

No. 708,846.

Patented Sept. 9, 1902.

H. VIEREGG.
FIRE ESCAPE.

(Application filed Oct. 4, 1901.)

(No Model.)



Fig. 1.

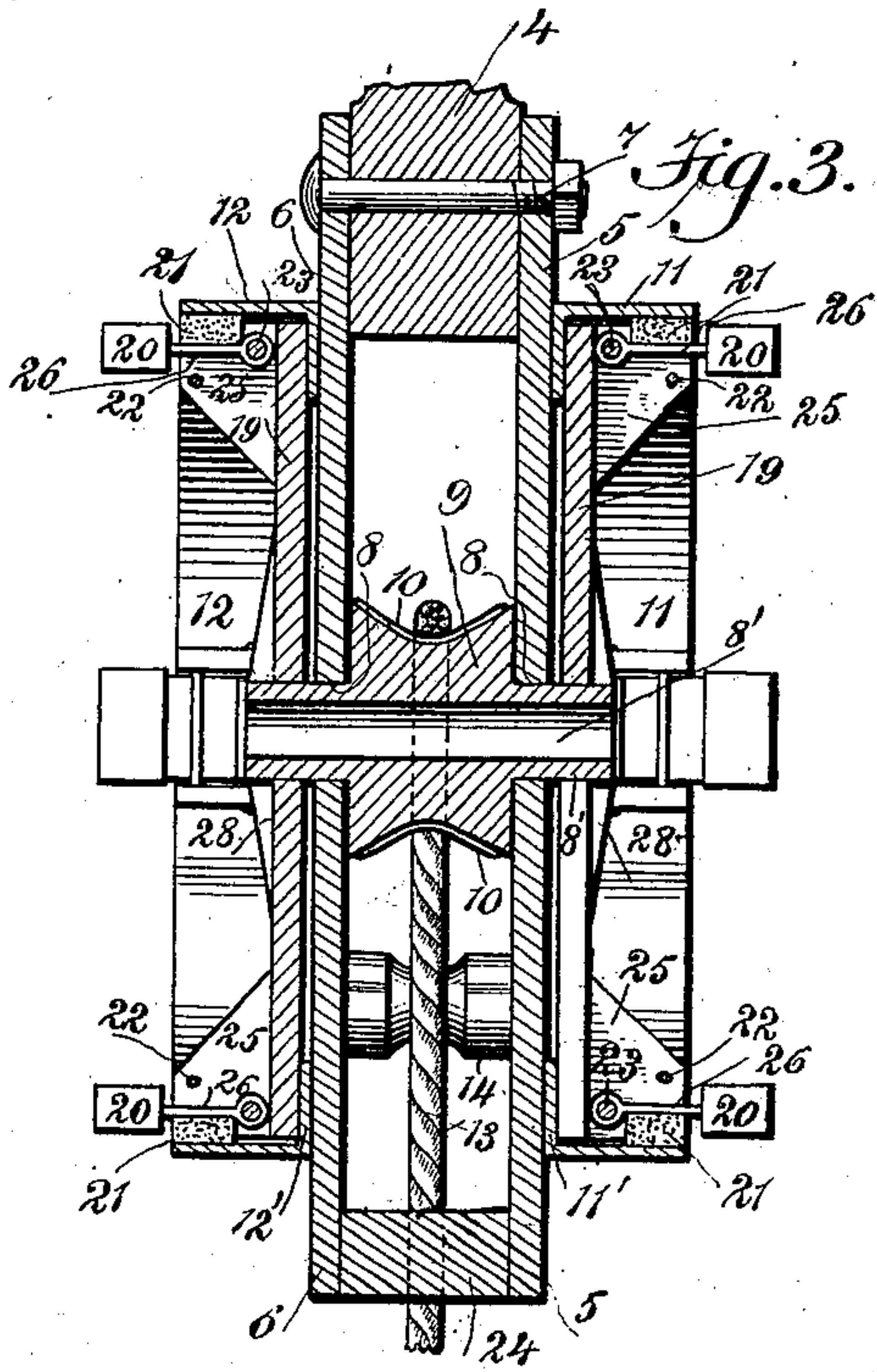


Fig. 3.

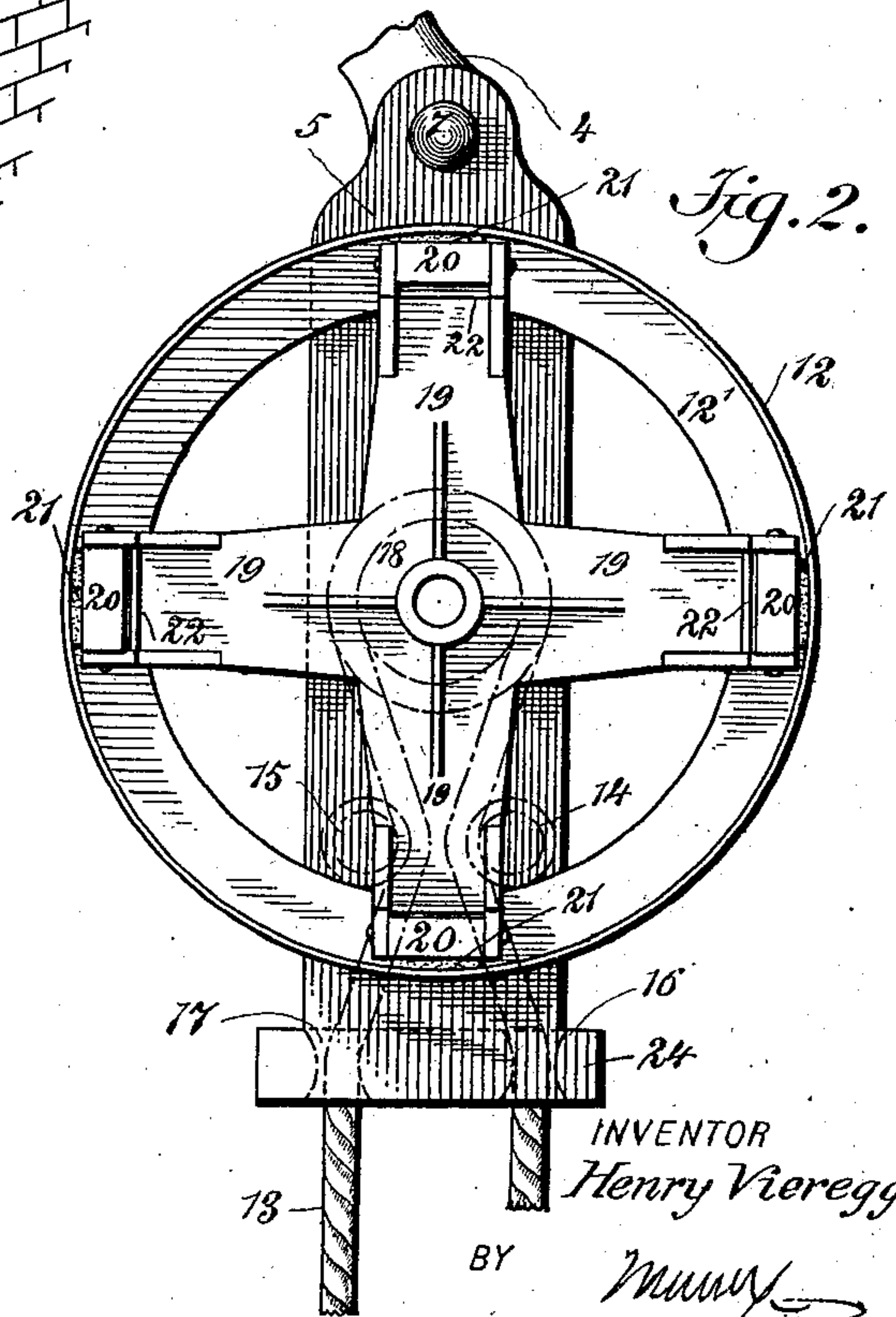


Fig. 2.

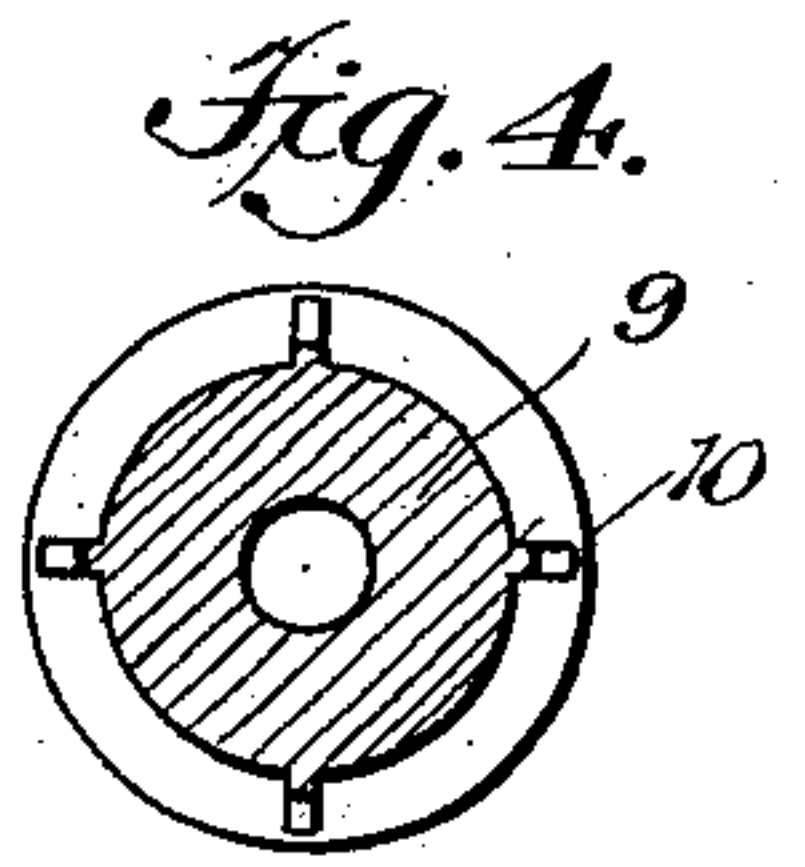


Fig. 4.

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FIRE-ESCAPE.

SPECIFICATION forming part of Letters Patent No. 708,846, dated September 9, 1902.

Application filed October 4, 1901. Serial No. 77,573. (No model.)

To all whom it may concern:

Be it known that I, HENRY VIEREGG, a citizen of the United States, and a resident of Grand Island, in the county of Hall and State of Nebraska, have invented a new and Improved Fire-Escape, of which the following is a full, clear, and exact description.

My invention relates to fire-escapes, and more particularly to a kind to be suspended from a frame adjacent to a window and to be operated by the weight of a person descending to the ground.

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 all the figures.

Figure 1 is a perspective view of my device in use. Fig. 2 is an elevation showing the principal details of the structure. Fig. 3 is a section taken centrally through the device as shown in Fig. 2, and Fig. 4 is a section of the central pulley.

The device consists of a frame or block-containing mechanism, whereby a cord when actuated by the weight of a person descending causes certain parts to act as a brake.

Upon opposite sides of the window 1 are mounted brackets 2, which are provided with a cross-beam 3. Upon this cross-beam is secured a hook 4, to which are secured the front and back members 5 6 of the block by means of the bolt 7 and the guide-plate 24. The plates 5 6 are provided centrally with bearings 8, and between them a pulley 9, which may be made of brass or iron and provided with ribs 10 of the same material for the purpose of roughening the surface thereof, is mounted by means of the tubular spindle 8'. The plates 5 and 6 are provided with annular brake members 11 12, which are mounted, by means of flanges 11' 12', so as to be stationary relatively to the block. An endless cord 13 is doubled, so as to make two members, as shown in Fig. 1, and is caused to pass over the pulley 9 and engage the rollers 14 15 and also to pass through the friction-holes 16 17 in the guide-plate 24 in the manner shown in Fig. 2. The cord or rope consists, preferably, of four strands for the purpose of affording a good grip on the pulley.

If desired, however, a chain may be substituted for the rope or cord. A revoluble member comprising radially-disposed arms 19 is mounted upon the ends of the spindle 8', so as to revolve therewith. The extreme outer ends of the radially-disposed members 19 are provided with brake members consisting of brake-shoes 21, the members 26 of which are pivoted at 23 and provided with weights 20, so arranged that the revolution of the members 19 will cause the brake-shoes 21 to engage the inner brake-surfaces of the annular brake members 11 12. The radially-disposed members 19 are strengthened by means of braces 25 and 28. The braces 25 are provided with pins 22 for the purpose of acting as stops for the longitudinal members 26 when the latter are moved outward by the centrifugal force of the weights 20. As these longitudinal members 26 are pivoted at 23 and are forced radially outward by the weights 20 they exert leverage upon the brake-shoes 21, not only forcing them into engagement with the annular brake members surrounding them, but exerting considerable leverage upon the same, according to the speed of revolution. The radially-disposed members 19, with their connections, constitute spiders forming revoluble brake members, a sort of star-shaped wheel, as shown in Fig. 2.

My invention is used as follows: A person desiring to escape seizes one member of the cord, rope, or chain, as shown in Fig. 1, and forthwith jumps out of the window. His weight upon the cord, rope, or chain causes the central pulley 9, together with the arms 19, to rotate. This causes the weights 20 to be thrown outward, as above described, thus forcing the revoluble brake-shoes 21 into engagement with the stationary annular brake members 11 12 and checking the speed of the person descending. A heavy person will therefore descend at no greater speed than a light one, for the reason that the excessive pull upon the rope causes the centrifugal brake to act as a more active check. As the device is provided with eight independent brakes, it will be very sure to check the speed, for the reason that any one or two of the brakes will be sufficient for the purpose in

the event that the others should fail to work; but I do not limit myself to this exact number of brakes. Sixteen or any other number desired may be employed.

5 The device can be suspended from any convenient point—as, for instance, from a nail or from a staple or spike—or it can be secured in any desired manner to any kind of stationary object.

10 By reference to Fig. 3 of the drawings it will be noted that I employ two brake mechanisms, the same being disposed on opposite sides of the pulley-block, and that the pulley occupies a central position between the
15 brake mechanisms, whereby the resistance offered to the rotation of the pulley by the brake mechanism is equally distributed on the two brake members that are disposed on the respective sides of the pulley-block. In
20 my construction each revoluble brake member is in the form of a spider having a plurality of arms, each terminating in lugs adapted to form pivotal bearings. These pivotal bearings of the arms on each spider serve to
25 support a series of pivots for the centrifugal levers, said pivots lying parallel to the plane of the spider and adapted to permit the centrifugal levers to extend outwardly in order to lie substantially at right angles to the plane
30 of the brake members. The levers are provided at their free ends with weights, and said levers are also equipped with brake-shoes, the latter being attached to levers at points between the weights and the fulcrums of
35 the levers. This arrangement and disposition of the parts provides for the forcible application of the brake-shoes to the stationary members when the pulley is rotated by the cable 13, and thus the brake mechanisms are
40 actuated by a load or weight of a person in using the escape.

By reference to Fig. 2 of the drawings it will be noted that the pulley-block is provided with the plate 24, which is located some
45 distance below the pulley-shaft, said plate having the spaced eyes 16 and 17, the inner edges of which are adapted to form friction-surfaces for engagement by the cable 13. Between the pulley and the plate is arranged a
50 pair of rollers 14 15, and these rollers are spaced apart for a distance less than the spacing of the eyes 16 17 of the plate 24. The rollers serve to engage with the individual strands of the cable, and said rollers serve
55 to draw the strands of the cable toward each other at points between the pulley and the plate. This disposition of the parts makes the cable closely hug the pulley, and the strands of said cable are adapted to have engagement with the pulleys and with the friction-surface which are formed by the eyes
60 in the plate 24, whereby the cable is prevented from sliding with great freedom or too rapidly through the parts of the fire-escape.

Having thus described my invention, I

claim as new and desire to secure by Letters Patent—

1. A fire-escape comprising a suitable pulley-block, annular brake members secured
70 firmly to opposite sides of the block, a shaft concentric to said brake members and having a pulley disposed within the block and between said brake members, revoluble brake
75 members fast with the opposite end portions of said shaft, centrifugal levers fulcrumed on the revoluble brake members to turn on axes that lie parallel to the planes of said brake
80 members and adapted to be thrown outwardly to positions at right angles to said planes of
said brake members, weights on said brake-levers, and shoes carried by said levers at points between the fulcrums thereof and the weights thereon.

2. A fire-escape comprising a suitable pulley-block, annular brake members secured
85 firmly to opposite sides of the pulley-block, a shaft extending through the block and said brake members and provided with a centrally-disposed pulley, revoluble brake members
90 fast with the end portions of the shaft and each having a series of radial arms which terminate in suitable pivot-bearings, brake-levers connected to said bearings by pivots
95 which lie parallel to the planes of the brake members and permitting said levers to extend outwardly to active positions at right angles to the revoluble members, weights on
said levers, and brake-shoes actuated by the levers and adapted to engage the stationary
100 brake members.

3. A fire-escape comprising a pulley-block having a pulley and a brake mechanism to retard the pulley, a plate secured to the
105 block below the pulley and provided with spaced eyes affording friction-surfaces, a flexible cable or member fitted around the pulley and passing through the eyes of said plate, and a pair of friction-rollers disposed
110 between the plate and the pulley and having individual engagement with the strands of the cable or member, said rollers being grouped closer together than the space between the
115 eyes of the plate and serving to draw the strands of the cable or member inwardly toward each other at a point between the pulley and the plate, whereby the cable is caused to hug the pulley and to have frictional engagement with the rollers and the friction-surfaces of the plate.
120

4. A fire-escape, comprising a block provided with a revoluble pulley and with a stationary guide-plate having friction-holes, relatively stationary brake members of annular
125 form secured upon opposite portions of said block, revoluble members connected with said pulley and actuated thereby, longitudinal members connected with said revoluble
members and free to swing when subjected to centrifugal force, weights and brake-shoes
130 mounted upon said longitudinal members, so disposed that said weights are free to force

said brake-shoes into contact with said stationary brake members and also to exert leverage upon said brake-shoes, a pair of rollers loosely mounted adjacent to said holes in
5 said guide-plate, and a flexible cord engaging said holes, said rollers and said pulley, substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HENRY VIEREGG.

Witnesses:

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