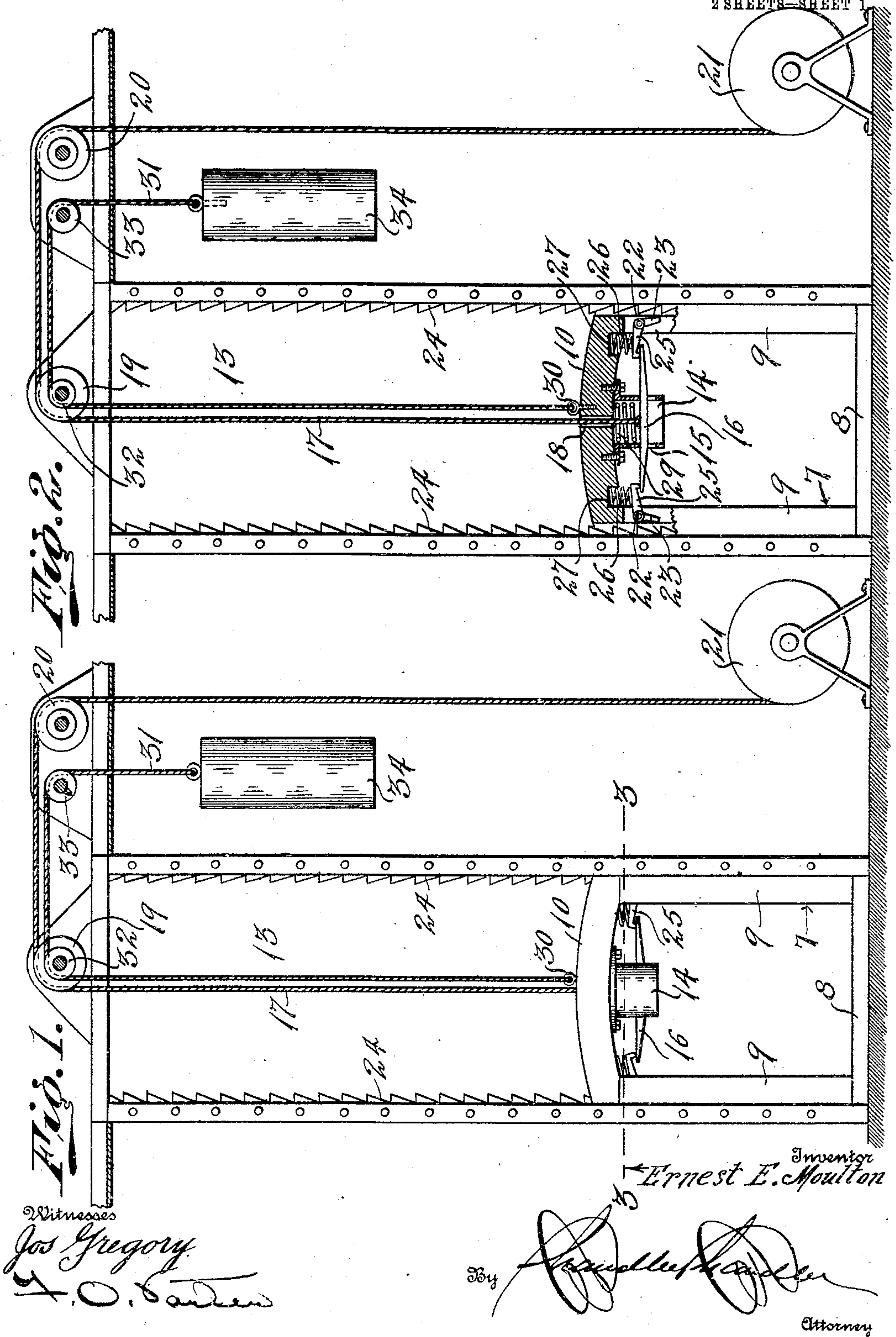


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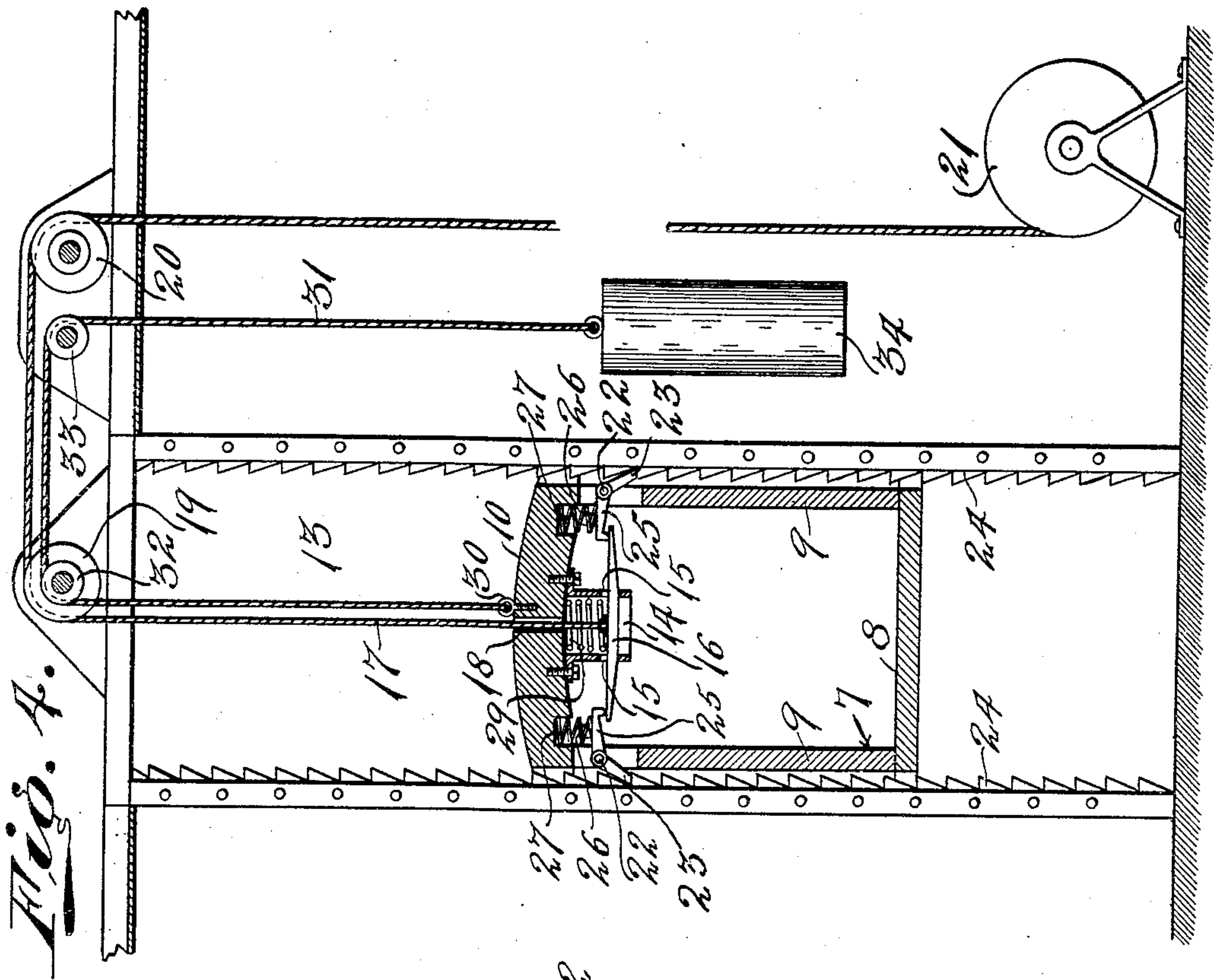
2 SHEETS—SHEET 1.



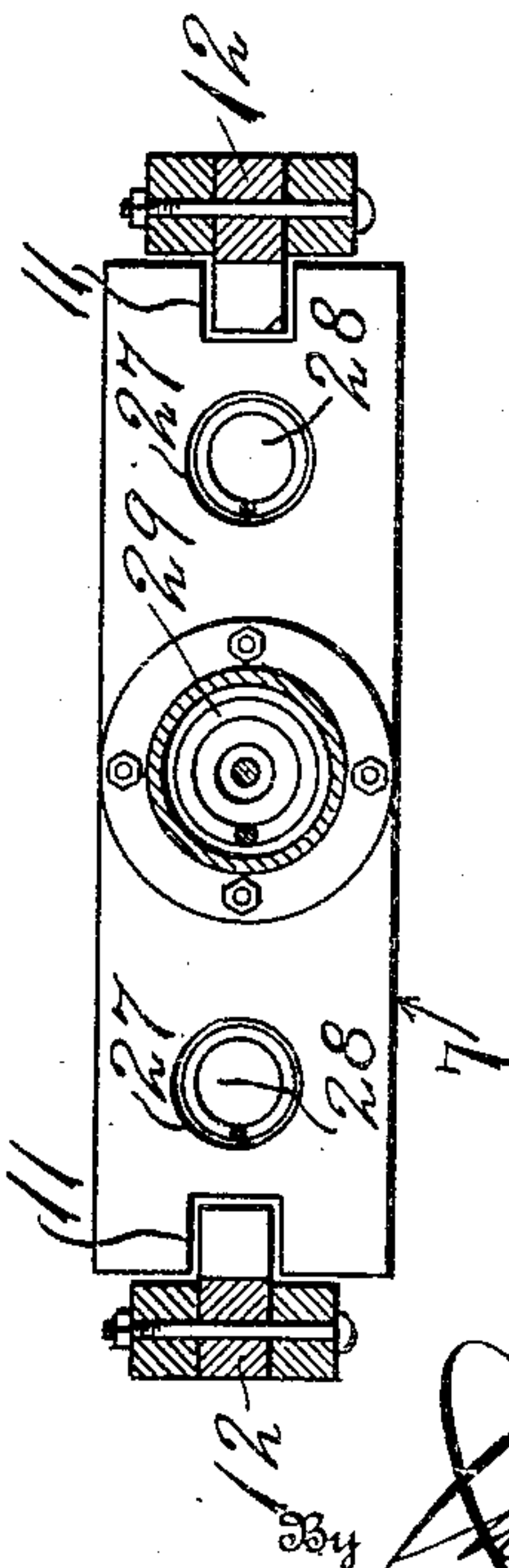
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*Fig. 3.*



Witnesses  
*Jos Gregory.*  
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Inventor  
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Attorney



# UNITED STATES PATENT OFFICE.

ERNEST E. MOULTON, OF CLEVELAND, OHIO.

## SAFETY DEVICE FOR ELEVATORS.

No. 931,211.

Specification of Letters Patent.

Patented Aug. 17, 1909.

Application filed November 27, 1908. Serial No. 464,578.

*To all whom it may concern:*

Be it known that I, ERNEST E. MOULTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga, State of Ohio, have invented certain new and useful Improvements in Safety Devices for Elevators; and I do hereby 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.

The invention relates to safety devices for elevators and more particularly to the class of safety devices to prevent the accidental dropping or descending of the elevator cage upon the breaking of its hoisting cable.

The primary object of the invention is the provision of a safety device for elevators comprising a pair of spring controlled catch members automatically actuated upon the breaking of the lifting cable of the elevator cage to engage stationary racks at opposite sides of the elevator cage to stop or lock the cage to prevent the same from falling or descending in the well or the like.

Another object of the invention is the provision of a safety device for elevators which is simple in its construction, thoroughly efficient in operation and inexpensive in the manufacture.

With these and other objects in view the invention consists in the construction, combination and arrangement of parts as will be hereinafter more fully described and as illustrated in the accompanying drawings which disclose the preferred form of embodiment of the invention. However, it is to be understood that changes, variations and modifications may be made such as come properly within the scope of the claim hereunto appended without departing from the spirit of the invention.

In the drawings: Figure 1 is a vertical section taken through a building provided with a well and its elevator cage with the invention applied thereto and in normal position. Fig. 2 is a similar view with portions of the same broken away. Fig. 3 is a horizontal sectional view on the line 3—3 of Fig. 1. Fig. 4 is a vertical sectional view through the cage with the safety device in its locked position.

Similar reference characters indicate cor-

responding parts throughout the several views in the drawings.

In the drawings the numeral 7 designates generally the elevator cage having a main platform 8, rising from opposite sides thereof are vertical uprights 9 connected at their upper ends by a cross beam 10 and the said uprights 9 are provided with longitudinal guide grooves 11 in their outer faces to engage tongues forming guides 12 projecting inwardly from opposite sides of the well or shaft 13 which is of the ordinary construction.

Depending centrally from the cross beam 10 of the cage and secured thereto is a tube or cylindrical shell 14 the latter containing at diametrically opposite points registering elongated slots 15 in which works a horizontally disposed bar or plate 16 to which latter is connected one end of a hoisting cable 17 the latter passing through a central opening 18 in the cross beam 10 and trained over a pulley 19 journaled at the top of the well or shaft 13. This hoisting cable 17 is also trained over a pulley 20 and has its opposite end connected to a winding drum 21 the latter when actuated adapted to raise the cage 7 in the well or shaft and also to permit its descent.

Supported by pivots 22 in the uprights 9 are locking dogs or catch members 23 which latter are adapted to be moved into engagement with rack teeth 24 formed on the tongues or guides 12 in the well or shaft to prevent the dropping of the cage should the lifting cable become broken. The said catch members 23 are formed with inward extensions 25, the latter having rising therefrom centering lugs 26 to form centering bearings for the lower ends of coiled expansion springs 27 which latter have their opposite ends resting in recesses 28 formed in the under face of the cross beam 10 at the top of the elevator cage and these springs are adapted to automatically move the catch members 23 into a locking position upon the breaking of the lifting cable.

Interposed between the cross beam 10 and the horizontal bar or plate 16 is a coiled main expansion spring 29 one end of which has its bearing against the said bar or plate 16 and the other end bearing against the under face of the cross bar of the elevator



cage. The main expansion spring is mounted within the shell or tube 14 and serves to lower the bar or plate 16 to permit positive movement of the catch members 23 upon the breaking of the hoisting cable.

Adjacent the opening 18 in the cross beam 10 and projecting from the upper face is fixed an eye 30 to which is connected one end of a flexible cable 31 the latter trained over a pulley 32 journaled adjacent the pulley 19 and which cable 31 is also trained over a further pulley 33 and its opposite end is connected to a counter-balance weight 34, which latter approximately weighs eight hundred pounds while the weight of the cage 7 is one thousand pounds thereby making it easy for a single person to operate the elevator.

Normally due to the taut condition of the lifting cable 17 the plate or bar 16 is held in a position to engage the inner extremities of the extensions 25 of the catch members to maintain the expansion springs 27 retracted so as to hold the catch members 23 disengaged from the rack teeth 24 of the guides in the well or shaft. Upon the breaking of the lifting or hoisting cable 17 the main expansion spring 29 will move the bar or plate 16 in an opposite direction to permit the expansion of the springs 27 so as to throw the catch members 23 into locked

engagement with the rack teeth 24 of the guides and thereby prevent the lowering or accidental descent of the cage 7 within the well or shaft.

What is claimed is—

The combination with rack guides, of an elevator cage having vertical uprights, containing longitudinal grooves engaging the rack guides, a cross beam connecting the upper ends of the uprights, a cylindrical shell depending centrally from the cross beam and containing diametrically opposite slots, catch members having inner extensions, pivotally connected to the uprights, tension springs interposed between the extensions and the cross beam, a cross member working in the slots contained in the shell, a hoisting cable connected to the member and adapted to retract the tension springs acting upon the extensions, and expansion means interposed between the cross member and the cross beam and adapted to move the said member upon the breaking of the lifting cable to permit automatic engagement of the catch members with the guide racks.

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

ERNEST E. MOULTON.

Witnesses:

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J. W. DENMAN.