

(No Model.)

2 Sheets—Sheet 2.

J. KOCH & F. ADENAUER.  
FIRE ESCAPE.

No. 451,939.

Patented May 12, 1891.

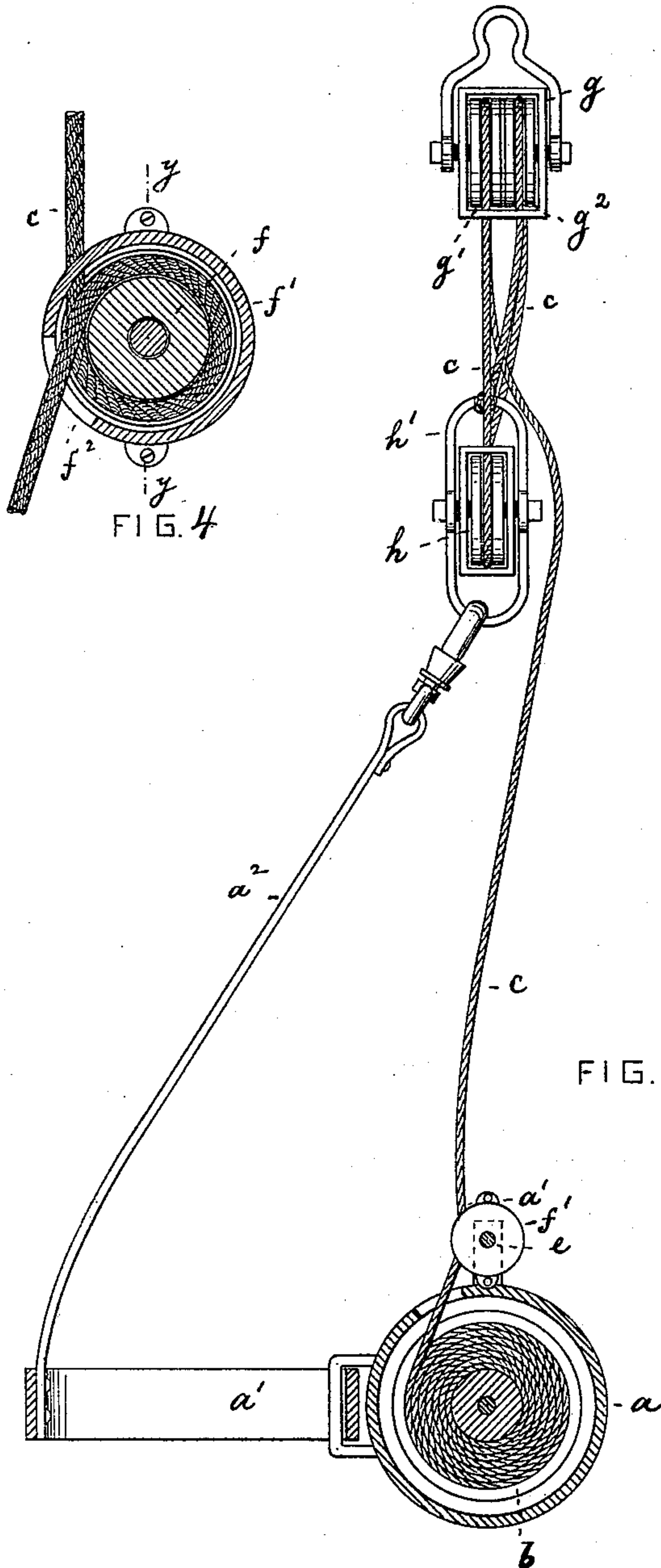


FIG. 4

FIG. 2

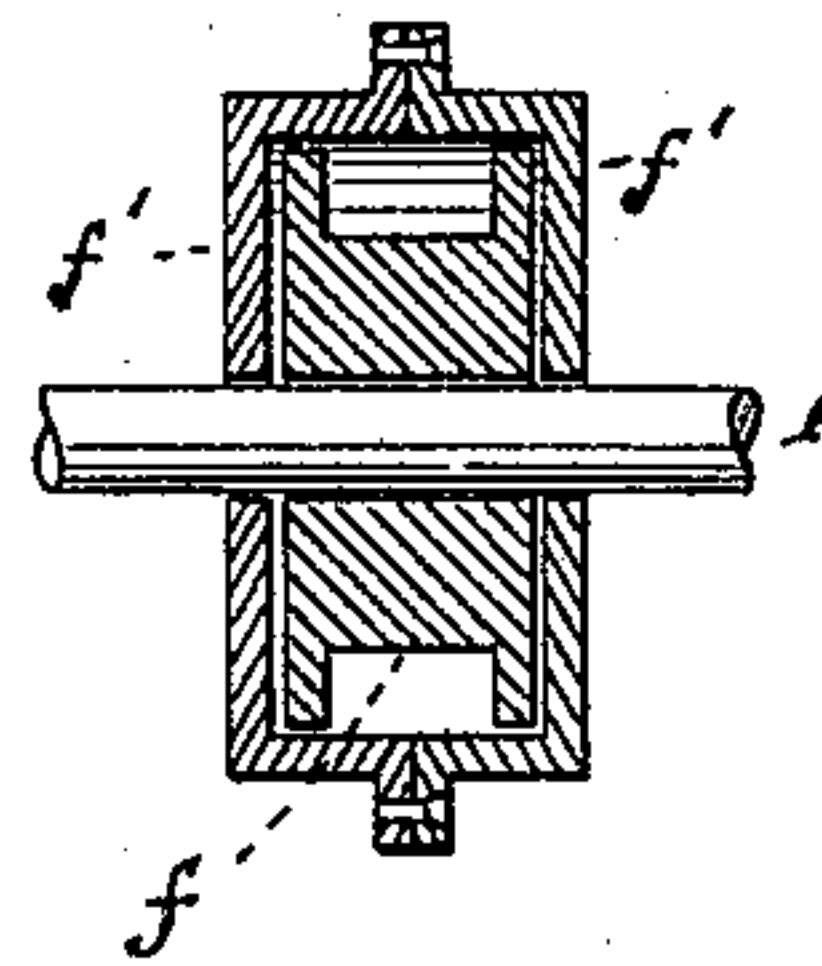


FIG. 5

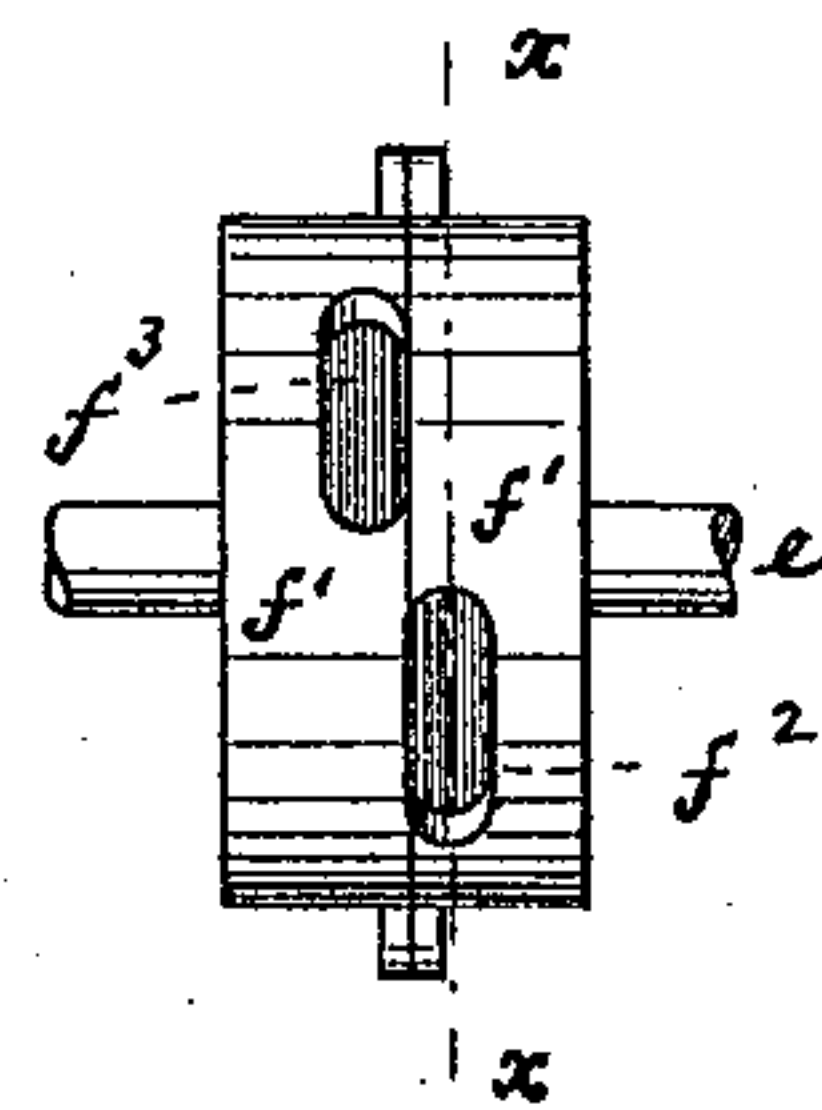


FIG. 3

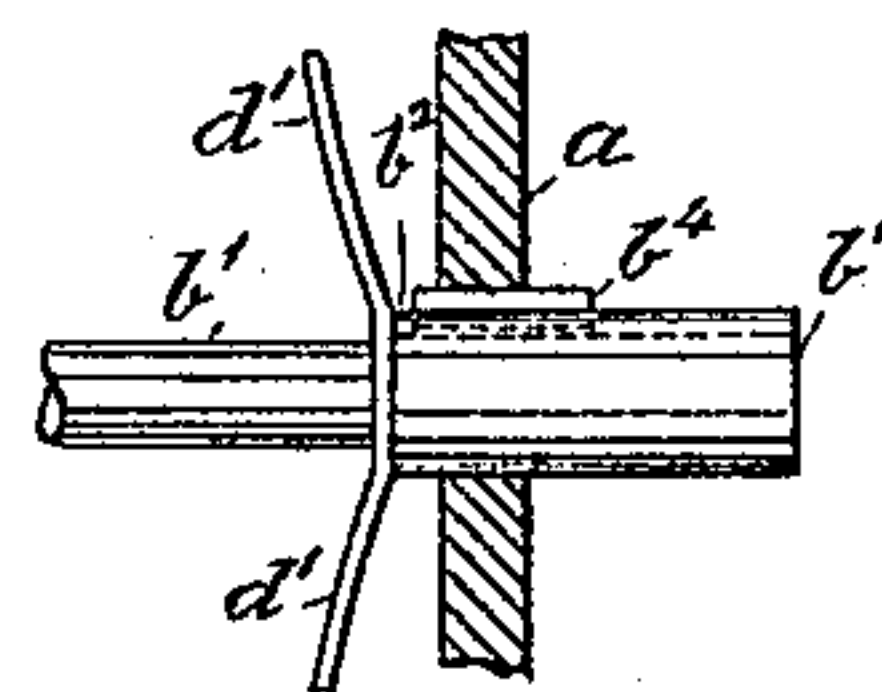


FIG. 6

WITNESSES

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INVENTORS

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*Roeder & Bieren*

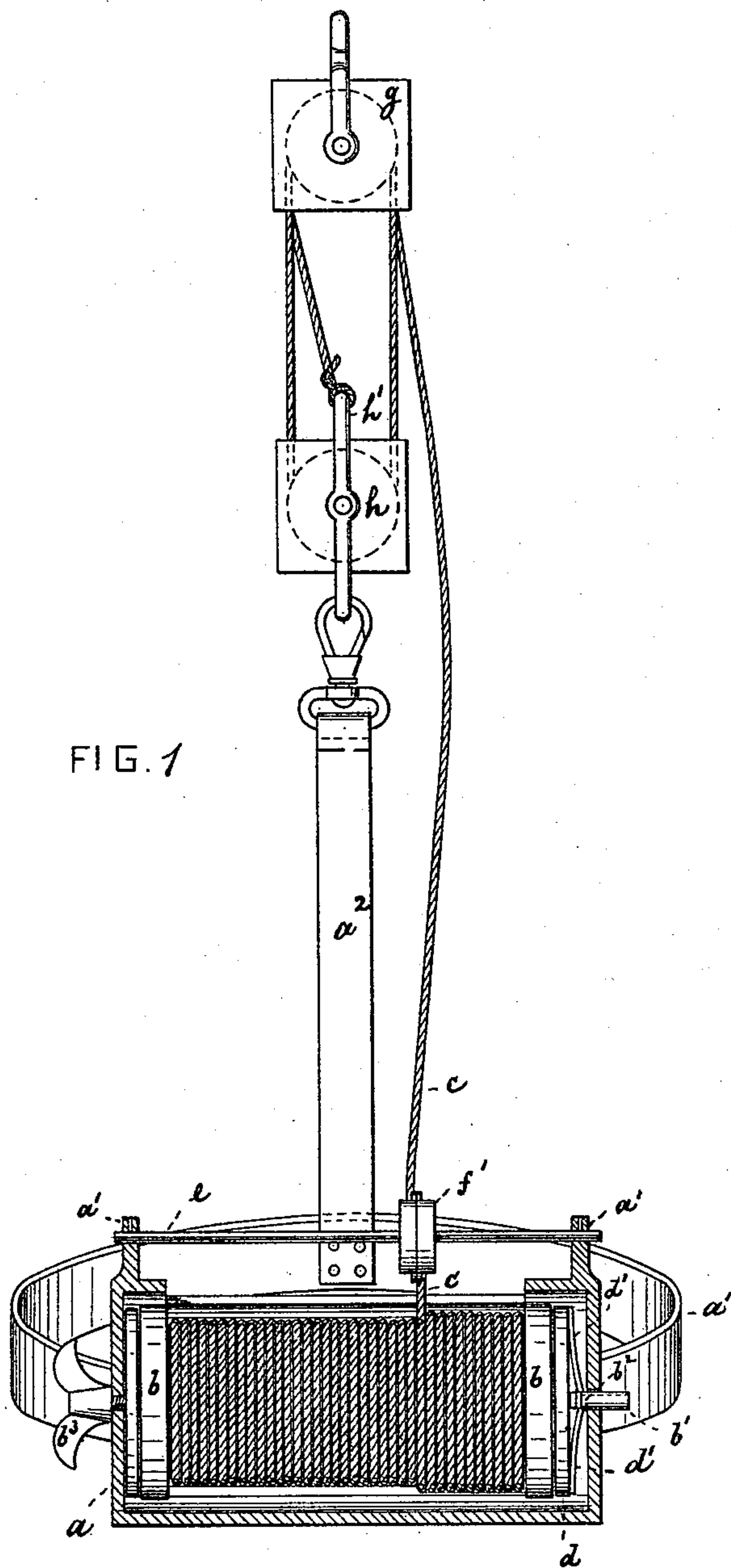
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*Wm. A. Lowe*  
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# UNITED STATES PATENT OFFICE.

JULIUS KOCH AND FRIEDRICH ADENAUER, OF NEW YORK, N. Y.

## FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 451,939, dated May 12, 1891.

Application filed January 3, 1891. Serial No. 376,615. (No model.)

*To all whom it may concern:*

Be it known that we, JULIUS KOCH and FRIEDRICH ADENAUER, both of New York city, New York, have invented an Improved Fire-Escape, of which the following is a specification.

This invention relates to a fire-escape of novel construction; and it consists in the various features of improvement more fully pointed out in the claims.

In the accompanying drawings, Figure 1 is a front elevation, partly in section, of our improved fire-escape. Fig. 2 is a cross-section thereof, showing the tackle in front view. Fig. 3 is a detail face view of the sliding shell; Fig. 4, a section on line  $x x$ , Fig. 3; and Fig. 5, a section on line  $y y$ , Fig. 4. Fig. 6 is a detail of part of shaft  $b'$ .

The letter  $a$  represents a tubular casing, adapted to be strapped to a person by means of a belt  $a'$ . Within the casing  $a$  is contained a drum  $b$  turning freely on a shaft  $b'$ , and upon which there is wound a thin and strong wire cable  $c$ . The drawings show the thickness of this cable somewhat exaggerated for the sake of clearness. Upon one end of shaft  $b'$  there is mounted a sliding disk or brake  $d$ , provided with springs  $d'$ , that are engaged by an offset  $b^2$  of shaft  $b'$ . The shaft  $b'$  is free to slide longitudinally, but is prevented from revolving by a spline  $b^4$ . A winged nut  $b^3$  engages a threaded end of the shaft  $b'$  outside of casing  $a$ . By revolving this nut the offset  $b^2$  crowds the spring-disk  $d$  against the drum  $b$  to any suitable extent, and thus the revolution of the drum may be retarded and the velocity of the descent may be regulated.

The casing  $a$  is provided with two upwardly-projecting lugs  $a'$ , that carry a fixed shaft  $e$  parallel to shaft  $b'$ . Upon the shaft  $e$  there slides freely a pulley  $f$ , around which the cable  $c$  is wound and which serves as a check or regulator for the uniform delivery of the cable. This sliding pulley delivers the cable at all times in the same plane, prevents it from overlapping on the drum, and also checks the speed of delivery.

To hold the cable properly upon the pulley  $f$  the latter is surrounded by a casing or shell  $f'$ , made in two sections that are screwed together and that are likewise free to slide upon shaft  $e$ . The casing  $f'$  has an inlet-opening  $f^2$  and an outlet-opening  $f^3$  for the cable. As the cable is being unwound from the drum  $b$ , the pulley  $f$  and casing  $f'$  reciprocate upon the shaft  $e$  following the lateral motion of the unwound end of the cable. The cable  $c$ , after having left the pulley  $f$ , passes over one sheave  $g'$  of a double block  $g$ . Thence it passes over the sheave of a single block  $h$ , thence over the second sheave  $g^2$  of block  $g$ , and is finally fastened to a strap  $h'$  of block  $h$ . This strap is secured to the back of belt  $a'$  by a back-strap  $a^2$ .

In use the block  $g$  is suspended from a fixed support and the person to descend straps the drum  $a$  and block  $h$  to his person by the belt  $a'$ . The block  $h$  is held in one hand while the winged nut  $b^3$  is manipulated by the other hand. As the cable unwinds, the person will be safely lowered.

What we claim is—

1. The combination of casing  $a$  with drum  $b$  contained therein, a parallel shaft  $e$ , secured to the casing, and a sliding pulley  $f$ , mounted on said shaft, substantially as specified.

2. The combination of casing  $a$  with drum  $b$  contained therein, a parallel shaft  $e$ , secured to the casing, and with a sliding pulley  $f$  and a surrounding shell  $f'$ , mounted on said shaft, substantially as specified.

3. The combination, in a fire-escape, of the following elements: a casing  $a$ , a shaft  $b'$ , drum  $b$  and brake-disk  $d$  contained therein, a winged nut  $b^3$ , engaging the shaft, a shaft  $e$ , parallel to shaft  $b'$ , and a pulley  $f$  and shell  $f'$ , sliding on shaft  $e$ , substantially as specified.

JULIUS KOCH.  
F. ADENAUER.

Witnesses:

F. V. BRIESEN,  
WM. WAGNER.