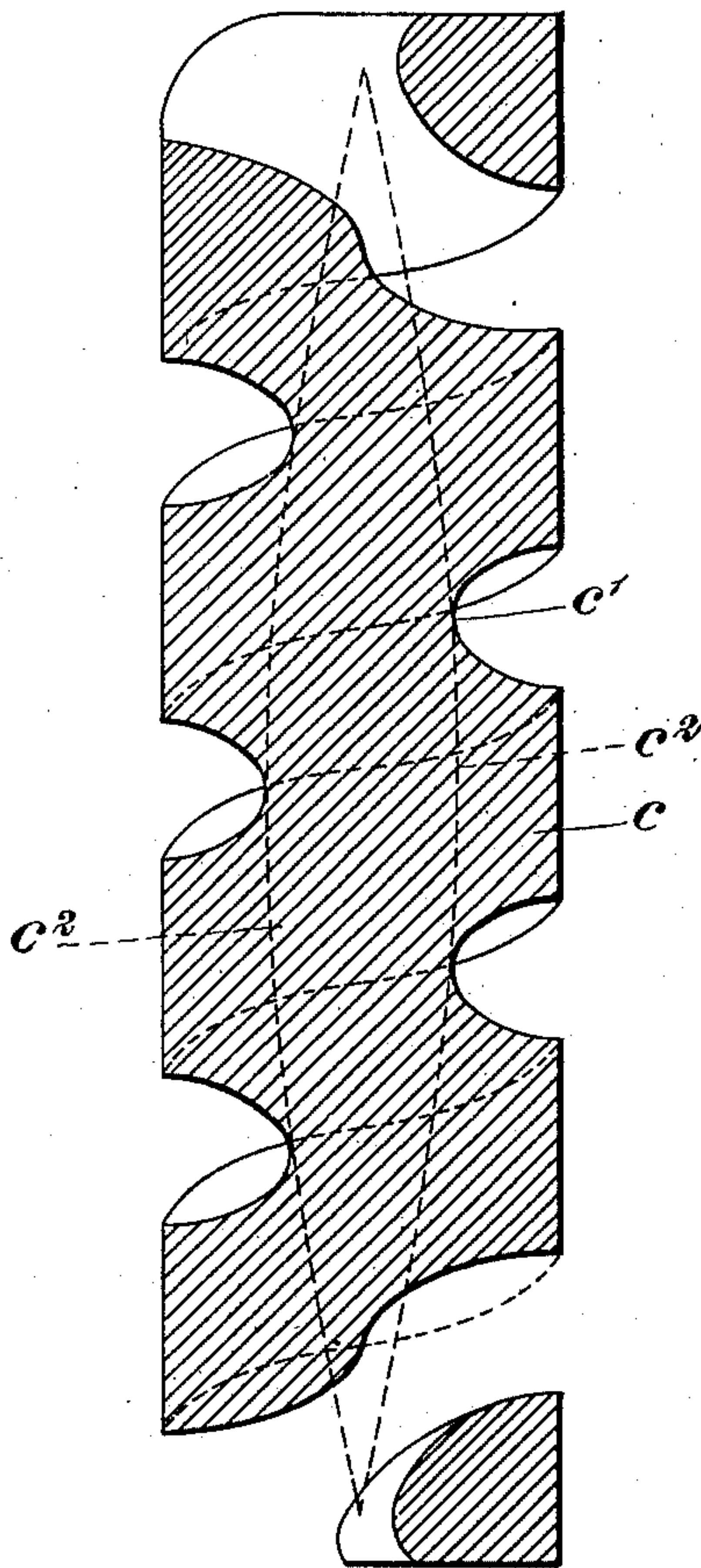


Fig. 2



WITNESSES:

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EDWARD M. CHRIST AND WILLIAM I. HALDEMAN, OF PINEGROVE,
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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 703,236, dated June 24, 1902.

Application filed March 13, 1902. Serial No. 98,061. (No model.)

To all whom it may concern:

Be it known that we, EDWARD M. CHRIST and WILLIAM I. HALDEMAN, citizens of the United States, and residents of Pinegrove, in the county of Schuylkill and State of Pennsylvania, have invented new and useful Improvements in Fire-Escapes, of which the following is a full, clear, and exact description.

This invention relates to an improvement in fire-escapes of that class disclosed in our prior patent, No. 644,404, dated February 27, 1900.

The invention resides in the peculiar form of the spiral around which the rope is wound. An ordinary spiral, such as is shown in our previous patent, in order to give the rope the number of turns sufficient to furnish the necessary resistance to the movement of the rope, must be so long as to be inconvenient, and, further, the rope leaves the ends of the spiral by turning an abrupt curve, thus necessarily straining the rope, which results in the premature destruction thereof.

Our invention therefore has two objects—first, to construct a comparatively short spiral, which will at the same time offer sufficiently great resistance to the sliding of the rope, and, second, to construct a spiral which will allow the rope to engage and disengage the ends of the spiral without turning sharp or abrupt corners, which turning would obviously injure and prematurely destroy the rope. We attain these ends by the form of spiral which we will now describe.

This specification is a specific description of one form of the invention, while the claim is a definition of the actual scope thereof.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both views.

Figure 1 is a sectional view of the invention, and Fig. 2 is a sectional view of the spirally-grooved bar wherein our present improvements lie.

In Fig. 1, *a* indicates the casing, and *a'* the end caps thereof, as shown in our previous patent. *b* indicates the sling. *c* indicates the spirally-grooved bar, and *d* indicates the rope.

Fig. 2 shows the spirally-grooved bar. In this bar the spiral groove *c'* is formed around

an outlining-core, which is indicated by the dotted lines *c*² in Fig. 2. This core is elliptical or cigar-shaped, as shown. It will therefore be seen that the spiral described by the groove *c'* tapers from its middle portion uniformly toward each end, so that the greatest diameter of the curve is at the middle, and at its ends the curve runs into the axial line of the spiral. Now the rope wound through the spiral groove thus formed will pass into and out of engagement therewith by movement directly along the axis of the spiral—that is to say, by a strictly longitudinal movement. The rope gradually runs up on the increasing diameter of the spiral, distributing the strain on the rope in its proper and equalizing proportion throughout the whole contact of the rope around the spiral, and therefore does not turn over short curves, so as to be injured thereby. The end portions of the spiral being made of slight curvatures, the middle portions of the spiral may be made with sharper or more abrupt curves, and these ends being of greater diameter it will be obvious that a longer length of rope will be taken to traverse the core than would be in the case of a uniform spiral, such as that shown in our previous patent.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

In a fire-escape, the combination of a cylindrical casing, and a bar held therein, said bar being of essentially uniform diameter and having a spiral groove formed therein, the groove being open at the sides of the bar at all points along the length of the bar, and the spiral along which said groove is formed being of greatest diameter at approximately the middle of the bar and tapering gradually toward each end until said spiral runs into the longitudinal axis of the bar.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

EDWARD M. CHRIST.
WILLIAM I. HALDEMAN.

Witnesses:

RAY BEUCHLER,
AARON STRUBHAN.