

R. SCOTT.

GATE.

APPLICATION FILED OCT. 28, 1908.

Patented Apr. 6, 1909.

2 SHEETS—SHEET 1.

917,496.

Fig. 1.

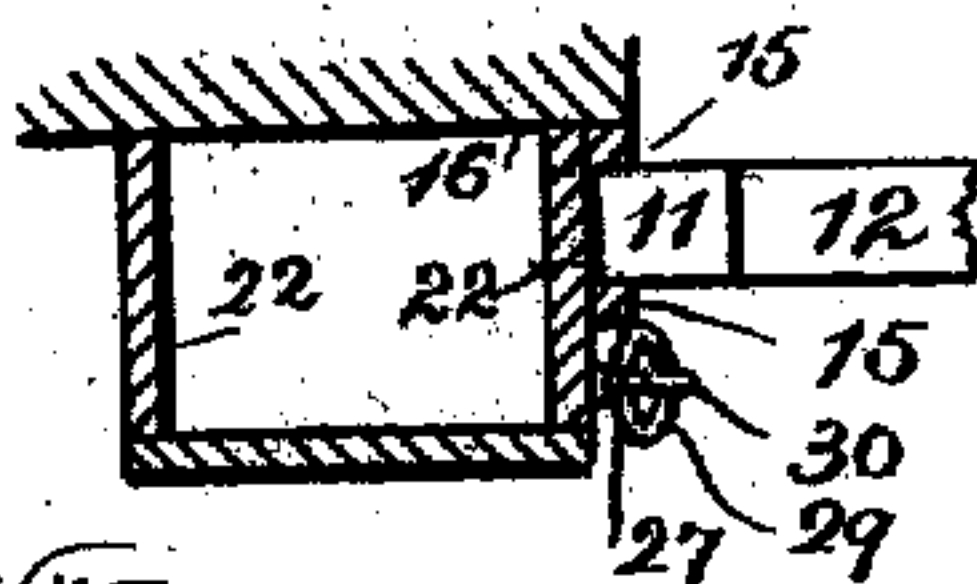
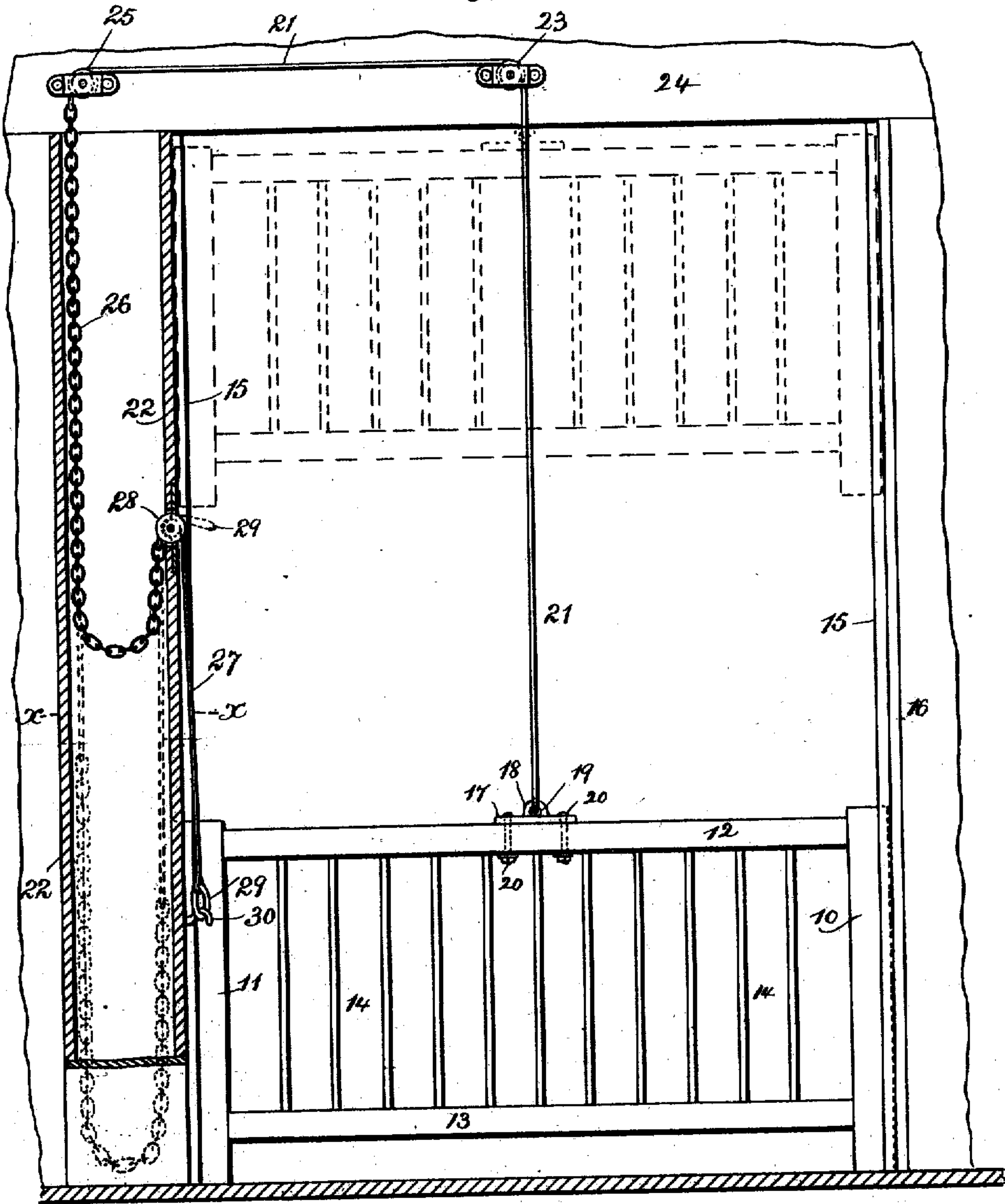


Fig. 2

Witnesses  
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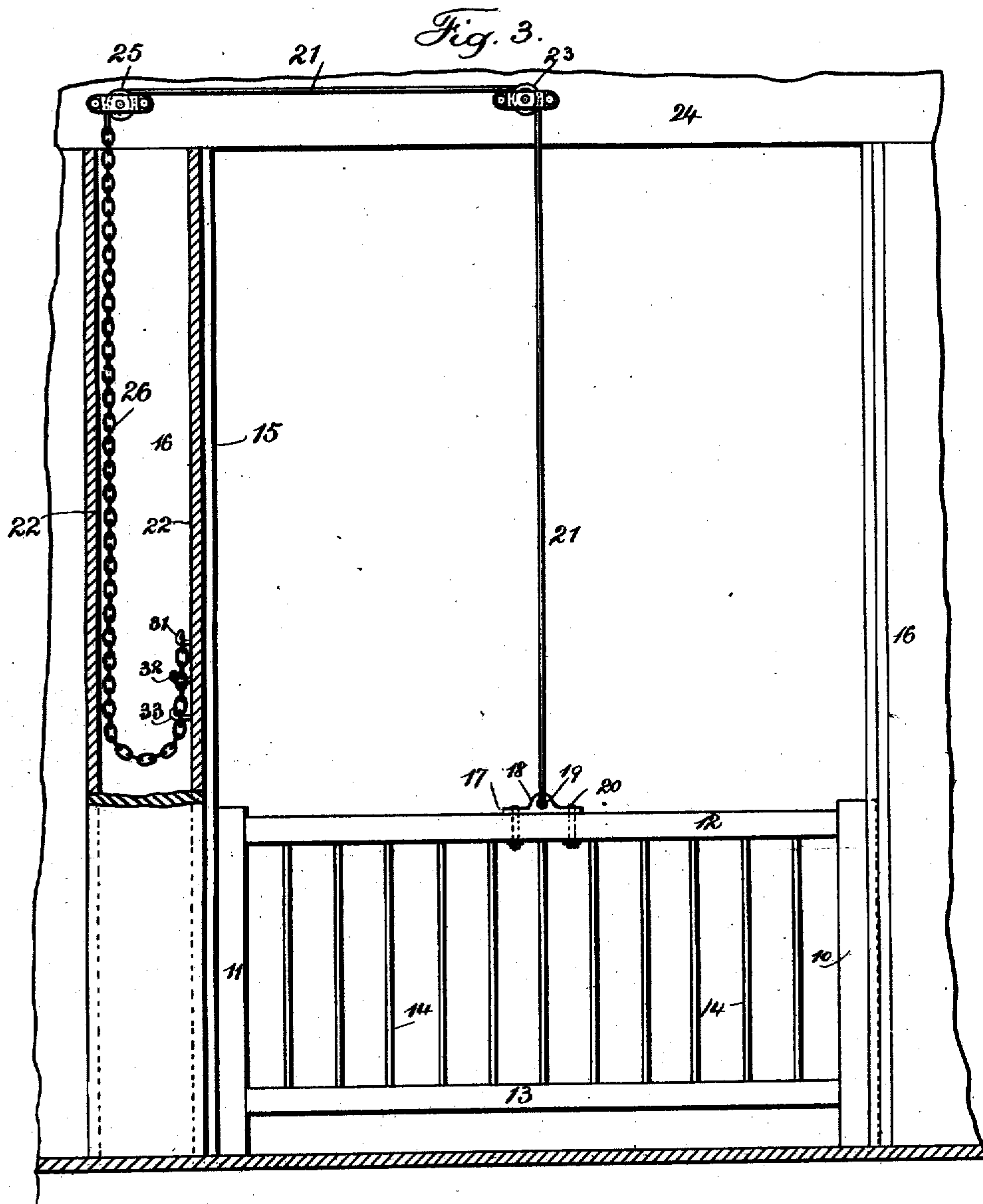
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2 SHEETS—SHEET 2.



Witnesses

Chas. H. Smith  
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# UNITED STATES PATENT OFFICE.

ROBERT SCOTT, OF NEW YORK, N. Y.

## GATE.

No. 917,496

Specification of Letters Patent.

Patented April 6, 1909.

Application filed October 26, 1908. Serial No. 459,490.

*To all whom it may concern:*

Be it known that I, ROBERT SCOTT, a citizen of the United States, residing in the borough of Brooklyn, county of Kings, city and State of New York, have invented an Improvement in Gates, of which the following is a specification.

My invention relates to gates and particularly the vertically movable gates employed to close the openings in freight elevator shafts in buildings.

I am aware that heretofore gates of the class to which my invention relates, have been maintained in position by catches or other similar devices adapted to be tripped by the elevator in its upward movement, the gate being provided with counterweights so as to be self-closing when released, and also gates of this description have been fitted with means whereby the elevator in its upward movement raises the gate, which is returned to its closed position by gravity. In both these instances however, the gates have either been raised and caused to stop with considerable impact or have been dropped and stopped with considerable impact.

The object of my present invention is to provide a vertically moving gate with means for checking and stopping the same in either or both its upward and downward movements so that there is no resultant impact and consequently no shock and jar which inevitably weaken the gate and which may eventually wreck the same.

In carrying out my invention I employ a gate and guide or slide ways in the side jambs in which the gate is adapted to operate, together with an automatically variable means adapted to maintain the gate normally in position and to check the momentum of the same toward the end of its travel and to stop the gate in its final position after having reached the end of its travel, as will be hereinafter more particularly described.

In the drawing, Figure 1 is a front elevation and partial section illustrating my present invention and showing the gate and operating parts both in a closed and lowered position, and the raised and opened position. Fig. 2 is a sectional plan on line *x, x*, Fig. 1, and Fig. 3 is a front elevation and partial section illustrating a modified form of the invention.

Referring to the drawing, I employ a gate which may be constructed with the side upright members 10 and 11 and the horizontal

cross pieces 12 and 13 respectively, together with series of bars or slats 14 extending between the cross members 12 and 13, it being understood that this construction of gate is employed solely for the purpose of illustration and that my invention is adapted for use with any gate structure.

The gate is adapted to operate in slideways 15 secured on the side jambs 16 provided for the door opening in the elevator shaft or in any other place where a vertically moving gate is employed, it being understood that when the gate is in its lower position, as shown in full lines in Fig. 1,—the gate is in what will hereinafter be called its closed position, and when raised as shown in dotted lines Fig. 1, it will be in what is hereinafter termed its open position. The upper cross bar 12 of the gate is preferably provided with a plate 17 having a lug 18 thereon in which is an eye 19, the said parts being secured to the cross bar 12 by means of bolts 20 or otherwise, and 21 designates a cord or rope, one end of which is suitably secured in the said eye 19.

22 represents the sides of the box casing employed in conjunction with one of the side jambs 16, and 23 a pulley preferably placed centrally on the upper cross jamb 24, and 25 a pulley also placed on the jamb 24 above the said box casing, the sides of which are indicated at 22.

26 represents a counterweight chain, one end of which is secured to the opposite end of the rope 21 after the latter has been passed over the pulleys 23 and 25, the said chain 26 being adapted to operate in the said box casing. The opposite end of the chain 26 is connected to a cord 27 which passes over a pulley 28 secured in position in one of the sides 22 of the box casing, and the opposite end of the cord 27 is fixed to a ring 29 which normally is in engagement with a hook indicated at 30 and also secured in a side 22 of the box casing.

Now in the hereinbefore described chain counter weight structure, the parts are normally in position with the gate closed as indicated in full lines in Fig. 1. The long end of the chain 26 is on the left hand side of the box casing but is insufficient to overcome the friction of the sliding parts of the gate to raise the same. Now it will be apparent that upon moving the ring 29 from the hook 30 and releasing the same so that the rope 27 will run over the pulley 28, the entire weight



of the chain 26 will be brought into play and is sufficient to overcome the said friction and raise the gate. In this position as will also be apparent, the ring 29 is stopped at the pulley 28 as is indicated in dotted lines Fig. 1, so that there is a considerable portion of the chain on the right hand side of the loop in the box casing which is carried by the said ring 29, and as the gate rises, this portion of the chain increases and the length of the left hand side of the chain is constantly decreasing, so that the counterweight effect of the said chain is also decreasing and the parts are so arranged that this checking of the upward movement of the gate is constantly increasing and that when the gate reaches its uppermost position, the left hand or effective counterweight portion of the chain is,—after the gate has stopped,—sufficient to maintain the same in its open position. Now upon drawing out the rope 27 and placing the ring 29 again on the hook 30, the weight of the gate will overbalance the remaining portion of the chain on the left hand side and consequently the gate will start to descend. In the descent of the gate the chain acts as the same automatically varying counterweight to check the momentum and decrease the speed and to finally stop the gate in its closed position when the parts become counterbalanced, the weight increasing and becoming more effective as the gate ascends.

Referring to Fig. 3, I may without departing from the nature and spirit of my invention, so arrange the automatically varying counterweight chain with the gate which is adapted to be raised by the elevator, that the gate in its downward movement will be checked and stopped in its closed position, and to accomplish this, instead of employing the pulley and guide together with the ring and hook hereinbefore described, I may connect the free end of the chain to either one of the hooks indicated at 31, 32, 33, respectively secured in the inner surface of the sides 22 of the box casing.

As illustrated in Fig. 3, the end of the chain is connected to the hook 31, in which position it has been adjusted to stop at exactly the end of its travel, and as will be apparent, if for any reason it is desirable to have the gate come to a stop before reaching the extreme of its downward travel, the free end of the chain may be connected to either hook 32 or 33, it being understood that the position the chain 26 assumes when the gate

stops is that illustrated in Fig. 3, and that by placing the free end of the chain on either one or the other of the hooks, the gate will stop before reaching the end of its downward travel, because obviously this position of the chain will be assumed before the gate reaches the end of its travel. It will also be understood that while I have described my invention as particularly applicable to gates employed in freight elevator shafts, it is equally adapted for use in any place where a vertically movable gate is employed.

I claim as my invention:

1. The combination with a vertically slidable gate, of a chain, means connecting one end of the chain with the gate and means for adjustably positioning and holding the other and free end of the chain for varying the effective available weight of the chain for holding the gate in either its closed or open position.

2. The combination with a vertically slidable gate, of a chain, means connecting one end of the chain with the gate and means connected with the other and free end of the chain for adjustably positioning the same for varying the effective available weight of the chain, for moving the gate in either direction for checking the same toward the end of its movement and for holding the gate in either its closed or open position.

3. In combination with the gate, slide-ways in which the same operates, of a box casing, a chain within the same, a rope connected at one end to the said gate and at the other end to one end of the said chain, pulleys over which the said rope passes, a rope connected to the opposite end of the said chain, a pulley in the wall of the said box casing over which the last aforesaid rope passes, a ring connected to the other end of the last aforesaid rope and a hook with which the said ring is adapted to engage, the parts being so arranged that upon the release of the said ring, the said chain will raise and maintain the gate in position, checking and stopping the same therein and upon return of the ring to the said hook, the said gate will return to its closed position, being automatically checked and stopped therein.

Signed by me this 23d day of October, 1908.

ROBERT SCOTT.

Witnesses:

GEORGE T. PINCKNEY,  
BERTHA M. ALLEN.