(No Model.)

I. B. COLEMAN.

ELEVATOR HOISTING APPARATUS.

No. 505,592. Patented Sept. 26, 1893.

Fig. 1.

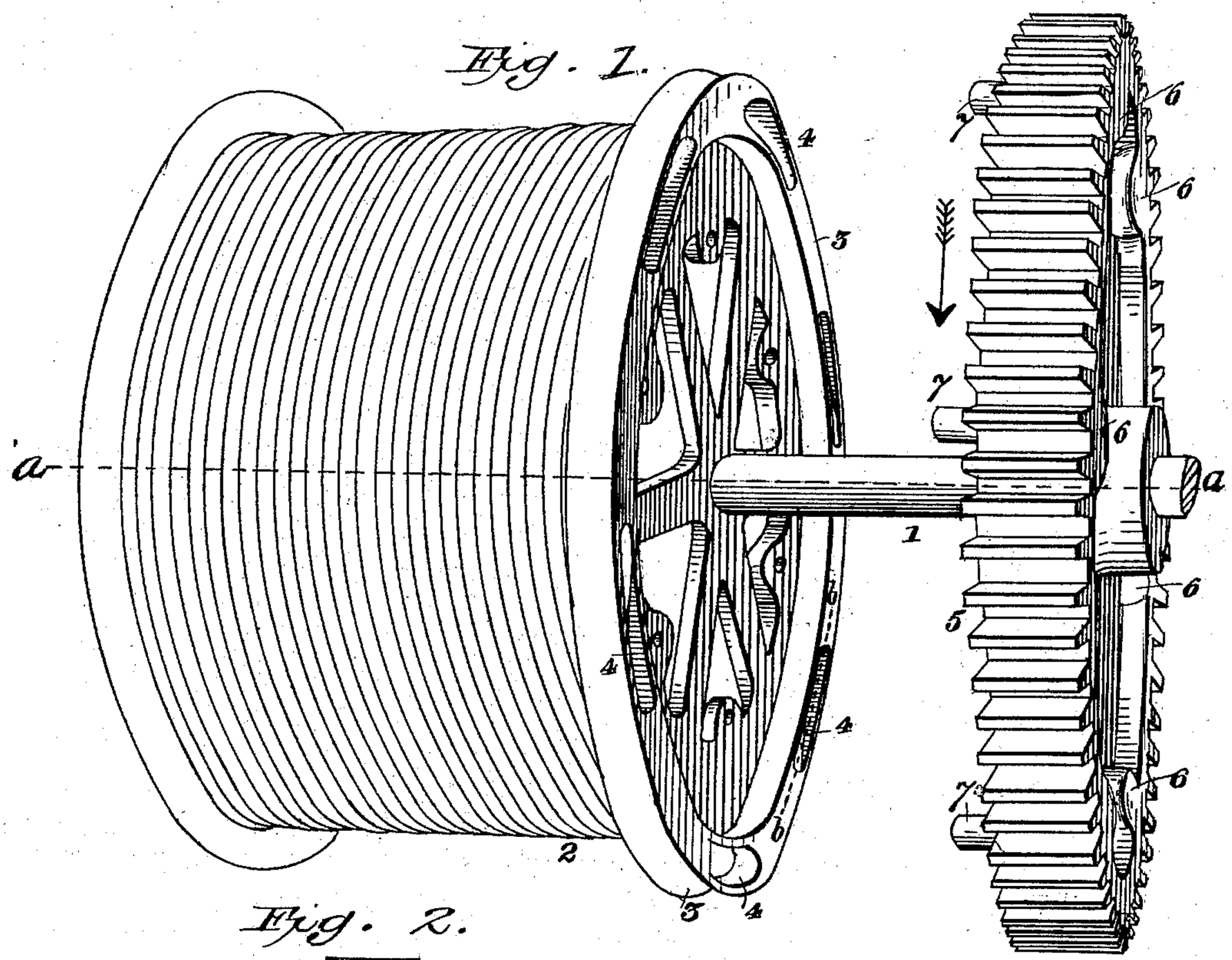


Fig. 2.

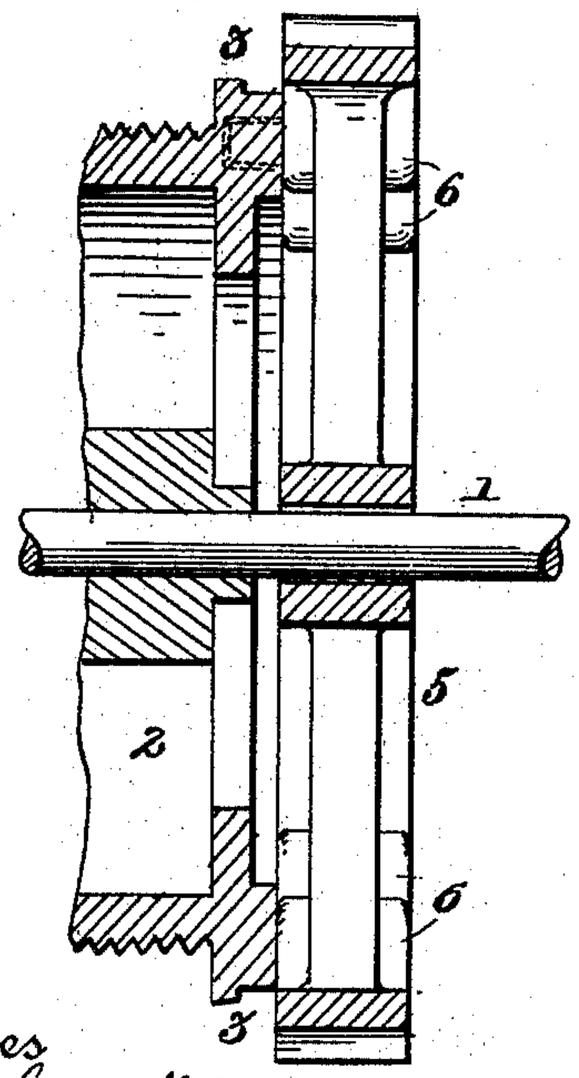
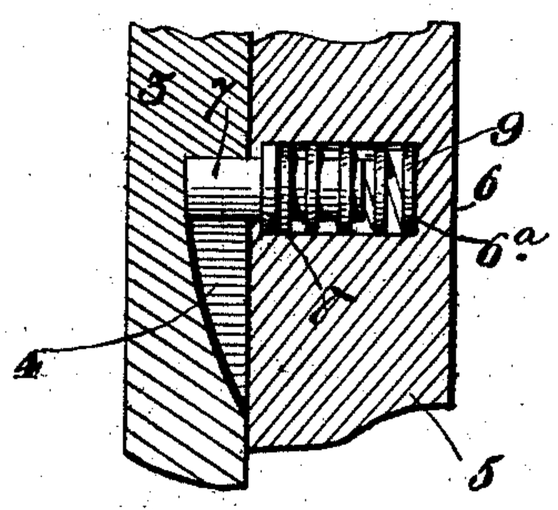


Fig. 3.



Witnesses
R. J. Schwartz
John Cullen

Inventor
Isaiah B. Coleman
by J. Fred Reily,
his Attorney.

UNITED STATES PATENT OFFICE.

ISAIAH B. COLEMAN, OF ELMIRA, NEW YORK.

ELEVATOR HOISTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 505,592, dated September 26, 1893.

Application filed October 18, 1892. Serial No. 449,207. (No model.)

To all whom it may concern:

Be it known that I, ISAIAH B. COLEMAN, a citizen of the United States, residing at Elmira, in the county of Chemung and State of New York, have invented certain new and useful Improvements in Elevator Hoisting Apparatus; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the figures of reference marked thereon, which form a part of this specification.

My invention consists in certain new and useful improvements in hoisting apparatus for elevators, whereby, if any obstruction is placed beneath the car in its descent, the winding drum will immediately and automatically stop unwinding the cable, thus preventing the cable becoming entangled in the spur gears of the hoisting mechanism and thus destroyed.

My invention will be hereinafter fully described and claimed.

Referring to the accompanying drawings: Figure 1 is a perspective view, showing so much of the hoisting mechanism for an elevator as will illustrate my invention. Fig. 2 is a sectional view taken on line *a*—*a*, Fig. 1. Fig. 3 is a sectional view taken on line *b*—*b*, Fig. 1.

The same numerals of reference indicate corresponding parts in all the figures.

Referring to the several parts by their designating numerals: 1 indicates the transverse shaft on which the cable drum, 2, is mounted. The end-rim or flange, 3, at one end of this drum is slightly enlarged, and in the outer face of this rim is formed a series of equidistant pockets or recesses, 4; the bottom of each of said pockets inclining or slanting inward, from a depth of zero at one end to about one and one-fourth inches at the other. The main spur-wheel, 5, of the driving gear, which drives the drum, is loosely mounted on the shaft 1; and in bosses, 6, at the outer ends of the arms of this wheel are mounted steel pins, 7, which project out on the inner side of the wheel. Each pin 7 has a shoulder, 8, turned or formed on it, and a spiral spring, 9, encircles the smaller inner end of each pin, bearing at its outer end against this shoulder and resting at its inner end on the bottom of the hole, 6^a, formed in that boss 6. It will now be seen that when the main gear-wheel 5 is revolved in the direction indicated by the arrow, the spiral springs 9 will throw the steel pins 7 out, projecting them out of the holes 6^a so that their outer ends will slide into the pockets 4 until they rest in the deepest ends of the same, where they will be held firmly while the car is being raised by the winding up of the cable on the drum. When the car is to be lowered the main-wheel 5 is turned in the opposite direction to that shown by the arrow, when the weight of the car, or the difference in weight between it and its counterbalance, drawing on the cable as the latter is unwound from the drum will keep the deep ends of the pockets 4 in contact with the pins 7 as long as the car is descending; but when some obstruction comes in the way of the car and stops its descent, the wheel 5, loosely mounted on the shaft, will continue to revolve, and the spring-actuated pins 7 will slide up the inclined bottoms of the pockets 4 and will drop into the next pockets, and so on until the belt is shifted off; while the heavy winding drum will remain still. It will thus be seen that the moment the car is stopped by an obstruction the main-wheel 5 will be automatically thrown out of gear or disengaged from the drum, thus rendering it impossible for the cable to become entangled and destroyed in the spur gears. I have shown the drum formed with six of the pockets and the wheel 5 provided with six of the spring-actuated pins 7, but I do not of course confine myself to any stated number, as any suitable number of pins and pockets may be employed; the necessary feature being that the pins and pockets must be arranged the same distance apart, so that all of the pins will be in contact with the deep ends of the pockets at the same time.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

In a hoisting apparatus, the combination

with a winding-drum mounted on a shaft and having a series of equidistant recesses in one of its sides, said recesses having correspondingly inclined bottoms, of the driving wheel loosely mounted on said shaft and having a series of equidistant cylindrical recesses registering with the recesses in the side of the drum, said recesses having contracted mouths, pins 7 arranged in said recesses in the driving wheel said pins being provided with projecting collars 8 arranged below the contracted mouths of the recesses and springs mounted on said pins below said collars, substantially as set forth.

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

ISAIAH B. COLEMAN.

Witnesses:

E. F. LAWRENCE,

GEO. C. JONES.