

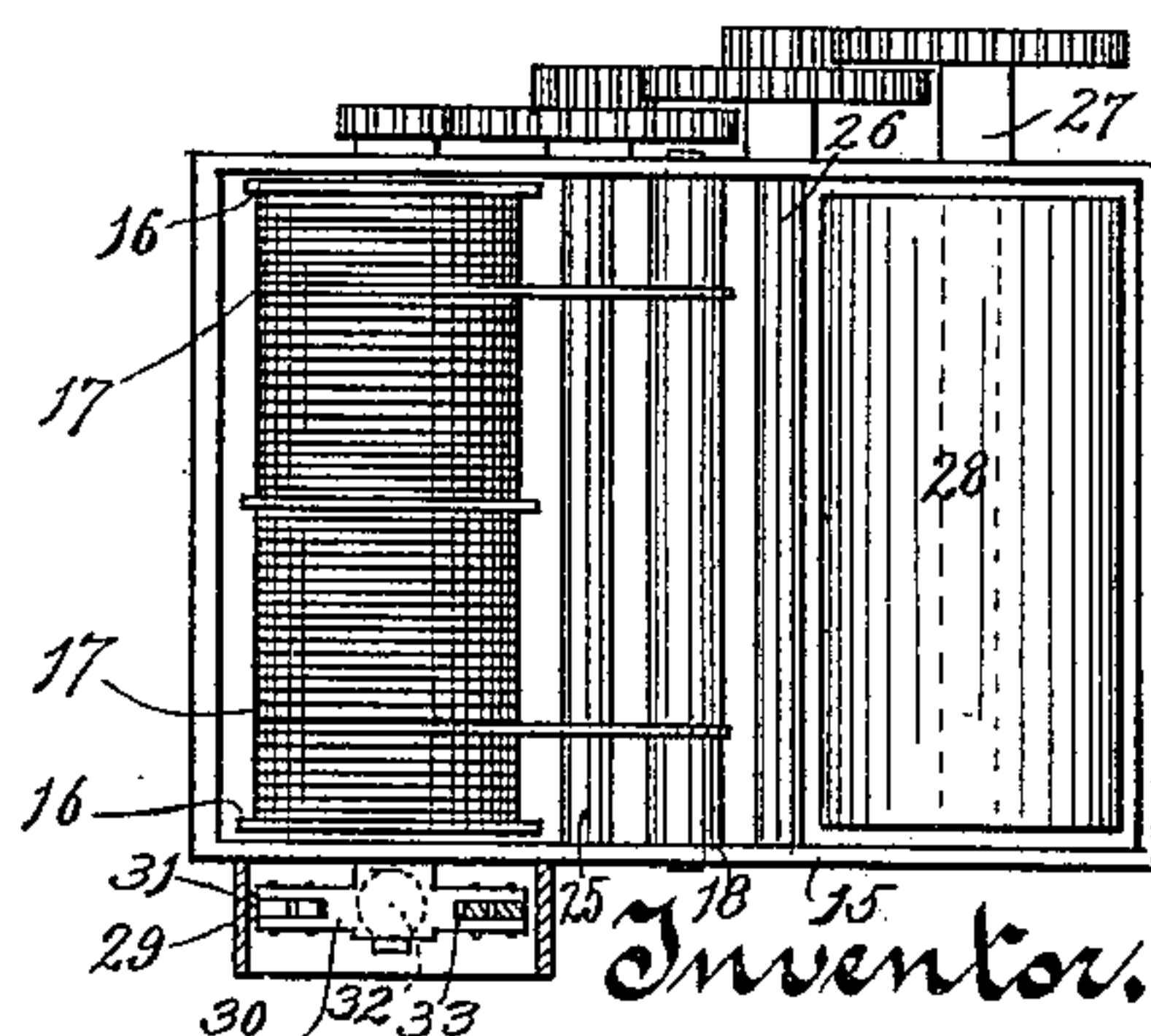
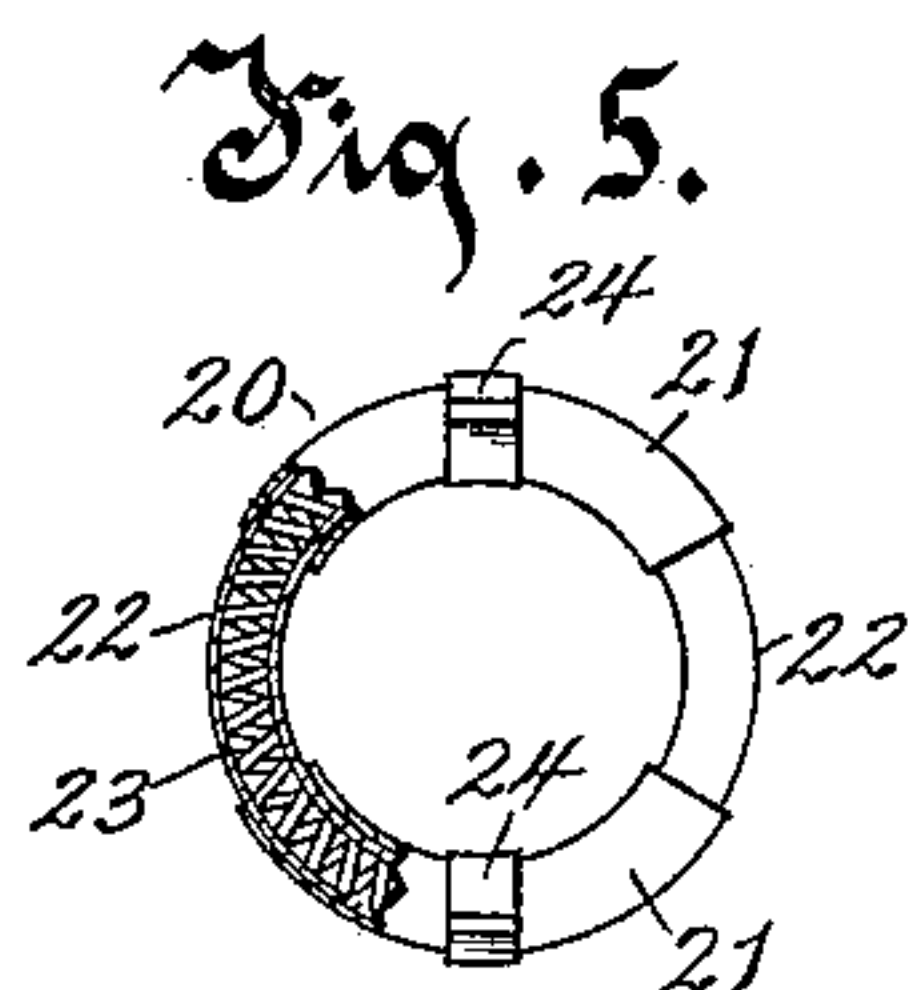
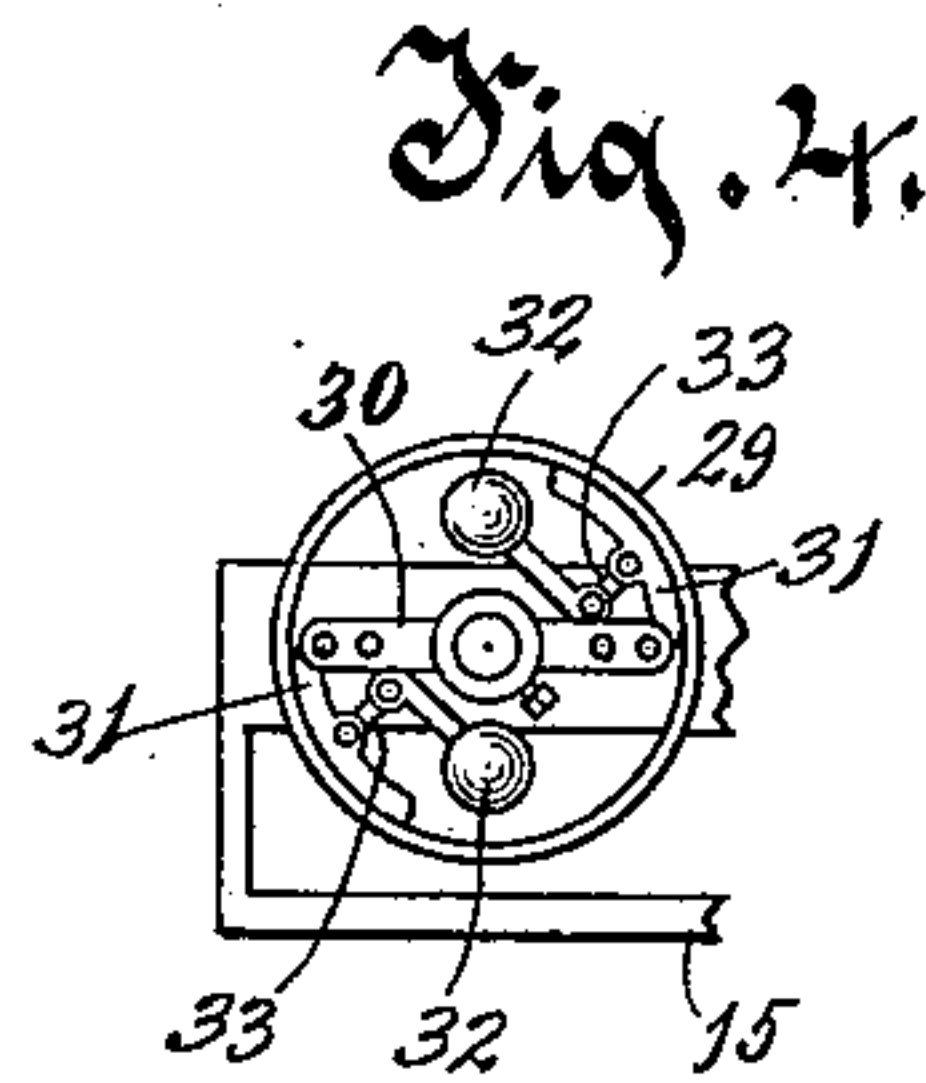
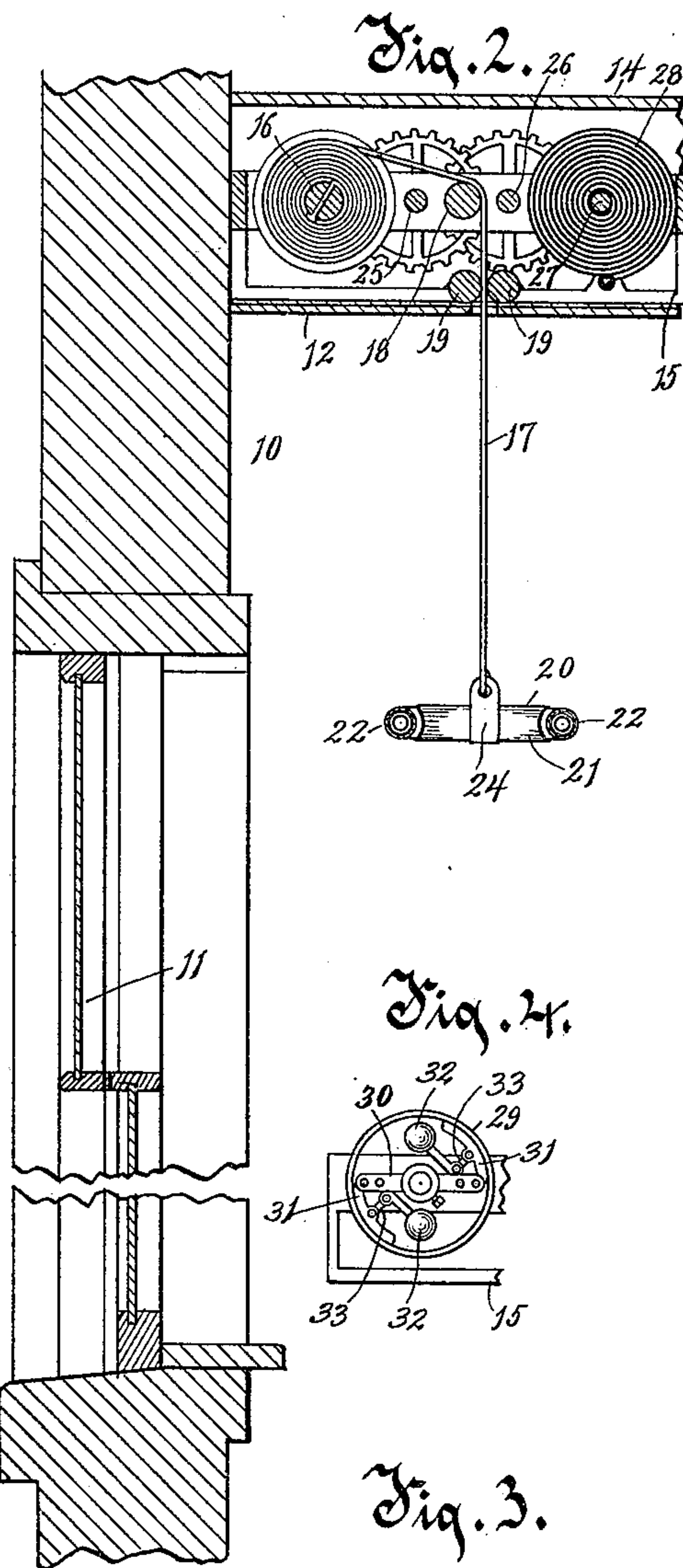
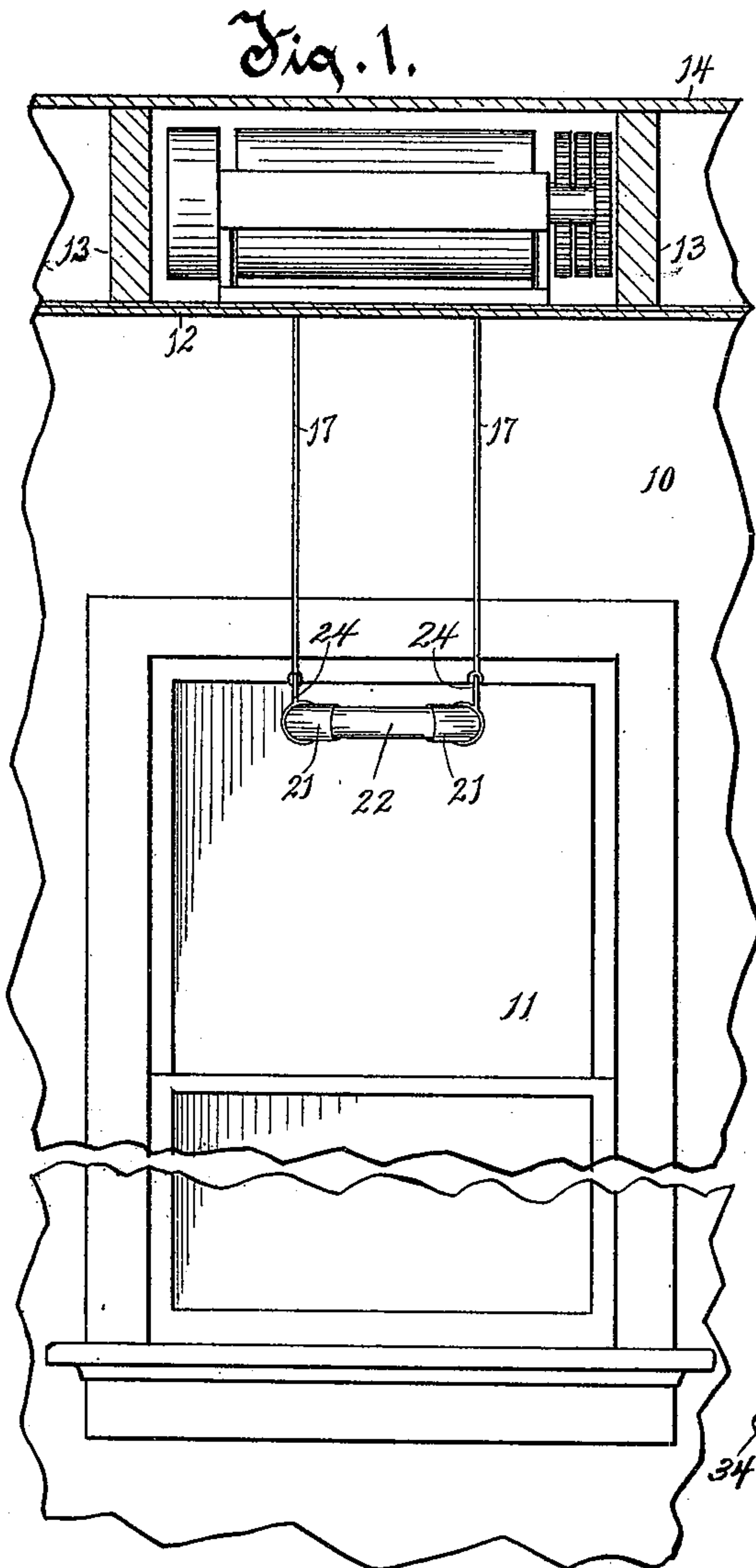
No. 641,705.

Patented Jan. 23, 1900.

M. A. KOENIG.
FIRE ESCAPE.

(Application filed June 5, 1899.)

(No Model.)



Witnesses:
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UNITED STATES PATENT OFFICE.

MARGARET A. KOENIG, OF MILWAUKEE, WISCONSIN.

FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 641,705, dated January 23, 1900.

Application filed June 5, 1899. Serial No. 719,394. (No model.)

To all whom it may concern:

Be it known that I, MARGARET A. KOENIG, of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented a new and useful Improvement in Fire-Escapes, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

My invention relates to improvements in fire-escapes adapted to be attached to and used in connection with buildings for safely letting down persons in the building from an upper story thereof through a window and exteriorly of the building to the ground.

The invention consists of the apparatus, its parts and combinations of parts, as herein described and claimed, or the equivalents thereof.

In the drawings, Figure 1 is a vertical section of a fragment of a building, showing my improved fire apparatus in connection therewith. Fig. 2 is a section of the fragment of the building shown in Fig. 1 and of the fire-escape apparatus in connection therewith at a right angle to the view in Fig. 1. Fig. 3 is a plan view of the chief parts of the operative mechanism of the apparatus. Fig. 4 is a detail of a governor attached to the fire-escape apparatus adapted to limit its too-rapid operation. Fig. 5 is a detail of an elastic belt, parts being broken away to show interior construction adapted for supporting a person on said apparatus.

In the drawings, 10 is a fragment of the side wall of a building in which there is a sliding glazed double window 11 of a form in common use. It is not important what particular form of window is employed in a building in which my improved apparatus is used, as any window-aperture through which a person can pass to the exterior of the building from a room therein is all that is required for the use of my apparatus in connection therewith. In buildings as ordinarily constructed there is a ceiling 12, forming the top or cover to the rooms, which ceiling is commonly secured to joists 13 13, framed in and forming a part of the building, and on these, where there are rooms above, a floor 14 is laid. This construction provides a superceiling-space between the joists and below the floor thereon when a floor is laid on the joists, and

in this superceiling-space I locate and support the principal parts of my fire-escape apparatus. For suitably supporting this apparatus I provide a frame 15, which is secured to the building, conveniently to the joists in the superceiling-space. In this frame 15 I mount a large spool or drum 16, provided with a cord or, preferably, a flexible wire rope or ropes 17 17, which wind thereon and run thence over an idle roller 18, also mounted in the frame 15, and depend therefrom between bearing-rollers 19 19, also mounted in the frame 15, and through the ceiling 12. At the lower extremity the wire rope or ropes 17 17 is provided with a belt 20, adapted to be placed around a person under the arms; and thus support the person limitedly during the descent of that person from the room to the ground. This belt 20 preferably consists of segmental tubular members 21 21 and smaller segmental tubular members 22 22, adapted to be inserted at their extremities in the members 21 21 and to telescope freely therein, the several segmental members 21 22 forming an annular tubular belt, which is preferably made of leather or some analogous flexible material. Within this annular tubular belt is placed an endless coiled-wire elastic and expansible spring 23. This belt is attached at the two sides thereof by means of clips 24 24 to the extremities of the ropes 17, and by its elastic and expansible construction is adapted to be distended annularly, so as to be adapted to be slipped down over the shoulders and arms of a person and then brought up under the arms, around the body, and, by means of the resilience of the coiled-wire spring 23, to be contracted and held snugly about the person under the arms.

A shaft 25, mounted in the frame 15, is provided with a cog-wheel that meshes with a pinion on the drum 16 and also with a pinion that meshes with a wheel on the shaft 26, mounted in the frame 15, the shaft 26 being also provided with a pinion that meshes with a cog-wheel on a shaft 27, also mounted in the frame 15, which shaft 27 is provided with a spiral spring 28, secured at one end to the shaft 27 and at the other end to the frame 15. This spring is of a strength in excess of the weight of the belt 20 and the ropes 17, whereby it is adapted to wind up these ropes, lifting

the belt 20 to the ceiling 12 and holding it there ready for use. The excess of strength of the spring 28 above the weight of the belt 20 and the ropes 17 is such, and only such, as
 5 to yield at once under the additional weight of a person, even a child placed in the belt 20, so that the person or child would go down with the belt on the ropes, being sustained only limitedly by the spring 28. A person
 10 having gone down to the ground in the belt 20 and being removed therefrom, the spring 28 at once rewinds the ropes 17, raising the belt to its original place near the ceiling 12.

To prevent the ropes 17 from unwinding too
 15 rapidly under the weight of a person, especially a heavy one, I provide a brake device which consists of a cylindrical shell 29, fixed on the frame 15 about and concentric with the extended journal of the drum 16, and a cross-
 20 head 30 is provided with brake-shoes 31, hinged at their extremities to the opposite ends of the cross-head, which brake-shoes are curved on their outer surfaces and adapted to bear against the inner surface of the shell 29.
 25 Centrifugal weights 32 are provided with stems that at their other extremities are hinged to the cross-head 30, and these stems are connected medially by links 33 to the brake-shoes 31 in such manner that under
 30 rapid rotation of the drum 16 the weights 32 will be carried outwardly radially and will thereby force the brake-shoes more or less strongly against the shell 29, thus retarding or temporarily stopping the rotation of the
 35 drum 16. The disposition of the brake-shoes and the centrifugal weights 32 and their connections with each other are such as to act with great force, the effort of the weights being applied to the brake-shoes through levers
 40 acting in the manner of toggle-joints.

On the outer edge of the window-sill I provide a bearing-roller 34, adapted to carry the ropes 17 thereon and obviate friction.

It will be observed that the principal parts
 45 of my improved fire-escape are normally in-

side the building and are located in the space above the ceiling of the room, so as to be out of sight, while the belt is always so located near the ceiling in the room that it can be readily drawn down and applied to a person, 50 who, getting out of the room through the window, will descend outside the building to the ground, the too-rapid movement downwardly being always promptly checked by the governor, and when the person having reached 55 the ground is released from the belt the ropes will be at once wound up, lifting the belt again into the room and in position to be again used by another person for descending to the ground. 60

What I claim as my invention is—

1. The combination with a building inclosing a room, of fire-escape mechanism including a frame, a drum, ropes winding on the drum, and a spring adapted to wind up the ropes and 65 sustain them yieldingly located permanently in the superceiling-space above the room of the building, the ropes extending normally down through the ceiling into the room, an attaching-belt on the extremities of the ropes 70 below the ceiling in the room, and a bearing-roller mounted on the sill of a window of the room adapted to carry the ropes thereon when running down or up over the window-sill.

2. In a fire-escape apparatus, the combina- 75 tion with ropes depending from means adapted to wind them up and to permit of their being run down, of an annular flexible elastic belt comprising segmental tubular members attached to the ropes, other segmental tubu- 80 lar members of less diameter than and telescoping in the first-named segmental tubular members, and an endless coiled-wire elastic and expansible spring therein.

In testimony whereof I affix my signature 85 in presence of two witnesses.

MARGARET A. KOENIG.

Witnesses:

HARRY GREENBERG,
 C. T. BENEDICT.