

A. J. DAWE.
AUTOMATIC SAFETY STOP FOR ELEVATORS.
APPLICATION FILED APR. 11, 1907.

927,500.

Patented July 13, 1909.

2 SHEETS—SHEET 1.

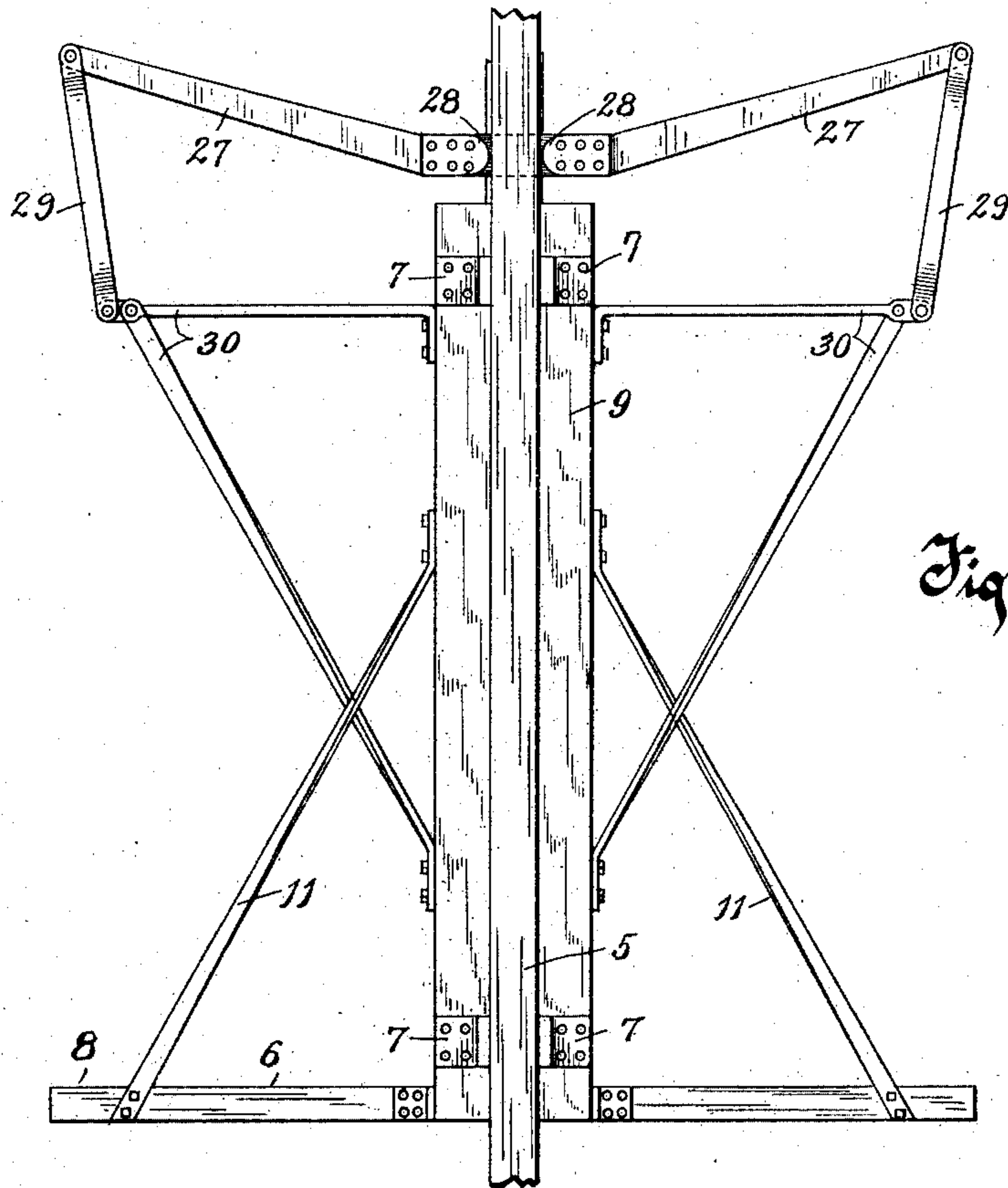


Fig. 1.

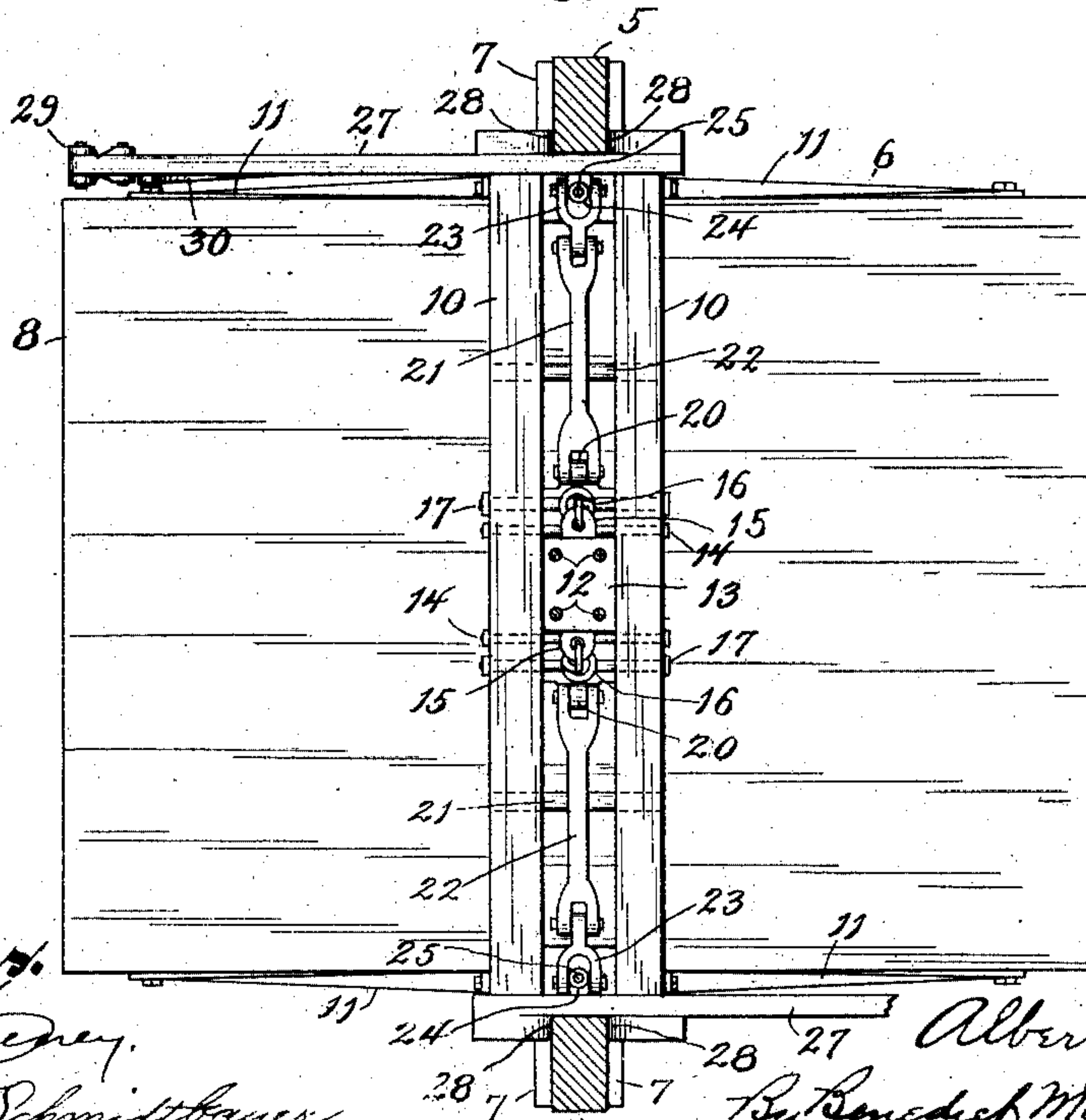


Fig. 2.

Witnesses.

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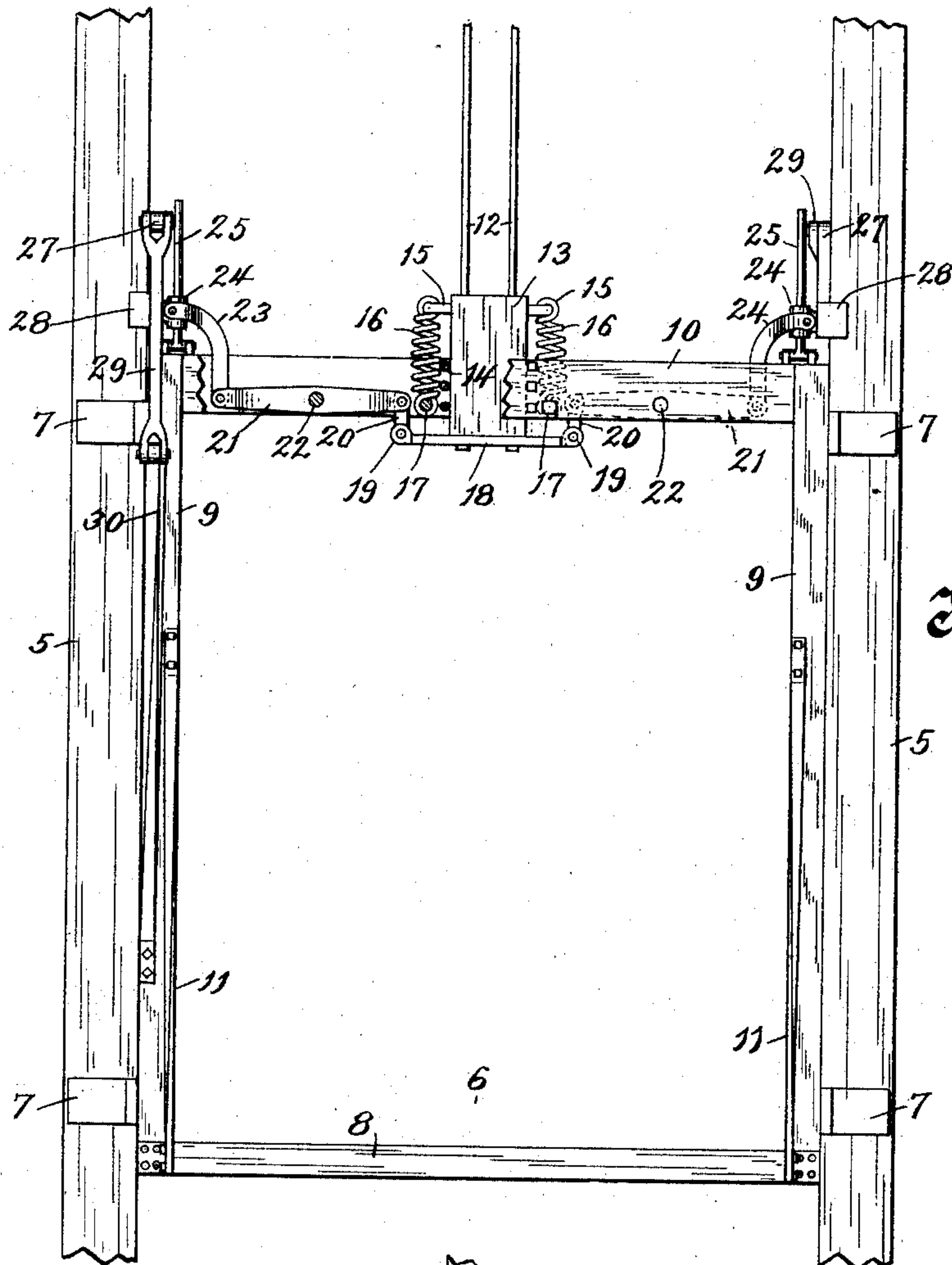
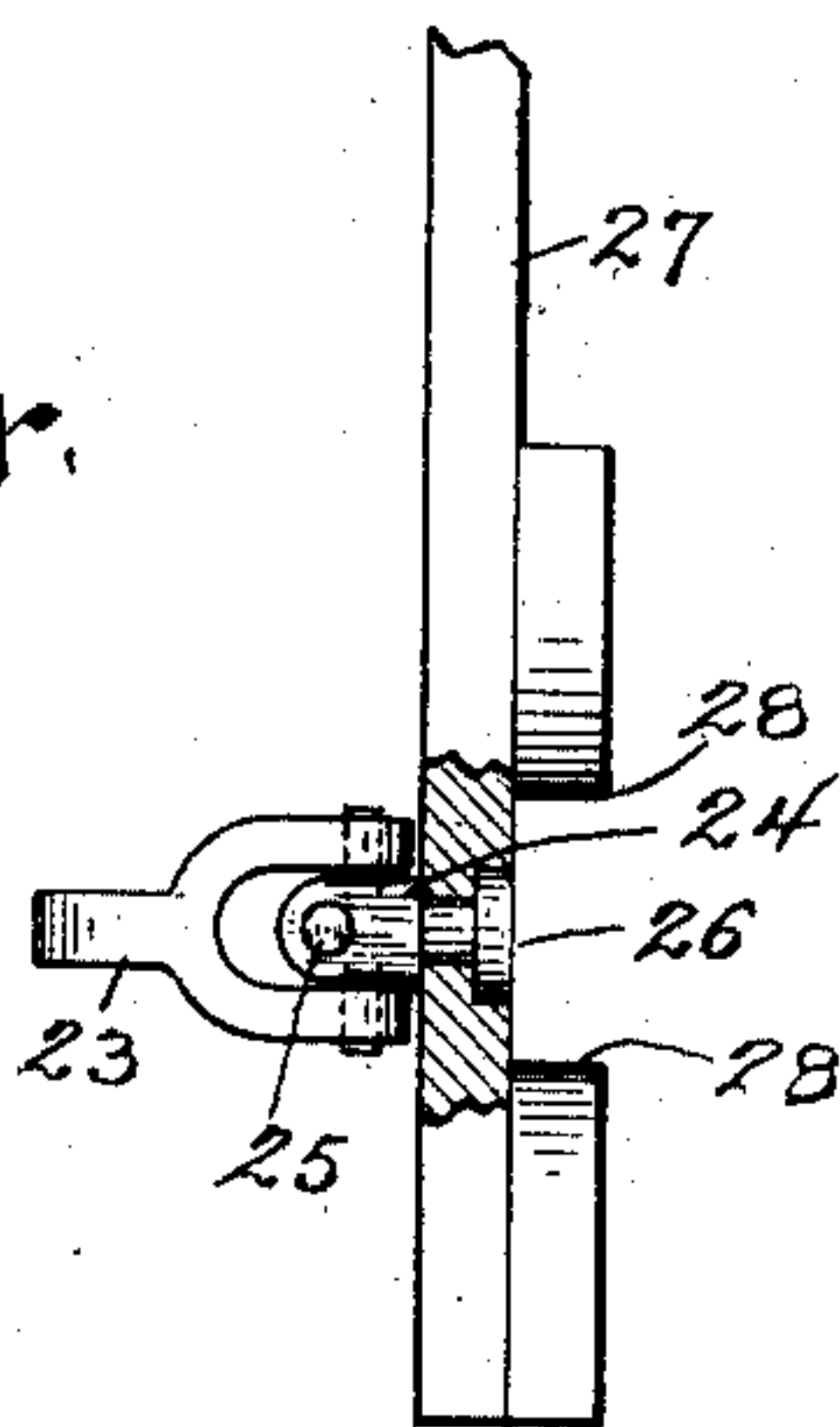


Fig. 3.

Fig. 2.



Witnesses.

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UNITED STATES PATENT OFFICE.

ALBERT J. DAWE, OF MILWAUKEE, WISCONSIN.

AUTOMATIC SAFETY-STOP FOR ELEVATORS.

No. 927,500.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed April 11, 1907. Serial No. 367,516.

To all whom it may concern:

Be it known that I, ALBERT J. DAWE, residing in Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented new and useful Improvements in Automatic Safety-Stops for Elevators, of which the following is a description, reference being had to the accompanying drawings, which are a part of this specification.

This invention has relation to improvements in automatic stop mechanism for elevators.

The object is to provide simple and improved mechanism whereby, if, through any cause, the cables should break the device will automatically clutch the ways or guides and prevent the elevator car from dropping and thereby prevent possible loss of life and damage to the cage.

With the above object, and others, in view, the invention consists of the devices and parts, or their equivalents, as hereinafter more fully set forth.

Similar numerals of reference indicate similar parts in all the figures.

In the accompanying drawings, Figure 1 is a side view of my invention shown in connection with a freight elevator car, a portion of the ways or guides also being shown; Fig. 2 is a plan view of the parts shown in Fig. 1, the ways being in section; Fig. 3 is a front elevation, parts being broken away to show interior construction; and Fig. 4 is a detail view on a larger scale of one of the clutch members and its pivotal support, a part broken away.

Referring to the drawings, the numerals 5, 5, indicate portions of the elevator ways or guides, and 6 is a freight car.

7 7 indicate shoes attached to the car and bearing on the ways or guides 5, 5, and are adapted to guide the car in its travel up and down the elevator shaft in the usual manner. The car as shown consists of a platform 8, vertical uprights 9, 9 and two horizontal cross beams 10, 10 connecting the tops of the uprights 9, 9. The platform is braced to the uprights by ordinary brace straps 11, 11.

12 represents the raising and lowering cables which are securely fastened to a block 13 positioned between the horizontal cross beams 10, 10, and between said beams it is adapted to have a slight vertical movement.

Bolts 14, 14 tend to hold the beams from spreading apart and also to act as a guide for the block 13 to play therebetween. The upper part of the block 13 is provided with two lugs 15, 15 one on each side, and each lug having an eye. To these lugs are connected the upper ends of coiled springs 16, 16, the lower ends of which are connected to the horizontal cross beams by means of bolts 17, 17 extending across from one beam to the other, the lower portion of the springs being disposed between the said beams. It will thus be seen that the entire weight of the car and its load is carried by the springs and thence to the block 13 and to the cables which tends to keep the springs expanded or stretched.

To the lower part of the block 13 is attached a plate 18 provided with eyes 19, 19 on each end thereof and to the eyes are connected short links 20, 20 which are in turn connected to centrally pivoted levers 21, 21, pivoted by means of pivot pins 22, 22 extending through the cross beams 10, 10. To the opposite ends of these levers are connected curved links 23, 23, the upper ends of which are pivotally connected to sliding blocks 24, 24 which slide on rods 25, 25, said rods being pivotally connected at their lower ends to the tops of the uprights 9, 9 to prevent binding. The blocks 24, 24 are provided with headed studs 26, 26 extending outwardly horizontally therefrom, and to each stud is pivotally connected a clutch member 27. The said clutch members bear against the inner faces of the guides or ways of the elevator shaft and are each provided with rounded clutching jaws 28, 28 which may be serrated if desired, extending outwardly therefrom and are adapted and positioned to engage and grip the sides of the ways or guides when the said members are tilted slightly from the position shown in the drawings. The clutch members at their opposite ends are connected to links 29, 29 the lower ends of which are pivoted to brackets 30, 30 extending forwardly and rearwardly from the uprights 9, 9, the bracket to right, looking at Fig. 3, extending rearwardly, and the bracket to the left extending forwardly, and the clutch members are likewise extended, the one to the right extending rearwardly to connect with the

link disposed upwardly from this bracket, and the one to the left extending forwardly to connect with link disposed upwardly from the bracket upon this side of the upright.

5 By connecting up the clutch members in the manner above described, the car would, in case the cables were accidentally broken and the clutches would engage the guides to prevent the car from falling, be supported
10 both front and rear, thereby equalizing the strain upon the car.

The operation of the invention is as follows: Under normal conditions the weight of the car and its load will stretch or ex-
15 pand the coiled springs so that the levers, links and clutch members will be positioned as shown in the drawings, and in this position the clutch jaws will freely slide up and down the guides or ways without clutching
20 or binding the same, but if the cables were to break or slip in any manner so that the springs would be relieved of the weight of the car, they would immediately contract, pulling the block 13 and the links 20 down-
25 wardly. This movement would cause the inner ends of the levers 21, 21 to swing downward and the outer ends upward. The curved links 23, 23 and the connected sliding blocks 24, 24 would also be lifted up-
30 wardly. This movement will raise the clutch members 27, 27, and as the outer ends of the clutch members are pivoted to the links 29, 29, and stationary brackets 30, 30 can have no vertical movement, they will be
35 caused to tilt and the jaws will grip or bite the sides or ways and prevent the car from falling. The construction is such that in case of an accident, the greater the load on the car, the greater will be the clutching or
40 biting effect, as the entire weight of the car and its load will be borne by the links 29, 29 and the clutching members, and the greater the weight put upon the outer ends of these clutching members, the more the jaws will
45 bite into the sides of the ways. The car will be held in the position as described above until the damage has been repaired and the springs again placed under sufficient tension to move the different parts to their normal
50 position as shown in the drawings.

Without limiting myself to the exact construction as shown and described, I claim—

1. An automatic safety elevator, comprising an elevator car, guides or ways for said
55 car, a clutch member connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a block connected to said means, a lever connected to said block, a slide pivotally connected to
60 said car, a sliding block pivotally connected to said lever and slidably connected to said slide, and other means interposed between the block and the clutch member to cause it to clutch one of the guides or ways.

2. An automatic safety elevator, comprising an elevator car, guides or ways for said
65 car, clutch members connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a movable block connected to said means, levers con-
70 nected to said movable block, slidable blocks mounted on the car links connected to the levers and sliding blocks, slides provided for said sliding blocks, and other means inter-
75 posed between the movable block and the clutch members to cause them to clutch the guides or ways on both sides of each guide or way.

3. An automatic safety elevator, comprising an elevator car, guides or ways for said
80 car, clutch members connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a movable block connected to said means, levers con-
85 nected to said movable block, slidable blocks mounted on the car links connected to the levers and sliding blocks, slide rods for said sliding blocks, and other means interposed between the movable block and the clutch
90 members to cause them to clutch the guides or ways.

4. An automatic safety elevator, comprising an elevator car, guides or ways for said
95 car, clutch members connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a movable block connected to said means, levers con-
100 nected to said movable block, slidable blocks mounted on the car links connected to the levers and sliding blocks, pivoted slide rods for said sliding blocks, and other means inter-
posed between the movable block and the clutch members to cause them to clutch the guides or ways.

5. An automatic safety elevator, comprising an elevator car, guides or ways for said
105 car, clutch members connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a movable block connected to said means, springs con-
110 nected to said movable block and the car and by means of which the car is supported, levers pivoted to the car and connected to said movable block, links connected to the
115 levers, sliding blocks connected to the links and to the clutch members, pivoted slides for said sliding blocks, and clutch jaws on the clutch members adapted to clutch the guides or ways when the springs are relieved of the
120 weight of the car.

6. An automatic safety elevator, comprising an elevator car, guides or ways for said
125 car, clutch members connected to said car and adjacent to said guides or ways, means for raising and lowering said car, a movable block connected to said means, springs con-
nected to said movable block and the car and by means of which the car is supported,

levers pivoted to the car and connected to
said movable block, links connected to the
levers, sliding blocks connected to the links
and pivotally connected to the clutch mem-
bers, pivoted slide rods for said sliding
5 blocks, links connected to the clutch mem-
bers and the car, and clutch jaws on the
clutch members adapted to clutch the guides

or ways when the springs are relieved of the
weight of the car.

In testimony whereof, I affix my signa-
ture, in presence of two witnesses.

10

ALBERT J. DAWE.

Witnesses:

C. H. KEENEY,
ANNA F. SCHMIDTBAUER.