

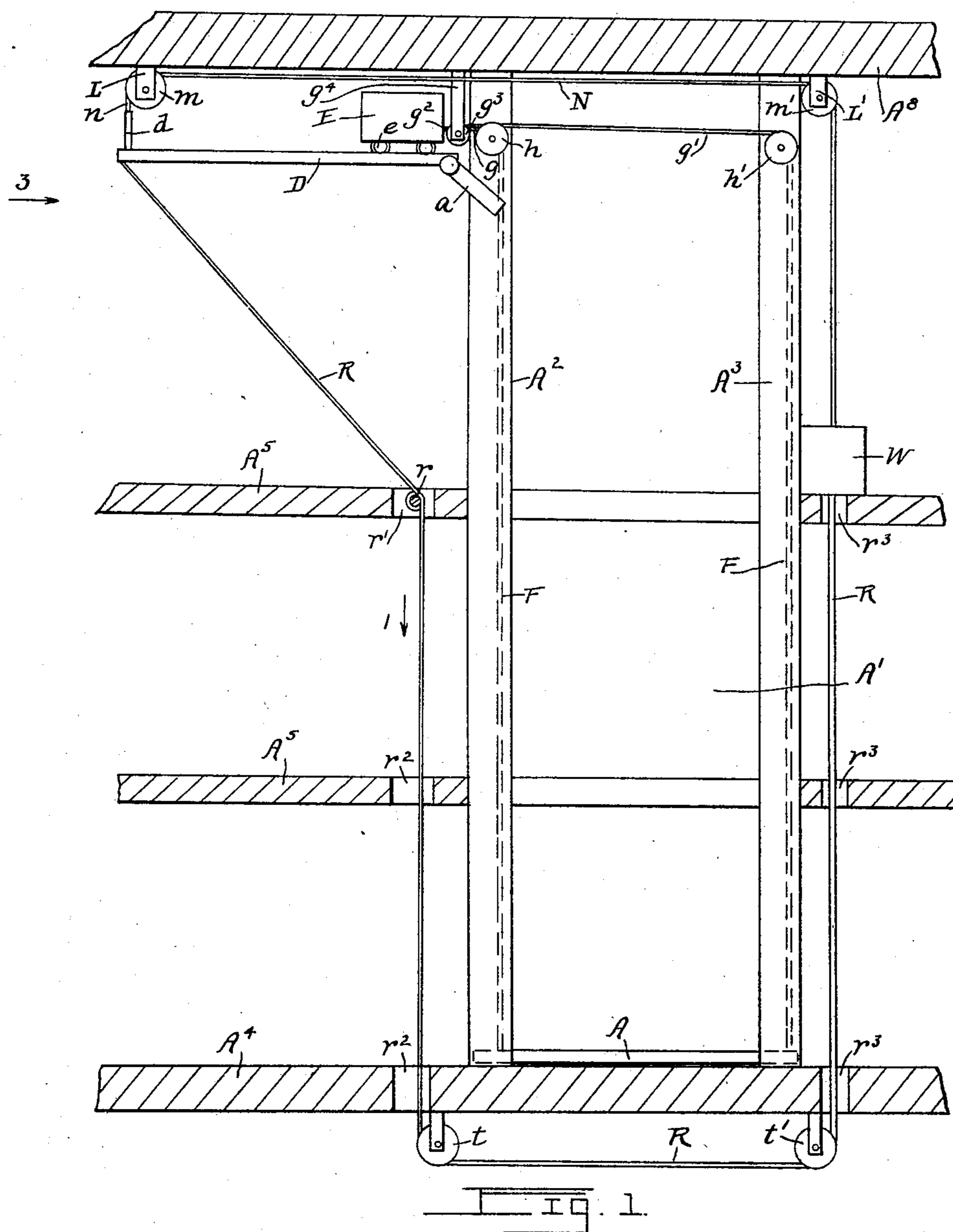
(No Model.)

4 Sheets—Sheet 1.

W. CLINE.  
ELEVATOR.

No. 605,854.

Patented June 21, 1898.



Witnesses:  
H. M. Hall.  
C. G. Baesler

Inventor.  
William Cline.  
By Attorney  
Wm. R. Genhard

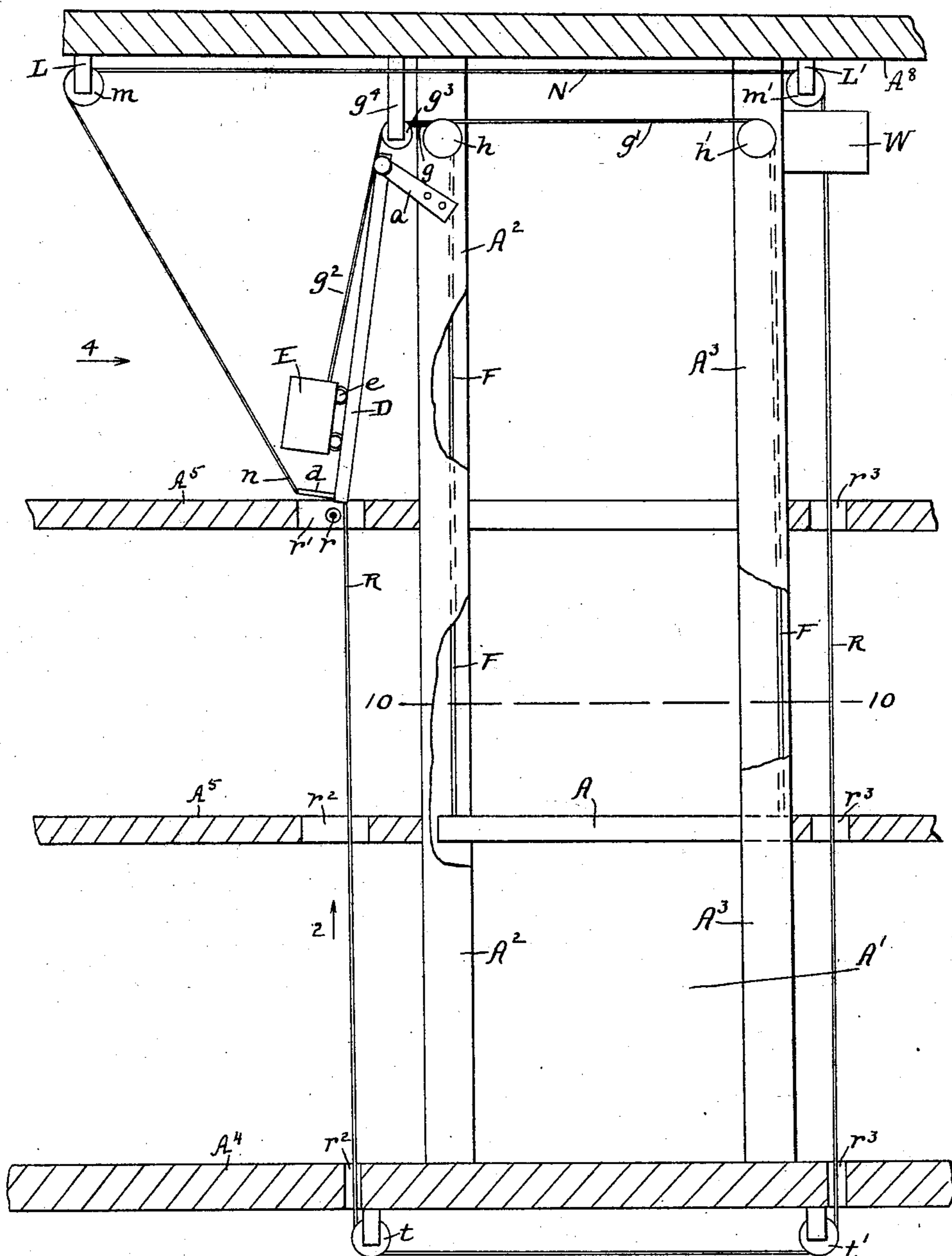
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W. CLINE.  
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Witnesses:  
 W. M. Hall.  
 C. G. Baseler

Inventor.  
William Cline.  
By Attorney  
Wm. R. Gerhardt

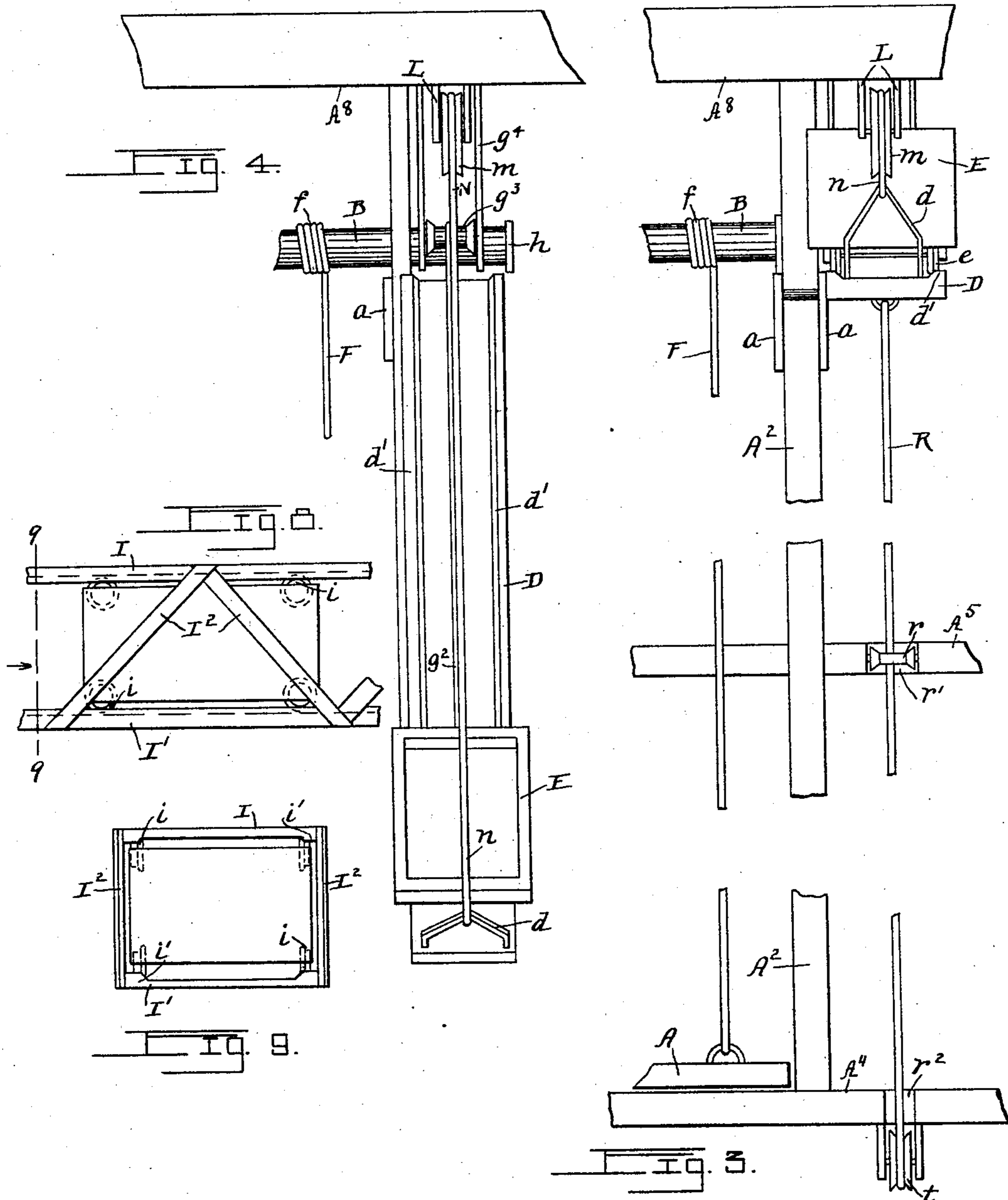
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Witnesses:

W. M. Hall.

C. G. Bassler.

Inventor.

William Cline.

By Attorney

Wm. R. Gerhart

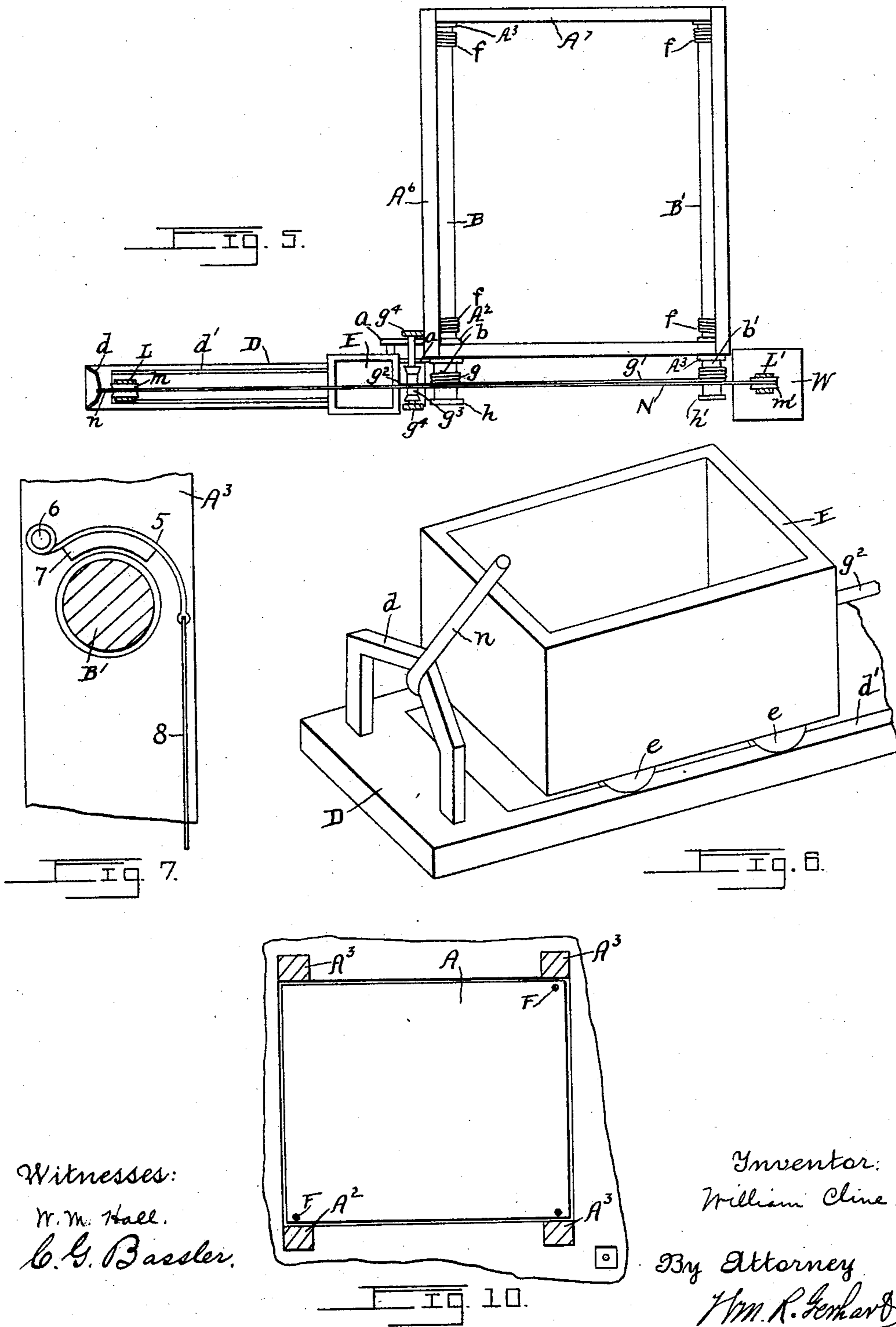
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Patented June 21, 1898.



Witnesses:  
W. M. Hall.  
C. G. Bassler.

Inventor:  
William Cline.

By Attorney  
Wm. R. Gernhard

# UNITED STATES PATENT OFFICE.

WILLIAM CLINE, OF LANCASTER, PENNSYLVANIA, ASSIGNOR TO DANIEL D. GOOD, JOHN J. STEWART, AND JOSEPH SONDHEIMER, OF SAME PLACE.

## ELEVATOR.

SPECIFICATION forming part of Letters Patent No. 605,854, dated June 21, 1898.

Application filed August 19, 1896. Serial No. 603,213. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM CLINE, a citizen of the United States, residing at Lancaster, in the county of Lancaster and State of Pennsylvania, have invented certain Improvements in Elevators, of which the following is a specification.

This invention relates to improvements in that class of elevators in which the car or platform is elevated through the action of a counterpoise-weight; and the objects of the improvements are, first, to raise a car or platform by means of a weight traveling down a hinged track or lever, and, second, to return the traveling weight to its normal position by means of a counterweight, thereby permitting the car or platform to sink to its lower position.

The invention consists in the construction and combination of the various parts, as hereinafter fully described, and then pointed out in the claims.

In the accompanying drawings, forming a part of this specification, Figure 1 is a sectional elevation of a building to which is applied an elevator embodying my invention. Fig. 2 is a similar view, but showing the parts in the position occupied thereby when the car or platform is raised. Fig. 3 is a view of the elevator from the direction of arrow 3, Fig. 1; Fig. 4, a similar view from the direction of arrow 4, Fig. 2; and Fig. 5, a top plan of the elevator. Fig. 6 is an enlarged perspective view of the traveler or weight-carriage for elevating the platform. Fig. 7 is a side view of the brake employed by me. Fig. 8 is a side view of a modified construction of the traveler, and Fig. 9 a vertical section on broken line 9 9 of Fig. 8. Fig. 10 is a horizontal section through broken line 10 10 of Fig. 2.

Similar letters indicate like parts throughout the several views.

Referring to the details of the drawings, A indicates an elevator-platform located in well A' and having its edges within the post A<sup>2</sup> A<sup>3</sup>.

A<sup>4</sup> is the ground floor of a building. A<sup>5</sup> indicates the upper floors, up through which extends the well A', the posts A<sup>2</sup> A<sup>3</sup> constituting the frame for the elevator.

A<sup>6</sup> A<sup>7</sup> are the transverse braces of posts A<sup>2</sup>, and A<sup>8</sup> is the ceiling of the upper story.

Parallel with and below transverse braces A<sup>6</sup> are drums B and B', journaled in bearings in posts A<sup>2</sup> A<sup>3</sup>, the drums extending outside of the posts on one side of the frame, as shown at b and b'. On opposite sides of post A<sup>2</sup>, adjacent to and below the outward extension of drum B, are upwardly and outwardly extending arms a, to which is hinged the inner end of a track or lever D, having on its outer end a loop d. On the lever D is mounted a weighted traveler E, having flanged wheels e, that engage rails d', formed by the side bars of said lever D.

To each corner of elevator-platform A is a lift-rope F. The upper ends f of two of these ropes are attached to each of the drums B and B' and are adapted to be wound around the same to elevate said platform A. Around the outward extensions b and b' of the drums B and B', respectively, are wound ropes g and g', the united ends g<sup>2</sup> of which ropes are secured to traveler E. Between drum B and the track-lever D united ropes g and g' pass over a sheave g<sup>3</sup>, journaled in hangers g<sup>4</sup>, depending from the ceiling. The ropes g and g' are prevented from working off of the ends of said extensions by rims h and h', respectively. In each pair of hangers L and L' depending from the ceiling A<sup>8</sup>—one pair located over the outer end of the track-lever and the other pair over openings in the floors—are journaled sheaves m and m'. Over these sheaves m and m' passes a rope N, one end, n, of which is attached to loop d of lever D and the other end to a weight W, located in the upper story of the building. To the outer end of the track-lever D is also attached a hand-rope R, which is carried downward toward post A<sup>2</sup> and over a sheave r in an opening r' in the upper floor A<sup>5</sup>, through a similar opening r<sup>2</sup> in each of the lower floors, around a sheave t, journaled in hangers beneath the opening in ground floor A<sup>4</sup>, and then around a similar sheave t' in hangers beneath openings r<sup>3</sup> in the floors on the side of the elevator opposite that on which the openings r' and r<sup>2</sup> are located. Thence the rope R is carried up through openings r<sup>3</sup> and attached to the lower part of weight W.

In operating, the car or platform being in its lowered position, strain is exerted on hand-

rope R in the direction of arrow 1, Fig. 1, to depress the outer end of lever D. As said outer end of lever D descends, the traveler E moves down the same, turning drums B and B' through ropes *g* and *g'*, so as to wind up lift-ropes F, whereby the platform A is raised. With the depression of the outer end of track D the weight W is raised through rope N. To lower platform A, the movement of rope R is reversed, as shown by arrow 2, Fig. 2, strain being exerted to pull down weight W, whereby the outer end of track D is raised, loosening ropes *g* *g'* and permitting lift-ropes F to unwind from drums B B' under the strain of platform A. It is to be understood that traveler E is loaded sufficiently to lift the loaded platform. After the impulse first given to lever D by the strain exerted on hand-rope R the movement of said lever is automatically continued by the action of traveler E, as will readily be understood.

In Fig. 7 is represented a brake which may be attached to any portion of the frame and in position to be applied to either one or both of the drums B B'. This brake comprises a curved spring-arm 5, pivoted at 6 and having a shoe 7 thereon. The shoe is curved to embrace a portion of the drum against which it is pressed, the vibrating end of the spring being drawn toward the drum to apply the shoe thereto by a hand-rope 8.

In Figs. 8 and 9 is shown a modification in the construction of the lever and the weighted traveler. In this construction the lever is formed of an upper and a lower plate I I', respectively. These plates are suitably connected at their ends, and they are secured in their relative positions by diagonal braces I<sup>2</sup>. The traveler is provided with flanged wheels *i* both above and below, which engage rails *i'*, formed on the edges of said plates I I'. The action of this lever and of the traveler thereon is similar to that of the lever and the traveler first described.

The apparatus as shown in the drawings is designed for raising the platform only one story; but the same principle is equally applicable to greater elevations.

I do not limit myself to any particular arrangement of the sheaves and drums; neither do I restrict myself to the manner of connecting the various parts herein shown and described, as it is obvious that many changes may be made in the details of the construction without departing from the spirit and scope of my invention.

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

1. The combination, in an elevator, of a lever, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between the elevator platform or car and the traveler,

whereby said platform or car is raised by lowering the free end of the lever.

2. The combination, in an elevator, of a lever, a traveler on the lever, a connection between the elevator platform or car and the traveler, whereby said platform or car is raised by lowering the free end of the lever, a counterpoise-weight connected with said end of the lever, and a hand-rope connecting said weight and said free end of the lever, substantially as and for the purpose specified.

3. The combination, in an elevator, of an elevator platform or car, a drum located above the platform or car, lift-ropes connecting the drum and the elevator platform or car, a lever hinged at one end, a traveler on said lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between the drum and the traveler, whereby said platform or car is raised by lowering the free end of the lever.

4. The combination, in an elevator, of an elevator platform or car, parallel drums located above said platform or car, lift-ropes connecting the platform or car and said drums, a lever hinged at the ends adjacent to the drums, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and connections between the drums and the traveler, whereby said platform or car is raised by lowering the free end of the lever.

5. The combination, in an elevator, of an elevator platform or car, parallel drums located above opposite sides of said platform or car, lift-ropes connecting the sides of the platform or car with the drums above said sides, a lever hinged at the end adjacent to the drums, a traveler on the lever, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, a sheave located adjacent to the hinged end of the lever, ropes connecting the drums and the traveler and passing over said sheave, and means for raising and lowering the free end of the lever, for the purpose specified.

6. The combination, in an elevator, of an elevator platform or car, a drum located above said platform or car, lift-ropes connecting the elevator platform or car and the drum, a lever hinged at the end adjacent to the drum, a traveler on the lever and having a connection with the drum, whereby said platform or car is raised by lowering the free end of the lever, a counterpoise-weight, a rope passing above the lever and connecting the free end thereof with said weight, and a hand-rope passing below the lever and connecting said free end with the counterpoise-weight, substantially as and for the purpose specified.

7. The combination, in an elevator, of an elevator platform or car, drums located above

opposite sides of the platform or car, lift-ropes connecting the sides of said platform or car with the drums above the same, a lever hinged at the end adjacent to said drums, a traveler 5 on the lever, connections between the drums and the traveler, whereby said car or platform is raised by lowering the free end of the lever, a rope passing over sheaves above the lever and connecting the free end thereof and a 10 counterpoise-weight, and a hand-rope passing around sheaves beneath the lever and said free end of the lever and the counterpoise-weight, substantially as and for the purpose specified.

15 8. The combination, in an elevator, of an elevator platform or car, a drum located over

the platform or car, lift-ropes connecting the drum and said platform or car, a lever comprising two parallel members having rails lengthwise thereof, a traveler between said 20 parallel members and having wheels engaging said rails, the lever being free to move under the weight of the traveler after a downward impulse is given the free end of said lever, and a connection between said drum and the 25 traveler, whereby the platform or car is raised by lowering the free end of the lever.

WM. CLINE.

Witnesses:

C. G. BASSLER,

WM. R. GERHART.